

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft Actuator Solenoid Circuit Open – Bank 1	P0010	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft System Performance – Bank 1	P0011	Detects a VVT system error by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Intake cam Bank 1) Cam Position Error > (P0011_CamPosErrorLimlc1) deg	System Voltage Engine Running Power Take Off (PTO) active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: IntakeVVT_Enabled	> 11.00 Volts = TRUE = FALSE > 0 deg > (P0011_CamPosErrorLimlc1) deg AND < (P0011_PerfMaxlc1) deg < 4.50 Deg for (P0011_P05CC_StablePositionTimeIc1) sec P0010 P2088 P2089 = TRUE (Reference Supporting Tables: P0011_P0021_P05CC_P05CD_HiEngSpdHiDsblIc P0011_P0021_P05CC_P05CD_HiEngSpdLoEnblIc P0011_P0021_P05CC_P05CD_LoRpmHiEnblIc P0011_P0021_P05CC_P05CD_LoRpmLoDsblIc P0011_P0021_P05CC_P05CD_LoPresHiEnblIc P0011_P0021_P05CC_P05CD_LoPresLoDsblIc	50.00 failures out of 150.00 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P0011_P0021_P05CC_P 05CD_EngOilPressEnbll c P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: IntakeVVT_Enabled CrankIntakeCamCorrFA IntakeCamSensorTFTK O CrankSensorTFTKO CamLctnIntFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft Actuator Solenoid Circuit Open – Bank 1	P0013	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft System Performance – Bank 1	P0014	Detects a VVT system error by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Exhaust cam Bank 1) Cam Position Error > (P0014_CamPosErrorLimEc1) deg	System Voltage Engine Running Power Take Off (PTO) active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: ExhaustVVT_Enabled	> 11.00 Volts = TRUE = FALSE > 0 deg > (P0014_CamPosErrorLimEc1) deg AND < (P0014_PerfMaxEc1) deg < 4.50 Deg for (P0014_P05CE_StablePositionTimeEc1) sec P0013 P2090 P2091 = TRUE (Reference Supporting Tables: P0014_P0024_P05CE_P05CF_HiEngSpdHiDsblEc P0014_P0024_P05CE_P05CF_HiEngSpdLoEnblEc P0014_P0024_P05CE_P05CF_LoRpmHiEnblEc P0014_P0024_P05CE_P05CF_LoRpmLoDsblEc P0014_P0024_P05CE_P05CF_LoPresHiEnblEc P0014_P0024_P05CE_P	100.00 failures out of 300.00 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						05CF_LoPresLoDsblEc P0014_P0024_P05CE_P 05CF_EngOilPressEnbl Ec P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: ExhaustVVT_Enabled CrankExhaustCamCorrF A ExhaustCamSensorTFT KO CrankSensorTFTKO CamLctnExhFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position (CKP)- Camshaft Position (CMP) Correlation Bank 1 Sensor A	P0016	Detects cam to crank misalignment by monitoring if cam sensor pulse for bank 1 sensor A occurs during the incorrect crank position	2 cam sensor pulses more than -9.0 crank degrees before or 12.0 crank degrees after nominal position in one cam revolution.		Crankshaft and camshaft position signals are synchronized Engine is Spinning Cam phaser is in "parked" position No Active DTCs: Time since last execution of diagnostic	P0335, P0336 P0340,P0341 < 1.0 seconds	2 failures out of 3 tests. A failed test is 4 failures out of 5 samples. There is a delay after the first failed test to allow the camshaft position to return to the park position. This time is defined by the table "P0016_P0017_ P0018_P0019_ Cam Correlation Oil Temperature Threshold". One sample per cam rotation	Type B, 2 Trips

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Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft - Sprocket Correlation Diagnostic	P0016 and P0017	On engines with a dual intermediate sprocket between the crankshaft and the camshafts, this diagnostic detects a timing misalignment between the crankshaft, sprocket and camshafts that will cause the bank 1 camshafts to be misaligned.	Bank 1 Cam Sensor A pulses more than -6.0 crank degrees before or 9.9 crank degrees after nominal position in one cam revolution + Bank 1 Cam Sensor B pulses more than -5.6 crank degrees before or 9.9 crank degrees after nominal position in one cam revolution.	>= 8	Crankshaft and camshaft position signals are synchronized Engine is Spinning Cam phaser is in "parked" position No Active DTCs:	P0335, P0336 P0340, P0341 P0365, P0366	2 failures out of 3 tests. A failed test is 1 out of 10 samples. There is a delay after the first failed test to allow the camshaft position to return to the park position. This time is defined by the table "P0016_P0017_P0018_P0019 Cam Correlation Oil Temperature Threshold" . One sample per cam rotation	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position (CKP)- Camshaft Position (CMP) Correlation Bank 1 Sensor B	P0017	Detects cam to crank misalignment by monitoring if cam sensor pulse for bank 1 sensor B occurs during the incorrect crank position	2 cam sensor pulses more than -10.0 crank degrees before or 13.0 crank degrees after nominal position in one cam revolution.		Crankshaft and camshaft position signals are synchronized Engine is Spinning Cam phaser is in "parked" position No Active DTCs: Time since last execution of diagnostic	P0335, P0336 P0365,P0366 < 1.0 seconds	2 failures out of 3 tests. A failed test is 4 failures out of 5 samples. There is a delay after the first failed test to allow the camshaft position to return to the park position. This time is defined by the table "P0016_P0017_ P0018_P0019_ Cam Correlation Oil Temperature Threshold". One sample per cam rotation	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position (CKP)- Camshaft Position (CMP) Correlation Bank 2 Sensor A	P0018	Detects cam to crank misalignment by monitoring if cam sensor pulse for bank 2 sensor A occurs during the incorrect crank position	2 cam sensor pulses more than -11.0 crank degrees before or 13.0 crank degrees after nominal position in one cam revolution.		Crankshaft and camshaft position signals are synchronized Engine is Spinning Cam phaser is in "parked" position No Active DTCs: Time since last execution of diagnostic	P0335, P0336 P0345, P0346 < 1.0 seconds	2 failures out of 3 tests. A failed test is 4 failures out of 5 samples. There is a delay after the first failed test to allow the camshaft position to return to the park position. This time is defined by the table "P0016_P0017_ P0018_P0019 Cam Correlation Oil Temperature Threshold" . One sample per cam rotation	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft - Sprocket Correlation Diagnostic	P0018 and P0019	On engines with a dual intermediate sprocket between the crankshaft and the camshafts, this diagnostic detects a timing misalignment between the crankshaft, sprocket and camshafts that will cause the bank 2 camshafts to be misaligned.	Bank 2 Cam Sensor A pulses more than -6.1 crank degrees before or 9.9 crank degrees after nominal position in one cam revolution + Bank 2 Cam Sensor B pulses more than -7.3 crank degrees before or 9.9 crank degrees after nominal position in one cam revolution	>= 8	Crankshaft and camshaft position signals are synchronized Engine is Spinning Cam phaser is in "parked" position No Active DTCs:	P0335, P0336 P0345, P0346 P0390, P0391	2 failures out of 3 tests. A failed test is 1 out of 10 samples. There is a delay after the first failed test to allow the camshaft position to return to the park position. This time is defined by the table "P0016_P0017_P0018_P0019 Cam Correlation Oil Temperature Threshold" . One sample per cam rotation	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position (CKP)- Camshaft Position (CMP) Correlation Bank 2 Sensor B	P0019	Detects cam to crank misalignment by monitoring if cam sensor pulse for bank 2 sensor B occurs during the incorrect crank position	2 cam sensor pulses more than -9.3 crank degrees before or 11.1 crank degrees after nominal position in one cam revolution.		Crankshaft and camshaft position signals are synchronized Engine is Spinning Cam phaser is in "parked" position No Active DTCs: Time since last execution of diagnostic	P0335, P0336 P0390, P0391 < 1.0 seconds	2 failures out of 3 tests. A failed test is 4 failures out of 5 samples. There is a delay after the first failed test to allow the camshaft position to return to the park position. This time is defined by the table " P0016_P0017_ P0018_P0019 Cam Correlation Oil Temperature Threshold ". One sample per cam rotation	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft Actuator Solenoid Circuit Open – Bank 2	P0020	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft System Performance – Bank 2	P0021	Detects a VVT system error by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Intake cam Bank 2) Cam Position Error > (P0021_CamPosErrorLimlc2) deg	System Voltage Engine Running Power Take Off (PTO) active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: IntakeVVT_Enabled	> 11.00 Volts = TRUE = FALSE > 0 deg > (P0021_CamPosErrorLimlc2) deg AND < (P0021_PerfMaxlc2) deg < 4.50 Deg for (P0021_P05CD_StablePositionTimeIc2) sec P0020 P2092 P2093 = TRUE (Reference Supporting Tables: P0011_P0021_P05CC_P05CD_HiEngSpdHiDsblIc P0011_P0021_P05CC_P05CD_HiEngSpdLoEnblIc P0011_P0021_P05CC_P05CD_LoRpmHiEnblIc P0011_P0021_P05CC_P05CD_LoRpmLoDsblIc P0011_P0021_P05CC_P05CD_LoPresHiEnblIc P0011_P0021_P05CC_P05CD_LoPresLoDsblIc	50.00 failures out of 150.00 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P0011_P0021_P05CC_P 05CD_EngOilPressEnbl c P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: IntakeVVT_Enabled CrankIntakeCamCorrFA IntakeCamSensorTFTK O CrankSensorTFTKO CamLctnIntFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft Actuator Solenoid Circuit Open – Bank 2	P0023	Detects a VVT system error by monitoring the circuit for electrical integrity	The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

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Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft System Performance – Bank 2	P0024	Detects a VVT system error by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Exhaust cam Bank 2) Cam Position Error > (P0024_CamPosErrorLimEc2) deg	System Voltage Engine Running Power Take Off (PTO) active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: ExhaustVVT_Enabled	> 11.00 volts = TRUE = FALSE > 0 deg > (P0024_CamPosErrorLimEc2) deg AND < (P0024_PerfMaxEc2) deg < 4.50 Deg for (P0024_P05CF_StablePositionTimeEc2) sec P0023 P2094 P2095 = TRUE (Reference Supporting Tables: P0014_P0024_P05CE_P05CF_HiEngSpdHiDsblEc P0014_P0024_P05CE_P05CF_HiEngSpdLoEnblEc P0014_P0024_P05CE_P05CF_LoRpmHiEnblEc P0014_P0024_P05CE_P05CF_LoRpmLoDsblEc P0014_P0024_P05CE_P05CF_LoPresHiEnblEc P0014_P0024_P05CE_P05CF_LoPresLoDsblEc	100.00 failures out of 300.00 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P0014_P0024_P05CE_P 05CF_EngOilPressEnbl Ec P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: ExhaustVVT_Enabled CrankExhaustCamCorrF A ExhaustCamSensorTFT KO CrankSensorTFTKO CamLctnExhFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank 1 Sensor 1	P0030	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates open circuit)	Open Circuit: ≥ 200 K Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0031 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank1 Sensor1	P0031	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates short- to-ground).	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0030 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank1 Sensor1	P0032	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage high during driver on state (indicates short to power).	Short to power: ≤ 0.5 Ω impedance between signal and controller power.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank 1 Sensor 2	P0036	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates open circuit).	Open Circuit: ≥ 200 K Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0037 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank1 Sensor2	P0037	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates short- to-ground).	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0036 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank1 Sensor2	P0038	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage high during driver on state (indicates short to power).	Short to power: ≤ 0.5 Ω impedance between signal and controller power.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank 2 Sensor 1	P0050	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates open circuit).	Open Circuit: ≥ 200 K Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0051 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank2 Sensor1	P0051	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates short- to-ground).	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0050 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank2 Sensor1	P0052	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage high during driver on state (indicates short to power).	Short to power: ≤ 0.5 Ω impedance between signal and controller power.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
HO2S Heater Resistance Bank 1 Sensor 1	P0053	Detects an oxygen sensor heater having an incorrect or out of range resistance value.	Heater Resistance outside of the expected range of	$6.1 < \Omega < 13.4$	No Active DTC's Coolant – IAT Engine Soak Time Coolant Temp Ignition Voltage Engine Run time	ECT_Sensor_FA P262B IAT_SensorFA < 8.0 °C > 28,800 seconds -30.0 < °C < 255.0 < 32.0 volts < 0.08 seconds	Once per valid cold start	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
HO2S Heater Resistance Bank 1 Sensor 2) (For Dual Bank Exhaust Only	P0054	Detects an oxygen sensor heater having an incorrect or out of range resistance value.	Heater Resistance outside of the expected range of	$6.1 < \Omega < 13.4$	No Active DTC's Coolant – IAT Engine Soak Time Coolant Temp Ignition Voltage Engine Run time	ECT_Sensor_FA P262B IAT_SensorFA < 8.0 °C > 28,800 seconds -30.0 < °C < 255.0 < 32.0 volts < 0.08 seconds	Once per valid cold start	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank 2 Sensor 2	P0056	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates open circuit).	Open Circuit: ≥ 200 K Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0057 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank2 Sensor2	P0057	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage low during driver off state (indicates short- to-ground).	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips Note: In certain controlle rs P0056 may also set

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Control Circuit Bank2 Sensor2	P0058	Diagnoses the Heater Output low side driver circuit for circuit faults.	Voltage high during driver on state (indicates short to power).	Short to power: ≤ 0.5 Ω impedance between signal and controller power.	Ignition Voltage Engine Speed	= Crank or Run > 11.0 volts > 400 RPM	20 failures out of 25 samples 250 ms / sample Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
HO2S Heater Resistance Bank 2 Sensor 1	P0059	Detects an oxygen sensor heater having an incorrect or out of range resistance value.	Heater Resistance outside of the expected range of	$6.1 < \Omega < 13.4$	No Active DTC's Coolant – IAT Engine Soak Time Coolant Temp Ignition Voltage Engine Run time	ECT_Sensor_FA P262B IAT_SensorFA < 8.0 °C > 28,800 seconds -30.0 < °C < 255.0 < 32.0 volts < 0.11 seconds	Once per valid cold start	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
HO2S Heater Resistance Bank 2 Sensor 2	P0060	Detects an oxygen sensor heater having an incorrect or out of range resistance value.	Heater Resistance outside of the expected range of	$6.1 < \Omega < 13.4$	No Active DTC's Coolant – IAT Engine Soak Time Coolant Temp Ignition Voltage Engine Run time	ECT_Sensor_FA P262B IAT_SensorFA < 8.0 °C > 28,800 seconds -30.0 < °C < 255.0 < 32.0 volts < 0.11 seconds	Once per valid cold start	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
MAP / MAF / Throttle Position Correlation	P0068	Detect when MAP and MAF do not match estimated engine airflow as established by the TPS	<p>Difference between MAP and estimated MAP exceeds threshold (kPa), or P0651 (5 Volt Ref), or P0107 (MAP circuit low), or P0108 (MAP circuit high) have failed this key cycle, then MAP portion of diagnostic fails</p> <p>Absolute difference between MAF and estimated MAF exceed threshold (grams/sec), or P0102 (MAF circuit low), or P0103 (MAF circuit hi) have failed this key cycle, or maximum MAF versus RPM (Table) is greater than or equal to maximum MAF versus battery voltage, then MAF portion of diagnostic fails</p>	<p>Table, f(TPS). See supporting tables: Delta MAP Threshold f(TPS)</p> <p>Table, f(TPS). See supporting tables: Delta MAF Threshold f(TPS)</p> <p>Table, f(RPM). See supporting tables: Maximum MAF f (RPM)</p> <p>Table, f(Volts). See supporting tables: Maximum MAF f (Volts)</p>	Engine Speed	<p>> 800 RPM</p> <p>Run/Crank voltage > 6.41</p>	<p>Continuously fail MAP and MAF portions of diagnostic for 0.1875 s</p> <p>Continuous in MAIN processor</p>	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module SIDI High Pressure Pump min/max authority	P0089	This DTC Diagnoses pump control windup to its max or min authority	High Pressure Fuel Pump Delivery Angle High Pressure Fuel Pump Delivery Angle	$\geq 240^\circ$ Or $\leq 0^\circ$	Battery Voltage Low Side Fuel Pressure Engine Run Time Barometric Pressure Inlet Air Temp Fuel Temp Additional Enable Conditions: All must be true (High Pressure Pump is enabled and High Fuel pressure sensor ckt is Not (FA,FP or TFTKO) and High Pressure fuel pump ckt is Not (FA,FP or TFTKO) and Cam or Crank Sensor Not FA and IAT,IAT2,ECT Not FA and Low side Fuel Pump Relay ckt Not FA and Estimate fuel rail pressure is valid and Green Engine (In assembly plant) is not enabled and Not if low fuel condition	≥ 11 Volts > 0.275 MPa \geq KtFHPD_t_PumpCntrlEng RunThrsh (see supporting tables) Enabled when a code clear is not active or not exiting device control Engine is not cranking ≥ 70.0 KPA ≥ -10.0 degC $-10 \leq \text{Temp degC} \leq 100$	Windup High - 750 failures out of 938 samples Windup Low - 750 failures out of 938 Samples	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					and Low side Fuel Pump is on and Injector Flow Test is not active and Device control commanded pressure is false and Device control pump ckt enabled on is false and Engine movement detected is true andManufacturers enable counter is 0) Flex Fuel Sensor Not FA Ignition voltage out of correlation error(P1682) not active			

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
High Pressure Pump Control Solenoid Enable Low Side Open Circuit	P0090	The DTC Diagnoses the High Pressure Pump Control Solenoid Enable Low Side Circuit for circuit faults.	Voltage low during driver off state indicates open circuit	Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	Engine Speed Battery Voltage	>= 50 RPM >= 11 Volts Not in pump device control Enabled when a code clear is not active or not exiting device control	20 failures out of 40 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
High Pressure Pump Control Solenoid Enable Low Side Short to Ground	P0091	The DTC Diagnoses the High Pressure Pump Control Solenoid Enable Low Side Circuit for circuit faults.	Voltage low during driver off state indicates short-to-ground	Short to ground: ≤ 0.1 Amps between signal and controller ground	Engine Speed Battery Voltage	≥ 50 RPM ≥ 11 Volts Not in pump device control Enabled when a code clear is not active or not exiting device control	20 failures out of 40 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
High Pressure Pump Cntrl Solenoid Enable Low Side Short to Power	P0092	The DTC Diagnoses the High Pressure Pump Control Solenoid Enable Low Side Circuit for circuit faults.	Voltage high during driver off state indicates short to power	Short to power: ≤ 1.1 or 15 Amps selectable thershold based on High pressure Pump .	Engine Speed Battery Voltage	>= 50 RPM >= 11 Volts Not in pump device control Enabled when a code clear is not active or not exiting device control	20 failures out of 40 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor 2 Circuit Performance (applications with humidity sensor, but no manifold temperature sensor)	P0096	Detects an IAT2 sensor that has stuck in range by comparing to IAT and engine coolant temperature at startup	ABS(Power Up IAT - Power Up IAT2) AND ABS(Power Up ECT – Power Up IAT2) >= ABS(Power Up ECT – Power Up IAT)	> 10 deg C	Time between current ignition cycle and the last time the engine was running Powertrain Relay Voltage for a time No Active DTCs:	> 28,800 seconds >= 11.00 Volts >= 0.9 seconds PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA HumTempSnsrCktFA	Executes once at the beginning of each ignition cycle if enable conditions are met	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Circuit 2 Low (applications with humidity)	P0097	Detects a continuous short to ground or open in the IAT 2 signal circuit	Raw IAT 2 Input	< 13 Hertz (~-60 deg C)	Powertrain Relay Voltage for a time No Active DTCs:	>= 11.00 Volts >= 0.9 seconds PowertrainRelayFault	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Circuit 2 High (applications with humidity)	P0098	Detects a continuous high frequency in the IAT 2 signal circuit	Raw IAT 2 Input	> 390 Hertz (~150 deg C)	Powertrain Relay Voltage for a time No Active DTCs:	>= 11.00 Volts >= 0.9 seconds PowertrainRelayFault	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor 2 Intermittent In-Range	P0099	Detects a noisy or erratic IAT 2 signal circuit or IAT 2 sensor	String Length Where: "String Length" = sum of "Diff" calculated over And where: "Diff" = ABS(current IAT 2 reading - IAT 2 reading from 100 milliseconds previous)	> 100.00 DegC 10 consecutive IAT 2 samples	Powertrain Relay Voltage for a time No Active DTCs:	>= 11.00 Volts >= 0.9 seconds PowertrainRelayFault	4 failures out of 5 samples Each sample takes 1.0 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
High Pressure Start Diagnostic	P00C6	The DTC Diagnoses the high side fuel pressure during engine cranking.	The ECM detects that the fuel pressure is not rising or has fallen beyond acceptable limits during engine cranking		<p>Low side feed fuel pressure</p> <p>Engine Run Time Run/Crank Voltage Engine Coolant</p> <p>For each engine start, only 1 diagnostic is performed. The pressure rise test will run if High side fuel pressure is less than</p> <p>Pressure Rise Test: High Side Fuel Pressure < Supporting Table KtFHPC_p_HighPress Start</p>	<p>>= 0 KPA</p> <p>< = 0 sec > 8 Volts -100 <= °C <= 85</p> <p>All must be true (High Pressure Pump is enabled and High Fuel pressure sensor ckt is Not (FA,FP or TFTKO) and High Pressure fuel pump ckt is Not (FA,FP or TFTKO) and Cam or Crank Sensor Not FA and IAT, IAT2 and ECT Not FA and Low side Fuel Pump Relay ckt Not FA and Estimate fuel rail pressure is valid and Green Engine (In assembly plant) is not enabled and Not if low fuel condition and Low side Fuel Pump is on and Injector Flow Test is not active and Device control commanded pressure is false and Device control pump ckt enabled on is false and Engine movement detected is true and Manufacturers enable</p>	<p>Pressure Rise Test: Time >= Supporting Table KtFHPC_t_High PressStartTmout</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Barometric Pressure Inlet Air Temp	counter is 0) Flex Fuel Sensor Not FA Ignition voltage out of correlation error(P1682) not active >= 70.0 KPA >= -10.0 DegC		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Pressure Measurement System - Multiple Sensor Correlation (naturally aspirated with TIAP/ Baro sensor)	P00C7	Detects an inconsistency between pressure sensors in the induction system in which a particular sensor cannot be identified as the failed sensor	ABS(Manifold Pressure - Baro Pressure)	> 10.0 kPa	Time between current ignition cycle and the last time the engine was running Engine is not rotating Manifold Pressure Manifold Pressure Baro Pressure Baro Pressure No Active DTCs: No Pending DTCs:	> 409.6 seconds >= 50.0 kPa <= 115.0 kPa >= 50.0 kPa <= 115.0 kPa EngineModeNotRunTimer Error MAP_SensorFA AAP_SnsrFA MAP_SensorCircuitFP AAP_SnsrCktFP	4 failures out of 5 samples 1 sample every 12.5 msec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Press Regulator Solenoid Supply Voltage Control High Side Circuit Open	P00C8	The DTC Diagnoses the Fuel Press Regulator Solenoid Supply Voltage Control Circuit for circuit faults.	Voltage High during driver off state indicates open circuit	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Engine Speed Battery Voltage	>= 50 RPM >= 11 Volts Not in pump device control Enabled when a code clear is not active or not exiting device control	20 failures out of 40 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Press Regulator Solenoid Supply Voltage Control High Side Circuit Short to ground	P00C9	The DTC Diagnoses the Fuel Press Regulator Solenoid Supply Voltage Control Circuit for circuit faults.	Voltage low during driver on state indicates short to ground	Short to ground: ≤ 1.1 or 15 Amps selectable thershold based on High pressure Pump.	Engine Speed Battery Voltage	>= 50 RPM >= 11 Volts Not in pump device control Enabled when a code clear is not active or not exiting device control	20 failures out of 40 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Press Regulator Solenoid Supply Voltage Control High Side Circuit Short to power	P00CA	The DTC Diagnoses the Fuel Press Regulator Solenoid Supply Voltage Control Circuit for circuit faults.	Voltage high during driver off state indicates short to power	Short to Power: ≤ 0.1 Amps between signal and controller power	Engine Speed Battery Voltage	>= 50 RPM >= 11 Volts Not in pump device control Enabled when a code clear is not active or not exiting device control	20 failures out of 40 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Humidity Sensor Circuit Low	P00F4	Detects a continuous short to power in the Humidity Sensor circuit	Humidity Duty Cycle	<= 5.0 %	Powertrain Relay Voltage for a time No Active DTCs:	>= 11.00 Volts >= 0.9 seconds PowertrainRelayFault	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Humidity Sensor Circuit High	P00F5	Detects a continuous open or short to low in the Humidity Sensor circuit	Humidity Duty Cycle	>= 95.0 %	Powertrain Relay Voltage for a time No Active DTCs:	>= 11.00 Volts >= 0.9 seconds PowertrainRelayFault	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Humidity Sensor Circuit Intermittent	P00F6	Detects a noisy or erratic humidity sensor input	String Length Where: "String Length" = sum of "Diff" calculated over And where: "Diff" = ABS(current Humidity reading - Humidity reading from 100 milliseconds previous)	> 80 % 10 consecutive Humidity samples	Powertrain Relay Voltage for a time No Active DTCs:	>= 11.00 Volts >= 0.9 seconds PowertrainRelayFault	4 failures out of 5 samples Each sample takes 1.00 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Mass Air Flow System Performance (naturally aspirated)	P0101	Determines if the MAF sensor is stuck within the normal operating range	Filtered Throttle Model Error AND ABS(Measured Flow – Modeled Air Flow) Filtered AND ABS(Measured MAP – MAP Model 2) Filtered	<= 350 kPa*(g/s) > 20.0 grams/sec > 20.0 kPa	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 500 RPM <= 6,800 RPM >= -7 Deg C <= 150 Deg C >= -20 Deg C <= 125 Deg C >= 0.50 Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM Modeled Air Flow Error multiplied by MAF Residual Weight Factor based on RPM and MAF Residual Weight Factor based on MAF Est MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM See Residual Weight Factor tables. No Active DTCs: MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA No Pending DTCs: EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Mass Air Flow Sensor Circuit Low Frequency	P0102	Detects a continuous short to low or a open in either the signal circuit or the MAF sensor	MAF Output	<= 800 Hertz (~ 1.02 gm/sec)	Engine Run Time Engine Speed Ignition Voltage Above criteria present for a period of time	> 0.0 seconds >= 300 RPM >= 10.0 Volts >= 1.0 seconds	300 failures out of 375 samples 1 sample every cylinder firing event	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Mass Air Flow Sensor Circuit High Frequency	P0103	Detects a high frequency output from the MAF sensor	MAF Output	>= 14,500 Hertz (~ 609.1 gm/sec)	Engine Run Time Engine Speed Ignition Voltage Above criteria present for a period of time	> 0.0 seconds >= 300 RPM >= 10.0 Volts >= 1.0 seconds	300 failures out of 375 samples 1 sample every cylinder firing event	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Manifold Absolute Pressure Sensor Performance (naturally aspirated)	P0106	Determines if the MAP sensor is stuck within the normal operating range	Filtered Throttle Model Error AND ABS(Measured MAP – MAP Model 1) Filtered AND ABS(Measured MAP – MAP Model 2) Filtered	<= 350 kPa*(g/s)	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 500 RPM <= 6,800 RPM >= -7 Deg C <= 150 Deg C >= -20 Deg C <= 125 Deg C >= 0.50 Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM See Residual Weight Factor tables.	Continuous Calculations are performed every 12.5 msec	Type B, 2 Trips
			Manifold Pressure OR	< 50.0 kPa	Time between current ignition cycle and the last	4 failures out of 5 samples		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Manifold Pressure	> 115.0 kPa	time the engine was running Engine is not rotating No Active DTCs: No Pending DTCs:	> 409.6 seconds EngineModeNotRunTimer Error MAP_SensorCircuitFA AAP_SnsrCktFA MAP_SensorCircuitFP AAP_SnsrCktFP	1 sample every 12.5 msec	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Manifold Absolute Pressure Sensor Circuit Low	P0107	Detects a continuous short to low or open in either the signal circuit or the MAP sensor.	MAP Voltage	< 3.0% of 5 Volt Range (This is equal to 0.15 Volts or 3.5 kPa)	Continuous		320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Manifold Absolute Pressure Sensor Circuit High	P0108	Detects an open sensor ground or continuous short to high in either the signal circuit or the MAP sensor.	MAP Voltage	> 90.0% of 5 Volt Range (This is equal to 4.50 Volts, or 115.0 kPa)	Continuous		320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Circuit Performance (applications with humidity sensor, but no manifold temperature sensor)	P0111	Detects an IAT sensor that has stuck in range by comparing to IAT2 and engine coolant temperature at startup	ABS(Power Up IAT - Power Up IAT2) AND ABS(Power Up ECT – Power Up IAT) > ABS(Power Up ECT – Power Up IAT2)	> 10 deg C	Time between current ignition cycle and the last time the engine was running Powertrain Relay Voltage for a time No Active DTCs:	> 28,800 seconds >= 11.00 Volts >= 0.9 seconds PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA HumTempSnsrCktFA	Executes once at the beginning of each ignition cycle if enable conditions are met	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Circuit Low	P0112	Detects a continuous short to ground in the IAT signal circuit or the IAT sensor	Raw IAT Input	< 58 Ohms (~150 deg C)	Engine Run Time	> 0.00 seconds	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Circuit High	P0113	Detects a continuous open circuit in the IAT signal circuit or the IAT sensor	Raw IAT Input	> 142,438 Ohms (~-60 deg C)	Engine Run Time	> 0.00 seconds	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Intermittent In-Range	P0114	Detects a noisy or erratic IAT signal circuit or IAT sensor	String Length Where: "String Length" = sum of "Diff" calculated over And where: "Diff" = ABS(current IAT reading - IAT reading from 100 milliseconds previous)	> 80.00 DegC 10 consecutive IAT samples	Continuous		4 failures out of 5 samples Each sample takes 1.0 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Coolant Temperature (ECT) Sensor Performance	P0116	This DTC detects ECT temp sensor stuck in mid range.	<p>A failure will be reported if any of the following occur:</p> <p>1) ECT at power up > IAT at power up by an IAT based table lookup value after a minimum 28,800 second soak (fast fail).</p> <p>2) ECT at power up > IAT at power up by 15.0 C after a minimum 28,800 second soak and a block heater has not been detected.</p> <p>3) ECT at power up > IAT at power up by 15.0 C after a minimum 28,800 seconds soak and the time spent cranking the engine without starting is greater than 10.0 seconds with the LowFuelConditionDiag</p>	<p>See "P0116_Fail if power up ECT exceeds IAT by these values" in the Supporting tables section</p> <p>= False</p>	<p>No Active DTC's</p> <p>Non-volatile memory initialization</p> <p>Test complete this trip Test aborted this trip IAT LowFuelCondition Diag</p> <p>=====</p> <p>Block Heater detection is enabled when either of the following occurs:</p> <p>1) ECT at power up > IAT at power up by</p> <p>2) Cranking time</p> <p>=====</p> <p>Block Heater is detected and diagnostic is aborted when 1) or 2) occurs:</p> <p>1a) Vehicle drive time</p> <p>1b) Vehicle speed</p> <p>1c) Additional Vehicle drive time is provided to 1a when Vehicle speed is below 1b as follows:</p>	<p>VehicleSpeedSensor_FA IAT_SensorFA ECT_Sensor_Ckt_FA IgnitionOffTime Valid TimeSinceEngineRunning Valid</p> <p>= Not occurred</p> <p>= False = False ≥ -7 °C</p> <p>= False</p> <p>=====</p> <p>> 15.0 °C</p> <p>< 10.0 seconds</p> <p>=====</p> <p>> 400 seconds</p> <p>with > 14.9 MPH</p> <p>0.50 times the seconds with vehicle speed below 1b</p>	<p>1 failure</p> <p>500 msec/ sample</p> <p>Once per valid cold start</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					1d) IAT drops from power up IAT 2a) ECT drops from power up ECT 2b) Engine run time ===== Diagnostic is aborted when 3) or 4) occurs: 3) Engine run time with vehicle speed below 1b 4) Minimum IAT during test	$\geq 5.3^{\circ}\text{C}$ $\geq 5^{\circ}\text{C}$ Within ≤ 60 seconds ===== > 1800 seconds $\leq -7^{\circ}\text{C}$		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Coolant Temp Sensor Circuit Low	P0117	Circuit Continuity This DTC detects a short to ground in the ECT signal circuit or the ECT sensor.	ECT Resistance (@ 150°C)	< 46 Ohms			5 failures out of 6 samples 1 sec/ sample Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Coolant Temp Sensor Circuit High	P0118	Circuit Continuity This DTC detects a short to high or open in the ECT signal circuit or the ECT sensor.	ECT Resistance (@ -60°C)	> 419,000 Ohms	Engine run time OR IAT min	> 10.0 seconds ≥ -7.0 °C	5 failures out of 6 samples 1 sec/ sample Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Coolant Temperature (ECT) Sensor Circuit Intermittent	P0119	Circuit Continuity This DTC detects large step changes in the ECT signal circuit or the ECT sensor. Allowable high and low limits are calculated for the next sample based on the previous sample.	ECT temperature step change: 1) positive step change is greater than calculated high limit OR 2) negative step change is lower than calculated low limit. The calculated high and low limits for the next reading use the following calibrations: 1) Sensor time constant 2) Sensor low limit 3) Sensor high limit *****Generic Example***** If the last ECT reading was 90 Deg C, the Time constant was calibrated at 10 seconds, the low limit was calibrated to -80 Deg C and the high limit was calibrated to 200 Deg C the calculated limits are 101 Deg C and 73 Deg C. The next reading (after the 90 Deg C reading) must be between 73 Deg C and 101 Deg C to be valid.	10.0 seconds -65.0 Deg C 200.0 Deg C	No Active DTC's	ECT_Sensor_Ckt_FP	3 failures out of 4 samples 1 sec/ sample Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Throttle Position Sensor Performance (naturally aspirated)	P0121	Determines if the Throttle Position Sensor input is stuck within the normal operating range	Filtered Throttle Model Error AND ABS(Measured Flow – Modeled Air Flow) Filtered AND ABS(Measured MAP – MAP Model 2) Filtered	> 350 kPa*(g/s) > 20.0 grams/sec <= 20.0 kPa	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 500 RPM <= 6,800 RPM > -7 Deg C < 150 Deg C > -20 Deg C < 125 Deg C >= 0.50 Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM Modeled Air Flow Error multiplied by MAF Residual Weight Factor based on RPM and MAF Residual Weight Factor based on MAF Est See Residual Weight Factor tables. No Active DTCs: MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA No Pending DTCs: EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TPS1 Circuit Low	P0122	Detects a continuous or intermittent short or open in TPS1 circuit	TPS1 Voltage <	0.3250		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P06A3)	79 / 159 counts; 57 counts continuous; 3.125 ms /count in the ECM main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TPS1 Circuit High	P0123	Detects a continuous or intermittent short or open in TPS1 circuit	TPS1 Voltage >	4.750		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P06A3)	79 / 159 counts; 57 counts continuous; 3.125 ms /count in the ECM main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Coolant Temperature Below Stat Regulating Temperature) (energy based "Deluxe" method	P0128	This DTC detects if the engine coolant temperature rises too slowly due to an ECT or Cooling system fault	<p>Energy is accumulated after the first combustion event using Range #1 or #2 below:</p> <p>Thermostat type is divided into normal (non-heated) and electrically heated.</p> <p>For this application the "type" cal (KeTHMG_b_TMS_ElectHstEquipped) = 0 If the type cal is equal to one, the application has an electrically heated t-stat, if equal to zero the the application has a non heated t-stat. See appropriate section below.</p> <p>***** Type cal above = 1 (Electrically heated t-stat) == == == == Range #1 (Primary) ECT reaches Commanded temperature minus 11 °C when Ambient min is ≤ 52 °C and > 10 °C. Note: Warm up target for range #1 will be at least 64 °C == == == == Range #2 (Alternate) ECT reaches Commanded temperature minus 31 °C when Ambient min is ≤ 10 °C and > -7 °C. Note: Warm up target for range #2 will be at least</p>	<p>See the two tables named: P0128_Maximum Accumulated Energy for Start-up ECT conditions - Primary and P0128_Maximum Accumulated Energy for Start-up ECT conditions - Alternate in the Supporting tables section.</p> <p>This diagnostic models the net energy into and out of the cooling</p>	<p>No Active DTC's</p> <p>Engine not run time (soaking time before current trip)</p> <p>Engine run time</p> <p>Fuel Condition</p> <p>Distance traveled</p> <p>***** If Engine RPM is continuously greater than for this time period</p> <p>The diagnostic test for this key cycle will abort *****</p> <p>***** If T-Stat Heater commanded duty cycle for this time period</p> <p>The diagnostic test for this</p>	<p>ECT_Sensor_Ckt_FA ECT_Sensor_Perf_FA VehicleSpeedSensor_FA OAT_PtEstFiltFA IAT_SensorCircuitFA MAF_SensorFA THMR_AWP_AuxPumpFA THMR_AHV_FA THMR_SWP_Control_FA THMR_SWP_NoFlow_FA THMR_SWP_FlowStuckOn_FA ETQR_IndTorqInaccurate</p> <p>≥ 1,800 seconds</p> <p>120 ≤ Eng Run Tme ≤ 1,450 seconds</p> <p>Ethanol ≤ 87 %</p> <p>≥ 1.49 miles</p> <p>*****</p> <p>9,999 rpm 5.0 seconds</p> <p>*****</p> <p>> 20.0% duty cycle > 5.0 seconds</p>	<p>1 failure to set DTC</p> <p>1 sec/ sample</p> <p>Once per ignition key cycle</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>55 °C</p> <p>*****</p> <p>Type cal above = 0 (non - heated t-stat)</p> <p>== == == ==</p> <p>Range #1 (Primary) ECT reaches 71 °C when Ambient min is ≤ 52 °C and > 10 °C.</p> <p>== == == ==</p> <p>Range #2 (Alternate) ECT reaches 55 °C when Ambient min is ≤ 10 °C and > -7 °C.</p> <p>*****</p>	<p>system during the warm-up process.</p> <p>The five energy terms are: heat from combustion, heat from after-run, heat loss to enviroment, heat loss to cabin and heat loss to DFCO.</p>	<p>key cycle will abort</p> <p>*****</p> <p>ECT at start run</p>	<p>*****</p> <p>-60 ≤ ECT ≤ 66 °C</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit Low Voltage Bank 1 Sensor 1	P0131	This DTC determines if the O2 sensor circuit is shorted to low.	Oxygen Sensor Signal	< 40.0 mVolts	No Active DTC's AIR intrusive test Fuel intrusive test Idle intrusive test EGR intrusive test System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Equivalence Ratio Air Per Cylinder Fuel Control State Closed Loop Active All Fuel Injectors for active Cylinders Fuel Condition Fuel State All of the above met for	TPS_ThrottleAuthorityDefaulted MAP_SensorFA AIR_System FA Ethanol Composition Sensor FA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnsrCkt_FA FuelInjectorCircuit_FA = Not active = Not active = Not active = Not active 10.0 < Volts = Not active = Not active = Not active = Not active = False 0.9805 < ratio < 1.0996 50 < mgram < 500 = Closed Loop = TRUE Enabled (On) Ethanol ≤ 87% DFCO not active > 5.0 seconds	320 failures out of 400 samples Frequency: Continuous in 100 milli - second loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit High Voltage Bank 1 Sensor 1	P0132	This DTC determines if the O2 sensor circuit is shorted to high.	Oxygen Sensor Signal	> 1,050 mvolts	<p>No Active DTC's</p> <p>System Voltage AFM Status Heater Warm-up delay Engine Run Time Engine Run Accum</p> <p>Low Fuel Condition Diag</p> <p>Initial delay after Open Test Criteria met (cold start condition)</p> <p>Initial delay after Open Test Criteria met (not cold start condition)</p> <p>Equivalence Ratio</p> <p>All of the above met for</p>	<p>TPS_ThrottleAuthority Defaulted MAF_SensorFA MAP_SensorFA ExcessPurgePsbl_FA FuelInjectorCircuit_FA EthanolCompositionSens or_FA AIR System FA</p> <p>10.0 < Volts = All Cylinders active = Complete > 5.0 seconds > 30.0 seconds</p> <p>= False</p> <p>> 150.0 seconds when engine soak time > 28,800 seconds</p> <p>> 150.0 seconds when engine soak time ≤ 28,800 seconds</p> <p>0.9805 ≤ ratio ≤ 1.0996</p> <p>> 3.0 seconds</p>	<p>70 failures out of 88 samples</p> <p>Frequency: Continuous in 100 milli - second loop</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Slow Response Bank 1 Sensor 1) (For use w/o ESPD	P0133	This DTC determines if the O2 sensor response time is degraded.	Fault condition present when the average response time is calculated over the test time, and compared to the threshold.	Refer to P0133_O2S Slow Response Bank 1 Sensor 1 "Pass/Fail Threshold table" in the Supporting Tables tab. The test averages the signal response time over 60.0 seconds when the signal is transitioning between 325 mvolts and 575 mvolts. An average rich to lean time and lean to rich time are each calculated separately.	No Active DTC's Bank 1 Sensor 1 DTC's not active System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Green O2S Condition	TPS_ThrottleAuthorityDefault MAP_SensorFA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault MAF_SensorFA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnrCkt_FA FuelInjectorCircuit_FA AIR System FA EthanolCompositionSensor_FA EngineMisfireDetected_FA P0131, P0132, P0134 10.0 < Volts = Not active = Not active = Not active = Not active = False = Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S1, B2S1 (if applicable)	Sample time is 60 seconds Frequency: Once per trip	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					O2 Heater on for Learned Htr resistance Engine Coolant IAT Engine run Accum Time since any AFM status change Time since Purge On to Off change Time since Purge Off to On change Engine airflow Engine speed Fuel Condition Baro Air Per Cylinder Fuel Control State Closed Loop Active LTM fuel cell Transient Fuel Mass Baro Fuel Control State Fuel State Commanded Proportional Gain ===== All of the above met for	in Supporting Tables tab. ≥ 60 seconds = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's") > 54 °C > -40 °C > 30 seconds > 0.0 seconds > 4.0 seconds > 4.0 seconds 15 ≤ grams/second ≤ 43 1,000 ≤ RPM ≤ 3,000 < 87 % Ethanol > 70 kpa ≥ 125 mGrams = Closed Loop = TRUE = Enabled ≤ 100.0 mgrams = Not Defaulted not = Power Enrichment DFCO not active ≥ 0.0 % ===== > 2.0 seconds		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Performance Bank 1 Sensor 1	P0135	This DTC determines if the O2 sensor heater is functioning properly by monitoring the current through the heater circuit.	Heater Current outside of the expected range of	0.3 < Amps < 1.2	No Active DTC's System Voltage Heater Warm-up delay O2S Heater device control B1S1 O2S Heater Duty Cycle All of the above met for	ECT_Sensor_FA 10.0 < Volts = Complete = Not active > zero > 120 seconds	8 failures out of 10 samples Frequency: 2 tests per trip 10 seconds delay between tests and 1 second execution rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit Low Voltage Bank 1 Sensor 2) (For Dual Bank Exhaust Only	P0137	This DTC determines if the O2 sensor circuit is shorted to low.	Oxygen Sensor Signal	< 50 mvolts	No Active DTC's AIR intrusive test Fuel intrusive test Idle intrusive test EGR intrusive test System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Equivalence Ratio Air Per Cylinder Fuel Control State Closed Loop Active All Fuel Injectors for active Cylinders Fuel Condition Fuel State All of the above met for	TPS_ThrottleAuthorityDef aultedMAP_SensorFAAIR System FAEthanol Composition Sensor FAEvapPurgeSolenoidCir cuit_FAEvapFlowDuringN onPurge_FAEvapVentSol enoidCircuit_FAEvapSmal lLeak_FAEvapEmissionSy stem_FAFuelTankPressur eSnsrCkt_FAFuelInjector Circuit_FA = Not active = Not active = Not active = Not active 10.0 < Volts = Not active = Not active = Not active = Not active = False 0.9805 ≤ ratio ≤ 1.0996 50 ≤ mgrams ≤ 500 = Closed Loop = TRUE Enabled (On) Ethanol <= 87 % DFCO not active > 5.0 seconds	320 failures out of 400 samples Frequency: Continuous in 100 milli - second loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit High Voltage Bank 1 Sensor 2) (For Dual Bank Exhaust Only	P0138	This DTC determines if the O2 sensor circuit is shorted to high.	Oxygen Sensor Signal	> 1,050 mvolts	No Active DTC's System Voltage AFM Status Heater Warm-up delay Engine Run Time Engine Run Accum Low Fuel Condition Diag Initial delay after Open Test Criteria met (cold start condition) Initial delay after Open Test Criteria met (not cold start condition) Equivalence Ratio Fuel Control State All of the above met for	TPS_ThrottleAuthorityDefaulted MAF_SensorFA MAP_SensorFA ExcessPurgePsbl_FA FuelInjectorCircuit_FA EthanolCompositionSensor_FA AIR System_FA 10.0 < Volts = All Cylinders active = Complete > 5.0 seconds > 30.0 seconds = False > 150.0 seconds when engine soak time > 28,800 seconds > 150.0 seconds when engine soak time ≤ 28,800 seconds 0.9805 ≤ ratio ≤ 1.0996 not = Power Enrichment > 3.0 seconds	100 failures out of 125 samples Frequency: Continuous in 100 milli - second loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Slow Response Rich to Lean Bank 1 Sensor 2	P013A	This DTC determines if the post catalyst O2 sensor has Slow Response in a predefined Rich to Lean voltages range during Rich to Lean transition. The diagnostic is an intrusive test which runs in a DFCO mode to achieve the required response.	The EWMA of the Post O2 sensor normalized integral value OR The Accumulated mass air flow monitored during the Slow Response Test (between the upper and lower voltage thresholds)	> 8.0 units > 20.0 grams (upper voltage threshold is 450 mvolts and lower voltage threshold is 150 mvolts)	No Active DTC's B1S2 DTC's Not Active this key cycle System Voltage Learned heater resistance ICAT MAT Burnoff delay Green O2S Condition Low Fuel Condition Diag Post fuel cell (Decel) Crankshaft Torque	TPS_ThrottleAuthorityDefault ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR_System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013B, P013E, P013F, P2270 or P2271 10.0 < Volts = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's") = Not Valid = Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 (if applicable) in Supporting Tables tab. = False = enabled < 100.0 Nm	Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_RapidResponseActive = TRUE, multiple tests per trip are allowed.	Type A, 1 Trips EWMA

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTC's Passed ===== After above conditions are met: DFCO mode is continued (wo driver initiated pedal input).	P2270 (and P2272 if applicable) P013E (and P014A if applicable) =====		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Slow Response Lean to Rich Bank 1 Sensor 2	P013B	This DTC determines if the post catalyst O2 sensor has Slow Response in a predefined Lean to Rich voltages range during Lean to Rich transition. The diagnostic is an intrusive test which increases the delivered A/F ratio to achieve the required rich threshold.	The EWMA of the Post O2 sensor normalized integral value OR The Accumulated mass air flow monitored during the Slow Response Test (between the upper and lower voltage thresholds)	> 8.0 units > 75 grams (lower voltage threshold is 350 mvolts and upper voltage threshold is 600 mvolts)	No Active DTC's B1S2 DTC's Not Active this key cycle System Voltage Learned heater resistance ICAT MAT Burnoff delay Green O2S Condition Green Cat System Condition	TPS_ThrottleAuthorityDefault ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013A, P013E, P013F, P2270 or P2271 10.0 < Volts = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's") = Not Valid = Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 (if applicable) in Supporting Tables tab. = Not Valid, System is not valid until accumulated airflow is greater than	Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_RapidResponseActive = TRUE, multiple tests per trip are allowed.	Type A, 1 Trips EWMA

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Low Fuel Condition Diag Post fuel cell</p> <p>DTC's Passed</p> <p>=====</p> <p>After above conditions are met: Fuel Enrich mode continued.</p> <p>=====</p> <p>During this test the following must stay TRUE or the test will abort: 0.96 ≤ Fuel EQR ≤ 1.08</p>	<p>720,000 grams. Airflow accumulation is only enabled when estimated Cat temperature is above 600 Deg C. (Note: This feature is only enabled when the vehicle is new and cannot be enabled in service).</p> <p>= False = enabled</p> <p>P2270 (and P2272 if applicable) P013E (and P014A if applicable) P013A (and P013C if applicable) P2271 (and P2273 if applicable) P013F (and P014B if applicable)</p> <p>=====</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Slow Response Rich to Lean Bank 2 Sensor 2	P013C	This DTC determines if the post catalyst O2 sensor has Slow Response in a predefined Rich to Lean voltages range during Rich to Lean transition. The diagnostic is an intrusive test which runs in a DFCO mode to achieve the required response.	The EWMA of the Post O2 sensor normalized integral value OR The Accumulated mass air flow monitored during the Slow Response Test (between the upper and lower voltage thresholds)	> 8.0 units > 20.0 grams (upper voltage threshold is 450 mvolts and lower voltage threshold is 150 mvolts)	No Active DTC's B2S2 DTC's Not Active this key cycle System Voltage Learned heater resistance ICAT MAT Burnoff delay Green O2S Condition Low Fuel Condition Diag Post fuel cell (Decel)	TPS_ThrottleAuthorityDefault ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013D, P014A, P014B, P2272 or P2273 10.0 < Volts = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's") = Not Valid = Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 in Supporting Tables tab. = False = enabled	Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_RapidResponseActive = TRUE, multiple tests per trip are allowed.	Type A, 1 Trips EWMA

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Crankshaft Torque DTC's Passed ===== After above conditions are met: DFCO mode is continued (wo driver initiated pedal input).	< 100.0 Nm P2270 (and P2272 if applicable) P013E (and P014A if applicable) =====		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Slow Response Lean to Rich Bank 2 Sensor 2	P013D	This DTC determines if the post catalyst O2 sensor has Slow Response in a predefined Lean to Rich voltages range during Lean to Rich transition. The diagnostic is an intrusive test which increases the delivered A/F ratio to achieve the required rich threshold.	The EWMA of the Post O2 sensor normalized integral value OR The Accumulated mass air flow monitored during the Slow Response Test (between the upper and lower voltage thresholds)	> 8.0 units > 75 grams (lower voltage threshold is 350 mvolts and upper voltage threshold is 600 mvolts)	No Active DTC's B2S2 DTC's Not Active this key cycle System Voltage Learned heater resistance ICAT MAT Burnoff delay Green O2S Condition Green Cat System Condition	TPS_ThrottleAuthorityDefault ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013C, P014A, P014B, P2272 or P2273 10.0 < Volts = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's") = Not Valid = Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 in Supporting Tables tab. = Not Valid, System is not valid until accumulated airflow is greater than	Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_RapidResponseActive = TRUE, multiple tests per trip are allowed.	Type A, 1 Trips EWMA

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Low Fuel Condition Diag Post fuel cell</p> <p>DTC's Passed</p> <p>=====</p> <p>After above conditions are met: Fuel Enrich mode continued.</p> <p>=====</p> <p>During this test the following must stay TRUE or the test will abort: 0.96 ≤ Fuel EQR ≤ 1.08</p>	<p>720,000 grams. Airflow accumulation is only enabled when estimated Cat temperature is above 600 Deg C. (Note: This feature is only enabled when the vehicle is new and cannot be enabled in service).</p> <p>= False = enabled</p> <p>P2270 (and P2272 if applicable) P013E (and P014A if applicable) P013A (and P013C if applicable) P2271 (and P2273 if applicable) P013F (and P014B if applicable)</p> <p>=====</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Delayed Response Rich to Lean Bank 1 Sensor 2	P013E	This DTC determines if the post catalyst O2 sensor has an initial delayed response to an A/F change from Rich to Lean. The diagnostic is an intrusive test which runs in a DFCO mode to achieve the required response.	<p>Post O2 sensor voltage</p> <p>AND</p> <p>The Accumulated mass air flow monitored during the Delayed Response Test under DFCO</p> <p>DFCO begins after: 1) Catalyst has been rich for a minimum of AND 2) Catalyst Rich Accumulation Air Flow is greater or equal to</p>	<p>> 450 mvolts</p> <p>> 40 grams</p> <p>> 0 secs</p> <p>> 10 grams</p>	<p>No Active DTC's</p> <p>B1S2 DTC's Not Active this key cycle</p> <p>System Voltage Learned heater resistance</p> <p>ICAT MAT Burnoff delay</p> <p>Green O2S Condition</p> <p>Low Fuel Condition Diag</p> <p>Post fuel cell (Decel)</p>	<p>TPS_ThrottleAuthorityDefault ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013A, P013B, P013F, P2270 or P2271</p> <p>10.0 < Volts = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's")</p> <p>= Not Valid</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 (if applicable) in Supporting Tables tab.</p> <p>= False</p> <p>= enabled</p>	<p>Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_Rap idResponseActiv e = TRUE, multiple tests per trip are allowed.</p>	<p>Type B, 2 Trips</p>

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Crankshaft Torque DTC's Passed Number of fueled cylinders ===== After above conditions are met: DFCO mode entered (wo driver initiated pedal input).	< 100.0 Nm P2270 (and P2272 if applicable) ≤ 5 cylinders =====		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Low Fuel Condition Diag Post fuel cell</p> <p>DTC's Passed</p> <p>Number of fueled cylinders =====</p> <p>After above conditions are met: Fuel Enrich mode entered. =====</p> <p>During this test the following must stay TRUE or the test will abort: 0.96 ≤ Fuel EQR ≤ 1.08</p>	<p>720,000 grams. Airflow accumulation is only enabled when estimated Cat temperature is above 600 Deg C. (Note: This feature is only enabled when the vehicle is new and cannot be enabled in service).</p> <p>= False = enabled</p> <p>P2270 (and P2272 if applicable) P013E (and P014A if applicable) P013A (and P013C if applicable) P2271 (and P2273 if applicable)</p> <p>≥ 1 cylinders =====</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Performance Bank 1 Sensor 2) (For Dual Bank Exhaust Only	P0141	This DTC determines if the O2 sensor heater is functioning properly by monitoring the current through the heater circuit.	Heater Current outside of the expected range of	0.3 > amps > 1.2	No Active DTC's System Voltage Heater Warm-up delay O2S Heater device control B1S1 O2S Heater Duty Cycle All of the above met for	ECT_Sensor_FA 10.0 < Volts = Complete = Not active > zero > 120 seconds	8 failures out of 10 samples Frequency: 2 tests per trip 10 seconds delay between tests and 1 second execution rate.	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Delayed Response Rich to Lean Bank 2 Sensor 2	P014A	This DTC determines if the post catalyst O2 sensor has an initial delayed response to an A/F change from Rich to Lean. The diagnostic is an intrusive test which runs in a DFCO mode to achieve the required response.	<p>Post O2 sensor voltage</p> <p>AND</p> <p>The Accumulated mass air flow monitored during the Delayed Response Test under DFCO</p> <p>DFCO begins after: 1) Catalyst has been rich for a minimum of AND 2) Catalyst Rich Accumulation Air Flow is greater or equal to</p>	<p>> 450 mvolts</p> <p>> 40 grams</p> <p>> 0 secs</p> <p>> 10 grams</p>	<p>No Active DTC's</p> <p>B2S2 DTC's Not Active this key cycle</p> <p>System Voltage Learned heater resistance</p> <p>ICAT MAT Burnoff delay</p> <p>Green O2S Condition</p> <p>Low Fuel Condition Diag</p> <p>Post fuel cell (Decel)</p>	<p>TPS_ThrottleAuthorityDefault ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR_System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013C, P013D, P014B, P2272 or P2273</p> <p>10.0 < Volts = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's")</p> <p>= Not Valid</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 in Supporting Tables tab.</p> <p>= False</p> <p>= enabled</p>	<p>Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_RapidResponseActive = TRUE, multiple tests per trip are allowed</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Crankshaft Torque DTC's Passed Number of fueled cylinders ===== After above conditions are met: DFCO mode entered (wo driver initiated pedal input).	< 100.0 Nm P2270 (and P2272 if applicable) ≤ 5 cylinders =====		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Low Fuel Condition Diag Post fuel cell</p> <p>DTC's Passed</p> <p>Number of fueled cylinders =====</p> <p>After above conditions are met: Fuel Enrich mode entered. =====</p> <p>During this test the following must stay TRUE or the test will abort: 0.96 ≤ Fuel EQR ≤ 1.08</p>	<p>720,000 grams. Airflow accumulation is only enabled when estimated Cat temperature is above 600 Deg C. (Note: This feature is only enabled when the vehicle is new and cannot be enabled in service).</p> <p>= False = enabled</p> <p>P2270 (and P2272 if applicable) P013E (and P014A if applicable) P013A (and P013C if applicable) P2271 (and P2273 if applicable)</p> <p>≥ 1 cylinders =====</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit Low Voltage Bank 2 Sensor 1	P0151	This DTC determines if the O2 sensor circuit is shorted to low.	Oxygen Sensor Signal	< 40 mvolts	No Active DTC's AIR intrusive test Fuel intrusive test Idle intrusive test EGR intrusive test System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Equivalence Ratio Air Per Cylinder Fuel Control State Closed Loop Active All Fuel Injectors for active Cylinders Fuel Condition Fuel State All of the above met for	TPS_ThrottleAuthority DefaultedMAP_SensorFA AIR System FA Ethanol Composition Sensor FA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnsrCkt_FA FuelInjectorCircuit_FA = Not active = Not active = Not active = Not active 10.0 < Volts = Not active = Not active = Not active = Not active = False 0.9805 ≤ equiv. ratio ≤ 1.0996 50 ≤ APC ≤ 500 mgrams = Closed Loop = TRUE Enabled (On) ≤ 87% Ethanol DFCO not active > 5.0 seconds	320 failures out of 400 samples Frequency: Continuous in 100 milli - second loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit High Voltage Bank 2 Sensor 1	P0152	This DTC determines if the O2 sensor circuit is shorted to high.	Oxygen Sensor Signal	> 1,050 mvolts	No Active DTC's System Voltage AFM Status Heater Warm-up delay Engine Run Time Engine Run Accum Low Fuel Condition Diag Initial delay after Open Test Criteria met (cold start condition) Initial delay after Open Test Criteria met (not cold start condition) Equivalence Ratio Fuel Control State All of the above met for	TPS_ThrottleAuthorityDef aulted MAF_SensorFA MAP_SensorFA ExcessPurgePsbl_FA FuelInjectorCircuit_FA EthanolCompositionSens or_FA AIR System_FA 10.0 < Volts = All Cylinders active = Complete > 5.0 seconds > 30.0 seconds = False > 210.0 seconds when engine soak time > 28,800 seconds > 210.0 seconds when engine soak time ≤ 28,800 seconds 0.9805 ≤ ratio ≤ 1.0996 not = Power Enrichment > 3 seconds	70 failures out of 88 samples Frequency: Continuous in 100 milli - second loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>O2 Heater on for Learned Htr resistance</p> <p>Engine Coolant IAT Engine run Accum</p> <p>Time since any AFM status change Time since Purge On to Off change Time since Purge Off to On change</p> <p>Engine airflow Engine speed Fuel Condition Baro Air Per Cylinder</p> <p>Fuel Control State Closed Loop Active LTM fuel cell Transient Fuel Mass Baro Fuel Control State Fuel State Commanded Proportional Gain</p> <p>=====</p> <p>All of the above met for</p>	<p>Tables tab.</p> <p>≥ 60 seconds = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's")</p> <p>> 54 °C > -40 °C > 30 seconds</p> <p>> 0.0 seconds > 4.0 seconds > 4.0 seconds</p> <p>15 ≤ grams/second ≤ 43 1,000 ≤ RPM ≤ 3,000 < 87 % Ethanol > 70 kpa >= 125 mGrams</p> <p>= Closed Loop = TRUE = Enabled ≤ 100.0 mgrams = Not Defaulted not = Power Enrichment DFCO not active</p> <p>≥ 0.0 %</p> <p>=====</p> <p>> 2.0 seconds</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Performance Bank 2 Sensor 1	P0155	This DTC determines if the O2 sensor heater is functioning properly by monitoring the current through the heater circuit.	Heater Current outside of the expected range of	0.3 > amps > 1.2	No Active DTC's System Voltage Heater Warm-up delay O2S Heater device control B1S1 O2S Heater Duty Cycle All of the above met for	ECT_Sensor_FA 10.0 < Volts = Complete = Not active > zero > 120 seconds	8 failures out of 10 samples Frequency: 2 tests per trip 10 seconds delay between tests and 1 second execution rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit Low Voltage Bank 2 Sensor 2	P0157	This DTC determines if the O2 sensor circuit is shorted to low.	Oxygen Sensor Signal	< 50 mvolts	No Active DTC's AIR intrusive test Fuel intrusive test Idle intrusive test EGR intrusive test System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Equivalence Ratio Air Per Cylinder Fuel Control State Closed Loop Active All Fuel Injectors for active Cylinders Fuel Condition Fuel State All of the above met for	TPS_ThrottleAuthorityDefaulted MAP_SensorFA AIR_System FA Ethanol Composition Sensor FA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnsrCkt_FA FuelInjectorCircuit_FA = Not active = Not active = Not active = Not active = Not active = Not active = Not active = Not active = Not active = False 0.9805 ≤ ratio ≤ 1.0996 50 ≤ mgrams ≤ 500 = Closed Loop = TRUE Enabled (On) ≤ 87% Ethanol DFCO not active > 5.0 seconds	320 failures out of 400 samples Frequency: Continuous in 100 milli - second loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Circuit High Voltage Bank 2 Sensor 2	P0158	This DTC determines if the O2 sensor circuit is shorted to high.	Oxygen Sensor Signal	> 1,050 mvolts	No Active DTC's System Voltage AFM Status Heater Warm-up delay Engine Run Time Engine Run Accum Low Fuel Condition Diag Initial delay after Open Test Criteria met (cold start condition) Initial delay after Open Test Criteria met (not cold start condition) Equivalence Ratio Fuel Control State All of the above met for	TPS_ThrottleAuthorityDefaulted MAF_SensorFA MAP_SensorFA ExcessPurgePsbl_FA FuelInjectorCircuit_FA EthanolCompositionSensor_FA AIR System_FA 10.0 < Volts = All Cylinders active = Complete > 5.0 seconds > 30.0 seconds = False > 210.0 seconds when engine soak time > 28,800 seconds > 210.0 seconds when engine soak time ≤ 28,800 seconds 0.9805 ≤ ratio ≤ 1.0996 not = Power Enrichment > 3 seconds	100 failures out of 125 samples Frequency: Continuous in 100 milli - second loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Delayed Response Rich to Lean Bank 1 Sensor 1	P015A	This DTC determines if the pre catalyst O2 sensor has an initial delayed response to an A/F change from Rich to Lean. The diagnostic is an intrusive test which runs in a DFCO mode to achieve the required response.	<p>The EWMA of the Pre O2 sensor normalized R2L time delay value</p> <p>OR</p> <p>[The Accumulated time monitored during the R2L Delayed Response Test (Gross failure).</p> <p>AND</p> <p>Pre O2 sensor voltage is</p>	<p>> 0.6 EWMA (sec)</p> <p>≥ 1.5 Seconds</p> <p>> 550 mvolts</p>	<p>No Active DTC's</p> <p>System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Green O2S Condition</p>	<p>TPS_ThrottleAuthorityDefault MAP_SensorFA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault MAF_SensorFA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnrCkt_FA FuelInjectorCircuit_FA AIR_System FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EthanolCompositionSensor_FA EngineMisfireDetected_FA P0131, P0132, P0134</p> <p>10.0 < Volts = Not active = Not active = Not active = Not active = False</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for</p>	<p>Frequency: Once per trip Note: if NaESPD_b_Fast InitResplsActive = TRUE for the given Fuel Bank OR NaESPD_b_RapidResponsesActive = TRUE, multiple tests per trip are allowed</p>	Type A, 1 Trips EWMA

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>O2 Heater (pre sensor) on for Learned Htr resistance</p> <p>Engine Coolant IAT Engine run Accum</p> <p>Engine Speed to initially enable test Engine Speed range to keep test enabled (after initially enabled)</p> <p>Engine Airflow Vehicle Speed to initially enable test Vehicle Speed range to keep test enabled (after initially enabled)</p> <p>Closed loop integral Closed Loop Active Evap Ethanol Post fuel cell</p> <p>EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time Predicted Catalyst temp Fuel State</p>	<p>the following locations: B1S1, B2S1 (if applicable) in Supporting Tables tab.</p> <p>≥ 60 seconds = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's")</p> <p>> 54 °C > -40 °C > 30 seconds</p> <p>1,150 ≤ RPM ≤ 2,500</p> <p>1,100 ≤ RPM ≤ 2,550</p> <p>3 ≤ gps ≤ 11</p> <p>42.3 ≤ MPH ≤ 80.2</p> <p>38.5 ≤ MPH ≤ 82.0</p> <p>0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode = enabled</p> <p>= not active</p> <p>= not active</p> <p>≥ 60.0 sec 500 ≤ °C ≤ 980 = DFCO possible</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>=====</p> <p>All of the above met for at least 3.0 seconds, and then the Force Cat Rich intrusive stage is requested.</p> <p>=====</p> <p>Pre O2S voltage B1S1 at end of Cat Rich stage Fuel State Number of fueled cylinders</p> <p>=====</p> <p>After above conditions are met: DFCO Mode is entered (wo driver initiated pedal input).</p>	<p>=====</p> <p>≥ 680 mvolts = DFCO active</p> <p>≤ 5 cylinders</p> <p>=====</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Delayed Response Lean to Rich Bank 1 Sensor 1	P015B	This DTC determines if the pre catalyst O2 sensor has an initial delayed response to an A/F change from Lean to Rich. The diagnostic is an intrusive test which runs in an enriched fuel mode to achieve the required response.	<p>The EWMA of the Pre O2 sensor normalized L2R time delay value</p> <p>OR</p> <p>[The Accumulated time monitored during the L2R Delayed Response Test (Gross failure).</p> <p>AND</p> <p>Pre O2 sensor voltage is</p> <p>OR</p> <p>At end of Cat Rich stage the Pre O2 sensor output is</p>	<p>> 0.6 EWMA (sec)</p> <p>≥ 2.0 Seconds</p> <p>< 325 mvolts</p> <p>< 680 mvolts</p>	<p>No Active DTC's</p> <p>System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag</p> <p>Green O2S Condition</p>	<p>TPS_ThrottleAuthorityDefault MAP_SensorFA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault MAF_SensorFA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnrCkt_FA FuelInjectorCircuit_FA AIR_System FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EthanolCompositionSensor_FA EngineMisfireDetected_FA P0131, P0132, P0134</p> <p>10.0 < Volts = Not active = Not active = Not active = Not active = False</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for</p>	<p>Frequency: Once per trip Note: if NaESPD_b_Fast InitResplsActive = TRUE for the given Fuel Bank OR NaESPD_b_RapidResponsesActive = TRUE, multiple tests per trip are allowed</p>	<p>Type A, 1 Trips EWMA</p>

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>O2 Heater (pre sensor) on for for Learned Htr resistance</p> <p>Engine Coolant IAT Engine run Accum</p> <p>Engine Speed to initially enable test Engine Speed range to keep test enabled (after initially enabled)</p> <p>Engine Airflow Vehicle Speed to initially enable test Vehicle Speed range to keep test enabled (after initially enabled)</p> <p>Closed loop integral Closed Loop Active Evap Ethanol Post fuel cell EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time</p> <p>Predicted Catalyst temp</p>	<p>the following locations: B1S1, B2S1 (if applicable) in Supporting Tables tab.</p> <p>≥ 60 seconds = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's")</p> <p>> 54 °C > -40 °C > 30 seconds</p> <p>1,150 ≤ RPM ≤ 2,500</p> <p>1,100 ≤ RPM ≤ 2,550</p> <p>3 ≤ gps ≤ 11</p> <p>42.3 ≤ MPH ≤ 80.2</p> <p>38.5 ≤ MPH ≤ 82.0</p> <p>0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode = enabled = not active = not active</p> <p>≥ 60.0 sec</p> <p>500 ≤ °C ≤ 980</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Fuel State Number of fueled cylinders ===== When above conditions are met: Fuel Enrich mode is entered. ===== During this test: Engine Airflow must stay between: and the delta Engine Airflow over 12.5msec must be :	= DFCO inhibit ≥ 1 cylinders ===== ===== 0 ≤ gps ≤ 11 ≤ 0.8 gps		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Delayed Response Rich to Lean Bank 2 Sensor 1	P015C	This DTC determines if the pre catalyst O2 sensor has an initial delayed response to an A/F change from Rich to Lean. The diagnostic is an intrusive test which runs in a DFCO mode to achieve the required response.	The EWMA of the Pre O2 sensor normalized R2L time delay value OR [The Accumulated time monitored during the R2L Delayed Response Test (Gross failure). AND Pre O2 sensor voltage is above]	> 0.6 EWMA (sec) ≥ 1.5 Seconds > 550 mvolts	No Active DTC's System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Green O2S Condition	TPS_ThrottleAuthorityDefault MAP_SensorFA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault MAF_SensorFA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnrCkt_FA FuelInjectorCircuit_FA AIR_System FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EthanolCompositionSensor_FA EngineMisfireDetected_FA P0131, P0132, P0134 10.0 < Volts = Not active = Not active = Not active = Not active = False = Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for	Frequency: Once per trip Note: if NaESPD_b_Fast InitResplsActive = TRUE for the given Fuel Bank OR NaESPD_b_RapidResponsesActive = TRUE, multiple tests per trip are allowed	Type A, 1 Trips EWMA

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>O2 Heater (pre sensor) on for Learned Htr resistance</p> <p>Engine Coolant IAT Engine run Accum</p> <p>Engine Speed to initially enable test Engine Speed range to keep test enabled (after initially enabled)</p> <p>Engine Airflow</p> <p>Vehicle Speed to initially enable test Vehicle Speed range to keep test enabled (after initially enabled)</p> <p>Closed loop integral Closed Loop Active Evap Ethanol Post fuel cell</p> <p>EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time</p> <p>Predicted Catalyst temp</p>	<p>the following locations: B1S1, B2S1 in Supporting Tables tab.</p> <p>≥ 60 seconds = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's")</p> <p>> 54 °C > -40 °C > 30 seconds</p> <p>1,150 ≤ RPM ≤ 2,500</p> <p>1,100 ≤ RPM ≤ 2,550</p> <p>3 ≤ gps ≤ 11</p> <p>42.3 ≤ MPH ≤ 80.2</p> <p>38.5 ≤ MPH ≤ 82.0</p> <p>0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode = enabled</p> <p>= not active</p> <p>= not active</p> <p>≥ 60.0 sec</p> <p>500 ≤ °C ≤ 980</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Fuel State ===== All of the above met for at least 3.0 seconds, and then the Force Cat Rich intrusive stage is requested. ===== Pre O2S voltage B1S1 at end of Cat Rich stage Fuel State Number of fueled cylinders ===== After above conditions are met: DFCO Mode is entered (wo driver initiated pedal input).	= DFCO possible ===== ===== ≥ 680 mvolts = DFCO active ≤ 5 cylinders =====		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Delayed Response Lean to Rich Bank 2 Sensor 1	P015D	This DTC determines if the pre catalyst O2 sensor has an initial delayed response to an A/F change from Lean to Rich. The diagnostic is an intrusive test which runs in an enriched fuel mode to achieve the required response.	<p>The EWMA of the Pre O2 sensor normalized L2R time delay value</p> <p>OR</p> <p>[The Accumulated time monitored during the L2R Delayed Response Test (Gross failure).</p> <p>AND</p> <p>Pre O2 sensor voltage is below]</p> <p>OR</p> <p>At end of Cat Rich stage the Pre O2 sensor output is</p>	<p>> 0.6 EWMA (sec)</p> <p>≥ 2.0 Seconds</p> <p>< 325 mvolts</p> <p>< 680 mvolts</p>	<p>No Active DTC's</p> <p>System Voltage EGR Device Control Idle Device Control Fuel Device Control AIR Device Control Low Fuel Condition Diag Green O2S Condition</p>	<p>TPS_ThrottleAuthorityDefault MAP_SensorFA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault MAF_SensorFA EvapPurgeSolenoidCircuit_FA EvapFlowDuringNonPurge_FA EvapVentSolenoidCircuit_FA EvapSmallLeak_FA EvapEmissionSystem_FA FuelTankPressureSnrCkt_FA FuelInjectorCircuit_FA AIR System FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EthanolCompositionSensor_FA EngineMisfireDetected_FA P0131, P0132, P0134</p> <p>10.0 < Volts = Not active = Not active = Not active = Not active = False</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for</p>	<p>Frequency: Once per trip Note: if NaESPD_b_Fast InitResplsActive = TRUE for the given Fuel Bank OR NaESPD_b_RapidResponsesActive = TRUE, multiple tests per trip are allowed</p>	<p>Type A, 1 Trips EWMA</p>

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>O2 Heater (pre sensor) on for for Learned Htr resistance</p> <p>Engine Coolant IAT Engine run Accum</p> <p>Engine Speed to initially enable test Engine Speed range to keep test enabled (after initially enabled)</p> <p>Engine Airflow Vehicle Speed to initially enable test Vehicle Speed range to keep test enabled (after initially enabled)</p> <p>Closed loop integral Closed Loop Active Evap Ethanol Post fuel cell EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time</p> <p>Predicted Catalyst temp Fuel State</p>	<p>the following locations: B1S1, B2S1 in Supporting Tables tab.</p> <p>≥ 60 seconds = Valid (the heater resistance has learned since NVM reset, see enable conditions for "HO2S Heater Resistance DTC's")</p> <p>> 54 °C > -40 °C > 30 seconds</p> <p>1,150 ≤ RPM ≤ 2,500</p> <p>1,100 ≤ RPM ≤ 2,550</p> <p>3 ≤ gps ≤ 11</p> <p>42.3 ≤ MPH ≤ 80.2</p> <p>38.5 ≤ MPH ≤ 82.0</p> <p>0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode = enabled = not active = not active</p> <p>≥ 60.0 sec</p> <p>500 ≤ °C ≤ 980 = DFCO inhibit</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Number of fueled cylinders ===== When above conditions are met: Fuel Enrich mode is entered. ===== During this test: Engine Airflow must stay between: and the delta Engine Airflow over 12.5msec must be :	≥ 1 cylinders ===== $0 \leq \text{gps} \leq 11$ ≤ 0.8 gps		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2S Heater Performance Bank 2 Sensor 2	P0161	This DTC determines if the O2 sensor heater is functioning properly by monitoring the current through the heater circuit.	Heater Current outside of the expected range of	0.3 > amps > 1.2	No Active DTC's System Voltage Heater Warm-up delay O2S Heater device control B1S1 O2S Heater Duty Cycle All of the above met for	ECT_Sensor_FA 10.0 < Volts = Complete = Not active > zero > 120 seconds	8 failures out of 10 samples Frequency: 2 tests per trip 10 seconds delay between tests and 1 second execution rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Device Control EVAP Diag. No active DTC:	Not Active "tank pull down" Not Active IAC_SystemRPM_FA MAP_SensorFA MAF_SensorFA MAF_SensorTFTKO AIR_System FA EvapExcessPrgePsbl_FA Ethanol Comp Snsr FA FuelInjectorCkt_FA EngMisfireDetected_FA EGRValvePerf_FA EGRValveCkt_FA MAP_EngVacuumStatus AmbPresDfItDStatus TC_BoostPresSnsrFA O2Snsr_B1_Snsr_1_FA		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel System Too Rich Bank 1	P0172	<p>Determines if the fuel control system is in a rich condition, based on the filtered long-term fuel trim metric.</p> <p>There are two methods to determine a Rich fault. They are Passive and Intrusive. A Passive Test decision can be made up until the time that purge is first enabled. From that point forward, rich faults can only be detected by turning purge off intrusively.</p> <p>Intrusive Test: If the filtered Purge Long Term Fuel Trim metric > 0.750, the test passes without intrusively checking the filtered Non-Purge Long Term Fuel Trim metric. However if the filtered Purge Long Term Fuel Trim metric is <= 0.750, purge is ramped off to determine if excess purge vapor is the cause of the rich condition.</p> <p>Performing intrusive tests too frequently may also affect EVAP and EPAIII emissions,</p>	<p>Passive Test: The filtered Non-Purge Long Term Fuel Trim metric</p> <p>AND</p> <p>The filtered Short Term Fuel Trim metric (Note: any value above 1.05 effectively nullifies the short-term fuel trim criteria)</p> <p>Intrusive Test: For 3 out of 5 intrusive segments, the filtered Purge Long Term Fuel Trim metric</p> <p>AND</p> <p>The filtered Non-Purge Long Term Fuel Trim metric</p> <p>AND</p> <p>The filtered Short Term Fuel Trim metric (Note: any value above 1.05 effectively nullifies the short-term fuel trim criteria)</p> <p>Segment Def'n: Segments can last up to 45 seconds and are separated by the lesser of 12 seconds of purge-on time or enough time to</p>	<p><= 0.740</p> <p><= 1.996</p> <p><= 0.750</p> <p><= 0.740</p> <p><= 1.996</p>		<p>Secondary Parameters and Enable Conditions are identical to those for P0171, with the exception that fuel level is not considered.</p>	<p>Frequency: 100 ms Continuous Loop</p>	<p>Type B, 2 Trips</p>

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		and the execution frequency of other diagnostics.	purge 11 grams of vapor. A maximum of 5 completed segments or 30 attempts are allowed for each intrusive test. After an intrusive test report is completed, another intrusive test cannot occur for 300 seconds to allow sufficient time to purge excess vapors from the canister. During this period, fuel trim will pass if the filtered Purge Long Term Fuel Trim metric > 0.750 for at least 200 seconds, indicating that the canister has been purged.					

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel System Too Lean Bank 2	P0174	Determines if the fuel control system is in a lean condition, based on the filtered long-term and short-term fuel trim.	The filtered long-term fuel trim metric AND The filtered short-term fuel trim metric (Note: any value below 0.95 effectively nullifies the short-term fuel trim criteria)	>= 1.380 >= 0.100	Engine speed BARO Coolant Temp MAP Inlet Air Temp MAF Fuel Level Long Term Fuel Trim data accumulation: Sometimes, certain Long-Term Fuel Trim Cells are not utilized for control and/or diagnosis Closed Loop Long Term FT EGR Diag. Catalyst Diag. Post O2 Diag. Device Control	400 <rpm< 6,600 > 70 kPa -20 <°C< 150 5 <kPa< 255 -20 <°C< 150 0.5 <g/s< 510.0 > 10 % or if fuel sender is faulty the diagnostic will bypass the fuel level criteria. > 25.0 seconds of data must accumulate on each trip, with at least 20.0 seconds of data in the current fuel trim cell before a pass or fail decision can be made. (Please see " Long-Term Fuel Trim Cell Usage " in Supporting Tables for a list of cells utilized for diagnosis) Enabled Enabled (Please see " Closed Loop Enable Criteria " and " Long Term FT Enable Criteria " in Supporting Tables.) Intrusive Test Not Active Intrusive Test Not Active Intrusive Test Not Active Not Active	Frequency: 100 ms Continuous Loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					EVAP Diag. No active DTC:	"tank pull down" Not Active IAC_SystemRPM_FA MAP_SensorFA MAF_SensorFA MAF_SensorTFTKO AIR_System FA EvapExcessPrgePsb1_FA Ethanol Comp Snsr FA FuelInjectorCkt_FA EngMisfireDetected_FA EGRValvePerf_FA EGRValveCkt_FA MAP_EngVacuumStatus AmbPresDfltStatus TC_BoostPresSnsrFA O2Snsr_B2_Snsr_1_FA		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel System Too Rich Bank 2	P0175	<p>Determines if the fuel control system is in a rich condition, based on the filtered long-term fuel trim metric.</p> <p>There are two methods to determine a Rich fault. They are Passive and Intrusive. A Passive Test decision can be made up until the time that purge is first enabled. From that point forward, rich faults can only be detected by turning purge off intrusively.</p> <p>Intrusive Test: If the filtered Purge Long Term Fuel Trim metric > 0.750, the test passes without intrusively checking the filtered Non-Purge Long Term Fuel Trim metric. However if the filtered Purge Long Term Fuel Trim metric is <= 0.750, purge is ramped off to determine if excess purge vapor is the cause of the rich condition.</p> <p>Performing intrusive tests too frequently may also affect EVAP and EPAIII emissions,</p>	<p>Passive Test: The filtered Non-Purge Long Term Fuel Trim metric</p> <p>AND</p> <p>The filtered Short Term Fuel Trim metric (Note: any value above 1.05 effectively nullifies the short-term fuel trim criteria)</p> <p>Intrusive Test: For 3 out of 5 intrusive segments, the filtered Purge Long Term Fuel Trim metric</p> <p>AND</p> <p>The filtered Non-Purge Long Term Fuel Trim metric</p> <p>AND</p> <p>The filtered Short Term Fuel Trim metric (Note: any value above 1.05 effectively nullifies the short-term fuel trim criteria)</p> <p>Segment Def'n: Segments can last up to 45 seconds and are separated by the lesser of 12 seconds of purge-on time or enough time to</p>	<p><= 0.740</p> <p><= 1.996</p> <p><= 0.750</p> <p><= 0.740</p> <p><= 1.996</p>		<p>Secondary Parameters and Enable Conditions are identical to those for P0174, with the exception that fuel level is not considered.</p>	<p>Frequency: 100 ms Continuous Loop</p>	<p>Type B, 2 Trips</p>

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		and the execution frequency of other diagnostics.	<p>purge 11 grams of vapor.</p> <p>A maximum of 5 completed segments or 30 attempts are allowed for each intrusive test.</p> <p>After an intrusive test report is completed, another intrusive test cannot occur for 300 seconds to allow sufficient time to purge excess vapors from the canister. During this period, fuel trim will pass if the filtered Purge Long Term Fuel Trim metric > 0.750 for at least 200 seconds, indicating that the canister has been purged.</p>					

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
SIDI High Pressure Sensor Performance - Single Sensor	P0191	The DTC Diagnoses a skewed fuel rail sensor via a comparison of measured pressure and commanded/ modeled pressure	Idle test (Low Side Fuel Pressure - High Side Fuel Pressure)	SIDI High Pressure Sensor Performance Diagnostic Enabled and SIDI High Pressure Sensor Performance Idle Test Enabled <= -0.850 MPa OR >= 0.800 MPa	Vehicle Speed Pedal Position = 0 for Battery Voltage Low Pressure Fuel Pump Pressure Engine Run Time	Enabled when a code clear is not active or not exiting device control Engine is not cranking <= 0.62 MPH 1,000 Counts (12.5ms per count) >= 11 Volts >= 0.275 MPa >= KtFHPD_t_PumpCntrlEngRunThrsh (see supporting tables) Enabled when a code clear is not active or not exiting device control Engine is not cranking >= KtFHPD_Cnt_SnsPrfIdlePumpOffDly (see supporting tables)	Idle Test > = 240 counts (12.5ms per count)	Type A, 1 Trips
			High Drive Test (Relief Pressure - Measured high Pressure)	SIDI High Pressure Sensor Performance Diagnostic Enabled and	Engine Speed Desired High Side Pressure Vehicle Speed	1,200 <= RPM <= 2,400 5 <= MPa <= 7 >= 37 MPH		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				SIDI High Pressure Sensor Performance High Drive Test Enabled <= -5.00 MPa	Accelerator Pedal Battery Voltage Low Pressure Fuel Pump Pressure Engine Run Time	>= 0 % >= 11 Volts >= 0.275 MPa >= KtFHPD_t_PumpCntrlEng RunThrsh(see supporting tables) Enabled when a code clear is not active or not exiting device control Engine is not cranking	counts (12.5ms per count)	
			----- Low Drive Test (Commanded high Pressure - Measured high Pressure) AND Modeled Injection Pressure	----- SIDI High Pressure Sensor Performance Diagnostic Enabled and SIDI High Pressure Sensor Performance Low Drive Test Enabled >= 3.000 MPa >= 3.00 MPa	----- Engine Speed Desired High Side Pressure Vehicle Speed Accelerator Pedal Battery Voltage Low Pressure Fuel Pump Pressure Engine Run Time	----- 1,200 <= RPM <= 2,400 5.00 <= MPa <= 7.00 >= 37 MPH >= 0 % >= 11 Volts >= 0.275 MPa >= KtFHPD_t_PumpCntrlEng RunThrsh(see supporting tables) Enabled when a code clear is not active or not	----- LoDrive Test >= 240 counts (12.5ms per count)	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>-----</p> <p>Sensor Stuck Test Measured High Pressure (max - min)</p>	<p>-----</p> <p>SIDI High Pressure Sensor Performance Diagnostic Enabled and SIDI High Pressure Sensor Performance Stuck Test Enabled ≤ 0.100 MPa</p>	<p>-----</p> <p>Engine Speed Vehicle Speed</p>	<p>-----</p> <p>exiting device control Engine is not cranking</p> <p>>= 2,000 RPM >= 18.64 MPH Enabled when a code clear is not active or not exiting device control Engine is not cranking Additional Enable Conditions: All must be true (High Pressure Pump is enabled and High Fuel pressure sensor ckt is Not (FA,FP or TFTKO) and High Pressure fuel pump ckt is Not (FA,FP or TFTKO) and Cam or Crank Sensor Not FA and IAT,IAT2,ECT Not FA and Low side Fuel Pump Relay ckt Not FA and Estimate fuel rail pressure is valid and Green Engine (In assembly plant) is not enabled and Not if low fuel condition and Low side Fuel Pump is on and Injector Flow Test is not active and Device control commanded pressure is false and Device control pump ckt enabled on is false and Engine movement detected is true and Manufacturers enable counter is 0)Flex Fuel Sensor Not FA Ignition voltage out of correlation error(P1682)</p>	<p>-----</p> <p>Stuck Test Engine Run Time >= KtFHPD_t_Pump CntrlEngRunThr sh (See Supporting Tables) or Accumulating engine crank time >= KtFHPD_t_SnsP rfStuckCrankTm out (See Supporting Tables)</p>	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Barometric Pressure Inlet Air Temp Fuel Temp	not active Fuel InjCkt Not (FA or TFTKO) EST Driver Not(FA) Misfire detected Not(FA) MAFR sensor Not (FA) MAPR sensor Not (FA) APSR Pedal sensor Not(FA) TPSR sensor Not (FA) VSPR speed sensor Not(FA) SystemRPM Not (FA) Manual Clutch not engaged or vehicle has automatic transmission All cylinder are fuel enabled and >= 70.0 KPA >= -10.0 DegC -10 <= Temp degC <= 100		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
High Pressure Sensor Out of Range Low	P0192	This DTC Diagnoses High Pressure Sensor Out of Range Low	High Pressure Fuel Sensor	SIDI High Pressure Sensor 1 Out of range Time Based Enabled or SIDI High Pressure Sensor 1 Out of range Engine Synchronous Enabled <= 5 % of 5Vref	Battery Voltage	>= 11 Volts Engine Running	Both Run Continuously Engine Synchronous Mode 800 failures out of 1,000 samples Time Based Mode 400 failures out of 500 samples 6.25 ms Sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
High Pressure Sensor Out of Range High	P0193	This DTC Diagnoses High Pressure Sensor Out of Range High	High Pressure Fuel Sensor	SIDI High Pressure Sensor 1 Out of range Time Based Enabled or SIDI High Pressure Sensor 1 Out of range Engine Synchronous Enabled >= 95 % of 5Vref	Battery Voltage	>= 11 Volts Engine Running	Both Run Continuously Engine Synchronous Mode 800 failures out of 1,000 samples Time Based Mode 400 failures out of 500 samples 6.25 ms Sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 1 Open Circuit - (SIDI)	P0201	This DTC Diagnoses Injector 1 enable low side driver circuit for circuit faults.	Low current through the low side driver during operation indicates open circuit	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Battery Voltage Engine Running	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 2 Open Circuit - (SIDI)	P0202	This DTC Diagnoses Injector 2 enable low side driver circuit for circuit faults.	Low current through the low side driver during operation indicates open circuit	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 3 Open Circuit - (SIDI)	P0203	This DTC Diagnoses Injector 3 enable low side driver circuit for circuit faults.	Low current through the low side driver during operation indicates open circuit	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Battery Voltage Engine Running	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 4 Open Circuit - (SIDI)	P0204	This DTC Diagnoses Injector 4 enable low side driver circuit for circuit faults.	Low current through the low side driver during operation indicates open circuit	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 5 Open Circuit - (SIDI)	P0205	This DTC Diagnoses Injector 5 enable low side driver circuit for circuit faults.	Low current through the low side driver during operation indicates open circuit	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Sec P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 6 Open Circuit - (SIDI)	P0206	This DTC Diagnoses Injector 6 enable low side driver circuit for circuit faults.	Low current through the low side driver during operation indicates open circuit	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TPS2 Circuit Low	P0222	Detects a continuous or intermittent short or open in TPS2 circuit	TPS2 Voltage <	0.250		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P06A3)	79 / 159 counts; 57 counts continuous; 3.125 ms /count in the ECM main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TPS2 Circuit High	P0223	Detects a continuous or intermittent short or open in TPS2 circuit	TPS2 Voltage >	4.590		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P06A3)	79 / 159 counts; 57 counts continuous; 3.125 ms /count in the ECM main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 1 Low side circuit shorted to ground (SIDI)	P0261	This DTC Diagnoses Injector 1 enable low side driver circuit for circuit faults.	Voltage low across low side drive during off state indicates short-to-ground	Short to ground: ≤ 1 volt between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 1 Low side circuit shorted to power (SIDI)	P0262	This DTC Diagnoses Injector 1 enable low side driver circuit for circuit faults.	Voltage High across low side driver during On state indicates short to power	Short to power: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 2 Low side circuit shorted to ground (SIDI)	P0264	This DTC Diagnoses Injector 2 enable low side driver circuit for circuit faults.	Voltage low across low side drive during off state indicates short-to-ground	Short to ground: ≤ 1 volt between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 2 Low side circuit shorted to power (SIDI)	P0265	This DTC Diagnoses Injector 2 enable low side driver circuit for circuit faults.	Voltage High across low side driver during On state indicates short to power	Short to power: 25 amp >= through low side driver	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 3 Low side circuit shorted to ground (SIDI)	P0267	This DTC Diagnoses Injector 3 enable low side driver circuit for circuit faults.	Voltage low across low side drive during off state indicates short-to-ground	Short to ground: ≤ 1 volt between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 3 Low side circuit shorted to power (SIDI)	P0268	This DTC Diagnoses Injector 3 enable low side driver circuit for circuit faults.	Voltage High across low side driver during On state indicates short to power	Short to power: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 4 Low side circuit shorted to ground (SIDI)	P0270	This DTC Diagnoses Injector 4 enable low side driver circuit for circuit faults.	Voltage low across low side drive during off state indicates short-to-ground	Short to ground: ≤ 1 volt between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 5 Low side circuit shorted to ground (SIDI)	P0273	This DTC Diagnoses Injector 5 enable low side driver circuit for circuit faults.	Voltage low across low side drive during off state indicates short-to-ground	Short to ground: ≤ 1 volt between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 5 Low side circuit shorted to power (SIDI)	P0274	This DTC Diagnoses Injector 5 enable low side driver circuit for circuit faults.	Voltage High across low side driver during On state indicates short to power	Short to power: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 6 Low side circuit shorted to ground (SIDI)	P0276	This DTC Diagnoses Injector 6 enable low side driver circuit for circuit faults.	Voltage low across low side drive during off state indicates short-to-ground	Short to ground: ≤ 1 volt between signal and controller ground	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 6 Low side circuit shorted to power (SIDI)	P0277	This DTC Diagnoses Injector 6 enable low side driver circuit for circuit faults.	Voltage High across low side driver during On state indicates short to power	Short to power: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.	
Random Misfire Detected	P0300	These DTC's will determine if a random or a cylinder specific misfire is occurring by monitoring various terms derived from crankshaft velocity. The rate of misfire over an interval is compared to both emissions and catalyst damaging thresholds. The pattern of crankshaft acceleration after the misfire is checked to differentiate between real misfire and other sources of crank shaft noise.	Crankshaft Deceleration Value(s) vs. Engine Speed and Engine load		Engine Run Time	> 2 crankshaft revolution	Emission Exceedence = any (5) failed 200 rev blocks out of (16) 200 rev block tests	Type B, 2 Trips (Mil Flashes with Catalyst damage level of Misfire)	
Cylinder 1 Misfire Detected	P0301		The equation used to calculate deceleration value is tailored to specific vehicle operating conditions.		Engine Coolant Temp Or If ECT at startup Then ECT	-7 °C < ECT < 127 °C < -7 °C 21 °C < ECT < 127 °C			
Cylinder 2 Misfire Detected	P0302		The selection of the equation used is based on the 1st single cylinder continuous misfire threshold tables encountered that are not max of range. If all tables are max of range at a given speed/load, that speed load region is an Undetectable region see Algorithm Description Document for additional details.		System Voltage + Throttle delta - Throttle delta	9.00 < volts < 32.00 < 60.00 % per 25 ms < 90.00 % per 25 ms			Failure reported for (1) Exceedence in 1st (16) 200 rev block tests, or (4) Exceedences thereafter.
Cylinder 3 Misfire Detected	P0303								
Cylinder 4 Misfire Detected	P0304								
Cylinder 5 Misfire Detected	P0305				- see details of thresholds on Supporting Tables Tab (P0300 Section)	Early Termination option: (used on plug ins that may not have enough engine run time at end of trip for normal interval to complete.)			Not Enabled
Cylinder 6 Misfire Detected	P0306		SINGLE CYLINDER CONTINUOUS MISFIRE((Medres_Decel Medres_Jerk	> IdleSCD_Decel AND > IdleSCD_Jerk			any Catalyst Exceedence = (1) 200 rev block as data supports for catalyst damage.		
			OR (Medres_Decel Medres_Jerk	> SCD_Decel AND > SCD_Jerk					
			OR (Lores_Decel Lores_Jerk	> IdleCyl_Decel AND > IdleCyl_Jerk					
			OR (Lores_Decel Lores_Jerk	> CylModeDecel AND > CylModeJerk					
			OR RevBalanceTime	> RevMode_Decel					

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>Other patterns of misfire use adjustments to the single cylinder continuous misfire threshold tables:</p> <p>RANDOM MISFIRE Use random misfire thresholds If no misfire for</p> <p>(Medres_Decel AND Medres_Jerk)</p> <p>OR (Medres_Decel AND Medres_Jerk)</p> <p>OR (Lores_Decel AND Lores_Jerk)</p> <p>OR (Lores_Decel AND Lores_Jerk)</p> <p>OR RevBalanceTime</p>	<p>> 5 Engine Cycles</p> <p>> IdleSCD_Decel * Random_SCD_Decel</p> <p>> IdleSCD_Jerk * Random_SCD_Jerk</p> <p>> SCD_Decel * Random_SCD_Decel</p> <p>> SCD_Jerk * Random_SCD_Jerk</p> <p>> IdleCyl_Decel * RandomCylModDecel</p> <p>> IdleCyl_Jerk * RandomCylModeJerk</p> <p>> CylModeDecel * RandomCylModDecel</p> <p>> CylModeJerk * RandomCylModeJerk</p> <p>> RevMode_Decel * RandomRevModDecl</p>			<p>Catalyst Failure reported with (1 or 3) Exceedences in FTP, or (1) Exceedence outside FTP.</p> <p>Continuous</p>	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>PAIRED CYLINDER MISFIRE If a cylinder & it's pair are above PAIR thresholds (Medres_Decel AND Medres_Jerk) OR (Medres_Decel AND Medres_Jerk) OR (Lores_Decel AND Lores_Jerk) OR (Lores_Decel AND Lores_Jerk) OR (Revmode Active AND (within one engine cycle: 2nd largest Lores_Decel) AND Above TRUE for)</p>	<p>> IdleSCD_Decel * Pair_SCD_Decel > IdleSCD_Jerk * Pair_SCD_Jerk > SCD_Decel * Pair_SCD_Decel > SCD_Jerk * Pair_SCD_Jerk > IdleCyl_Decel * PairCylModeDecel > IdleCyl_Jerk * PairCylModeJerk > CylModeDecel * PairCylModeDecel > CylModeJerk * PairCylModeJerk > CylModeDecel * PairCylModeDecel > 40 engine cycles out of 100 engine cycles</p>				

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			BANK MISFIRE Cylinders above Bank Thresholds (Medres_Decel AND Medres_Jerk) OR (Medres_Decel AND Medres_Jerk) OR (Lores_Decel AND Lores_Jerk) OR (Lores_Decel AND Lores_Jerk)	>= 3 cylinders > IdleSCD_Decel * Bank_SCD_Decel > IdleSCD_Jerk * Bank_SCD_Jerk > SCD_Decel * Bank_SCD_Decel > SCD_Jerk * Bank_SCD_Jerk > IdleCyl_Decel * BankCylModeDecel > IdleCyl_Jerk * BankCylModeJerk > CylModeDecel * BankCylModeDecel > CylModeJerk * BankCylModeJerk				
			CONSECUTIVE CYLINDER MISFIRE 1st cylinder uses single cyl continuous misfire thresholds; 2nd Cylinder uses: (Medres_Decel	> IdleSCD_Decel * ConsecSCD_Decel				

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p align="center">AND Medres_Jerk)</p> <p align="center">OR (Medres_Decel</p> <p align="center">AND Medres_Jerk)</p> <p align="center">OR (Lores_Decel</p> <p align="center">AND Lores_Jerk)</p> <p align="center">OR (Lores_Decel</p> <p align="center">AND Lores_Jerk)</p> <p>CYLINDER DEACTIVATION MODE (Active Fuel Managment)</p> <p>AFM: SINGLE CYLINDER CONTINUOUS MISFIRE (CylAfterDeacCyl_Decel</p> <p align="center">AND CylAfterDeacCyl_Jerk)</p> <p>OR</p>	<p>> IdleSCD_Jerk * ConsecSCD_Jerk</p> <p>> SCD_Decel * ConsecSCD_Decel</p> <p>> SCD_Jerk * ConsecSCD_Jerk</p> <p>> IdleCyl_Decel * ConsecCylModDecel</p> <p>> IdleCyl_Jerk * ConsecCylModeJerk</p> <p>> CylModeDecel * ConsecCylModDecel</p> <p>> CylModeJerk * ConsecCylModeJerk</p> <p>> CylModeDecel * ClyAfterAFM_Decel</p> <p>> CylModeJerk * CylAfterAFM_Jerk</p> <p>> CylModeDecel *</p>				

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			(CylBeforeDeacCylDecel AND CylBeforeDeacCyl_Jerk) AFM: RANDOM MISFIRE Use random misfire thresholds If no misfire for (CylAfterDeacCyl_Decel AND CylAfterDeacCyl_Jerk) (CylBeforeDeacCylDecel AND CylBeforeDeacCyl_Jerk)	CylBeforeAFM_Decel > CylModeJerk * ClyBeforeAFM_Jerk > 5 Engine Cycles > CylModeDecel * ClyAfterAFM_Decel * RandomAFM_Decl > CylModeJerk * CylAfterAFM_Jerk * RandomAFM_Jerk > CylModeDecel * ClyAfterAFM_Decel * RandomAFM_Decl > CylModeJerk * CylAfterAFM_Jerk * RandomAFM_Jerk				
			Misfire Percent Emission Failure Threshold	≥ 1.58 % P0300				

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Misfire Percent Catalyst Damage	> Catalyst_Damage_Misfire_Percentage in Supporting Tables whenever secondary conditions are met.	(at low speed/loads, one cylinder may not cause cat damage)	> 1,500 rpm AND > 30 % load AND < 180 counts on one cylinder		
			When engine speed and load are less than the FTP calcs (3) catalyst damage exceedences are allowed.	≤ 0 FTP rpm AND ≤ 0 FTP % load	Engine Speed Engine Load Misfire counts			
				disable conditions:				
					Engine Speed	400 < rpm < ((Engine Over Speed Limit) - 150 Engine speed limit is a function of inputs like Gear and temperature see EngineOverSpeedLimit in supporting tables	4 cycle delay	
					No active DTCs:	TPS_FA EnginePowerLimited MAF_SensorTFTKO MAP_SensorTFTKO IAT_SensorTFTKO ECT_Sensor_Ckt_TFTKO 5VoltReferenceB_FA CrankSensorTFTKO CrankSensorFA	4 cycle delay	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						CamLctnIntFA CamLctnExhFA CamSensorAnyLctnTFTK O AnyCamPhaser_FA AnyCamPhaser_TFTKO AmbPresDfstdStatus		
					P0315 & engine speed	> 1,000 rpm	4 cycle delay	
					Fuel Level Low	LowFuelConditionDiagnostic	500 cycle delay	
					Cam and Crank Sensors	in sync with each other	4 cycle delay	
					Misfire requests TCC unlock	Not honored because Transmission in hot mode or POPD intrusive diagnostic running	4 cycle delay	
					Fuel System Status	≠ Fuel Cut	4 cycle delay	
					Active FuelManagement	Transition in progress	7 cycle delay	
					Undetectable engine speed and engine load region	Undetectable region from Malfunction Criteria	4 cycle delay	
					Abusive Engine Over Speed	> 8,192 rpm	0 cycle delay	
					Below zero torque (except CARB approved 3000 rpm to redline triangle.)	< ZeroTorqueEngLoad in Supporting Tables	4 cycle delay	
					Below zero torque: TPS Vehicle Speed	≤ 1 % > 19 mph	4 cycle delay	
					EGR Intrusive test	Active	0 cycle delay	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>individual candidate deemed abnormal if number of consecutive decelerating cylinders after "misfire": (Number of decels can vary with misfire detection equation)</p> <p>Consecutive decels while in SCD Mode Cyl Mode Rev Mode</p> <p>At the end of 100 engine cycle test, the ratio of abnormal/candidate is checked to confirm if real misfire is present within the 100 engine cycles.</p> <p>abnormal candidates/ total candidates</p> <p>MISFIRE CRANKSHAFT PATTERN RECOGNITION checks each "misfire" candidate in 100 engine Cycle test to see if overall crankshaft pattern looks like real misfire (recognized), or some disturbance like rough road (unrecognized).</p>	<p>> Abnormal SCD Mode > Abnormal Cyl Mode > Abnormal Rev Mode in Supporting Tables</p> <p>> 0.50 ratio</p>	<p>discard 100 engine cycle test</p>	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>At the end of 100 engine cycle test, the ratio of unrecog/recognized is checked to confirm if real misfire is present within the 100 engine cycles. Typically used for checking a single misfire per engine cycle but can support some other patterns on some packages</p> <p>Pattern Recog Enabled:</p> <p>Pattern Recog Enabled during Cylinder Deac</p> <p>Pattern Recog Enabled consecutive cyl patrn</p> <p>Engine Speed Veh Speed</p> <p>The 1st check for "recognized" is the 1st fired cylinder after the misfire candidate should both accelerate and jerk an amount based acceleration and jerk of Single Cylinder Misfire thresholds in effect at that speed and load.</p> <p>(CylAfter_Accel AND CylAfter_Jerk)</p>	<p>Enabled</p> <p>Not Enabled</p> <p>Enabled</p> <p>1,000 < rpm < 6,500 > 0.6 mph</p> <p>> Misfire_decel * 1st_FireAftrMisfr_Acel</p> <p>> Misfire_Jerk * 1st_FireAftrMisfr_Jerk</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Additionally, the crankshaft is checked again a small calibratable number of cylinders later to see if the disturbance is still large like rough road, or has calmed down like real misfire. The size of disturbance is compared to a multiplier times the ddt_jerk value used to detect misfire at that speed and load. If there is repetitive misfire on consecutive engine cycles, the expected snap is adjusted due to the higher expected disturbance.</p> <p>Num of Cylinders after misfire to start check of crankshaft snap</p> <p>"misfire" recognized if: Crankshaft snap after: isolated "misfire"</p> <p>repetative "misfire"</p> <p>At the end of 100 engine cycle test, the ratio of unrecog/recognized is checked to confirm if real misfire is present.</p> <p>Ratio of Unrecog/Recog</p>	<p>2 Cylinders</p> <p>< Misfire_Jerk * SnapDecayAfterMisfire</p> <p>< Misfire_Jerk * SnapDecayAfterMisfire * RepetSnapDecayAdjst in Supporting Tables</p> <p>> 0.70</p>	<p>discard 100 engine cycle test</p>	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					: NON-CRANKSHAFT BASED ROUGH ROAD: Rough Road Source IF Rough Road Source = WheelSpeedInECM ABS/TCS Wheel speed noise VSES IF Rough Road Source = "FromABS" ABS/TCS RoughRoad VSES IF Rough Road Source = "TOSS" TOSS dispersion AND No Active DTCs	Disabled TOSS active > WSSRoughRoadThres active active detected active > TOSSRoughRoadThres in supporting tables Transmission Output Shaft Angular Velocity Validity TransmissionEngagedStat e_FA (Auto Trans only) Clutch Sensor FA (Manual Trans only)	discard 100 engine cycle test discard 100 engine cycle test discard 100 engine cycle test 4 cycle delay	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position System Variation Not Learned	P0315	Monitor for valid crankshaft error compensation factors	Sum of Compensation factors. Each Cylinder pair shares one compensation factor. A perfect factor would be 1.0000. Unlearned factors are defaulted out of range so the sum of factors would be out of range.	≥ 3.0040 OR ≤ 2.9960	OBD Manufacturer Enable Counter	MEC = 0	0.50 seconds Frequency Continuous100 msec	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Performance Per Cylinder	P0324	This diagnostic checks for knock sensor performance out of the normal expected range on a per cylinder basis due to: 1. Excessive knock or 2. Abnormal engine noise or 3. Flat signal	Common Enable Criteria (Applies to all 3 parts of the performance diag)		Diagnostic Enabled?	Yes		Type B, 2 Trips
			Specific Enable Criteria and Thresholds for 3 individual parts of the performance diag:		Engine Run Time	≥ 2.0 seconds		
					Engine Speed	≤ 8,500 RPM		
					Engine Air Flow	≥ 0 mg/cylinder and ≤ 2,000 mg/cylinder		
					ECT	≥ -40 deg's C		
					IAT	≥ -40 deg's C	First Order Lag Filters with Weight Coefficients	
			1. Excessive Knock Diag: Filtered Knock Intensity	> 3.00 (no units)	Engine Speed	≥ 400 RPM	Excessive Knk Weight Coefficient = 0.0300	
			VaKNKD_k_PerfCylKnock IntFilt (where 'Knock Intensity' = 0 with no knock; and > 0 & proportional to knock magnitude with knock)		Cumulative Number of Engine Revs Above Min Eng Speed (per key cycle)	≥ 132 Revs	Updated each engine event	
			2. Abnormal Noise Diag: Filtered FFT Intensity	< P0324_P0326_P0331_AbnormalNoise_Threshold (Supporting Table)	Individual Cylinders enabled for Abnormal Noise	P0324_P0326_P0331_AbnormalNoise_CylsEnabled (1 = cylinder enabled, 0 = cylinder not enabled)	Abn Noise Weight Coefficient = 0.0200	
			(where 'FFT Intensity' = Non-knocking, background noise)		Engine Speed	≥ 8,500 RPM	Updated each engine event	
					Cumulative Number of Engine Revs Above Min	≥ 200 Revs		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			3. Flat Signal Diag: Filtered Signal Delta (Current FFT Intensity - Ave_Intensity_No-Knock) VaKNKD_k_PerfCylFlatFil tInt	< 0.008 (no units)	Eng Speed (per key cycle) ----- Engine Speed Cumulative Number of Engine Revs Above Min Eng Speed (per keycycle)	----- ≥ 8,500 RPM ≥ 400 Revs	----- Flat Signal Weight Coefficient = 0.010 Updated each engine event	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Circuit Bank 1	P0325	<p>This diagnostic checks for an open in the knock sensor circuit.</p> <p>There are two possible methods used:</p> <ol style="list-style-type: none"> 20 kHz Normal Noise <p>See Supporting Tables for method definition: P0325_P0330_OpenMethod</p> <p>Typical implementations:</p> <ol style="list-style-type: none"> Use 20 kHz method at all RPM (used when acceptable separation achieved at all RPM) or Use 20 kHz method at low/medium RPM and Normal Noise at high RPM 	<p>Open Circuit Method chosen (2 possible methods: 20 kHz or Normal Noise):</p> <p>Thresholds for OpenMethod = 20 kHz</p> <p>Filtered FFT Output</p> <p>Thresholds for OpenMethod = NormalNoise:</p> <p>Filtered FFT Output</p>	<p>Supporting Table: P0325_P0330_OpenMethod_2</p> <p>(See Supporting Tables)</p> <p>> P0325_P0330_OpenCktThrshMin (20 kHz) AND < P0325_P0330_OpenCktThrshMax (20 kHz)</p> <p>> P0325_P0330_OpenCktThrshMin (Normal Noise) AND < P0325_P0330_OpenCktThrshMax (Normal Noise)</p>	<p>Diagnostic Enabled?</p> <p>Engine Run Time</p> <p>Engine Speed</p> <p>Cumulative Number of Engine Revs (per key cycle) within min/max Engine Speed enable (above)</p> <p>Engine Air Flow</p> <p>ECT</p> <p>IAT</p>	<p>Yes</p> <p>≥ 2.0 seconds</p> <p>≥ 400 RPM and ≤ 8,500 RPM</p> <p>≥ 133 revs</p> <p>≥ 50 mg/cylinder and ≤ 2,000 mg/cylinder</p> <p>≥ -40 deg's C</p> <p>≥ -40 deg's C</p>	<p>First Order Lag Filter with Weight Coefficient</p> <p>Weight Coefficient = 0.0100</p> <p>Updated each engine event</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.	
Knock Sensor (KS) Performance Bank 1	P0326	This diagnostic checks for knock sensor performance out of the normal expected range, on a per sensor basis, due to 1. Excessive knock or 2. Abnormal engine noise or 3. Flat signal	Common Enable Criteria (Applies to all 3 parts of the performance diag)		Diagnostic Enabled? Engine Run Time Engine Speed Engine Air Flow ECT IAT	Yes ≥ 2.0 seconds ≤ 8,500 RPM ≥ 0 mg/cylinder and ≤ 2,000 mg/cylinder ≥ -40 deg's C ≥ -40 deg's C		Type B, 2 Trips	
			----- Specific Enable Criteria and Thresholds for 3 individual parts of the performance diag: -----						First Order Lag Filters with Weight Coefficients
			1. Excessive Knock Diag: Filtered Knock Intensity (where 'Knock Intensity' = 0 with no knock; and > 0 & proportional to knock magnitude with knock)	> 3.00 (no units)	Engine Speed Cumulative Number of Engine Revs Above Min Eng Speed (per key cycle)	≥ 8,500 RPM ≥ 133 Revs	Excessive Knk Weight Coefficient = 0.0100 Updated each engine event		
			2. Abnormal Noise Diag: Filtered FFT Intensity: (where 'FFT Intensity' = Non-knocking, background noise)	< P0324_P0326_P0331_AbnormalNoise_Threshold (Supporting Table)	Individual Cylinders enabled for Abnormal Noise Engine Speed Cumulative Number of Engine Revs Above Min	P0324_P0326_P0331_AbnormalNoise_CylsEnabled (Supporting Table) ≥ 2,200 RPM ≥ 199 Revs	Abnormal Noise Weight Coefficient = 0.0067 Updated each engine event		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			----- 3. Flat Signal Diag: Filtered Signal Delta (Current FFT Intensity - Ave_Intensity_No-Knock)	----- < 0.008 (no units)	Eng Speed (per key cycle) ----- Engine Speed Cumulative Number of Engine Revs Above Min Eng Speed (per keycycle)	----- ≥ 8,500 RPM ≥ 133 Revs	----- Flat Signal Weight Coefficient = 0.010 Updated each engine event	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Circuit Low Bank 1	P0327	This diagnostic checks for an out of range low knock sensor signal	Sensor Input or Return Signal Line	< 8.0 Percent (of 5 V reference)	Diagnostic Enabled? Engine Speed	Yes > 0 RPM and < 8,500 RPM	50 Failures out of 63 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Circuit High Bank 1	P0328	This diagnostic checks for an out of range high knock sensor signal	Sensor Input or Return Signal Line	> 39.0 Percent (of 5 Volt Reference)	Diagnostic Enabled? Engine Speed	Yes > 0 RPM and < 8,500 RPM	50 Failures out of 63 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Circuit Bank 2	P0330	<p>This diagnostic checks for an open in the knock sensor circuit</p> <p>There are two possible methods used:</p> <ol style="list-style-type: none"> 20 kHz Normal Noise <p>See Supporting Tables for method definition: P0325_P0330_OpenMethod</p> <p>Typical implementations:</p> <ol style="list-style-type: none"> Use 20 kHz method at all RPM (used when acceptable separation achieved at all RPM) or Use 20 kHz method at low/medium RPM and Normal Noise at high RPM 	<p>Open Circuit Method chosen (2 possible methods: 20 kHz or Normal Noise):</p> <p>Thresholds for OpenMethod = 20 kHz</p> <p>Filtered FFT Output</p> <p>Thresholds for OpenMethod = NormalNoise:</p> <p>Filtered FFT Output</p>	<p>Supporting Table: P0325_P0330_OpenMethod_2</p> <p>(See Supporting Tables)</p> <p>> P0325_P0330_OpenCktThrshMin (20 kHz) AND < P0325_P0330_OpenCktThrshMax (20 kHz)</p> <p>> P0325_P0330_OpenCktThrshMin (Normal Noise) AND < P0325_P0330_OpenCktThrshMax (Normal Noise)</p>	<p>Diagnostic Enabled?</p> <p>Engine Run Time</p> <p>Engine Speed</p> <p>Cumulative Number of Engine Revs (per key cycle) within min/max Engine Speed enable (above)</p> <p>Engine Air Flow</p> <p>ECT</p> <p>IAT</p>	<p>Yes</p> <p>≥ 2.0 seconds</p> <p>≥ 400 RPM and ≤ 8,500 RPM</p> <p>≥ 133 revs</p> <p>≥ 50 mg/cylinder and ≤ 2,000 mg/cylinder</p> <p>≥ -40 deg's C</p> <p>≥ -40 deg's C</p>	<p>First Order Lag Filter with Weight Coefficient</p> <p>Weight Coefficient = 0.0100</p> <p>Updated each engine event</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Performance Bank 2	P0331	This diagnostic checks for knock sensor performance out of the normal expected range, on a per sensor basis, due to 1. Excessive knock or 2. Abnormal engine noise on a per bank basis or 3. Flat signal	Common Enable Criteria (Applies to all 3 parts of the performance diag)		Diagnostic Enabled? Engine Run Time Engine Speed Engine Air Flow ECT IAT	Yes ≥ 2.0 seconds ≤ 8,500 RPM ≥ 0 mg/cylinder and ≤ 2,000 mg/cylinder ≥ -40 deg's C ≥ -40 deg's C		Type B, 2 Trips
			Specific Enable Criteria and Thresholds for 3 individual parts of the performance diag:				First Order Lag Filters with Weight Coefficients	
			1. Excessive Knock Diag: Filtered Knock Intensity (where 'Knock Intensity' = 0 with no knock; and > 0 & proportional to knock magnitude with knock)	> 3.00 (no units)	Engine Speed Cumulative Number of Engine Revs Above Min Eng Speed (per key cycle)	≥ 8,500 RPM ≥ 133 Revs	Excessive knk Weight Coefficient = 0.0100 Updated each engine event	
2. Abnormal Noise Diag: Filtered FFT Intensity: (where 'FFT Intensity' = Non-knocking, background noise)	< P0324_P0326_P0331_AbnormalNoise_Threshold (Supporting Table)	Individual Cylinders enabled for Abnormal Noise Engine Speed Cumulative Number of Engine Revs Above Min Eng Speed (per key cycle)	P0324_P0326_P0331_AbnormalNoise_CylsEnabled (Supporting Table) ≥ 2,200 RPM ≥ 199 Revs	Abnormal Noise Weight Coefficient = 0.0067 Updated each engine event				

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			3. Flat Signal Diag: Filtered Signal Delta (Current FFT Intensity - Ave_Intensity_No-Knock)	< 0.008 (no units)	Engine Speed Cumulative Number of Engine Revs Above Min Eng Speed (per keycycle)	≥ 8,500 RPM ≥ 133 Revs	Flat Signal Weight Coefficient = 0.010 Updated each engine event	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Circuit Low Bank 2	P0332	This diagnostic checks for an out of range low knock sensor signal	Sensor Input or Return Signal Line	< 8.0 Percent (of 5 Volt Reference)	Diagnostic Enabled? Engine Speed	Yes > 0 RPM and < 8,500 RPM	50 Failures out of 63 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Knock Sensor (KS) Circuit High Bank 2	P0333	This diagnostic checks for an out of range high knock sensor signal	Sensor Input or Return Signal Line	> 39.00 Percent (of 5 Volt Reference)	Diagnostic Enabled? Engine Speed	Yes > 0 RPM and < 8,500 RPM	50 Failures out of 63 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position (CKP) Sensor A Circuit	P0335	Determines if a fault exists with the crank position sensor signal	Time since last crankshaft position sensor pulse received	>= 4.0 seconds	Starter engaged AND (cam pulses being received OR (MAF_SensorFA AND Engine Air Flow	= FALSE > 3.0 grams/second))	Continuous every 100 msec	Type B, 2 Trips
			No crankshaft pulses received	>= 0.1 seconds	Engine is Running Starter is not engaged		Continuous every 12.5 msec	
			No crankshaft pulses received		Engine is Running OR Starter is engaged No DTC Active:	P0365 P0366	2 failures out of 10 samples One sample per engine revolution	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position (CKP) Sensor A Performance	P0336	Determines if a performance fault exists with the crank position sensor signal	Time in which 10 or more crank re-synchronizations occur	< 10.0 seconds	Engine Air Flow Cam-based engine speed No DTC Active:	>= 3.0 grams/second > 450 RPM P0335	Continuous every 250 msec	Type B, 2 Trips
			No crankshaft synchronization gap found	>= 0.4 seconds	Engine is Running Starter is not engaged		Continuous every 12.5 msec	
			Time since starter engaged without detecting crankshaft synchronization gap	>= 1.5 seconds	Starter engaged AND (cam pulses being received OR (MAF_SensorFA AND Engine Air Flow	= FALSE > 3.0 grams/second))	Continuous every 100 msec	
			Crank pulses received in one engine revolution OR Crank pulses received in one engine revolution	< 51 > 65	Engine is Running OR Starter is engaged No DTC Active:	P0365 P0366	8 failures out of 10 samples One sample per engine revolution	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position (CMP) Sensor Circuit Bank 1 Sensor A	P0340	Determines if a fault exists with the cam position bank 1 sensor A signal	Time since last camshaft position sensor pulse received	>= 5.5 seconds	Starter engaged AND (crank pulses being received OR (MAF_SensorFA AND Engine Air Flow	= FALSE > 3.0 grams/second))	Continuous every 100 msec	Type B, 2 Trips
			OR Time that starter has been engaged without a camshaft sensor pulse	>= 4.0 seconds				
			Fewer than 4 camshaft pulses received in a time	> 3.0 seconds	Engine is running Starter is not engaged		Continuous every 100 msec	
			No camshaft pulses received during first 12 MEDRES events (There are 12 MEDRES events per engine cycle		Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged No DTC Active:	CrankSensor_FA	Continuous every MEDRES event	
		The number of camshaft pulses received during 100 engine cycles	= 0	Crankshaft is synchronized No DTC Active:	CrankSensor_FA	8 failures out of 10 samples Continuous every engine cycle		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position (CMP) Sensor Performance Bank 1 Sensor A	P0341	Determines if a performance fault exists with the cam position bank 1 sensor A signal	The number of camshaft pulses received during first 12 MEDRES events is OR (There are 12 MEDRES events per engine cycle)	< 4 OR > 6	Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged No DTC Active:	CrankSensorFA	Continuous every MEDRES event	Type B, 2 Trips
			The number of camshaft pulses received during 100 engine cycles OR	< 398 OR > 402	Crankshaft is synchronized No DTC Active:	CrankSensorFA	8 failures out of 10 samples Continuous every engine cycle	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.	
Camshaft Position (CMP) Sensor Circuit Bank 2 Sensor A	P0345	Determines if a fault exists with the cam position bank 2 sensor A signal	Time since last camshaft position sensor pulse received	>= 5.5 seconds	Starter engaged AND (crank pulses being received OR (MAF_SensorFA AND Engine Air Flow	= FALSE > 3.0 grams/second))	Continuous every 100 msec	Type B, 2 Trips	
			OR						
			Time that starter has been engaged without a camshaft sensor pulse	>= 4.0 seconds					
			Fewer than 4 camshaft pulses received in a time	> 3.0 seconds	Engine is running Starter is not engaged		Continuous every 100 msec		
			No camshaft pulses received during first 12 MEDRES events (There are 12 MEDRES events per engine cycle		Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged		Continuous every MEDRES event		
			The number of camshaft pulses received during 100 engine cycles	= 0	Crankshaft is synchronized No DTC Active:	CrankSensor_FA	8 failures out of 10 samples Continuous every engine cycle		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position (CMP) Sensor Performance Bank 2 Sensor A	P0346	Determines if a performance fault exists with the cam position bank 2 sensor A signal	The number of camshaft pulses received during first 12 MEDRES events is OR (There are 12 MEDRES events per engine cycle)	< 4 OR > 6	Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged No DTC Active:	CrankSensorFA	Continuous every MEDRES event	Type B, 2 Trips
			The number of camshaft pulses received during 100 engine cycles OR	< 398 OR > 402	Crankshaft is synchronized No DTC Active:	CrankSensorFA	8 failures out of 10 samples Continuous every engine cycle	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #1 CIRCUIT	P0351	Diagnoses Cylinder #1 Ignition Control (EST) output driver circuit for an Open Circuit fault.	High impedance during driver high state (indicates open circuit)	$\geq 30 \text{ k}\Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #2 CIRCUIT	P0352	Diagnoses Cylinder #2 Ignition Control (EST) output driver circuit for an Open Circuit fault.	High impedance during driver high state (indicates open circuit)	≥ 30 k Ω impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #3 CIRCUIT	P0353	Diagnoses Cylinder #3 Ignition Control (EST) output driver circuit for an Open Circuit fault.	High impedance during driver high state (indicates open circuit)	$\geq 30 \text{ k}\Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #4 CIRCUIT	P0354	Diagnoses Cylinder #4 Ignition Control (EST) output driver circuit for an Open Circuit fault.	High impedance during driver high state (indicates open circuit)	$\geq 30 \text{ k}\Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #5 CIRCUIT	P0355	Diagnoses Cylinder #5 Ignition Control (EST) output driver circuit for an Open Circuit fault.	High impedance during driver high state (indicates open circuit)	≥ 30 k Ω impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #6 CIRCUIT	P0356	Diagnoses Cylinder #6 Ignition Control (EST) output driver circuit for an Open Circuit fault.	High impedance during driver high state (indicates open circuit)	$\geq 30 \text{ k}\Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position (CMP) Sensor Circuit Bank 1 Sensor B	P0365	Determines if a fault exists with the cam position bank 1 sensor B signal	Time since last camshaft position sensor pulse received	>= 5.5 seconds	Starter engaged AND (crank pulses being received OR (MAF_SensorFA AND Engine Air Flow	= FALSE > 3.0 grams/second))	Continuous every 100 msec	Type B, 2 Trips
			OR Time that starter has been engaged without a camshaft sensor pulse	>= 4.0 seconds				
			Fewer than 4 camshaft pulses received in a time	> 3.0 seconds	Engine is running Starter is not engaged		Continuous every 100 msec	
			No camshaft pulses received during first 12 MEDRES events (There are 12 MEDRES events per engine cycle		Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged No DTC Active:	CrankSensor_FA	Continuous every MEDRES event	
		The number of camshaft pulses received during 100 engine cycles	= 0	Crankshaft is synchronized No DTC Active:	CrankSensor_FA	8 failures out of 10 samples Continuous every engine cycle		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position (CMP) Sensor Performance Bank 1 Sensor B	P0366	Determines if a performance fault exists with the cam position bank 1 sensor B signal	The number of camshaft pulses received during first 12 MEDRES events is OR (There are 12 MEDRES events per engine cycle)	< 4 > 6	Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged No DTC Active:	CrankSensorFA	Continuous every MEDRES event	Type B, 2 Trips
			The number of camshaft pulses received during 100 engine cycles OR	< 398 > 402	Crankshaft is synchronized No DTC Active:	CrankSensorFA	8 failures out of 10 samples Continuous every engine cycle	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position (CMP) Sensor Circuit Bank 2 Sensor B	P0390	Determines if a fault exists with the cam position bank 2 sensor B signal	Time since last camshaft position sensor pulse received	>= 5.5 seconds	Starter engaged AND (crank pulses being received OR (MAF_SensorFA AND Engine Air Flow	= FALSE > 3.0 grams/second))	Continuous every 100 msec	Type B, 2 Trips
			OR					
			Time that starter has been engaged without a camshaft sensor pulse	>= 4.0 seconds				
			Fewer than 4 camshaft pulses received in a time	> 3.0 seconds	Engine is running Starter is not engaged		Continuous every 100 msec	
			No camshaft pulses received during first 12 MEDRES events (There are 12 MEDRES events per engine cycle		Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged		Continuous every MEDRES event	
			The number of camshaft pulses received during 100 engine cycles	= 0	No DTC Active: Crankshaft is synchronized No DTC Active:	CrankSensor_FA CrankSensor_FA	8 failures out of 10 samples Continuous every engine cycle	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position (CMP) Sensor Performance Bank 2 Sensor B	P0391	Determines if a performance fault exists with the cam position bank 2 sensor B signal	The number of camshaft pulses received during first 12 MEDRES events is OR (There are 12 MEDRES events per engine cycle)	< 4 OR > 6	Crankshaft is synchronized Starter must be engaged to enable the diagnostic, but the diagnostic will not disable when the starter is disengaged No DTC Active:	CrankSensorFA	Continuous every MEDRES event	Type B, 2 Trips
			The number of camshaft pulses received during 100 engine cycles OR	< 398 OR > 402	Crankshaft is synchronized No DTC Active:	CrankSensorFA	8 failures out of 10 samples Continuous every engine cycle	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Catalyst System Low Efficiency Bank 1	P0420	<p>NOTE: The information contained below applies to applications that use the Idle Catalyst Monitor Algorithm</p> <p>The catalyst washcoat contains Cerium Oxide. Cerium Oxide reacts with NO and O2 during lean A/F excursions to store the excess oxygen (I.e. Cerium Oxidation). During rich A/F excursions, Cerium Oxide reacts with CO and H2 to release this stored oxygen (I.e. Cerium Reduction). This is referred to as the Oxygen Storage Capacity, or OSC. CatMon's strategy is to "measure" the OSC of the catalyst through forced Lean and Rich A/F excursions</p> <p>Normalized Ratio OSC Value Calculation Information and Definitions = 1. Raw OSC Calculation = (post cat O2 Resp time - pre cat O2 Resp time) 2. BestFailing OSC value from a calibration table (based on temp and exhaust gas flow)</p>	Normalized Ratio OSC Value (EWMA filtered)	< 0.35	<p>There must be a valid idle period. The criteria are:</p> <p>Driver must be off the accel pedal. This checks that the final accel pedal position (comprehending deadband and hysteresis) is essentially zero.</p> <p>Idle Speed Control System Is Active</p> <p>Vehicle Speed</p> <p>Engine speed</p> <p>Engine run time</p> <p>Tests attempted this trip</p> <p>The catalyst diagnostic has not yet completed for the current trip.</p> <p>Catalyst Idle Conditions Met Criteria is satisfied which includes the General Enable met and the Valid Idle Period</p>	<p>< 1.24 MPH</p> <p>> 1,000 RPM for a minimum of 5 seconds since end of last idle period.</p> <p>></p> <p>CatmonMinEngineRunTimeToEnable This is a function of Coolant Temperature, please see "Supporting Tables" for details.</p> <p>< 255</p>	<p>1 test attempted per valid idle period</p> <p>Minimum of 1 test per trip</p> <p>Maximum of 4 tests per trip</p> <p>Frequency: Fueling Related : 12.5 ms</p> <p>OSC Measurements: 100 ms</p> <p>Temp Prediction: 12.5ms</p>	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		<p>3. WorstPassing OSC value (based on temp and exhaust gas flow)</p> <p>Normalized Ratio Calculation = (1-2) / (3-2)</p> <p>A Normalized Ratio of 1 essentially represents a good part and a ratio of 0 essentially represents a very bad part. The Catalyst Monitoring Test is done during idle. Several conditions must be meet in order to execute this test. These conditions and their related values are listed in the secondary parameters area of this document.</p> <p>Refer to the P0420_WorstPassing OSCTableB1 and P0420_BestFailingOSCTableB1 table in the Supporting Tables tab for details</p>			<p>Criteria met, as well as:</p> <p>Green Converter Delay</p> <p>Induction Air</p> <p>Intrusive test(s): Fueltrim Post O2 EVAP EGROther vehicle functions:</p> <p>Power Take Off RunCrank Voltage Ethanol Estimation</p> <p>ECT</p> <p>Barometric Pressure</p> <p>Idle Time before going intrusive is</p> <p>Idle time is incremented if Vehicle speed</p> <p>Short Term Fuel Trim</p>	<p>Not Active</p> <p>> -20 ° C < 250 ° C</p> <p>Not Active</p> <p>Not Active > 10.90 Volts NOT in Progress</p> <p>> 40 ° C < 140 ° C</p> <p>> 70 KPA</p> <p>< 50 Seconds</p> <p>< 1.24 MPH and the drivers foot is off accel pedal and the idle speed control system is active as identified in the Valid Idle Period Criteria section.</p> <p>> 0.80 < 1.20</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Predicted catalyst temp AND Engine Airflow</p> <p>for at least</p> <p>with a closed throttle time</p> <p>Also, in order to increment the WarmedUpEvents counter, either the vehicle speed must exceed the vehicle speed cal or the driver must NOT be off the accel pedal as stated in the Valid Idle Period Criteria section above.</p>	<p>> 348.00 degC</p> <p>> CatmonMinAirflowForWarmCatalystDetermination table (g/s) (refer to "Supporting Tables" tab) (Based on engine coolant at the time the WarmedUpEvents counter resets to 0.)</p> <p>15 seconds</p> <p>< 60 seconds consecutively (closed throttle consideration involves having the driver off the accel pedal as stated in the Valid Idle Period Criteria Section) .</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Closed loop fueling (Please see "Closed Loop Enable Criteria" section of the "Supporting Tables" tab for details.)</p> <p>PRNDL</p> <p>Idle Stable Criteria:</p> <p>MAF</p> <p>Predicted catalyst temperature</p> <p>Engine Fueling Criteria at Beginning of Idle Period The following fueling related must also be met from between 4 and 7 seconds after the Catalyst Idle Conditions Met Criteria has been met for at least 4 seconds prior to allowing intrusive control:</p> <p>Number of pre-O2 switches</p> <p>Short Term Fuel Trim Avg</p> <p>Rapid Step Response</p>	<p>Enabled in Drive Range on an Auto Transmission vehicle.</p> <p>Must hold true from after Catalyst Idle Conditions Met to the end of test</p> <p>> 2.00 g/s < 20.00 g/s</p> <p>< 1,000 degC</p> <p>>= 2</p> <p>> 0.90 < 1.07</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>(RSR) feature will initiate multiple tests:</p> <p>If the difference between current EWMA value and the current OSC Normalized Ratio value is</p> <p>and the current OSC Normalized Ratio value is</p> <p>Maximum RSR tests to detect failure when RSR is enabled.</p> <p>The diagnostic will not be enabled until the following has been met:</p> <p>PTO</p> <p>General Enable DTC's Not Set</p>	<p>> 0.54</p> <p><0.10</p> <p>24</p> <p>Not Active</p> <p>MAF_SensorFA MAF_SensorTFTKO AmbPresDfltStatus IAT_SensorCircuitFA IAT_SensorCircuitTFTKO ECT_Sensor_FA O2S_Bank_1_Sensor_1_FA O2S_Bank_1_Sensor_2_FA O2S_Bank_2_Sensor_1_FA O2S_Bank_2_Sensor_2_FA FuelTrimSystemB1_FA FuelTrimSystemB1_TFTKO</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						FuelTrimSystemB2_FA FuelTrimSystemB2_TFTK O EngineMisfireDetected_FA EvapPurgeSolenoidCircuit_FA IAC_SystemRPM_FA EGRValvePerformance_FA EGRValveCircuit_FA CamSensorAnyLocationFA CrankSensorFA TPS_Performance_FA EnginePowerLimited		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Catalyst System Low Efficiency Bank 2	P0430	<p>Note: The information below applies to applications that use the Idle Catalyst Monitor Algorithm</p> <p>The catalyst washcoat contains Cerium Oxide. Cerium Oxide reacts with NO and O2 during lean A/F excursions to store the excess oxygen (i.e. Cerium Oxidation). During rich A/F excursions, Cerium Oxide reacts with CO and H2 to release this stored oxygen (i.e. Cerium Reduction). This is referred to as the Oxygen Storage Capacity, or OSC. CatMon's strategy is to "measure" the OSC of the catalyst through forced Lean and Rich A/F excursions</p> <p>Normalized Ratio OSC Value Calculation Information and Definitions =</p> <ol style="list-style-type: none"> 1. Raw OSC Calculation = (post cat O2 Resp time - pre cat O2 Resp time) 2. BestFailing OSC value from a calibration table (based on temp and exhaust gas flow) 3. WorstPassing OSC 	Normalized Ratio OSC Value (EWMA filtered)	< 0.35	<p>There must be a valid idle period. The criteria are:</p> <p>Driver must be off the accel pedal. This checks that the final accel pedal position (comprehending deadband and hysteresis) is essentially zero.</p> <p>Idle Speed Control System Is Active</p> <p>Vehicle Speed</p> <p>Engine speed</p> <p>Engine run time</p> <p>Tests attempted this trip</p> <p>The catalyst diagnostic has not yet completed for the current trip.</p> <p>Catalyst Idle Conditions Met Criteria is satisfied which includes the General Enable met and</p>	<p>< 1.24 MPH</p> <p>> 1,000 RPM for a minimum of 5 seconds since end of last idle period.</p> <p>></p> <p>< 255</p>	<p>1 test attempted per valid idle period</p> <p>Minimum of 1 test per trip</p> <p>Maximum of 4 tests per trip</p> <p>Frequency: Fueling Related : 12.5 ms</p> <p>OSC Measurements: 100 ms</p> <p>Temp Prediction: 12.5ms</p> <p>CatmonMinEngineRunTimeToEnable This is a function of Coolant Temperature, please see "Supporting Tables" for details.</p>	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		<p>value (based on temp and exhaust gas flow)</p> <p>Normalized Ratio Calculation = (1-2) / (3-2)</p> <p>A Normalized Ratio of 1 essentially represents a good part and a ratio of 0 essentially represents a very bad part. The Catalyst Monitoring Test is done during idle. Several conditions must be met in order to execute this test. These conditions and their related values are listed in the secondary parameters area of this document.</p> <p>Refer to the P0430_WorstPassingOSCTableB2 and P0430_BestFailingOSCTableB2 table in the Supporting Tablestab for details</p>			<p>the Valid Idle Period Criteria met, as well as:</p> <p>Green Converter Delay</p> <p>Induction Air</p> <p>Intrusive test(s): Fueltrim Post O2 EVAP EGROther vehicle functions:</p> <p>Power Take Off RunCrank Voltage Ethanol Estimation</p> <p>ECT</p> <p>Barometric Pressure</p> <p>Idle Time before going intrusive is</p> <p>Idle time is incremented if Vehicle speed</p> <p>Short Term Fuel Trim</p>	<p>Not Active</p> <p>> -20 ° C < 250 ° C</p> <p>Not Active</p> <p>Not Active > 10.90 Volts NOT in Progress</p> <p>> 40 ° C < 140 ° C</p> <p>> 70 KPA</p> <p>< 50 Seconds</p> <p>< 1.24 MPH and the drivers foot is off accel pedal and the idle speed control system is active as identified in the Valid Idle Period Criteria section.</p> <p>> 0.80 < 1.20</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Predicted catalyst temp AND Engine Airflow</p> <p>for at least with a closed throttle time</p> <p>Also, in order to increment the WarmedUpEvents counter, either the vehicle speed must exceed the vehicle speed cal or the driver must NOT be off the accel pedal as stated in the Valid Idle Period Criteria section above.</p> <p>Closed loop fueling (Please see "Closed Loop Enable Criteria" section of</p>	<p>> 348.00 degC</p> <p>> CatmonMinAirflowForWarmCatalystDetermination table (g/s) (refer to "Supporting Tables" tab) (Based on engine coolant at the time the WarmedUpEvents counter resets to 0.)</p> <p>15 seconds</p> <p>< 60 seconds consecutively (closed throttle consideration involves having the driver off the accel pedal as stated in the Valid Idle Period Criteria Section) .</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					the "Supporting Tables" tab for details.) PRNDL Idle Stable Criteria: MAF Predicted catalyst temperature Engine Fueling Criteria at Beginning of Idle Period The following fueling related must also be met from between 4 and 7 seconds after the Catalyst Idle Conditions Met Criteria has been met for at least 4 seconds prior to allowing intrusive control: Number of pre-O2 switches Short Term Fuel Trim Avg Rapid Step Response (RSR) feature will initiate multiple tests:	Enabled in Drive Range on an Auto Transmission vehicle. Must hold true from after Catalyst Idle Conditions Met to the end of test > 2.00 g/s < 20.00 g/s < 1,000 degC >= 2 > 0.90 < 1.07		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>If the difference between current EWMA value and the current OSC Normalized Ratio value is</p> <p>and the current OSC Normalized Ratio value is</p> <p>Maximum RSR tests to detect failure when RSR is enabled.</p> <p>PTO</p> <p>General Enable DTC's Not Set</p>	<p>> 0.52</p> <p>< 0.10</p> <p>24</p> <p>Not Active</p> <p>MAF_SensorFA MAF_SensorTFTKO AmbPresDfltStatus IAT_SensorCircuitFA IAT_SensorCircuitTFTKO ECT_Sensor_FA O2S_Bank_1_Sensor_1_FA O2S_Bank_1_Sensor_2_FA O2S_Bank_2_Sensor_1_FA O2S_Bank_2_Sensor_2_FA FuelTrimSystemB1_FA FuelTrimSystemB1_TFTKO O FuelTrimSystemB2_FA FuelTrimSystemB2_TFTKO O EngineMisfireDetected_FA EvapPurgeSolenoidCircuitFA</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						IAC_SystemRPM_FA EGRValvePerformance_FA EGRValveCircuit_FA CamSensorAnyLocationFA CrankSensorFA TPS_Performance_FA EnginePowerLimited		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission (EVAP) System Small Leak Detected (No ELCP - Conventional EVAP Diagnostic with EAT using IAT Sensor)	P0442	This DTC will detect a small leak ($\geq 0.020''$) in the EVAP system between the fuel fill cap and the purge solenoid. On some applications a small leak is defined as $\geq 0.025''$, $0.030''$, or $0.150''$. The engine off natural vacuum method (EONV) is used. EONV is an evaporative system leak detection diagnostic that runs when the vehicle is shut off when enable conditions are met. Prior to sealing the system and performing the diagnostic, the fuel volatility is analyzed. In an open system (Canister Vent Solenoid [CVS] open) high volatility fuel creates enough flow to generate a measurable pressure differential relative to atmospheric. After the volatility check, the vent solenoid will close. After the vent is closed, typically a build up of pressure from the hot soak begins (phase-1). The pressure typically will peak and then begin to decrease as the fuel cools. When	The total delta from peak pressure to peak vacuum during the test is normalized against a calibration pressure threshold table that is based upon fuel level and ambient temperature. (Please see P0442: EONV Pressure Threshold (Pascals) Table in Supporting Tables). The normalized value is calculated by the following equation: $1 - (\text{peak pressure} - \text{peak vacuum}) / \text{pressure threshold}$. The normalized value is entered into EWMA (with 0= perfect pass and 1= perfect fail). When EWMA is the DTC light is illuminated. The DTC light can be turned off if the EWMA is and stays below the EWMA fail threshold for 3 additional consecutive trips.	> 0.57 (EWMA Fail Threshold), ≤ 0.35 (EWMA Re-Pass Threshold)	Fuel Level Drive Time Drive length ECT Baro Distance since assembly plant Engine not run time before key off must be Time since last complete test if normalized result and EWMA is passing OR Time since last complete test if normalized result or EWMA is failing Estimated ambient temperature at end of drive Estimate of Ambient Air Temperature Valid ***** Conditions for Estimate of Ambient Air Temperature to be valid: 1. Cold Start	$10\% \leq \text{Percent} \leq 90\%$ ≥ 600 seconds ≥ 5.0 miles ≥ 63 °C ≥ 70 kPa ≥ 10.0 miles \leq refer to P0442: Engine Off Time Before Vehicle Off Maximum as a Function of Estimated Ambient Temperature Table in Supporting Tables. ≥ 17 hours ≥ 10 hours $0\text{ °C} \leq \text{Temperature} \leq 34\text{ °C}$ *****	Once per trip, during hot soak (up to 2,400 sec.). No more than 2 unsuccessful attempts between completed tests.	Type A, 1 Trips EWMA Average run length is 8 to 12 trips under normal conditions Run length is 3 to 6 trips after code clear or non-volatile reset

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		<p>the pressure drops (-62.27) Pa from peak pressure, the vent is then opened for 60 seconds to normalize the system pressure. The vent is again closed to begin the vacuum portion of the test (phase-2). As the fuel temperature continues to fall, a vacuum will begin forming. The vacuum will continue until it reaches a vacuum peak. When the pressure rises 62.27 Pa from vacuum peak, the test then completes. If the key is turned on while the diagnostic test is in progress, the test will abort.</p>			<p>Startup delta deg C (ECT-IAT)</p> <p>OR</p> <p>2. Short Soak and Previous EAT Valid</p> <p>Previous time since engine off</p> <p>OR</p> <p>3. Less than a short soak and Previous EAT Not Valid</p> <p>Previous time since engine off</p> <p>AND</p> <p>Vehicle Speed</p> <p>AND</p> <p>Mass Air Flow</p> <p>Must expire Estimate of Ambient Temperature Valid Conditioning Time. P0442: Estimate of Ambient Temperature Valid Conditioning Time Table in Supporting Tables.</p> <p>OR</p> <p>4. Not a Cold Start and greater than a Short Soak</p> <p>Previous time since engine off</p> <p>AND</p> <p>Vehicle Speed</p> <p>AND</p> <p>Mass Air Flow</p>	<p>≤ 8 °C</p> <p>≤ 7,200 seconds</p> <p>≤ 7,200 seconds</p> <p>≥ 40 mph</p> <p>≥ 8 g/sec</p> <p>> 7,200 seconds</p> <p>≥ 40 mph</p> <p>≥ 8 g/sec</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Must expire maximum value in Estimate of Ambient Temperature Valid Conditioning Time. Please see P0442: Estimate of Ambient Temperature Valid Conditioning Time in Supporting Tables.</p> <p>*****</p> <p>1. High Fuel Volatility</p> <p>During the volatility phase, pressure in the fuel tank is integrated vs. volatility time. If the integrated pressure is then test aborts and unsuccessful attempts is incremented. This value equates to an average integrated fuel tank pressure > 1,245 Pa. Please see P0442: Volatility Time as a Function of Estimate of Ambient Temperature in Supporting Tables.</p> <p>OR</p> <p>2. Vacuum Refueling Detected</p> <p>See P0454 Fault Code for information on vacuum refueling algorithm.</p> <p>OR</p> <p>3. Fuel Level Refueling</p>	<p>*****</p> <p>< -5</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Detected</p> <p>See P0464 Fault Code for information on fuel level refueling.</p> <p>OR</p> <p>4. Vacuum Out of Range and No Refueling</p> <p>See P0451 Fault Code for information on vacuum sensor out of range and P0464 Fault Code for information on fuel level refueling.</p> <p>OR</p> <p>5. Vacuum Out of Range and Refueling Detected</p> <p>See P0451 Fault Code for information on vacuum sensor out of range and P0464 Fault Code for information on fuel level refueling.</p> <p>OR</p> <p>6. Vent Valve Override Failed</p> <p>Device control using an off-board tool to control the vent solenoid, cannot exceed during the EONV test</p> <p>OR</p> <p>7. Key up during EONV test</p>	0.50 seconds		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					No active DTCs:	MAF_SensorFA ECT_Sensor_FA IAT_SensorFA VehicleSpeedSensor_FA IgnitionOffTimeValid AmbientAirDefault P0443 P0446 P0449 P0452 P0453 P0455 P0496		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission (EVAP) Canister Purge Solenoid Valve Circuit (ODM) (No ELCP - Conventional EVAP Diagnostic - For 3 DTC Implementati on Only)	P0443	Diagnoses the canister purge solenoid low side driver circuit for circuit faults	Voltage low during driver off state (indicates open circuit)	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	PT Relay Voltage	Voltage ≥ 11.0 volts	20 failures out of 25 samples 250 ms / sample	Type B, 2 Trips Note: In certain controlle rs P0458 may also set (Caniste r Purge Solenoid Short to Ground)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission (EVAP) Vent System Performance (No ELCP - Conventional EVAP Diagnostic)	P0446	This DTC will determine if a restriction is present in the vent solenoid, vent filler, vent hose or EVAP canister. This test runs with normal purge and vent valve is open.	Vent Restriction Prep Test: Vented Vacuum for OR Vented Vacuum for Vent Restriction Test: Tank Vacuum for before Purge Volume After setting the DTC for the first time, 2 liters of fuel must be consumed before setting the DTC for the second time.	< -623 Pa 60 seconds > 1,245 Pa 60 seconds > 2,989 Pa 5 seconds ≥ 6 liters	Fuel Level System Voltage Startup IAT Startup ECT BARO No active DTCs:	10 % ≤ Percent ≤ 90 % 11 volts ≤ Voltage ≤ 32 volts 4 °C ≤ Temperature ≤ 30 °C ≤ 35 °C ≥ 70 kPa MAP_SensorFA TPS_FA VehicleSpeedSensor_FA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault EnginePowerLimited P0443 P0449 P0452 P0453 P0454	Once per Cold Start Time is dependent on driving conditions Maximum time before test abort is 1,000 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission (EVAP) Vent Solenoid Control Circuit (ODM) (No ELCP - Conventional EVAP Diagnostic - For 3 DTC Implementation Only)	P0449	Diagnoses the vent solenoid low side driver circuit for circuit faults.	Voltage low during driver off state (indicates open circuit)	Open circuit: ≥ 200 K Ω impedance between signal and controller ground			20 failures out of 25 samples 250 ms / sample	Type B, 2 Trips Note: In certain controllers P0498 may also set (Vent Solenoid Short to Ground)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Tank Pressure (FTP) Sensor Circuit Performance (No ELCP - Conventional EVAP Diagnostic)	P0451	The DTC will be set if the fuel tank vacuum sensor is out of range when it tries to re-zero prior to the phase-1 or phase-2 portions of the engine-off natural vacuum small leak test.	<p>The tank vacuum sensor voltage is compared to a window about the nominal sensor voltage offset (~1.5 volts)</p> <p>Upper voltage threshold (voltage addition above the nominal voltage)</p> <p>Lower voltage threshold (voltage subtraction below the nominal voltage)</p> <p>The difference between tank vacuum sensor voltage and the nominal offset voltage is then normalized against the appropriate threshold listed above to produce a ratio between 0.0 and 1.0. This normalized re-zero ratio is then filtered with a EWMA (with 0= perfect pass and 1=perfect fail).</p> <p>When EWMA is the DTC light is illuminated.</p> <p>The DTC light can be turned off if the EWMA is and stays below the EWMA fail threshold for 3 additional consecutive trips.</p>	<p>0.2 volts</p> <p>0.2 volts</p> <p>> 0.73 (EWMA Fail Threshold),</p> <p>≤ 0.40 (EWMA Re-Pass Threshold)</p>	This test will execute whenever the engine-off natural vacuum small leak test (P0442) executes		This test is executed during an engine-off natural vacuum small leak test. The number of times that it executes can range from zero to two per engine-off period. The length of the test is determined by the refueling rationality test, which can take up to 600 seconds to complete.	Type A, 1 Trips EWMA Average run length: 6 Run length is 2 trips after code clear or non-volatile reset

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage (No ELCP - Conventional EVAP Diagnostic)	P0452	This DTC will detect a Fuel Tank Pressure (FTP) sensor signal that is too low out of range.	FTP sensor signal The normal operating range of the FTP sensor is 0.5 volts (~1245 Pa) to 4.5 volts (~3736 Pa).	< 0.15 volts (3.0 % of Vref or ~ 1,681 Pa)	Time delay after sensor power up for sensor warm-up is	0.10 seconds	640 failures out of 800 samples 12.5 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Tank Pressure (FTP) Sensor Circuit High Voltage (No ELCP - Conventional EVAP Diagnostic)	P0453	This DTC will detect a Fuel Tank Pressure (FTP) sensor signal that is too high out of range.	FTP sensor signal The normal operating range of the FTP sensor is 0.5 volts (~1245 Pa) to 4.5 volts (~ -3736 Pa).	> 4.85 volts (97 % of Vref or ~ -4,172 Pa)	Time delay after sensor power up for sensor warm-up is	0.10 seconds	640 failures out of 800 samples 12.5 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Tank Pressure (FTP) Sensor Circuit Intermittent (No ELCP - Conventional EVAP Diagnostic)	P0454	This DTC will detect intermittent tank vacuum sensor signals that would have caused the engine-off natural vacuum small leak test to abort due to an apparent re-fueling event.	If an abrupt change in tank vacuum is detected the engine-off natural vacuum test is aborted due to an apparent refueling event. Subsequent to the abort, a refueling rationality test is executed to confirm that a refueling event occurred. If a refueling is confirmed, then the test sample is considered passing. Otherwise, the sample is considered failing indicating an intermittent signal problem. An abrupt change is defined as a change in vacuum: in the span of 1.0 seconds. But in 12.5 msec. A refueling event is confirmed if the fuel level has a persistent change of for 30 seconds during a 600 second refueling rationality test.	> 112 Pa < 249 Pa > 15 %	This test will execute whenever the engine-off natural vacuum small leak test (P0442) executes and the canister vent solenoid is closed		This test is executed during an engine-off natural vacuum small leak test. The test can only execute up to once per engine-off period. The length of the test is determined by the refueling rationality test, which can take up to 600 seconds to complete. The test will report a failure if 2 out of 3 samples are failures. 12.5 ms / sample	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission (EVAP) System Large Leak Detected (No ELCP - Conventional EVAP Diagnostic)	P0455	This DTC will detect a weak vacuum condition (large leak or purge blockage) in the EVAP system. Purge valve is controlled (to allow purge flow) and vent valve is commanded closed.	Purge volume while Tank vacuum After setting the DTC for the first time, 2 liters of fuel must be consumed before setting the DTC for the second time. Weak Vacuum Follow-up Test (fuel cap replacement test) Weak Vacuum Test failed. Passes if tank vacuum Note: Weak Vacuum Follow-up Test can only report a pass.	> 15 liters ≤ 2,740 Pa ≥ 2,740 Pa	Fuel Level System Voltage BARO Purge Flow No active DTCs: Cold Start Test If ECT > IAT, Startup temperature delta (ECT-IAT): Cold Test Timer Startup IAT Startup ECT Weak Vacuum Follow-up Test This test can run following a weak vacuum failure or on a hot restart.	10 % ≤ Percent ≤ 90 % 11 volts ≤ Voltage ≤ 32 volts ≥ 70 kPa ≥ 1.50 % MAP_SensorFA TPS_FA VehicleSpeedSensor_FA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault EnginePowerLimited P0443 P0449 P0452 P0453 P0454 ≤ 8 °C ≤ 1,000 seconds 4 °C ≤ Temperature ≤ 30 °C ≤ 35 °C	Once per cold start Time is dependent on driving conditions Maximum time before test abort is 1,000 seconds Weak Vacuum Follow-up Test With large leak detected, the follow-up test is limited to 1,300 seconds. Once the MIL is on, the follow-up test runs indefinitely.	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission System Purge Control Valve Circuit Low (No ELCP - Conventional EVAP Diagnostic)	P0458	Diagnoses the canister purge solenoid low side driver circuit for circuit faults	Voltage low during driver off state (indicates short to ground)	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	PT Relay Voltage	Voltage ≥ 11.0 volts	20 failures out of 25 samples 250 ms / sample	Type B, 2 Trips Note: In certain controlle rs P0443 may also set (Caniste r Purge Solenoid Open Circuit)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission System Purge Control Valve Circuit High (No ELCP - Conventional EVAP Diagnostic)	P0459	Diagnoses the canister purge solenoid low side driver circuit for circuit faults	Voltage high during driver on state (indicates short to power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	PT Relay Voltage	Voltage ≥ 11.0 volts	20 failures out of 25 samples 250 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Level Sensor 1 Performance (For use on vehicles with mechanical transfer pump dual fuel tanks)	P0461	This DTC will detect a fuel sender stuck in range in the primary fuel tank.	<p>*****</p> <p>Fuel Level in Primary and Secondary Tanks Remain in an Unreadable Range too Long *****</p> <p>This subtest is used</p> <p>If fuel volume in primary tank is and fuel volume in secondary tank and remains in this condition for</p> <p>OR</p> <p>*****</p> <p>After Refuel Event *****</p> <p>If the secondary fuel volume changes by 18.4 liters from engine “off” to engine “on” the primary volume should change by 3.0 liters.</p> <p>OR</p> <p>*****</p> <p>Distance Traveled without a Primary Fuel Level Change *****</p> <p>Delta fuel volume change over an accumulated 88 miles.</p>	<p>≥ 28.7 liters</p> <p>< 2.8 liters</p> <p>112 miles.</p> <p>< 3 liters</p>	<p>Engine Running</p> <p>No active DTCs:</p> <p>The shutdown primary tank volume + 3.0 liters must be</p>	<p>VehicleSpeedSensor_FA</p> <p>< 28.7 liters</p>	250 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Level Sensor 1 Circuit Low Voltage	P0462	This DTC will detect a fuel sender stuck out of range low in the primary fuel tank.	Fuel level Sender % of 5V range	< 10 %			100 failures out of 125 samples 100 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Level Sensor 1 Circuit High Voltage	P0463	This DTC will detect a fuel sender stuck out of range high in the primary fuel tank.	Fuel level Sender % of 5V range	> 60 %			100 failures out of 125 samples 100 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Level Sensor 1 Circuit Intermittent (No ELCP - Conventional EVAP Diagnostic)	P0464	This DTC will detect intermittent fuel level sensor signals that would have caused the engine-off natural vacuum small leak test to abort due to an apparent re-fueling event.	<p>If a change in fuel level is detected, the engine-off natural vacuum test is aborted due to an apparent refueling event. Subsequent to the abort, a refueling rationality test is executed to confirm that an actual refueling event occurred. If a refueling event is confirmed, then the test sample is considered passing. Otherwise, if a refueling event is not confirmed, then the test sample is considered failing which indicates an intermittent signal problem.</p> <p>An intermittent fuel level signal problem is defined as:</p> <p>The fuel level changes by and does not remain for 30 seconds during a 600 second refueling rationality test.</p>	> 15 % > 15 %	This test will execute whenever the engine-off natural vacuum small leak test (P0442) executes		<p>This test is executed during an engine-off natural vacuum small leak test. The test can only execute up to once per engine-off period. The length of the test is determined by the refueling rationality test, which can take up to 600 seconds to complete. The test will report a failure if 2 out of 3 samples are failures.</p> <p>100 ms / sample</p>	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cooling Fan 1 Relay Control Circuit Open (ODM) (Not used on EREV)	P0480	Diagnoses the cooling fan 1 relay control low side driver circuit for circuit faults	Voltage low during driver off state (indicates open circuit)	Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	Powertrain Relay Voltage	Voltage ≥ 11.00 volts	50 failures out of 63 samples 100 ms / sample	Type B, 2 Trips Note: In certain controllers P0691 may also set (Fan 1 Short to Ground).

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission (EVAP) System Flow During Non- Purge (No ELCP - Conventional EVAP Diagnostic)	P0496	This DTC will determine if the purge solenoid is leaking to engine manifold vacuum. This test will run with the purge valve closed and the vent valve closed.	Tank Vacuum for Test time	> 2,491 Pa 5 seconds ≤ refer to P0496: Purge Valve Leak Test Engine Vacuum Test Time (Cold Start) as a Function of Fuel Level Table in Supporting Tables.	Fuel Level System Voltage BARO Startup IAT Startup ECT Engine Off Time No active DTCs:	10 % ≤ Percent ≤ 90 % 11 volts ≤ Voltage ≤ 32 volts ≥ 70 kPa 4 °C ≤ Temperature ≤ 30 °C ≤ 35 °C ≥ 28,800.0 seconds MAP_SensorFA TPS_FA VehicleSpeedSensor_FA IAT_SensorFA ECT_Sensor_FA AmbientAirDefault EnginePowerLimited P0443 P0449 P0452 P0453 P0454	Once per cold start Cold start: max time is 1,000 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission System Vent Solenoid Control Circuit Low (No ELCP - Conventional EVAP Diagnostic)	P0498	Diagnoses the vent solenoid low side driver circuit for circuit faults.	Voltage low during driver off state (indicates short to ground)	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground			20 failures out of 25 samples 250 ms / sample	Type B, 2 Trips Note: In certain controlle rs P0449 may also set (Vent Solenoid Open Circuit)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission System Vent Solenoid Control Circuit High (No ELCP - Conventional EVAP Diagnostic)	P0499	Diagnoses the vent solenoid low side driver circuit for circuit faults. If the P0499 is active, an intrusive test is performed with the vent solenoid commanded closed for 15 seconds.	Voltage low during driver on state (indicates short to power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power			20 failures out of 25 samples 250 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Low Engine Speed Idle System	P0506	This DTC will determine if a low idle exists	Filtered Engine Speed Error filter coefficient	> 94.00 rpm 0.00350	Baro Coolant Temp Engine run time Ignition voltage Time since gear change Time since a TCC mode change IAT Vehicle speed Commanded RPM delta Idle time For manual transmissions: Clutch Pedal Position or Clutch Pedal Position	> 70 kPa > KeSPDD_T_EnblECT_Mi n (60 °C) and < KfECTI_T_EngCoolHotHi Thresh (128 °C) Must verify KfECTI_T_EngCoolHotLo Thresh (126) is less than KfECTI_T_EngCoolHotHi Thresh (128) ≥ 60 sec 255 ≥ volts ≥ 11 ≥ 3 sec > 3 sec > -20 °C ≤ 1.24 mph ≤ 25 rpm > 5 sec > 5.00 pct or < 5.00 pct	Diagnostic runs in every 12.5 ms loop Diagnostic reports pass or fail in 10 seconds once all enable conditions are met	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					No active DTCs	PTO not active Transfer Case not in 4WD LowState Off-vehicle device control (service bay control) must not be active. following conditions not TRUE: (VeTESR_e_EngSpdReqIntvType = CeTESR_e_EngSpdMinLimit AND VeTESR_e_EngSpdReqRespType = CeTESR_e_NoSuggestion) Clutch is not depressed TC_BoostPresSnrFA ECT_Sensor_FA EnginePowerLimited EGRValveCircuit_FA EGRValvePerformance_FA IAT_SensorCircuitFA EvapFlowDuringNonPurge_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA FuelInjectorCircuit_FA MAF_SensorFA EngineMisfireDetected_FA IgnitionOutputDriver FA		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					All of the above met for Idle time	TPS_FA TPS_Performance_FA VehicleSpeedSensor_FA FuelLevelDataFault LowFuelConditionDiagnos tic Clutch Sensor FA AmbPresDfltStatus P2771 > 5 sec The diagnostic does not run during autostop as engine is shutdown during that time (occurs in a hybrid or 12v start stop vehicle)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
High Engine Speed Idle System	P0507	This DTC will determine if a high idle exists	Filtered Engine Speed Error filter coefficient	< -188.00 rpm 0.00350	Baro Coolant Temp Engine run time Ignition voltage Time since gear change Time since a TCC mode change IAT Vehicle speed Commanded RPM delta For manual transmissions: Clutch Pedal Position or Clutch Pedal Position	> 70 kPa > KeSPDD_T_EnblECT_Mi n (60 °C) and < KfECTI_T_EngCoolHotHi Thresh (128 °C) Must verify KfECTI_T_EngCoolHotLo Thresh (126) is less than KfECTI_T_EngCoolHotHi Thresh (128) ≥ 60 sec 255 ≥ volts ≥ 11 ≥ 3 sec > 3 sec > -20 °C ≤ 1.24 mph ≤ 25 rpm > 5.00 pct or < 5.00 pct	Diagnostic runs in every 12.5 ms loop Diagnostic reports pass or fail in 10 seconds once all enable conditions are met	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					No active DTCs	PTO not active Transfer Case not in 4WD LowState Off-vehicle device control (service bay control) must not be active. following conditions not TRUE: (VeTESR_e_EngSpdReqI ntvType = CeTESR_e_EngSpdMinLi mit AND VeTESR_e_EngSpdReqR espType = CeTESR_e_NoSuggestio n) Clutch is not depressed TC_BoostPresSnsrFA ECT_Sensor_FA EnginePowerLimited EGRValveCircuit_FA EGRValvePerformance_F A IAT_SensorCircuitFA EvapFlowDuringNonPurg e_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA FuelInjectorCircuit_FA MAF_SensorFA EngineMisfireDetected_F A IgnitionOutputDriver_FA TPS_FA TPS_Performance_FA VehicleSpeedSensor_FA		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					All of the above met for Idle time	FuelLevelDataFaultLow FuelConditionDiagnostic Clutch SensorFA AmbPresDfltStatus P2771 > 5 sec The diagnostic does not run during autostop as engine is shutdown during that time (occurs in a hybrid or 12v start stop vehicle)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cold Start Rough Idle	P050D	Monitors the combustion performance when the cold start emission reduction strategy is active by accumulating and determining the percentage of engine cycles that have less than complete combustion relative to the total number of engine cycles in which Dual Pulse is active.	Deceleration index vs. Engine Speed Vs Engine load Deceleration index calculation is tailored to specific vehicle. Tables used are 1st tables encountered that are not max of range. Undetectable region at a given speed/load point is where all tables are max of range point. see Algorithm Description Document for additional details. Incomplete combustion identified by P0300 threshold tables:	(>Idle SCD AND >Idle SCD ddt Tables) OR (>Idle Cyl Mode AND > Idle Cyl Mode ddt Tables)	Misfire Algorithm Enabled (Refer to P0300 for Enablement Requirements) OBD Manufacturer Enable Counter To enable the diagnostic, the Cold Start Emission Reduction Strategy Must Be Active per the following: Catalyst Temperature AND Engine Coolant AND Engine Coolant AND Barometric Pressure In addition, Dual Pulse Strategy Is Enabled and Active Per the following: Engine Speed Accel Position Engine Run Time For the engine speeds and loads in which Dual Pulse is active:	= 0 < 350.00 degC > -10.00 degC <= 56.00 degC >= 74.00 KPa >= 450.00 RPM <= 2,200.00 RPM <= 1.00 Pct < 20 seconds	Runs once per trip when the cold start emission reduction strategy is active and Dual Pulse is enabled and active. Frequency: 100ms Test completes after Dual Pulse is no longer active OR The first 500 engine cycles have been reached	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Dual Pulse Error induced misfires percentage</p> <p>Dual Pulse Error induced misfires percentage</p> <p>Engine Cycles</p> <p>The Cold Start Emission Reduction strategy must not be exiting. The strategy will exit per the following:</p> <p>Catalyst Temperature AND Engine Run Time</p> <p>OR</p> <p>Engine Run Time</p> <p>OR</p> <p>Barometric Pressure</p>	<p>>= catalyst damaging misfire</p> <p>< 90% of the maximum achievable catalyst damaging misfire.</p> <p>>= 50 < 501</p> <p>>= 900.00 degC AND >= 18.38 seconds</p> <p>></p> <p>CatalystLightOffExtendedEngineRunTimeExit</p> <p>This Extended Engine run time exit table is a function of percent ethanol and Catmons NormRatioEWMA. Refer to "Supporting Tables" for details.</p> <p>< 74.00 KPa</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Dual Pulse Strategy will exit per the following: Engine Speed > 2,400.00 RPM OR Accel Position > 2.00 Pct Engine Run Time >= 20 seconds Dual Pulse Strategy will also exit if the any of the "Additional Dual Pulse Enabling Criteria" is not satisfied: "Additional Dual Pulse Enabling Criteria": Green Engine Enrichment Not Enabled Misfire Converter Protection strategy Not being requested Engine Metal Overtemp strategy Not being requested Fuel control state Open Loop Output State Control Not being requested for fuel DOD Or DFCO Not Active Power Enrichment Not Active Dynamic Power Enrichment Not Active Piston Protection Not Active Hot Coolant Enrichment Not Active			

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Injector Flow Test General Enable DTC's Not Set:	Not Active AcceleratorPedalFailure ECT_Sensor_FA IAT_SensorCircuitFA MnfdTempSensorCktFA CrankSensorFaultActive FuelInjectorCircuit_FA MAF_SensorFA MAP_SensorFA AnyCamPhaser_TFTKO Clutch Sensor FA IAC_SystemRPM_FA IgnitionOutputDriver_FA TPS_FA VehicleSpeedSensor_FA FuelInjectorCircuit_TFTK O FHPR_b_FRP_SnsrCkt_F A FHPR_b_FRP_SnsrCkt_T FTKO FHPR_b_PumpCkt_FA FHPR_b_PumpCkt_TFTK O TransmissionEngagedStat e_FA EngineTorqueEstInaccura te FuelPumpRlyCktFA		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Oil Pressure (EOP) Sensor Circuit Low Voltage	P0522	Determines if the Engine Oil Pressure (EOP) Sensor circuit voltage is too low	(Engine Oil Pressure Sensor Circuit Voltage) ÷ 5 Volts) *100	< 5.00 percent	Engine Speed Enable Engine Speed Disable Oil Pressure Sensor In Use Diagnostic Status	> 400 rpm < 350 rpm Yes Enabled	800 failures out of 1,000 samples Performed every 6.25 msec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Oil Pressure (EOP) Sensor Circuit High Voltage	P0523	Determines if the Engine Oil Pressure (EOP) Sensor circuit voltage is too high	(Engine Oil Pressure Sensor Circuit Voltage) ÷ 5 Volts) *100	> 95.00 percent	Oil Pressure Sensor In Use Diagnostic Status	Yes Enabled	800 failures out of 1,000 samples Performed every 6.25 msec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Air Conditioning High Side Pressure Sensor (HSPS) Circuit Low Voltage	P0532	Determines if the Air Conditioning High Side Pressure Sensor circuit voltage is too low	(AC High Side Pressure Sensor Circuit Voltage) ÷ 5 Volts) *100	< 3 percent	AC HSP Sensor Present Diagnostic Status	Yes Enabled	80 failures out of 100 samples Performed every 25 msec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Air Conditioning High Side Pressure Sensor (HSPS) Circuit High Voltage	P0533	Determines if the Air Conditioning High Side Pressure Sensor circuit voltage is too high	(AC High Side Pressure Sensor Circuit Voltage) ÷ 5 Volts) *100	> 95 percent	AC HSP Sensor Present Diagnostic Status	Yes Enabled	80 failures out of 100 samples Performed every 25 msec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Mutil-Function Switch Circuit	P0564	Detect when cruise control multi-function switch circuit (analog) voltage is in an illegal range	Cruise Control analog circuit voltage must be in an "illegal range" or "between ranges" for greater than a calibratable period of time for cruise switch states that are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 0.500 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control On Switch Circuit	P0565		Cruise Control On switch remains applied for greater than a calibratable period of time for architecture where cruise switch states are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 20.00 seconds	MIL Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Resume Circuit	P0567	Detects a failure of the cruise resume switch in a continuously applied state	Cruise Control Resume switch remains applied for greater than a calibratable period of time for architecture where cruise switch states are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 89.000 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Set Circuit	P0568	Detects a failure of the cruise set switch in a continuously applied state	Cruise Control Set switch remains applied for greater than a calibratable period of time for architecture where cruise switch states are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 89.000 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Cancel Switch Circuit	P056C		Cruise Control Cancel switch remains applied for greater than a calibratable period of time for architecture where cruise switch states are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 20.00 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Input Circuit	P0575	Detects rolling count or protection value errors in Cruise Control Switch Status serial data signal	If x of y rolling count / protection value faults occur, disable cruise for duration of fault		Cruise Control Switch Serial Data Error Diagnostic Enable	1.00	10 / 16 counts	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pedal Position Sensor Circuit Range/Performance	P057B	This diagnostic monitors the Brake Pedal Position Sensor for a stuck in range failure	.		Brake Pedal Position Sensor Circuit Range / Performance Diagnostic Enable	1.00 ignition voltage > 10.00		MIL: Type A, 1 Trips
			Calculated EWMA value must be greater than calibratable threshold after calibratable number of tests have completed to report a "test passed" for P057B	EWMA value looked up in supporting table P057B KtBRKI_K_FastTestPointWeight as a function of calculated brake pedal position delta EWMA value is > 0.80	calculated brake pedal position delta sample counter > 50.00 for fast test OR calculated brake pedal position delta sample counter > 1,000.00 for slow test	calculated brake pedal position delta > 8.00 OR (for slow test) shift lever has been in park once this key cycle vehicle speed >= 5.00 accelerator pedal position < 5.00	total number of EWMA tests > 20.00	
			Calculated EWMA Value must be less than calibratable threshold after calibratable number of tests have completed to report a "test failed" for P057B. This test runs once per key cycle	EWMA value looked up in supporting table P057B KtBRKI_K_CmpltTestPointWeight as a function of calculated brake pedal position delta EWMA value is less than 0.40	no DTC's active (P057C, P057D)	shift lever has been in park once this key cycle vehicle speed >= 5.00 accelerator pedal position < 5.00	total number of EWMA tests > 2.00	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pedal Position Sensor Circuit Low	P057C	detects short to ground for brake pedal position sensor	If x of y samples are observed below failure threshold, default brake pedal position to zero percent.	5.00	Brake Pedal Position Sensore Low Voltage Diagnostic Enable	1.00	20 / 32.00 counts	MIL: Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pedal Position Sensor Circuit High	P057D	detects open circuit for brake pedal position sensor	If x of y samples are observed above failure threshold, default brake pedal position to zero percent and set DTC	95.00	Brake Pedal Position Sensore High Voltage Diagnostic Enable	1.00	20.00 / 32.00 counts	MIL: Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Multi-function Circuit Low Voltage	P0580	detects short to ground failure for cruise multi-function switch circuit	Cruise Control analog circuit voltage must be in an "Open Short To Ground" for greater than a calibratable period of time for cruise switch states that are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 2.00 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Multi- function Circuit High Voltage	P0581		Cruise Control analog circuit voltage must be in an "Short To Power" for greater than a calibratable period of time for cruise switch states that are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 2.00 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Multi-Function Input B Circuit	P0589	Detect when cruise control multi-function switch circuit B (analog) voltage is in an illegal range	Cruise Control analog circuit B voltage must be in an "illegal range" or "between ranges" for greater than a calibratable period of time for cruise switch states that are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 0.500 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Multi-Function Input B Circuit Low	P0592	detects short to ground failure for cruise multi-function switch circuit B	Cruise Control analog circuit B voltage must be in an "Open Short To Ground" for greater than a calibratable period of time for cruise switch states that are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 2.00 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Multi-Function Input B Circuit High	P0593		Cruise Control analog circuit B voltage must be in an "Short To Power" for greater than a calibratable period of time for cruise switch states that are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 2.00 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ColdStrtA_C amPstnB1	P05CC	Detects a VVT system error during Cold Starts by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Intake cam Bank 1) Cam Position Error > 4.00 deg.	System Voltage Engine Running Power Take Off (PTO) active CSER Active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: IntakeVVT_Enabled	> 11.00 Volts = TRUE = FALSE = TRUE > 0 deg > 4.00 deg AND < 21.00 deg < 4.50 Deg for (P0011_P05CC_StableP ositionTimeIc1) sec P0010 P2088 P2089 = TRUE (Reference Supporting Tables: P0011_P0021_P05CC_P 05CD_HiEngSpdHiDsbll c P0011_P0021_P05CC_P 05CD_HiEngSpdLoEnbll c P0011_P0021_P05CC_P 05CD_LoRpmHiEnbllc P0011_P0021_P05CC_P 05CD_LoRpmLoDsbllc P0011_P0021_P05CC_P 05CD_LoPresHiEnbllc P0011_P0021_P05CC_P 05CD_LoPresLoDsbllc P0011_P0021_P05CC_P	40 failures out of 100 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						05CD_EngOilPressEnbl c P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: IntakeVVT_Enabled CrankIntakeCamCorrFA IntakeCamSensorTFTK O CrankSensorTFTKO CamLctnIntFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ColdStrtA_C amPstnB2	P05CD	Detects a VVT system error during Cold Starts by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Intake cam Bank 2) Cam Position Error > 4.00 deg.	System Voltage Engine Running Power Take Off (PTO) active CSER Active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: IntakeVVT_Enabled	> 11.00 Volts = TRUE = FALSE = TRUE > 0 deg > 4.00 deg AND < 21.00 deg < 4.50 Deg for (P0021_P05CD_StableP ositionTimeIc2) sec P0020 P2092 P2093 = TRUE (Reference Supporting Tables: P0011_P0021_P05CC_P 05CD_HiEngSpdHiDsbll c P0011_P0021_P05CC_P 05CD_HiEngSpdLoEnbll c P0011_P0021_P05CC_P 05CD_LoRpmHiEnbllc P0011_P0021_P05CC_P 05CD_LoRpmLoDsbllc P0011_P0021_P05CC_P 05CD_LoPresHiEnbllc P0011_P0021_P05CC_P 05CD_LoPresLoDsbllc P0011_P0021_P05CC_P	40 failures out of 100 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						05CD_EngOilPressEnbl c P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: IntakeVVT_Enabled CrankIntakeCamCorrFA IntakeCamSensorTFTK O CrankSensorTFTKO CamLctnIntFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ColdStrtB_C amPstnB1	P05CE	Detects a VVT system error during Cold Starts by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Exhaust cam Bank 1) Cam Position Error > 4.00 deg.	System Voltage Engine Running Power Take Off (PTO) active CSER Active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: ExhaustVVT_Enabled	> 11.00 volts = TRUE = FALSE = TRUE > 0 deg > 4.00 deg AND < 21.00 deg < 4.50 Deg for (P0014_P05CE_StableP ositionTimeEc1) sec. P0013 P2090 P2091 = TRUE (Reference Supporting Tables: P0014_P0024_P05CE_P 05CF_HiEngSpdHiDsblE c P0014_P0024_P05CE_P 05CF_HiEngSpdLoEnbl Ec P0014_P0024_P05CE_P 05CF_LoRpmHiEnblEc P0014_P0024_P05CE_P 05CF_LoRpmLoDsblEc P0014_P0024_P05CE_P 05CF_LoPresHiEnblEc P0014_P0024_P05CE_P 05CF_LoPresLoDsblEc P0014_P0024_P05CE_P	40 failures out of 100 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						05CF_EngOilPressEnbl Ec P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: ExhaustVVT_Enabled CrankExhaustCamCorrF A ExhaustCamSensorTFT KO CrankSensorTFTKO CamLctnExhFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ColdStrtB_C amPstnB2	P05CF	Detects a VVT system error during Cold Starts by comparing the desired and actual cam positions when VVT is activated	Camshaft position error [absolute value of (desired position - actual position)] is compared to thresholds to determine if excessive	(Exhaust cam Bank 2) Cam Position Error > 4.00 deg.	System Voltage Engine Running Power Take Off (PTO) active CSER Active Desired cam position Desired AND Measured cam position Desired cam position variation No Active DTCs Bundle: ExhaustVVT_Enabled	> 11.00 Volts = TRUE = FALSE = TRUE > 0 deg > 4.00 deg AND < 21.00 deg < 4.50 Deg for (P0024_P05CF_StableP ositionTimeEc2) sec P0023 P2094 P2095 = TRUE (Reference Supporting Tables: P0014_P0024_P05CE_P 05CF_HiEngSpdHiDsblE c P0014_P0024_P05CE_P 05CF_HiEngSpdLoEnbl Ec P0014_P0024_P05CE_P 05CF_LoRpmHiEnblEc P0014_P0024_P05CE_P 05CF_LoRpmLoDsblEc P0014_P0024_P05CE_P 05CF_LoPresHiEnblEc P0014_P0024_P05CE_P 05CF_LoPresLoDsblEc P0014_P0024_P05CE_P	40 failures out of 100 samples 100 ms /sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						05CF_EngOilPressEnbl Ec P0011_P0021_P05CC_P 05CD_P0014_P0024_P0 5CE_P05CF_ColdStartE ngRunning Reference Fault Bundles: ExhaustVVT_Enabled CrankExhaustCamCorrF A ExhaustCamSensorTFT KO CrankSensorTFTKO CamLctnExhFA)		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if the calibration check sum is incorrect or the flash memory detects an uncorrectable error via the Error Correcting Code.	The Primary Processor's calculated checksum does not match the stored checksum value. Covers all software and calibrations.	1 failure if the fault is detected during the first pass. 5 failures if the fault occurs after the first pass is complete.			Diagnostic runs continuously in the background.	Type A, 1 Trips
			The Primary Processor's Error Correcting Code hardware in the flash memory detects an error. Covers all software and calibrations.	254 failures detected via Error Correcting Code			Diagnostic runs continuously via the flash hardware.	
			The Primary Processor's calculated checksum does not match the stored checksum value for a selected subset of the calibrations.	2 consecutive failures detected or 5 total failures detected.			Diagnostic runs continuously. Will report a detected fault within 200 ms.	
			The Secondary Processor's calculated checksum does not match the stored checksum value. Covers all software and calibrations.	1 failure if the fault is detected during the first pass. 5 failures if the fault occurs after the first pass is complete.			Diagnostic runs continuously in the background.	
				In all cases, the failure count is cleared when controller shuts down				

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed	P0602	This DTC will be stored if the ECU is a service part that has not been programmed.	Service (reflash) controller calibration present	= 1		none	Diagnostic runs at powerup and once per second continuously after that	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Non-volatile memory checksum error at controller power-up	Checksum at power-up does not match checksum at power-down				Diagnostic runs at powerup Diagnostic reports a fault if 1 failure occurs	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ECM RAM Failure	P0604	Indicates that the ECM has detected a RAM fault	Indicates that the primary processor is unable to correctly read data from or write data to system RAM. Detects data read does not match data written >=	254 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	Type A, 1 Trips
			Indicates that the primary processor is unable to correctly read data from or write data to cached RAM. Detects data read does not match data written >=	254 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
			Indicates that the primary processor is unable to correctly read data from or write data to TPU RAM. Detects data read does not match data written >=	5 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
			Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	0.46363 s			When dual store updates occur.	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	0 counts			Diagnostic runs continuously (background loop)	
			Indicates that the secondary processor is unable to correctly read data from or write data to system RAM. Detects data read does not match data written >=	5 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal ECM Processor Integrity Fault	P0606	Indicates that the ECM has detected an internal processor integrity fault	Loss or invalid message of SPI communication from the Secondary Processor at initialization detected by the Primary Processor or loss or invalid message of SPI communication from the Secondary Processor after a valid message was received by the Primary Processor	Loss or invalid message at initialization detected or loss or invalid message after a valid message was received		Run/Crank voltage >= 6.41 or Run/Crank voltage >= 11.00 , else the failure will be reported for all conditions	In the primary processor, 159 / 399 counts intermittent or 39 counts continuous; 39 counts continuous @ initialization. 12.5 ms /count in the ECM main processor	Type A, 1 Trips
			Loss or invalid message of SPI communication from the Primary Processor at initialization detected by the Secondary Processor or loss or invalid message of SPI communication from the Primary Processor after a valid message was received by the Secondary Processor	Loss or invalid message at initialization detected or loss or invalid message after a valid message was received			In the secondary processor, 20 / 200 counts intermittent or 0.1875 s continuous; 0.4750 s continuous @ initialization. 12.5 ms /count in the ECM secondary processor	
			Checks for stack over or underflow in secondary processor by looking for corruption of known pattern at stack boundaries. Checks number of stack over/ under flow since last powerup reset >=	5		KeMEMD_b_StackLimitTestEnbl == 1 Value of KeMEMD_b_StackLimitTestEnbl is: 1 . (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
			MAIN processor is verified by responding to a seed sent from the secondary with a key response to secondary. Checks number of incorrect keys	2 incorrect seeds within 8 messages, 0.2000 seconds		ignition in Run or Crank	150 ms for one seed continually failing	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			received > or Secondary processor has not received a new within time limit					
			Time new seed not received exceeded			always running	0.450 seconds	
			MAIN processor receives seed in wrong order			always running	3 / 17 counts intermittent. 50 ms/count in the ECM main processor	
			2 fails in a row in the Secondary processor's ALU check			KePISD_b_ALU_TestEnbl d == 1 Value of KePISD_b_ALU_TestEnbl d is: 1. (If 0, this test is disabled)	25 ms	
			2 fails in a row in the Secondary processor's configuration register masks versus known good data			KePISD_b_ConfigRegTestEnbl == 1 Value of KePISD_b_ConfigRegTestEnbl is: 1. (If 0, this test is disabled)	12.5 to 25 ms	
			Secondary processor detects an error in the toggling of a hardware discrete line controlled by the MAIN processor: number of discrete changes > = or < = over time window(50ms)	7 17		KePISD_b_MainCPU_SOH_FltEnbl == 1 Value of KePISD_b_ConfigRegTestEnbl is: 0 . (If 0, this test is disabled) time from initialization >= 0.4875 seconds	50 ms	
			Software background task first pass time to complete exceeds			Run/Crank voltage > 6.41	360.000 seconds	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			2 fails in a row in the MAIN processor's ALU check			KePISD_b_ALU_TestEnbl == 1 Value of KePISD_b_ALU_TestEnbl is: 1. (If 0, this test is disabled)	25 ms	
			2 fails in a row in the MAIN processor's configuration register masks versus known good data			KePISD_b_ConfigRegTestEnbl == 1 Value of KePISD_b_ConfigRegTestEnbl is: 1. (If 0, this test is disabled)	12.5 to 25 ms	
			Checks number of stack over/under flow since last powerup reset >=	3		KeMEMD_b_StackLimitTestEnbl == 1 Value of KeMEMD_b_StackLimitTestEnbl is: 1. (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
			Voltage deviation >	0.4950		KePISD_b_A2D_CnvtrTestEnbl == 1 Value of KePISD_b_A2D_CnvtrTestEnbl is: 1. (If 0, this test is disabled)	5 / 10 counts or 0.150 seconds continuous; 50 ms/count in the ECM main processor	
			Checks for ECC (error correcting code) circuit test errors reported by the hardware for flash memory. Increments counter during controller initialization if ECC error occurred since last controller initialization. Counter >=	3 (results in MIL), 5 (results in MIL and remedial action)		KeMEMD_b_FlashECC_CktTestEnbl == 1 Value of KeMEMD_b_FlashECC_CktTestEnbl is: 1. (If 0, this test is disabled)	variable, depends on length of time to access flash with corrupted memory	
			Checks for ECC (error	3 (results in MIL),		KeMEMD_b_RAM_ECC_	variable,	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			correcting code) circuit test errors reported by the hardware for RAM memory circuit. Increments counter during controller initialization if ECC error occurred since last controller initialization. Counter >=	5 (results in MIL and remedial action)		CktTestEnbl == 1 Value of KeMEMD_b_RAM_ECC_CktTestEnbl is: 1. (If 0, this test is disabled)	depends on length of time to write flash to RAM variable, depends on length of time to write flash to RAM	
			MAIN processor DMA transfer from Flash to RAM has 1 failure			KePISD_b_DMA_XferTestEnbl == 1 Value of KePISD_b_DMA_XferTestEnbl is: 0. (If 0, this test is disabled)	variable, depends on length of time to write flash to RAM	
			Safety critical software is not executed in proper order.	>= 1 incorrect sequence.		Table, f(Loop Time). See supporting tables: Program Sequence Watch Enable f(Loop Time) (If 0, this Loop Time test is disabled)	Fail Table, f(Loop Time). See supporting tables: PSW Sequence Fail f(Loop Time) / Sample Table, f(Loop Time) See supporting tables: PSW Sequence Sample f(Loop Time) counts 50 ms/count in the ECM main processor	
			MAIN processor	Previous seed value		KePISD_b_SeedUpdKey	Table, f(Loop	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			determines a seed has not changed within a specified time period within the 50ms task.	equals current seed value.		StorFltEnbl == 1 Value of KePISD_b_SeedUpdKey StorFltEnbl is: 1. (If 0, this test is disabled)	Time). See supporting tables: Last Seed Timeout f (Loop Time)	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Relay Control Circuit Low Voltage	P0628	Diagnoses the fuel pump relay control high side driver circuit for circuit faults	Voltage low during driver on state (indicates short to ground)	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	Run/Crank Voltage Engine Speed	Voltage ≥ 11 volts ≥ 0 RPM	8 failures out of 10 samples 250 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module EEPROM Error	P062F	Indicates that the NVM Error flag has not been cleared	The next write to NVM will not succeed or the assembly calibration integrity check failed.		Ignition State	= unlock/accessory, run, or crank	1 test failure Diagnostic runs once at powerup	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
VIN Not Programmed or Mismatched - Engine Control Module (ECM)	P0630	This DTC checks that the VIN is correctly written	At least one of the programmed VIN digits	= 00 or FF	OBD Manufacturer Enable Counter	= 0	250 ms / test Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
5 Volt Reference #1 Circuit	P0641	Detects a continuous or intermittent short on the 5 volt reference circuit #1	ECM Vref1 < or ECM Vref1 > or the difference between ECM filtered Vref1 and Vref1 >	4.875 5.125 0.0495		Run/Crank voltage > 6.41	19 / 39 counts or 0.1875 sec continuous; 12.5 ms/count in main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Malfunction Indicator Lamp (MIL) Control Circuit (ODM) Open	P0650	Diagnoses the malfunction indicator lamp control low side driver circuit for circuit faults.	Voltage low during driver off state (indicates open circuit)	Open circuit: ≥ 200 K Ω impedance between signal and controller ground	Run/Crank Voltage Remote Vehicle Start is not active	Voltage ≥ 11 volts	50 failures out of 63 samples 50 ms / sample	Type B, No MIL NO MIL Note: In certain controllers P263A may also set (MIL Control Short to Ground)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
5 Volt Reference #2 Circuit	P0651	Detects a continuous or intermittent short on the 5 volt reference circuit #2	ECM Vref2 < or ECM Vref2 > or the difference between ECM filtered Vref2 and Vref2 >	4.875 5.125 0.0495		Run/Crank voltage > 6.41	19 / 39 counts or 0.1875 sec continuous; 12.5 ms/count in main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Powertrain Relay Control (ODM) Open	P0685	Diagnoses the powertrain relay control low side driver circuit for circuit faults	Voltage low during driver off state (indicates open circuit)	Open Circuit: ≥ 200 K Ω ohms impedance between signal and controller ground	Run/Crank Voltage	Voltage ≥ 11 volts	8 failures out of 10 samples 250 ms / sample	Type B, 2 Trips Note: In certain controlle rs P0686 may also set (Powertr ain Relay Control Short to Ground).

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Powertrain Relay Control (ODM) Low	P0686	Diagnoses the powertrain relay control low side driver circuit for circuit faults	Voltage low during driver off state (indicates short-to-ground)	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	Run/Crank Voltage	Voltage ≥ 11 volts	8 failures out of 10 samples 250 ms / sample	Type B, 2 Trips Note: In certain controlle rs P0685 may also set (Powertr ain Relay Control Open Circuit).

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Powertrain Relay Control (ODM) High	P0687	Diagnoses the powertrain relay control low side driver circuit for circuit faults	Voltage high during driver on state (indicates short to power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	Run/Crank Voltage	Voltage ≥ 11 volts	8 failures out of 10 samples 250 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Powertrain Relay Feedback Circuit High	P0690	This DTC is a check to determine if the Powertrain relay is functioning properly.	Powertrain Relay Voltage	>= 4.00 volts will increment the fail counter	Powertrain relay commanded "OFF" No active DTCs:	>= 2.00 seconds PowertrainRelayStateOn_ FA	50 failures out of 63 samples 100ms / Sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cooling Fan 1 Relay Control Circuit Low Voltage (ODM)	P0691	Diagnoses the cooling fan 1 relay control low side driver circuit for circuit faults	Voltage low during driver off state (indicates short-to-ground)	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	Powertrain Relay Voltage	Voltage ≥ 11.00 volts	50 failures out of 63 samples 100 ms / sample	Type B, 2 Trips Note: In certain controlle rs P0480 may also set (Fan 1 Open Circuit).

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cooling Fan 1 Relay Control Circuit High Voltage (ODM)	P0692	Diagnoses the cooling fan 1 relay control low side driver circuit for circuit faults	Voltage high during driver on state (indicates short to power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	Powertrain Relay Voltage	Voltage ≥ 11.00 volts	50 failures out of 63 samples 100 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
5 Volt Reference #3 Circuit	P0697	Detects a continuous or intermittent short on the 5 volt reference circuit #3	ECM Vref3 < or ECM Vref3 > or the difference between ECM filtered Vref3 and Vref3 >	4.875 5.125 0.0495		Run/Crank voltage > 6.41	19 / 39 counts or 0.1875 sec continuous; 12.5 ms/count in main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Control Module (FPCM) Requested MIL Illumination	P069E	Monitors the FPCM MIL request line to determine when the FPCM has detected a MIL illuminating fault.	Fuel Pump Control Module Emissions-Related DTC set			Time since power-up \geq 3 seconds	Continuous	Type A, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
5 Volt Reference #4 Circuit	P06A3	Detects a continuous or intermittent short on the 5 volt reference circuit #4	ECM Vref4 < or ECM Vref4 > or the difference between ECM filtered Vref4 and Vref4 >	4.875 5.125 0.0495		Run/Crank voltage > 6.41	19 / 39 counts or 0.1875 sec continuous; 12.5 ms/count in main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module Knock Sensor Processor 1 Performance	P06B6	This diagnostic checks for a fault with the internal test circuit used only for the '20 kHz' method of the Open Circuit Diagnostic	FFT Diagnostic Output	> P06B6_P06B7_OpenT estCktThrshMin AND < P06B6_P06B7_OpenT estCktThrshMax See Supporting Tables	Diagnostic Enabled? Engine Run Time Engine Speed Cumulative Number of Engine Revs (per key cycle) within min/max Engine Speed enable (above) Engine Air Flow	Yes ≥ 2.0 seconds > 400 RPM and < 4,000 RPM ≥ 200 Revs ≥ 50 mg/cylinder and ≤ 2,000 mg/cylinder	First Order Lag Filter with Weight Coefficient Weight Coefficient = 0.0200 Updated each engine event	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module Knock Sensor Processor 2 Performance	P06B7	This diagnostic checks for a fault with the internal test circuit used only for the '20 kHz' method of the Open Circuit Diagnostic	FFT Diagnostic Output	> P06B6_P06B7_OpenT estCktThrshMin AND < P06B6_P06B7_OpenT estCktThrshMax See Supporting Tables	Diagnostic Enabled? Engine Run Time Engine Speed Cumulative Number of Engine Revs (per key cycle) within min/max Engine Speed enable (above) Engine Air Flow	Yes ≥ 2.0 seconds > 400 RPM and < 4,000 RPM ≥ 200 Revs ≥ 50 mg/cylinder and ≤ 2,000 mg/cylinder	First Order Lag Filter with Weight Coefficient Weight Coefficient = 0.0200 Updated each engine event	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Control Module (TCM) Requested MIL Illumination	P0700	Monitors the TCM MIL request line to determine when the TCM has detected a MIL illuminating fault.	Transmission Emissions-Related DTC set			Time since power-up ≥ 3 seconds	Continuous	Type A, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Traction Control Torque Request Circuit	P0856	Determines if torque request from the EBTCM is valid	<p>Serial Communication 2's complement message - (\$1C7/\$1C9 for engine torque, \$1CA/\$1C6 for axle torque)</p> <p>OR</p> <p>Serial Communication message (\$1C7/\$1C9 for engine torque, \$1CA/\$1C6 for axle torque) rolling count index value</p> <p>OR</p> <p>Too many minimum limit torque request transitions occur from TRUE to FALSE to TRUE within a time period</p> <p>OR</p> <p>Torque request greater than torque request diagnostic maximum threshold</p>	<p>Message <> 2's complement of message</p> <p>Message rolling count value <> previous message rolling count value plus one</p> <p>Requested torque intervention type toggles from not increasing request to increasing request</p> <p>> 250 Nm for engine torque based traction torque system, OR > 4,000 Nm for axle torque based traction torque system</p>	<p>Serial communication to EBTCM (U0108)</p> <p>Power Mode Engine Running</p> <p>Status of traction in GMLAN message (\$4E9)</p>	<p>No loss of communication</p> <p>= Run = True</p> <p>= Traction Present</p>	<p>>= 6 failures out of 10</p> <p>Performed on every received message</p> <p>6 rolling count failures out of 10 samples</p> <p>Performed on every received message</p> <p>>= 3 multi-transitions out of 5 samples.</p> <p>Performed every 200 ms</p> <p>>= 4 out of 10 samples</p> <p>Performed on every received message</p>	Type C, No MIL Safety Special Type C

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Inlet Airflow System Performance (naturally aspirated)	P1101	Determines if there are multiple air induction problems affecting airflow and/or manifold pressure.	Filtered Throttle Model Error AND (ABS(Measured Flow – Modeled Air Flow) Filtered OR ABS(Measured MAP – MAP Model 1) Filtered AND ABS(Measured MAP – MAP Model 2) Filtered	<= 350 kPa*(g/s) > 20.0 grams/sec > 20.0 kPa) > 20.0 kPa	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 500 RPM <= 6,800 RPM > -7 Deg C < 150 Deg C > -20 Deg C < 125 Deg C >= 0.50 Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM Modeled Air Flow Error multiplied by MAF Residual Weight Factor based on RPM and MAF Residual Weight Factor Based on MAF Est MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM See Residual Weight Factor tables. MAP_SensorCircuitFA EGRValvePerformance_FA A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					No Pending DTCs:	IAT_SensorFA EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 1 low side circuit shorted to high side circuit	P1248	This DTC Diagnoses Injector 1 enable low side driver shorted to high side driver circuit faults.	Voltage high across low side and High side drivers during on state indicates low side shorted to high side	Low side shorted to High Side: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 2 low side circuit shorted to high side circuit	P1249	This DTC Diagnoses Injector 2 enable low side driver shorted to high side driver circuit faults.	Voltage high across low side and High side drivers during on state indicates low side shorted to high side	Low side shorted to High Side: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 3 low side circuit shorted to high side circuit	P124A	This DTC Diagnoses Injector 3 enable low side driver shorted to high side driver circuit faults.	Voltage high across low side and High side drivers during on state indicates low side shorted to high side	Low side shorted to High Side: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 4 low side circuit shorted to high side circuit	P124B	This DTC Diagnoses Injector 4 enable low side driver shorted to high side driver circuit faults.	Voltage high across low side and High side drivers during on state indicates low side shorted to high side	Low side shorted to High Side: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 5 low side circuit shorted to high side circuit	P124C	This DTC Diagnoses Injector 5 enable low side driver shorted to high side driver circuit faults.	Voltage high across low side and High side drivers during on state indicates low side shorted to high side	Low side shorted to High Side: 25 amp \geq through low side driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 6 low side circuit shorted to high side circuit	P124D	This DTC Diagnoses Injector 6 enable low side driver shorted to high side driver circuit faults.	Voltage high across low side and High side drivers during on state indicates low side shorted to high side	Low side shorted to High Side: 25 amp >= through low side driver	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Metal Over temperature Active	P1258	The objective of the algorithm is to protect the engine in the event of engine metal overtemperature, mainly due to loss of coolant	Engine Coolant For a period	>= 132 °C >= 2 seconds	Engine Run Time If feature was active and it set the coolant sensor fault then feature will be enabled on coolant sensor fault pending on the next trip.	>= 30 Seconds	Fault present for >= 0 seconds	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Coil Positive Voltage Circuit Group 1 * * SIDI ONLY * *	P135A	This diagnostic checks for voltage supply to the Ignition Coils (applicable only for SIDI applications)	Common Enable Criteria Ignition Module Supply Voltage. Three possible power supply sources for Ignition Coils (only 1 is used): Case 1: Battery Case 2: Ignition Run/ Crank Case 3: PT Relay Case Specific Enable Criteria	< 2.5 Volts Ignition Coil Power Source = (see corresponding case specific enable criteria below) Case 1: Battery Case 2: Ignition Run/ Crank Case 3: PT Relay	Diagnostic Enabled? PT Relay Delay starting at Key-On Ignition Run/Crank Voltage PT Relay Voltage	Yes 5 Engine Revs > 11.0 volts > 11.0 volts	24 Failures out of 30 Samples 6.25 msec rate	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Coil Positive Voltage Circuit Group 2 * * SIDI ONLY * *	P135B	This diagnostic checks for voltage supply to the Ignition Coils (applicable only for SIDI applications)	Common Enable Criteria		Diagnostic Enabled?	Yes	24 Failures out of 30 Samples 6.25 msec rate	Type: Type A, 1 Trips
			Ignition Module Supply Voltage.	< 2.5 Volts				
			Three possible power supply sources for Ignition Coils (only 1 is used): Case 1: Battery Case 2: Ignition Run/ Crank Case 3: PT Relay	Ignition Coil Power Source = (see corresponding case specific enable criteria below)	PT Relay			
			Additional Case Specific Enable Criteria	Case 1: Battery	Delay starting at Key-On	5 Engine Revs		
			Case 2: Ignition Run/ Crank	Ignition Run/Crank Voltage	> 11.0 volts			
			Case 3: PT Relay	PT Relay Voltage	> 11.0 volts			

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cold Start Emissions Reduction System Fault	P1400	Model based test computes power from exhaust flow and thermal energy resulting from elevated idle speed and retarded spark advance. Detects if the cold start emission reduction system has failed resulting in the delivered power being out of range.	<p>Average desired accumulated exhaust power - Average actual accumulated exhaust power (too much energy delivered to catalyst)</p> <p>Average desired accumulated exhaust power - Average actual accumulated exhaust power (too little energy delivered to catalyst)</p> <p>(EWMA filtered)</p> <p>Average Power = output of P1400_EngineSpeedResidual_Table * output of P1400_SparkResidual_Table</p> <p>NOTE: Desired accumulated power would use the desired catalyst light off spark and desired engine speed and the actual accumulated power would use the final commanded spark and actual engine speed. Refer to the Supporting Tables for details</p>	<p>< -32.00 KJ/s (high RPM failure mode)</p> <p>> 5.00 KJ/s (low RPM failure mode)</p>	<p>To enable the diagnostic, the Cold Start Emission Reduction Strategy must be Active per the following:</p> <p>Catalyst Temperature AND Engine Coolant AND Engine Coolant AND Barometric Pressure</p> <p>The Cold Start Emission Reduction strategy must not be exiting. The strategy will exit per the following:</p> <p>Catalyst Temperature AND Engine Run Time</p> <p>OR</p> <p>Engine Run Time</p> <p>OR</p> <p>Barometric Pressure</p>	<p>< 350.00 degC AND > -10.00 degC AND <= 56.00 degC AND >= 74.00 KPa</p> <p>>= 900.00 degC AND >= 18.38 seconds</p> <p>> CatalystLightOffExtendedEngineRunTimeExit</p> <p>This Extended Engine run time exit is a function of percent ethanol and Catmons NormRatioEWMA. Refer to "Supporting Tables" for details.</p>	<p>Runs once per trip when the cold start emission reduction strategy is active</p> <p>Frequency: 100ms Loop</p> <p>Test completes after 10 seconds of accumulated qualified data.</p>	EWMA Based - Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>Other Enable Criteria:</p> <p>OBD Manufacturer Enable Counter</p> <p>Vehicle Speed</p> <p>Allow diagnostic to calculate residual in an off-idle state. If the value of the OffIdleEnable is equal to 1 then the "DriverOffAccelPedal" will not be checked. However, if the value of OffIdleEnable is 0 then driver must be off the accel pedal</p> <p>A change in throttle position (tip-in/tip-out) will initiate a delay in the calculation of the average qualified residual value. Therefore when the:</p> <p>Pedal Close Delay Timer</p> <p>the diagnostic will continue the calculation.</p> <p>A change in gear will initiate a delay in the calculation of the average qualified residual value to allow time for the actual</p>	<p>0</p> <p>< 1.24 MPH</p> <p>0</p> <p>(A value of 1 allows diagnostic to run and calculate the residual while off idle. A value of 0 requires calculation of the residual at idle)</p> <p>> 5.00 seconds</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>engine speed and actual final commanded spark to achieve their desired values. Therefore, when the:</p> <p>Gear Shift Delay Timer</p> <p>the diagnostic will continue the calculation</p> <p>For Manual Transmission vehicles:</p> <p>Clutch Pedal Position</p> <p>Clutch Pedal Position</p> <p>The diagnostic will delay calculation of the residual value and potentially weight the residual calculation differently based on engine run time. This is to ensure the diagnostic is operating in idle speed control as well as during the peak catalyst light off period.</p> <p>The time weighting factor must be :</p>	<p>> 2.00 seconds</p> <p>> 5.00 %</p> <p>< 5.00 %</p> <p>> 0 These are scalar values that are a function of engine run time. Refer to ColdStartDiagnosticDelayBasedOnEngineRunTime</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>General Enable:</p> <p>DTC's Not Set:</p>	<p>and the cal axis, ColdStartDiagnosticDelayBasedOnEngineRunTimeCalAxis in the "Supporting Tables" for details.</p> <p>AcceleratorPedalFailure ECT_Sensor_FA IAT_SensorCircuitFA MnfdTempSensorCktFP CrankSensorFaultActive FuelInjectorCircuit_FA MAF_SensorFA MAP_SensorFA EngineMisfireDetected_F A Clutch Sensor FA IAC_SystemRPM_FA IgnitionOutputDriver_FA TPS_FA VehicleSpeedSensor_FA 5VoltReferenceMAP_OO R_Flt TransmissionEngagedStat e_FA EngineTorqueEstInaccura te</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Engine Speed Request Circuit	P150C	Determines if engine speed request from the TCM is valid	Serial Communication rolling count value Transmission engine speed protection	+ 1 from previous \$19D message (PTEI3)	Diagnostic enable bit	1	Diagnostic runs in 12.5 ms loop	Type B, 2 Trips
				not equal to 2's complement of transmission engine speed request + Transmission alive rolling count	Engine run time	0.50 sec		
					# of Protect Errors	12 protect errors within the sample period 20		
					# of Alive Rolling Errors	6 rolling count errors out of 10 samples		
					No idle diagnostic 506/507 code	IAC_SystemRPM_FA		
					No Serial communication loss to TCM	(U0101)		
					Engine Running	= TRUE		
	Power mode	Run Crank Active						

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steady State Actuation Fault	P1516	Detect an inability to maintain a steady state throttle position	The absolute difference between desired and indicated throttle position is >	2.00 percent		Run/Crank voltage > 6.41 Ignition voltage failure is false (P1682) TPS minimum learn is not active and Throttle is being Controlled Throttle is considered in a steadystate condition when the desired throttle position over a 12.5 ms period is < 0.25 percent for a settling time period > 4.00 s	0.49 ms	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Adaptive Cruise Control Signal Circuit	P1553	Detects rolling count or protection value errors in Adaptive Cruise Control Axle Torque Command serial data signal	If x of y rolling count / protection value faults occur, disable adaptive cruise control for duration of fault		Adaptive Cruise Control Command Serial Data Error Diagnostic Enable	1.00	10 / 16 counts	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Switch State Undertermin ed	P155A	Detects when cruise switch state cannot be determined, such as low voltage conditions	cruise switch state remains undetermined for greater than a calibratable time				fail continuously for greater than 0.5 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Set/ Coast Signal 2 Circuit	P155B	Detects a failure of the cruise set 2 switch in a continously applied state	Cruise Control Set 2 switch remains applied for greater than a calibratable period of time for architecture where cruise switch states are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 89.000 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cruise Control Resume/ Acceleration Signal 2 Circuit	P155C	Detects a failure of the cruise resume 2 switch in a continuously applied state	Cruise Control Resume 2 switch remains applied for greater than a calibratable period of time for architecture where cruise switch states are received over serial data		CAN cruise switch diagnostic enable in ECM	1.00	fail continuously for greater than 89.000 seconds	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Analog Mode Switch Circuit Low	P159	This DTC will detect an analog mode switch input that is too low out of range.	<p>Analog Mode Switch of 5 range</p> <p>The normal operating range of the analog mode switch is:</p> <p>Switch depressed of 5 range: .8 29.0</p> <p>Switch released of 5 range: 88.8 2.8</p>	29.0			<p>200 failures out of 250 samples</p> <p>25 ms / sample</p>	Type , 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Analog Mode Switch Circuit High	P15A0	This DTC will detect an analog mode switch input that is too high out of range.	Analog Mode Switch % of 5V range The normal operating range of the analog mode switch is: Switch depressed % of 5V range: Switch released % of 5V range:	≥ 88.8 % < 66.8 % ≥ 29.0 % < 88.8 % ≥ 72.8 %			200 failures out of 250 samples 25 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Analog Mode Switch Performance	P15A1	This DTC will detect an analog mode switch input that is in an indeterminate range.	Fuel Saver Switch % of 5V is in an indeterminate range: The normal operating range of the fuel saver mode switch is: Switch depressed % of 5V range: Switch released % of 5V range:	$66.8\% \leq \% \text{ of } 5 \text{ volts} < 72.8\%$ $< 66.8\%$ $\geq 29.0\%$ $< 88.8\%$ $\geq 72.8\%$			200 failures out of 250 samples 25 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Front Object Detection Control Module Torque Request Signal Message Counter Incorrect	P15F6	Detects rolling count or protection value errors in Collision Preparation System Axle Torque Command serial data signal	If x of y rolling count / protection value faults occur, disable collision preparation system for duration of fault		Front Object Detection Module Torque Request Serial Data Error Diagnostic Enable	1.00	4 / 10 counts	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Automatic Braking Engine Torque Request Signal Message Incorrect	P15F8	Detects rolling count or protection value errors Rear Virtual Bumper Axle Torque Command serial data signal	If x of y rolling count / protection value faults occur, disable rear virtual bumper or collision preparation system for duration of fault		Automatic Braking Engine Torque Request Serial Data Error Diagnostic Enable	1.00	4 / 10 counts	MIL: Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Voltage Correlation	P1682	Detect a continuous or intermittent out of correlation between the Run/Crank Ignition Voltage & the Powertrain Relay Ignition Voltage	Run/Crank – PT Relay Ignition >	3.00 Volts		Powertrain commanded on AND (Run/Crank voltage > Table, f(IAT). See supporting tables: PT Relay Pull-in Run/Crank Voltage f(IAT) OR PT Relay Ignition voltage > 5.50) AND Run/Crank voltage > 5.50 .	240 / 480 counts or 0.1750 sec continuous; 12.5 ms/count in main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TPS SENT Comm Circuit Low	P16A0	Detects a Low Circuit Fault in the TPS SENT Communication Circuit	Voltage for wave pulse is below state threshold as defined by SAE J2716 SENT Protocol	0.5 V		Run/Crank voltage > 6.41	79 / 159 counts; 57 counts continuous; 3.125 ms /count in the ECM main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TPS SENT Comm Circuit High	P16A1	Detects a High Circuit Fault in the TPS SENT Communication Circuit	Voltage for wave pulse is above state threshold as defined by SAE J2716 SENT Protocol	4.1 V		Run/Crank voltage > 6.41	79 / 159 counts; 57 counts continuous; 3.125 ms /count in the ECM main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TPS SENT Comm Circuit Performance	P16A2	Detects a Message Fault in the TPS SENT Communication Circuit	Message Pulse < Message Pulse > or Message Age Limit >= or Signal CRC fails	0.125977 ms 0.209991 ms 3.125 ms		Run/Crank voltage > 6.41	79 / 159 counts; 57 counts continuous; 3.125 ms /count in the ECM main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module Redundant Memory Performance	P16F3	<p>Detect Processor Calculation faults due to RAM corruptions, ALU failures and ROM failures</p> <p>For all of the following cases: If the individual diagnostic threshold is equal to 2048 ms, this individual case is not applicable. If any of the following cases are X out of Y diagnostics and the fail (x) is greater than the sample (Y), this individual case is also not applicable.</p>	Desired Throttle Area calculated does not equal its redundant calculation	N/A	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	Type A, 1 Trips
			Equivalence Ratio torque compensation exceeds threshold	-60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Absolute difference between Equivalence Ratio torque compensation and its dual store out of bounds given by threshold	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Absolute difference of Accessory torque and its redundant calculation is out of bounds given by threshold range	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Absolute difference of Filtered Air-per-cylinder and its redundant calculation is out of bounds given by threshold range	75.71 mg	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Absolute difference between the previous Final Advance and the current Final Advance not Adjusted for Equivalence Ratio is out of bounds given by threshold range	15.00 degrees		Engine speed >0rpm	Up/down timer 125 ms continuous, 0.5 down time multiplier	
			Torque Learn offset is out of bounds given by threshold range	High Threshold 0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				Low Threshold 0.00 Nm			multiplier	
			One step ahead calculation of air-per-cylinder and two step ahead is greater than threshold	80.00 mg		Engine speed > 550 rpm	Up/down timer 451 ms continuous, 0.5 down time multiplier	
			Difference between Unmanaged Spark and PACS Spark is greater than threshold	15.00 degrees	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Commanded Predicted Engine Torque and its dual store do not match	N/A	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							multiplier	
			Zero pedal axle torque is out of bounds given by threshold range	High Threshold 762.58 Nm Low Threshold -65,535.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Creep Coast Axle Torque is out of bounds given by threshold range	High Threshold 762.58 Nm Low Threshold -65,535.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Absolute difference of Friction torque and its redundant calculation is out of bounds given by threshold range	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							multiplier	
			Arbitrated Air-Per-Cylinder filter coefficient is out of bounds given by threshold range	High Threshold 1.000 Low Threshold 0.074	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Launch spark is active but the launch spark redundant path indicates it should not be active	N/A		Engine speed < 8,191.88 or 8,191.88 rpm (hysteresis pair)	Up/down timer 151 ms continuous, 0.5 down time multiplier	
			Rate limited vehicle speed and its dual store do not equal	N/A		Time since first CAN message with vehicle speed >= 0.500 sec	10 / 20 counts; 25.0msec/count	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Preload Throttle Area and its dual store do not equal	N/A	Ignition State	Accessory, run or crank AFM apps only	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Commanded engine torque due to fast actuators and its dual store do not equal	N/A	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Commanded engine torque due to slow actuators and its dual store do not equal	N/A	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			TOS to wheel speed conversion factor is out of bounds given by threshold	High Threshold: 1.10	Ignition State	Accessory, run or crank	255 / 6 counts; 25.0msec/count	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			range	T/C Range Hi 0.10 T/C Range Lo Low Threshold: 1.10 T/C Range Hi 0.10 T/C Range Lo				
			Cylinders active greater than commanded	2 cylinders		Engine run flag = TRUE > 2.00s Number of cylinder events since engine run > 24 No fuel injector faults active	Up/down timer 151ms continuous, 0.5 down time multiplier	
			Transfer case neutral request from four wheel drive logic does not match	N/A	Ignition State	Accessory, run or crank	32 / 0 counts; 25.0msec/count	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			with operating conditions			Transfer case range valid and not over-ridden FWD Apps only		
			Driver progression mode and its dual store do not equal	N/A	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Predicted torque for uncorrected zero pedal determination is greater than calculated limit.	Table, f(Engine, Oil Temp). See supporting tables + 60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Engine Predicted Request Without Motor is greater than its redundant calculation plus threshold	59.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Engine Immediate Request Without Motor is greater than its redundant calculation plus threshold	59.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Positive Torque Offset is greater than its redundant calculation plus threshold OR Positive Torque Offset is less than its redundant calculation minus threshold	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Commanded Predicted Engine Request is greater than its redundant calculation plus threshold	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, down time multiplier 0.5	
			Commanded Hybrid Predicted Crankshaft Request is greater than its redundant calculation plus threshold	4,096.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Commanded Hybrid	4.096.00	Ignition State	Accessory, run or crank	Up/down timer	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Immediate Crankshaft Request is less than its redundant calculation minus threshold	Nm			2,048 ms continuous, 0.5 down time multiplier	
			Regeneration Brake Assist is not within a specified range	Brake Regen Assist < 0 Nm or Brake Regen Assist > 0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Cylinder Spark Delta Correction exceeds the absolute difference as compared to Unadjusted Cylinder Spark Delta	15.00 degrees	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			1. Cylinder Torque Offset exceeds step size threshold OR 2. Sum of Cylinder Torque Offset exceeds sum threshold	1. 60.86 Nm 2. 60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Engine Capacity Minimum Immediate Without Motor is greater than its dual store plus threshold	61.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Engine Capacity Minimum Engine Off is greater than threshold	0 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Engine Capacity Minimum Engine Immediate Without Motor is greater than threshold	0 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Commanded Immediate Engine Request is greater than its redundant calculation plus threshold	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Engine Speed Loes Intake Firing (event based) calculation does not equal its redundant calculation	N/A		Engine speed greater than 0rpm	Up/down timer 151 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Engine Speed Lores Intake Firing timing (event based) calculation does not equal its redundant calculation	N/A		Engine speed greater than 0rpm	Up/down timer 151 ms continuous, 0.5 down time multiplier	
			Idle speed control calculated predicted minimum torque request exceeds calculated torque limit	Table, f(Oil Temp, RPM). See supporting tables: Speed Control External Load f(Oil Temp, RPM) + 60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Idle speed control calculated predicted minimum torque without reserves exceeds calculated torque limit	Table, f(Oil Temp, RPM). See supporting tables: Speed Control External Load f(Oil Temp, RPM) + 60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Difference between Driver Requested Immediate Torque primary path and its secondary exceeds threshold	762.58 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Driver Immediate Request is less than its redundant calculation minus threshold	762.58 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Commanded Immediate Request is greater than its redundant calculation plus threshold OR Commanded Immediate	762.58 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Request is less than its redundant calculation minus threshold					
			Commanded Immediate Response Type is set to Inactive	N/A	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Difference between Cruise Axle Torque Arbitrated Request and Cruise Axle Torque Request exceeds threshold	95.32 Nm		Cruise has been engaged for more than 4.00 seconds	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Desired engine torque request greater than	59.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 475	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			redundant calculation plus threshold				ms continuous, 0.5 down time multiplier	
			Engine min capacity above threshold	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 97 ms continuous, 0.5 down time multiplier	
			No fast unmanaged retarded spark above the applied spark plus the threshold	Table, f(RPM,APC). See supporting tables: Delta Spark Threshold f (RPM,APC)		Engine speed greater than 0rpm	Up/down timer 125 ms continuous, 0.5 down time multiplier	
			Absolute difference of adjustment factor based on temperature and its dual store above threshold	2.76 m/s	Ignition State	Accessory, run or crank	Up/down timer 133 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			1. Absolute difference of redundant calculated engine speed above threshold	344 RPM		Engine speed greater than 0 RPM	Up/down timer 151 ms continuous, 0.5 down time multiplier	
			After throttle blade pressure and its dual store do not match	N/A	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Speed Control's Predicted Torque Request and its dual store do not match	N/A	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Engine oil temperature and its dual store do not match	N/A	Ignition State	Accessory, run or crank	Up/down timer 315 ms continuous,	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							0.5 down time multiplier	
			Desired throttle position greater than redundant calculation plus threshold	6.25 percent	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Absolute difference of the rate limited pre-throttle pressure and its redundant calculation greater than threshold	0.06 kpa	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Throttle desired torque above desired torque plus threshold	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Desired filtered throttle torque exceeds the threshold plus the higher of desired throttle torque or modeled throttle torque	60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Torque feedback proportional term is out of allowable range or its dual store copy does not match	High Threshold 30.43 Nm Low Threshold -30.43 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Torque feedback integral term magnitude or rate of change is out of allowable range or its dual store copy do not match	High Threshold 57.05 Nm Low Threshold	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				-60.86 Nm Rate of change threshold 3.80 Nm/loop				
			Difference of Final Torque feedback proportional plus integral term and its redundant calculation is out of bounds given by threshold range	High Threshold 60.86 Nm Low Threshold - 60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Difference of torque desired throttle area and its redundant calculation is out of bounds given by threshold range	High Threshold 0.50 %	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				Low Threshold -0.50 %			multiplier	
			Difference of torque model coefficients and its redundant calculation is out of bounds given by threshold range	High Threshold 0.0001204 Low Threshold - 0.0001204	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Difference of base friction torque and its redundant calculation is out of bounds given by threshold range	High Threshold 60.86 Nm Low Threshold - 60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Accessory drive friction torque is out of bounds given by threshold range	High Threshold 60.86 Nm Low Threshold 0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			AC friction torque is greater than commanded by AC control software or less than threshold limit	High Threshold 40.00 Nm Low Threshold 0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Difference of Oil temperature delta friction torque and its redundant calculation is out of bounds given by threshold range	High Threshold 60.86 Nm Low Threshold	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				- 60.86 Nm				
			Generator friction torque is out of bounds given by threshold range	High Threshold 60.86 Nm Low Threshold 0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Supercharger friction torque is out of bounds given by threshold range	High Threshold 60.86 Nm Low Threshold 0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Filtered Torque error magnitude or its increase rate of change is out of allowable range or its dual store copy do not match	High Threshold 60.86 Nm Low Threshold -60.86 Nm Rate of change threshold 3.80 Nm/loop		Engine speed >0rpm MAF, MAP and Baro DTCs are false	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Torque error compensation is out of bounds given by threshold range	High Threshold 60.86 Nm Low Threshold 0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Delta Torque Baro compensation is out of bounds given by threshold range	High Threshold 5.35 Nm Low Threshold -0.72 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			1. Difference of reserve torque value and its redundant calculation exceed threshold OR 2. Reserve request does not agree with operating conditions or Difference of final predicted torque and its redundant calculation exceed threshold OR 3. Rate of change of reserve torque exceeds threshold, increasing direction only	1. 59.86 Nm 2. N/A 3. 59.86 Nm 4. 59.86 Nm	3. & 4.: Ignition State	1. & 2.: Torque reserve (condition when spark control greater than optimum to allow fast transitions for torque disturbances) > 60.86 Nm 3. & 4.: Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			OR 4. Reserve engine torque above allowable capacity threshold					
			Engine Vacuum and its dual store do not match	N/A	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Absolute difference of the calculated Intake Manifold Pressure during engine event versus during time event is greater than threshold	Table, f(Desired Engine Torque). See supporting tables: Delta MAP Threshold f(Desired Engine Torque)		Engine speed >0rpm	Up/down timer 151 ms continuous, 0.5 down time multiplier	
			Min. Axle Torque Capacity is greater than threshold	0.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Driver Predicted Request	762.58	Ignition State	Accessory, run or crank	Up/down timer	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			is greater than its redundant calculation plus threshold OR Driver Predicted Request is less than its redundant calculation minus threshold	Nm			475 ms continuous, 0.5 down time multiplier	
			Cold Delta Friction Torque and its dual store do not match	N/A	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Predicted torque for zero pedal determination is greater than calculated limit.	Table, f(Oil Temp, RPM). See supporting tables: Speed Control External Load f(Oil Temp, RPM) + 60.86 Nm	Ignition State	Accessory, run or crank	Up/down timer 175 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Commanded Predicted Axle Torque and its dual store do not match	1 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Steady State Estimated Engine Torque and its dual store are not equal	N/A		AFM not changing from Active to Inactive and preload torque not changing and one loop after React command Engine speed >0rpm	Up/down timer 1,988 ms continuous, 0.5 down time multiplier	
			Difference of Weighting factor for number of cylinders fueled and its redundant calculation is above threshold	0.26		Engine run flag = TRUE > 10.00 s	Up/down timer 175 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Difference of minimum spark advance limit and its redundant calculation is out of bounds given by threshold range	15.00 degrees	Ignition State	Accessory, run or crank	Up/down timer 151 ms continuous, 0.5 down time multiplier	
			Difference of commanded spark advance and adjusted delivered is out of bounds given by threshold range	15.00 degrees		Engine speed >0rpm	Up/down timer 125 ms continuous, 0.5 down time multiplier	
			Absolute difference between Estimated Engine Torque and its dual store are above a threshold	60.86 Nm		Engine speed >0rpm	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Absolute difference between Estimated Engine Torque without reductions due to torque	60.86 Nm		Engine speed >0rpm	Up/down timer 475 ms continuous, 0.5	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control and its dual store are above a threshold				down time multiplier	
			Difference of desired spark advance for managed torque and its redundant calculation is out of bounds given by threshold range	15.00 degrees		Torque reserve (condition when spark control greater than optimum to allow fast transitions for torque disturbances) > 60.86 Nm	Up/down timer 451 ms continuous, 0.5 down time multiplier	
			Absolute difference of Engine Capacity Minimum Running Immediate Brake Torque Excluding Cylinder Sensitivity and its redundant calculation is out of bounds given by threshold range	60.86 Nm		Engine speed >0rpm	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			One step ahead calculation of air-per-cylinder greater than two	Threshold: Dynamically calculated based on current		Engine speed > 550 rpm	Up/down timer 451 ms continuous,	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			step ahead calculation by threshold for time	engine conditions Fault Pending Threshold: 100 ms			0.5 down time multiplier	
			Rate limited cruise axle torque request and its dual store do not match within a threshold	95.32 Nm	Ignition State	Accessory, run or crank	Up/down timer 163 ms continuous, 0.5 down time multiplier	
			1. Absolute difference of Calculated accelerator pedal position compensated for carpet learn and error conditions and its redundant calculation is out of bounds given by threshold range OR 2. Absolute difference of Calculated accelerator pedal position compensated for carpet learn and error conditions	1. 5.00 % 2. N/A 3. N/A	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			and its dual store do not equal OR 3. Absolute difference of Calculated accelerator pedal position and its dual store do not equal					
			Commanded axle torque is greater than its redundant calculation by threshold	762.58 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Commanded axle torque is less than its redundant calculation by threshold	1,143.87 Nm	Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Preload timer and its redundant calculation do	N/A	Ignition State	Accessory, run or crank	Up/down timer 2.048	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			not equal			AFM apps only	ms continuous, 0.5 down time multiplier	
			AC friction torque is greater than commanded by AC control software	40.00 Nm	Ignition State	Accessory, run or crank	Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Engine Speed Lores Intake Firing (time based) calculation does not equal its redundant calculation	N/A		Engine speed >0rpm	Up/down timer 175 ms continuous, 0.5 down time multiplier	
			Absolute difference of the calculated spark offset for equivalence ratio and its redundant calculation is greater than a threshold	15.00 degrees		Engine speed >0rpm	Up/down timer 151 ms continuous, 0.5 down time multiplier	
			Transmission Torque	N/A		Run or Crank = TRUE >	16 / 32	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Request cacluations do not equal their dual stores			0.50 s	counts; 25.0msec/count	
			Absolute difference of the predicted motor torque ACS and its redundant cacluation is greater than a threshold	0.01 Nm			Up/down timer 2,048 ms continuous, 0.5 down time multiplier	
			Absolute difference of maximum throttle area and its redundant cacluation is greater than a threshold	15 mm2			Up/down timer 133 ms continuous, 0.5 down time multiplier	
			Absolute difference of Desired TIAP and its redundant cacluation is greater than a threshold	5.00 kPa			Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Pedal learns and their redundant calculation do not equal		Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Throttle learns and their redundant calculation do not equal		Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	
			Desired Throttle Position and its redundant calculation do not equal		Ignition State	Accessory, run or crank	Up/down timer 475 ms continuous, 0.5 down time multiplier	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Level Sensor 2 Performance (For use on vehicles with mechanical transfer pump dual fuel tanks)	P2066	This DTC will detect a fuel sender stuck in range in the secondary fuel tank.	<p>***** Fuel Level in Primary and Secondary Tanks Remain in an Unreadable Range too Long *****</p> <p>This subtest is used</p> <p>If fuel volume in primary tank is and fuel volume in secondary tank is and remains in this condition for</p> <p>OR ***** Fuel Level is in a Readable Range for both Primary and Secondary Tanks too Long *****</p> <p>This subtest is not used</p> <p>Volume in primary tank is and volume in secondary tank is and remains in this condition for</p> <p>OR ***** Distance Traveled without a Secondary Fuel Level Change *****</p> <p>If the vehicle is driven a</p>	<p>≥ 28.7 liters</p> <p>< 2.8 liters</p> <p>112 miles</p> <p>< 29 liters</p> <p>> 3 liters</p> <p>2,430 seconds</p>	<p>Engine Running</p> <p>No active DTCs:</p>	<p>VehicleSpeedSensor_FA</p>	250 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			distance of 78 miles without the secondary fuel level changing by 3 liters, then the sender must be stuck.					

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Level Sensor 2 Circuit Low Voltage (For use on vehicles with dual fuel tanks)	P2067	This DTC will detect a fuel sender stuck out of range low in the secondary fuel tank.	Fuel level Sender % of 5V range	< 10%			100 failures out of 125 samples 100 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Level Sensor 2 Circuit High Voltage (For use on vehicles with dual fuel tanks)	P2068	This DTC will detect a fuel sender stuck out of range low in the secondary fuel tank.	Fuel level Sender % of 5V range	> 60 %			100 failures out of 125 samples 100 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft Actuator Solenoid Circuit Low- Bank 1	P2088	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match.	Short to ground: ≤ 0.5 Ω to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft Actuator Solenoid Circuit High – Bank 1	P2089	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft Actuator Solenoid Circuit Low – Bank 1	P2090	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match.	Short to ground: ≤ 0.5 Ω to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft Actuator Solenoid Circuit High – Bank 1	P2091	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft Actuator Solenoid Circuit Low- Bank 2	P2092	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match.	Short to ground: ≤ 0.5 Ω to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Camshaft Actuator Solenoid Circuit High- Bank 2	P2093	Diagnoses the VVT system high side driver circuit for circuit faults.	.The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft Actuator Solenoid Circuit Low – Bank 2	P2094	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match	Short to ground: ≤ 0.5 Ω to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Exhaust Camshaft Actuator Solenoid Circuit High – Bank 2	P2095	Diagnoses the VVT system high side driver circuit for circuit faults.	The ECM detects that voltage is high during driver off state (indicates short to power or open circuit)	Short to power: ≤ 0.5 Ω impedance between signal and controller power Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	System supply voltage Output driver is commanded on Ignition switch is in crank or run position	> 11.00 Volts	20 failures out of 25 samples 250 ms /sample, continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Post Catalyst Fuel Trim System Low Limit Bank 1 (Too Rich)	P2096	Determines if the post catalyst O2 sensor based fuel control system has utilized all or most of its low limit authority, indicating a rich emissions/exhaust gas condition. Note: If the post catalyst O2 voltage is too rich, the post catalyst O2 integral offset control is decreased. This results in lean bias fuel control in an attempt to correct the rich condition. A perfectly balanced control system (no rich or lean bias required) is represented by an integral offset value of "0" and a post catalyst O2 sensor that is within its optimal operating range (neither rich nor lean). An integral offset value < 0 is indicative of the control system reacting to a rich post catalyst O2 sensor. If the failure is such that the control system utilizes all or most of its available authority, then P2096 will set.	Rich Fail counter High Vapor Feature: The diagnostic is at risk of reporting a false fail when excessively High Vapor (HV) conditions are present. This HV condition is indicated when the purge valve is open AND percent vapor is >= 22% for >= 5.0 seconds. Diagnosis resumes if the purge valve is closed OR the percent vapor is <= 20% for >= 5.0 seconds. This was done to minimize disabling the diagnostic for longer than necessary.	>= 800 counts per 1,000 sample counts Note: Counters increment at a rate of 10 per second when enable conditions are met. If the fail count threshold is reached, a fail is reported and the diagnostic will not report again until the next trip. If the sample count threshold is reached before a fail is reported, a pass is reported, the counters are reset to 0, and evaluation starts again.	The diagnostic is enabled during: Deceleration Idle Cruise Light Acceleration Heavy Acceleration Ambient Air Pressure Engine AirFlow Intake Manifold Pressure Induction Air Temperature Start-up Coolant Temp. PTO Intrusive diag. fuel control Long Term Secondary Fuel Trim Enabled (see "Long Term Secondary Fuel Trim Enable Criteria" in Supporting Tables) High Vapor Conditions No Fault Active for:	Yes Yes Yes Yes Yes >= 70 kPa >= 0.0 g/s <= 10,000.0 >= 10 kPa <= 255 >= -20 deg. C <= 150 >= -20 deg. C Not Active Not Active Not Present AmbientAirDefault AIR_System FA Ethanol Composition Sensor FA ECT_Sensor_FA EGRValveCircuit_FA EGRValvePerformance_FA IAT_SensorFA CamSensorAnyLocationFA EvapEmissionSystem_FA EvapFlowDuringNonPurge_FA FuelTankPressureSnsrCkt_FA	Frequency: Continuous Monitoring in 100ms loop. Counters increment when enable conditions are met. When sample count threshold is reached or fail threshold is reached, counters are reset to 0 and start over.	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>The above general enable conditions must be true for:</p> <p>Minimum accumulated counts in each cell required before counters will increment for that cell:</p> <p>Deceleration Idle Cruise Light Acceleration Heavy Acceleration</p> <p>(Note: A value in any of the above operating "cells" that is an order of magnitude (or more) higher than other cells is an indication that the diagnostic is not capable of diagnosing in that cell).</p> <p>For the cells identified as</p>	<p>EvapPurgeSolenoidCircuit_FA EvapSmallLeak_FA EvapVentSolenoidCircuit_FA FuelInjectorCircuit_FA MAF_SensorFA MAF_SensorTFTKO MAP_SensorFA MAP_EngineVacuumStatus EngineMisfireDetected_FA A/F Imbalance Bank1 O2S_Bank_1_Sensor_1_FA O2S_Bank_1_Sensor_2_FA</p> <p>> 0.0 seconds</p> <p>10,000,000,272,564,200 10,000,000,272,564,200 50 50 50</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					enabled (i.e. those containing a "Yes" at the beginning of the Enable Conditions column), the fail counter will increment if the sample counter increments AND Post oxygen sensor control integral offset (in mV) is Deceleration Idle Cruise Light Acceleration Heavy Acceleration AND Post O2 Voltage is Deceleration Idle Cruise Light Acceleration Heavy Acceleration (Note: A value in any of the above operating "cells" that is greater than 900mV is an indication that the diagnostic is not capable of diagnosing in that cell).	<= -160 (control min.= -160) -160 (control min.= -160) -720 (control min.= -720) -720 (control min.= -720) -720 (control min.= -720) > 0 mV 2,000 mV 735 mV 753 mV 753 mV		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Post Catalyst Fuel Trim System High Limit Bank 1 (Too Lean)	P2097	Determines if the post catalyst O2 sensor based fuel control system has utilized all or most of its high limit authority, indicating a lean emissions/exhaust gas condition. Note: If the post catalyst O2 voltage is too lean, the post catalyst O2 integral offset control is increased. This results in rich bias fuel control in an attempt to correct the lean condition. A perfectly balanced control system (no rich or lean bias required) is represented by an integral offset value of "0" and a post catalyst O2 sensor that is within its optimal operating range (neither rich nor lean). An integral offset value > 0 is indicative of the control system reacting to a lean post catalyst O2 sensor. If the failure is such that the control system utilizes all or most of its available authority, then P2097 will set.	Lean Fail counter High Vapor Feature: The diagnostic is at risk of reporting a false fail when excessively High Vapor (HV) conditions are present. This HV condition is indicated when the purge valve is open AND percent vapor is >= 22% for >= 5.0 seconds. Diagnosis resumes if the purge valve is closed OR the percent vapor is <= 20% for >= 5.0 seconds. This was done to minimize disabling the diagnostic for longer than necessary.	>= 800 counts per 1,000 sample counts Note: Counters increment at a rate of 10 per second when enable conditions are met. If the fail count threshold is reached, a fail is reported and the diagnostic will not report again until the next trip. If the sample count threshold is reached before a fail is reported, a pass is reported, the counters are reset to 0, and evaluation starts again.	Same as P2096 except for the following: For the cells identified as enabled (i.e. those containing a "Yes" at the beginning of the Enable Conditions for P2096), the fail counter will increment if the sample counter increments AND Post oxygen sensor control integral offset (in mV) is Deceleration Idle Cruise Light Acceleration Heavy Acceleration AND Post O2 Voltage is Deceleration Idle Cruise Light Acceleration Heavy Acceleration (Note: A value in any of the above operating "cells" that is less than 100mV is an indication that the diagnostic is not capable of diagnosing in that cell).	>= 160 (control max.= 160) 160 (control max.= 160) 592 (control max.= 592) 592 (control max.= 592) 592 (control max.= 592) < 0 mV 0 mV 580 mV 580 mV 580 mV	Frequency: Continuous Monitoring in 100ms loop. Counters increment when enable conditions are met. When sample count threshold is reached or fail threshold is reached, counters are reset to 0 and start over.	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Post Catalyst Fuel Trim System Low Limit Bank 2 (Too Rich)	P2098	<p>Determines if the post catalyst O2 sensor based fuel control system has reached it's low limit authority, indicating a rich emissions/exhaust gas condition.</p> <p>Note: If the post catalyst O2 voltage is too rich, the post catalyst O2 integral offset control is decreased. This results in lean bias fuel control in an attempt to correct the rich post O2 voltage. Determines if the post catalyst O2 sensor based fuel control system has utilized all or most of it's low limit authority, indicating a rich emissions/exhaust gas condition.</p> <p>Note: If the post catalyst O2 voltage is too rich, the post catalyst O2 integral offset control is decreased. This results in lean bias fuel control in an attempt to correct the rich condition. A perfectly balanced control system (no rich or lean bias required) is represented by an integral offset value of</p>	<p>Rich Fail counter</p> <p>High Vapor Feature: The diagnostic is at risk of reporting a false fail when excessively High Vapor (HV) conditions are present. This HV condition is indicated when the purge valve is open AND percent vapor is $\geq 22\%$ for ≥ 5.0 seconds.</p> <p>Diagnosis resumes if the purge valve is closed OR the percent vapor is $\leq 20\%$ for ≥ 5.0 seconds. This was done to minimize disabling the diagnostic for longer than necessary.</p>	<p>≥ 800 counts per 1,000 sample counts</p> <p>Note: Counters increment at a rate of 10 per second when enable conditions are met. If the fail count threshold is reached, a fail is reported and the diagnostic will not report again until the next trip. If the sample count threshold is reached before a fail is reported, a pass is reported, the counters are reset to 0, and evaluation starts again.</p>	<p>Same as P2096 except for the following:</p> <p>Bank1 Fault Active criteria are replaced by the equivalent Bank2 Fault Active criteria.</p> <p>The diagnostic is enabled during:</p> <p>Deceleration Idle Cruise Light Acceleration Heavy Acceleration</p> <p>Minimum accumulated counts in each cell required before counters will increment for that cell:</p> <p>Deceleration Idle Cruise Light Acceleration Heavy Acceleration</p> <p>(Note: A value in any of the above operating "cells" that is an order of magnitude (or more) higher than other cells is an indication that the diagnostic is not capable of diagnosing in that cell).</p> <p>For the cells identified as enabled (i.e. those containing a "Yes" at the beginning of the Enable Conditions column), the fail counter will increment</p>	<p>Deceleration Yes Idle Yes Cruise Yes Light Acceleration Yes Heavy Acceleration Yes</p> <p>10,000,000,272,564,200 10,000,000,272,564,200 50 50 50</p>	<p>Frequency: Continuous Monitoring in 100ms loop.</p> <p>Counters increment when enable conditions are met. When sample count threshold is reached or fail threshold is reached, counters are reset to 0 and start over.</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		<p>"0" and a post catalyst O2 sensor that is within it's optimal operating range (neither rich nor lean). An integral offset value < 0 is indicative of the control system reacting to a rich post catalyst O2 sensor. If the failure is such that the control system utilizes all or most of its available authority, then P2098 will set.</p>			<p>if the sample counter increments AND Post oxygen sensor control integral offset is Deceleration Idle Cruise Light Acceleration Heavy Acceleration AND Post O2 Voltage is Deceleration Idle Cruise Light Acceleration Heavy Acceleration</p> <p>(Note: A value in any of the above operating "cells" that is greater than 900mV is an indication that the diagnostic is not capable of diagnosing in that cell).</p>	<p><= -160 (control min.= -160) -160 (control min.= -160) -720 (control min.= -720) -720 (control min.= -720) -720 (control min.= -720) > 2,000 mV 2,000 mV 735 mV 753 mV 753 mV</p>		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Post Catalyst Fuel Trim System High Limit Bank 2 (Too Lean)	P2099	Determines if the post catalyst O2 sensor based fuel control system has utilized all or most of its high limit authority, indicating a lean emissions/exhaust gas condition. Note: If the post catalyst O2 voltage is too lean, the post catalyst O2 integral offset control is increased. This results in rich bias fuel control in an attempt to correct the lean condition. A perfectly balanced control system (no rich or lean bias required) is represented by an integral offset value of "0" and a post catalyst O2 sensor that is within its optimal operating range (neither rich nor lean). An integral offset value > 0 is indicative of the control system reacting to a lean post catalyst O2 sensor. If the failure is such that the control system utilizes all or most of its available authority, then P2099 will set.	Lean Fail counter High Vapor Feature: The diagnostic is at risk of reporting a false fail when excessively High Vapor (HV) conditions are present. This HV condition is indicated when the purge valve is open AND percent vapor is >= 22% for >= 5.0 seconds. Diagnosis resumes if the purge valve is closed OR the percent vapor is <= 20% for >= 5.0 seconds. This was done to minimize disabling the diagnostic for longer than necessary.	>= 800 counts per 1,000 sample counts Note: Counters increment at a rate of 10 per second when enable conditions are met. If the fail count threshold is reached, a fail is reported and the diagnostic will not report again until the next trip. If the sample count threshold is reached before a fail is reported, a pass is reported, the counters are reset to 0, and evaluation starts again.	Same as P2098 except for the following: Bank1 Fault Active criteria are replaced by the equivalent Bank2 Fault Active criteria. For the cells identified as enabled (i.e. those containing a "Yes" at the beginning of the Enable Conditions column for P2098), the fail counter will increment if the sample counter increments AND Post oxygen sensor control integral offset is Deceleration Idle Cruise Light Acceleration Heavy Acceleration AND Post O2 Voltage is Deceleration Idle Cruise Light Acceleration Heavy Acceleration (Note: A value in any of the above operating "cells" that is less than 100mV is an indication that the diagnostic is not capable of diagnosing in that cell).	>= 160 (control max.= 160) 160 (control max.= 160) 592 (control max.= 592) 592 (control max.= 592) 592 (control max.= 592) < 0 mV 0 mV 580 mV 580 mV 580 mV	Frequency: Continuous Monitoring in 100ms loop. Counters increment when enable conditions are met. When sample count threshold is reached or fail threshold is reached, counters are reset to 0 and start over.	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Throttle Actuator Position Performance	P2101	1) Detect a throttle positioning error2) Throttle control is driving the throttle in the incorrect direction3) Throttle control exceeds the reduced power limit	Difference between measured throttle position and modeled throttle position >	6.25 percent	TPS minimum learn is not active and Throttle is being Controlled and (Engine Running or Ignition Voltage > or Ignition Voltage >)	Run/Crank voltage > 6.41 Ignition voltage failure is false (P1682)	15 counts; 12.5 ms/count in the primary processor	Type A, 1 Trips
			OR					
			Difference between modeled throttle position and measured throttle position >	6.25 percent	Ignition voltage failure is false (P1682)	TPS minimum learn is not active and Throttle is being Controlled AND ((Engine Running AND Ignition Voltage > 5.50) OR Ignition Voltage > 8.41)		
			Throttle Position >	36.00 percent		Powertrain Relay voltage > 6.41 TPS minimum learn is active	11 counts; 12.5 ms/count in the primary processor	
			Throttle Position >	35.00 percent		Powertrain Relay voltage > 6.41 Reduced Power is True	11 counts; 12.5 ms/count in the primary processor	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position (APP) Sensor 1 Lo	P2122	Detect a continuous or intermittent short or open in the APP sensor #1 on Main processor	APP1 Voltage <	0.4625		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P06A3)	19 / 39 counts or 14 counts continuous; 12.5 ms/count in the main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position (APP) Sensor 1 Hi	P2123	Detect a continuous or intermittent short or open in the APP sensor #1 on Main processor	APP1 Voltage >	4.7500		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P06A3)	19 / 39 counts or 14 counts continuous; 12.5 ms/count in the main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position (APP) Sensor 2 Lo	P2127	Detect a continuous or intermittent short or open in the APP sensor #2 on Main processor	APP2 Voltage <	0.3250		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P0697)	19 / 39 counts or 14 counts continuous; 12.5 ms/count in the main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position (APP) Sensor 2 Hi	P2128	Detect a continuous or intermittent short or open in the APP sensor #2 on Main processor	APP2 Voltage >	2.6000		Run/Crank voltage > 6.41 No 5V reference error or fault for # 4 5V reference circuit (P0697)	19 / 39 counts or 14 counts continuous; 12.5 ms/count in the main processor	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Throttle Position (TP) Sensor 1-2 Correlation	P2135	Detects a continuous or intermittent correlation fault between TPS sensors #1 and #2 on Main processor	Difference between TPS1 displaced and TPS2 displaced >	6.797 % offset at min. throttle position with a linear threshold to 9.720 % at max. throttle position		Run/Crank voltage > 6.41 No TPS sensor faults (P0122, P0123, P0222, P0223) No 5V reference error or fault for # 4 5V reference circuit (P06A3)	79 / 159 counts or 58 counts continuous; 3.125 ms/count in the main processor	Type A, 1 Trips
			Difference between (normalized min TPS1) and (normalized min TPS2) >	5.000 % Vref		Run/Crank voltage > 6.41 No TPS sensor faults (P0122, P0123, P0222, P0223) No 5V reference error or fault for # 4 5V reference circuit (P06A3)	79 / 159 counts or 58 counts continuous; 3.125 ms/count in the main processor	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position (APP) Sensor 1-2 Correlation	P2138	Detects a continuous or intermittent correlation fault between APP sensors #1 and #2 on Main processor	Difference between APP1 displaced and APP2 displaced >	5.000 % offset at min. pedal position with a linear threshold to 10.001 % at max. pedal position		Run/Crank voltage > 6.41 No APP sensor faults (P2122, P2123,P2127, P2128) No 5V reference errors or faultst for # 3 & # 4 5V reference circuits (P06A3, P0697)	19 / 39 counts intermittent or 15 counts continuous, 12.5 ms/count in the main processor	Type A, 1 Trips
			Difference between (normalized min APP1) and (normalized min APP2) >	5.000 % Vref		Run/Crank voltage > 6.41 No APP sensor faults (P2122, P2123,P2127, P2128) No 5V reference errors or faultst for # 3 & # 4 5V reference circuits (P06A3, P0697)	19 / 39 counts intermittent or 15 counts continuous, 12.5 ms/count in the main processor	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 1 high side circuit shorted to ground	P2147	This DTC Diagnoses Injector 1 high side driver circuit for circuit faults.	Voltage high across High Side Driver during On state indicates short to ground	Short to Ground: 25 amp \geq through High Side Driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 1 high side circuit shorted to power	P2148	This DTC Diagnoses Injector 1 high side driver circuit for circuit faults.	Voltage low across High side drive during off state indicates short to power.	Short to Power: ≤ 1 volt between signal and controller power	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 2 high side circuit shorted to ground	P2150	This DTC Diagnoses Injector 2 high side driver circuit for circuit faults.	Voltage high across High Side Driver during On state indicates short to ground	Short to Ground: 25 amp \geq through High Side Driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 2 high side circuit shorted to power	P2151	This DTC Diagnoses Injector 2 high side driver circuit for circuit faults.	Voltage low across High side drive during off state indicates short to power.	Short to Power: ≤ 1 volt between signal and controller power	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 3 high side circuit shorted to ground	P2153	This DTC Diagnoses Injector 3 high side driver circuit for circuit faults.	Voltage high across High Side Driver during On state indicates short to ground	Short to Ground: 25 amp \geq through High Side Driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 3 high side circuit shorted to power	P2154	This DTC Diagnoses Injector 3 high side driver circuit for circuit faults.	Voltage low across High side drive during off state indicates short to power.	Short to Power: ≤ 1 volt between signal and controller power	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 4 high side circuit shorted to ground	P2156	This DTC Diagnoses Injector 4 high side driver circuit for circuit faults.	Voltage high across High Side Driver during On state indicates short to ground	Short to Ground: 25 amp \geq through High Side Driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 4 high side circuit shorted to power	P2157	This DTC Diagnoses Injector 4 high side driver circuit for circuit faults.	Voltage low across High side drive during off state indicates short to power.	Short to Power: ≤ 1 volt between signal and controller power	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 5 high side circuit shorted to ground	P216B	This DTC Diagnoses Injector 5 high side driver circuit for circuit faults.	Voltage high across High Side Driver during On state indicates short to ground	Short to Ground: 25 amp \geq through High Side Driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 5 high side circuit shorted to power	P216C	This DTC Diagnoses Injector 5 high side driver circuit for circuit faults.	Voltage low across High side drive during off state indicates short to power.	Short to Power: ≤ 1 volt between signal and controller power	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 6 high side circuit shorted to ground	P216E	This DTC Diagnoses Injector 6 high side driver circuit for circuit faults.	Voltage high across High Side Driver during On state indicates short to ground	Short to Ground: 25 amp \geq through High Side Driver	Battery Voltage Engine Run Time	\geq 11 Volts \geq 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Injector 6 high side circuit shorted to power	P216F	This DTC Diagnoses Injector 6 high side driver circuit for circuit faults.	Voltage low across High side drive during off state indicates short to power.	Short to Power: ≤ 1 volt between signal and controller power	Battery Voltage Engine Run Time	>= 11 Volts >= 1 Seconds P062B not FA or TFTK	10 failures out of 20 samples 100 ms /sample Continuous	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Minimum Throttle Position Not Learned	P2176	TP sensors were not in the minimum learn window after multiple attempts to learn the minimum.	<p>During TPS min learn on the Main processor, TPS Voltage ></p> <p>AND</p> <p>Number of learn attempts ></p>	<p>0.5740</p> <p>10 counts</p>		<p>Run/Crank voltage > 6.41</p> <p>TPS minimum learn is active</p> <p>No previous TPS min learn values stored in long term memory</p>	2.0 secs	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor 1 / 2 Correlation	P2199	Detects a difference between the IAT and IAT2 sensors	ABS (IAT - IAT2)	> 55.0 deg C	Powertrain Relay Voltage for a time No Active DTCs:	>= 11.00 Volts >= 0.9 seconds PowertrainRelayFault	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Bank 1 Air-Fuel Ratio Imbalance	P219A	This monitor determines if a cylinder-to-cylinder air-fuel ratio imbalance is present on bank 1.	<p>Filtered Ratio ></p> <p>Note: The input to this metric is the pre catalyst oxygen sensor voltage. This voltage is used to generate a Variance metric that represents the statistical variation of the O2 sensor voltage over a given engine cycle. This metric is proportional to the air-fuel ratio imbalance (variance is higher with an imbalance than without). Multiple samples are collected in making a decision.</p> <p>The observed Variance is dependant on engine speed and load and so each result is normalized for speed and load by comparing it to a known "good system" result for that speed and load, and generating a Ratio metric.</p> <p>The Ratio metric is calculated by selecting the appropriate threshold calibration from a 17x17 table (Supporting Table "Variance Threshold Bank1") and subtracting it from the measured Variance. The result is then divided by a normalizer calibration from another 17 x 17 table</p>	0.62	<p>System Voltage</p> <p>Fuel Level</p> <p>Engine Coolant Temperature</p> <p>Cumulative engine run time</p> <p>Diagnostic enabled at Idle (regardless of other operating conditions)</p> <p>Engine speed range</p> <p>Engine speed delta during a short term sample period</p> <p>Mass Airflow (MAF) range</p> <p>Cumulative delta MAF during a short term sample period</p> <p>Filtered MAF delta between samples Note: first order lag filter coefficient applied to MAF = 0.050</p> <p>Air Per Cylinder (APC)</p> <p>APC delta during short term sample period</p> <p>Filtered APC delta between samples</p>	<p>no lower than 11.0 Volts for more than 0.2 seconds</p> <p>> 10.0 percent AND no fuel level sensor fault</p> <p>> -20 degrees C</p> <p>> 30.0 seconds</p> <p>No</p> <p>1,600 to 4,000 RPM</p> <p>< 100 RPM</p> <p>0 to 1,000 g/s</p> <p>< 5 g/s</p> <p>< 0.60 g/s</p> <p>195 to 700 mg/cylinder</p> <p>< 75 mg/cylinder</p> <p>< 3.50 percent</p>	<p>Minimum of 1 test per trip, up to 18 tests per trip during RSR or FIR.</p> <p>The front O2 sensor voltage is sampled once per cylinder event. Therefore, the time required to complete a single test (when all enable conditions are met) decreases as engine speed increases. For example, 6.00 seconds of data is required at 1000 rpm while double this time is required at 500 rpm and half this time is required at 2000 rpm. This data is collected only when enable conditions are met, and as such significantly more operating time is required than is indicated above. Generally, a report will be</p>	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>(Supporting Table "Normalizer Bank1"). This quotient is then multiplied by a quality factor calibration from a 17 x 17 table (Supporting Table "Quality Factor Bank1"). This result is referred to as the Ratio. Note that the quality factor ranges between 0 and 1 and represents robustness to false diagnosis in the current operating region. Regions with low quality factors are not used.</p> <p>Finally, a EWMA filter is applied to the Ratio metric to generate the Filtered Ratio malfunction criteria metric. Generally, a normal system will result in a negative Filtered Ratio while a failing system will result in a positive Filtered Ratio.</p> <p>The range of the Filtered Ratio metric is application specific since both the emissions sensitivity and relationship between imbalance and the Variance metric are application specific.</p> <p>Some applications may need to command a unique cam phaser value before performing the</p>		<p>Note: first order lag filter coefficient applied to APC = 0.250</p> <p>Spark Advance</p> <p>Throttle Area (percent of max)</p> <p>Intake Cam Phaser Angle</p> <p>Exhaust Cam Phaser Angle</p> <p>Quality Factor (QF) QF calibrations are located in a 17x17 lookup table versus engine speed and load (Supporting Table "Quality Factor Bank1"). QF values less than "1" indicate that we don't have 4sigma/2sigma robustness in that region. The quality of the data is determined via statistical analysis of Variance data.</p> <p>Fuel Control Status Closed Loop and Long Term FT Enabled for:</p> <p>AIR pump not on CASE learn not active EGR - no device control, no intrusive diagnostics EVAP - no device control, no intrusive diagnostics Engine OverSpeed</p>	<p>-100 to 70 degrees</p> <p>0 to 200 percent</p> <p>0 to 50 degrees</p> <p>0 to 50 degrees</p> <p>>= 0.99</p> <p>>= 5.0 seconds (Please see "Closed Loop Enable Criteria" and "Long Term FT Enable Criteria" in Supporting Tables)</p>	<p>made within 5 minutes of operation.</p> <p>For RSR or FIR, 36 tests must complete before the diagnostic can report.</p>	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			above calculations since cam phasing has been shown to have an impact on overall signal quality. This application Does Not Use this feature.		Protection Not Active Idle speed control normal PTO Not Active Injector base pulse width above min limit O2 Learned htr resistance Rapid Step Response (RSR): RSR will trigger if the Ratio result from the last test is AND it exceeds the last Filtered ratio by Once triggered, the filtered ratio is reset to: Fast Initial Response (FIR): FIR will trigger when an NVM reset or code clear occurs. Once triggered, the filtered ratio is reset to: No Fault Active for:	= Valid (the O2 heater resistance has learned since NVM reset) >= 0.65 >= 0.75 0.00 0.00 EngineMisfireDetected_FA MAP_SensorFA MAF_SensorFA ECT_Sensor_FA TPS_ThrottleAuthorityDefaulted FuelInjectorCircuit_FA AIR System FA EvapExcessPurgePsbl_FA CamSensorAnyLocationFA		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Bank 2 Air-Fuel Ratio Imbalance	P219B	This monitor determines if a cylinder-to-cylinder air-fuel ratio imbalance is present on bank 2.	<p>Filtered Ratio ></p> <p>Note: See P219A for a detailed description of this failure metric.</p> <p>Some applications may need to command a unique cam phaser value before performing the above calculations since cam phasing has been shown to have an impact on overall signal quality. This application Does Not Use this feature.</p>	0.72	<p>See Bank 1 (P219A) Secondary Parameters and Enable Conditions.</p> <p>Quality Factor (QF) QF calibrations are located in a 17x17 lookup table versus engine speed and load (Supporting Table "Quality Factor Bank2"). QF values less than "1" indicate that we don't have 4sigma/2sigma robustness in that region. The quality of the data is determined via statistical analysis of Variance data.</p> <p>Rapid Step Response (RSR): RSR will trigger if the Ratio result from the last test is AND it exceeds the last Filtered ratio by Once triggered, the filtered ratio is reset to:</p> <p>Fast Initial Response (FIR): FIR will trigger when an NVM reset or code clear occurs. Once triggered, the filtered ratio is reset to:</p>	<p>>= 0.99</p> <p>>= 0.65</p> <p>>= 0.75</p> <p>0.00</p> <p>0.00</p>	See Bank 1 info	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure (BARO) Sensor Performance (naturally aspirated)	P2227	Compares baro sensor to the calculated baro estimate (part throttle calculation or unthrottled MAP)	Difference between baro sensor reading and estimated baro when distance since last estimated baro update	> 15.0 kPa <= 1.24 miles	No Active DTCs:	AmbPresSnsrCktFA ECT_Sensor_Ckt_FA IAT_SensorFA MAF_SensorFA AfterThrottlePressureFA TPS_FA TPS_Performance_FA VehicleSpeedSensor_FA	320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips
			OR Difference between baro sensor reading and estimated baro when distance since last estimated baro update	> 20.0 kPa > 1.24 miles				
			Barometric Pressure OR Barometric Pressure	< 50.0 kPa > 115.0 kPa	Time between current ignition cycle and the last time the engine was running Engine is not rotating No Active DTCs: No Pending DTCs:	> 409.6 seconds EngineModeNotRunTimer Error MAP_SensorCircuitFA AAP_SnsrCktFA MAP_SensorCircuitFP AAP_SnsrCktFP	4 failures out of 5 samples 1 sample every 12.5 msec	

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure (BARO) Sensor Circuit Low (non-boosted applications)	P2228	Detects a continuous short to low or open in either the signal circuit or the BARO sensor.	BARO Voltage	< 40.0% of 5 Volt Range (2.0 Volts = 50.9 kPa)			320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure (BARO) Sensor Circuit High (non-boosted applications)	P2229	Detects an open sensor ground or continuous short to high in either the signal circuit or the BARO sensor.	BARO Voltage	> 90.0% of 5 Volt Range (4.5 Volts = 115.0 kPa)			320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Signal Stuck Lean Bank 1 Sensor 2	P2270	This DTC determines if the post catalyst O2 sensor is stuck in a normal lean voltage range and thereby can no longer be used for post oxygen sensor fuel control or for catalyst monitoring. The diagnostic is an intrusive test (during coast) which increases the delivered fuel to achieve the required rich threshold.	<p>Post O2 sensor signal</p> <p>AND</p> <p>The Accumulated mass air flow monitored during the Stuck Lean Voltage Test</p>	<p>< 800 mvolts</p> <p>> 68 grams</p>	<p>No Active DTC's</p> <p>B1S2 DTC's Not active this key cycle</p> <p>System Voltage ICAT MAT Burnoff delay</p> <p>Green O2S Condition</p> <p>Low Fuel Condition Diag Pedal position</p> <p>Engine Airflow</p> <p>Closed loop integral Closed Loop Active Evap Ethanol</p>	<p>TPS_ThrottleAuthorityDefaulted ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR_System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA</p> <p>P013A, P013B, P013E, P013F, P2270 or P2271</p> <p>10.0 < Volts = Not Valid</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 (if applicable) in Supporting Tables tab.</p> <p>= False ≤ 100.0 %</p> <p>3 ≤ gps ≤ 11</p> <p>0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode</p>	<p>Frequency: Once per trip</p> <p>Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_RapidResponseActive = TRUE, multiple tests per trip are allowed.</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Post fuel cell (Decel) Crankshaft Torque EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time Predicted Catalyst temp Fuel State ===== All of the above met for at least 0.0 seconds, and then check the following Engine Speed to initially enable test Engine Speed range to keep test enabled (after initially enabled) Vehicle Speed to initially enable test Vehicle Speed range to keep test enabled (after initially enabled) ===== All of the above met for at least 3.0 seconds, and then the Force Cat Rich intrusive stage is requested. ===== During Stuck Lean test the following must stay TRUE or the test will abort: Commanded Fuel Crankshaft Torque	= enabled < 100.0 Nm = not active = not active ≥ 60.0 sec 500 ≤ °C ≤ 980 = DFCO possible ===== 1,150 ≤ RPM ≤ 2,500 1,100 ≤ RPM ≤ 2,550 42.3 ≤ MPH ≤ 80.2 38.5 ≤ MPH ≤ 82.0 ===== 0.96 ≤ EQR ≤ 1.08 < 110.0 Nm		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Signal Stuck Rich Bank 1 Sensor 2	P2271	This DTC determines if the post catalyst O2 sensor is stuck in a normal rich voltage range and thereby can no longer be used for post oxygen sensor fuel control or for catalyst monitoring. The diagnostic is an intrusive test which requests the DFCO mode to achieve the required lean threshold.	Post O2 sensor signal AND The Accumulated mass air flow monitored during the Stuck Rich Voltage Test	> 100 mvolts > 9.0 grams	No Active DTC's B1S2 DTC's Not Active this key cycle System Voltage ICAT MAT Burnoff delay Green O2S Condition Low Fuel Condition Diag Engine Speed Engine Airflow Vehicle Speed Closed loop integral Closed Loop Active Evap Ethanol	TPS_ThrottleAuthorityDefaulted ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR_System_FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013A, P013B, P013E, P013F or P2270 10.0 < Volts = Not Valid = Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 (if applicable) in Supporting Tables tab. = False 1,150 ≤ RPM ≤ 2,500 3 ≤ gps ≤ 11 42.3 ≤ MPH ≤ 80.2 0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode	Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_Rap idResponseActi ve = TRUE, multiple tests per trip are allowed.	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Power Take Off EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time Predicted Catalyst temp Fuel State DTC's Passed ===== After above conditions are met: DFCO mode is continued (wo driver initiated pedal input).	= not active = not active = not active ≥ 60.0 sec 500 ≤ °C ≤ 980 DFCO possible = P2270 (and P2272 if applicable) = P013E (and P014A if applicable) = P013A (and P013C if applicable) =====		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Signal Stuck Lean Bank 2 Sensor 2	P2272	This DTC determines if the post catalyst O2 sensor is stuck in a normal lean voltage range and thereby can no longer be used for post oxygen sensor fuel control or for catalyst monitoring. The diagnostic is an intrusive test (during coast) which increases the delivered fuel to achieve the required rich threshold.	<p>Post O2 sensor signal</p> <p>AND</p> <p>The Accumulated mass air flow monitored during the Stuck Lean Voltage Test</p>	<p>< 800 mvolts</p> <p>> 68 grams.</p>	<p>No Active DTC's</p> <p>B2S2 DTC's Not Active this key cycle</p> <p>System Voltage ICAT MAT Burnoff delay</p> <p>Green O2S Condition</p> <p>Low Fuel Condition Diag Pedal position</p> <p>Engine Airflow</p> <p>Closed loop integral Closed Loop Active Evap Ethanol</p>	<p>TPS_ThrottleAuthorityDefaulted ECT_Sensor_FA IAT_SensorFA MAF_SensorFA MAP_SensorFA AIR_System FA FuelInjectorCircuit_FA FuelTrimSystemB1_FA FuelTrimSystemB2_FA EngineMisfireDetected_FA EthanolCompositionSensor_FA P013C, P013D, P014A, P014B, P2272 or P2273</p> <p>10.0 < Volts = Not Valid</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 in Supporting Tables tab.</p> <p>= False ≤ 100.0 %</p> <p>3 ≤ gps ≤ 11</p> <p>0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode</p>	<p>Frequency: Once per trip Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_Rap idResponseActiv e = TRUE, multiple tests per trip are allowed.</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Post fuel cell (Decel) Crankshaft Torque EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time Predicted Catalyst temp Fuel State ===== All of the above met for at least 0.0 seconds, and then check the following Engine Speed to initially enable test Engine Speed range to keep test enabled (after initially enabled) Vehicle Speed to initially enable test Vehicle Speed range to keep test enabled (after initially enabled) ===== All of the above met for at least 3.0 seconds, and then the Force Cat Rich intrusive stage is requested. ===== During Stuck Lean test the following must stay TRUE or the test will abort: Commanded Fuel Crankshaft Torque	= enabled < 100.0 Nm = not active = not active ≥ 60.0 sec 500 ≤ °C ≤ 980 = DFCO possible ===== 1,150 ≤ RPM ≤ 2,500 1,100 ≤ RPM ≤ 2,550 42.3 ≤ MPH ≤ 80.2 38.5 ≤ MPH ≤ 82.0 ===== 0.96 ≤ EQR ≤ 1.08 < 110.0 Nm		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
O2 Sensor Signal Stuck Rich Bank 2 Sensor 2	P2273	This DTC determines if the post catalyst O2 sensor is stuck in a normal rich voltage range and thereby can no longer be used for post oxygen sensor fuel control or for catalyst monitoring. The diagnostic is an intrusive test which requests the DFCO mode to achieve the required lean threshold.	<p>Post O2 sensor signal</p> <p>AND</p> <p>The Accumulated mass air flow monitored during the Stuck Rich Voltage Test</p>	<p>> 100 mvolts</p> <p>> 9.0 grams.</p>	<p>No Active DTC's</p> <p>B2S2 DTC's Not Active this key cycle</p> <p>System Voltage ICAT MAT Burnoff delay</p> <p>Green O2S Condition</p> <p>Low Fuel Condition Diag</p> <p>Engine Speed Engine Airflow</p> <p>Vehicle Speed Closed loop integral Closed Loop Active Evap Ethanol</p>	<p>TPS_ThrottleAuthorityDefaulted</p> <p>ECT_Sensor_FA</p> <p>IAT_SensorFA</p> <p>MAF_SensorFA</p> <p>MAP_SensorFA</p> <p>AIR System FA</p> <p>FuelInjectorCircuit_FA</p> <p>FuelTrimSystemB1_FA</p> <p>FuelTrimSystemB2_FA</p> <p>EngineMisfireDetected_FA</p> <p>EthanolCompositionSensor_FA</p> <p>P013C, P013D, P014A, P014B or P2272</p> <p>10.0 < Volts = Not Valid</p> <p>= Not Valid, See definition of Multiple DTC Use_Green Sensor Delay Criteria - Airflow and Multiple DTC Use_Green Sensor Delay Criteria - Limit for the following locations: B1S2, B2S2 in Supporting Tables tab.</p> <p>= False</p> <p>1,150 ≤ RPM ≤ 2,500 3 ≤ gps ≤ 11</p> <p>42.3 ≤ MPH ≤ 80.2 0.87 ≤ C/L Int ≤ 1.07 = TRUE not in control of purge not in estimate mode</p>	<p>Frequency: Once per trip</p> <p>Note: if NaPOPD_b_Res etFastRespFunc = FALSE for the given Fuel Bank OR NaPOPD_b_RapidResponseActive = TRUE, multiple tests per trip are allowed.</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Power Take Off EGR Intrusive diagnostic All post sensor heater delays O2S Heater (post sensor) on Time Predicted Catalyst temp Fuel State DTC's Passed ===== After above conditions are met: DFCO mode is continued (wo driver initiated pedal input).	= not active = not active = not active ≥ 60.0 sec 500 ≤ °C ≤ 980 = DFCO possible = P2270 (and P2272 if applicable) = P013E (and P014A if applicable) = P013A (and P013C if applicable) =====		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
SIDI High Pressure Pump	P228C	This DTC Diagnoses the measured fuel rail pressure bias too low from desired fuel pressure.	Desired Pressure - Measure Pressure	>= 3.00 Mpa	Battery Voltage Low Side Fuel Pressure Engine Run Time Additional Enable Conditions: All must be true (High Pressure Pump is enabled and High Fuel pressure sensor ckt is Not (FA,FP or TFTKO) and High Pressure fuel pump ckt is Not (FA,FP or TFTKO) and Cam or Crank Sensor Not FA and IAT,IAT2,ECT Not FA and Low side Fuel Pump Relay ckt Not FA and Estimate fuel rail pressure is valid and Green Engine (In assembly plant) is not enabled and Not if low fuel condition and Low side Fuel Pump is on and Injector Flow Test is not active and Device control commanded pressure is false and Device control pump ckt enabled on is false and Engine movement	>= 11 Volts > 0.275 MPa >= KtFHPD_t_PumpCntrlEngRunThrsh (see supporting tables) Enabled when a code clear is not active or not exiting device control Engine is not cranking	Pressure Error - 750 0 failures out of 938 samples	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					detected is true and Manufacturers enable counter is 0) Flex Fuel Sensor Not FA Ignition voltage out of correlation error(P1682) not active Barometric Pressure Inlet Air Temp Fuel Temp	>= 70.0 KPA >= -10.0 degC -10 <=Temp degC <= 100		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
SIDI High Pressure Pump	P228D	This DTC Diagnoses the measured fuel rail pressure bias too high from desired fuel pressure	Desired Pressure - Measure Pressure	<= -3.00 Mpa	Battery Voltage Low Side Fuel Pressure Engine Run Time Additional Enable Conditions: All must be true (High Pressure Pump is enabled and High Fuel pressure sensor ckt is Not (FA,FP or TFTKO) and High Pressure fuel pump ckt is Not (FA,FP or TFTKO) and Cam or Crank Sensor Not FA and IAT,IAT2,ECT Not FA and Low side Fuel Pump Relay ckt Not FA and Estimate fuel rail pressure is valid and Green Engine (In assembly plant) is not enabled and Not if low fuel condition and Low side Fuel Pump is on and Injector Flow Test is not active and Device control commanded pressure is false and Device control pump ckt enabled on is false and	>= 11 Volts > 0.275 MPa >= KtFHPD_t_PumpCntrlEng RunThrsh (see supporting tables) Enabled when a code clear is not active or not exiting device control Engine is not cranking	Pressure Error - 750 failures out of 938 samples	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Engine movement detected is true andManufacturers enable counter is 0) Flex Fuel Sensor Not FA Ignition voltage out of correlation error(P1682) not active Barometric Pressure Inlet Air Temp Fuel Temp	>= 70.0 KPA >= -10.0 DegC -10 <= Temp degC <= 100		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #1 CIRCUIT Low	P2300	Diagnoses Cylinder #1 Ignition Control (EST) output driver circuit for a Short to Ground fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage low during driver high state (indicates short-to-ground)	$\leq 100 \Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #1 CIRCUIT High	P2301	Diagnoses Cylinder #1 Ignition Control (EST) output driver circuit for a Short to Power fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage high during driver low state (indicates short- to-power)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #2 CIRCUIT Low	P2303	Diagnoses Cylinder #2 Ignition Control (EST) output driver circuit for a Short to Ground fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage low during driver high state (indicates short-to-ground)	$\leq 100 \Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #2 CIRCUIT High	P2304	Diagnoses Cylinder #2 Ignition Control (EST) output driver circuit for a Short to Power fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage high during driver low state (indicates short- to-power)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #3 CIRCUIT Low	P2306	Diagnoses Cylinder #3 Ignition Control (EST) output driver circuit for a Short to Ground fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage low during driver high state (indicates short-to-ground)	$\leq 100 \Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #3 CIRCUIT High	P2307	Diagnoses Cylinder #3 Ignition Control (EST) output driver circuit for a Short to Power fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage high during driver low state (indicates short- to-power)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #4 CIRCUIT Low	P2309	Diagnoses Cylinder #4 Ignition Control (EST) output driver circuit for a Short to Ground fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage low during driver high state (indicates short-to-ground)	$\leq 100 \Omega$ impedance between signal and controller ground	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #4 CIRCUIT High	P2310	Diagnoses Cylinder #4 Ignition Control (EST) output driver circuit for a Short to Power fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage high during driver low state (indicates short- to-power)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #5 CIRCUIT Low	P2312	Diagnoses Cylinder #5 Ignition Control (EST) output driver circuit for a Short to Ground fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage Low during driver high state (indicates short-to-ground)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #5 CIRCUIT High	P2313	Diagnoses Cylinder #5 Ignition Control (EST) output driver circuit for a Short to Power fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage high during driver low state (indicates short- to-power)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #6 CIRCUIT Low	P2315	Diagnoses Cylinder #6 Ignition Control (EST) output driver circuit for a Short to Ground fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage low during driver high state (indicates short-to-power)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
IGNITION CONTROL #6 CIRCUIT High	P2316	Diagnoses Cylinder #6 Ignition Control (EST) output driver circuit for a Short to Power fault	The ECM detects that the commanded state of the driver and the actual state of the control circuit do not match. Voltage high during driver low state (indicates short- to-power)	$\leq 100 \Omega$ impedance between signal and controller power	Engine running Ignition Voltage	> 5.00 Volts	20 Failures out of 25 Samples 100 msec rate	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Control Torque Request Circuit	P2544	Determines if the torque request from the TCM is valid	Protect error - Serial Communication message 2's complement not equal (\$189/\$199) OR Rolling count error - Serial Communication message (\$189/\$199) rolling count index value OR Range Error - Serial Communication message - (\$189/\$199) TCM Requested Torque Increase OR Multi-transition error - Trans torque intervention type request change	Message <> two's complement of message Message <> previous message rolling count value + one > 400 Nm Requested torque intervention type toggles from not increasing request to increasing request	Diagnostic Status Power Mode Ignition Voltage Engine Running Run/Crank Active No Serial communication loss to TCM (U0101)	Enabled = Run > 6.41 volts = True > 0.50 Sec No loss of communication	>= 16 failures out of 20 samples. Performed on every received message >= 6 Rolling count errors out of 10 samples. Performed on every received message >= 6 range errors out of 10 samples. Performed on every received message >= 4 multi-transitions out of 5 samples. Performed every 200 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position Signal Output Circuit Low	P2615	Diagnoses the Camshaft Position Signal Output low side driver circuit for circuit faults	Voltage low during driver off state (indicates short- to-ground or open circuit)	Short to ground: ≤ 0.5 Ohms impedance between signal and controller ground Open Circuit: ≥ 200 K Ohms impedance between signal and controller ground	Powertrain Relay Voltage Engine is not cranking Camshaft Position Output is commanded high	≥ 11.00 Volts	40 failures out of 50 samples 1 sample every 100 msec	Type C, No MIL Note: In certain controlle rs P2614 may also set (Camsh aft Position Signal Output Circuit / Open)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Camshaft Position Signal Output Circuit High	P2616	Diagnoses the Camshaft Position Signal Output low side driver circuit for circuit faults	Voltage low during driver on state (indicates short- to-power)	Short to power: <= 0.5 Ohms impedance between signal and controller power	Powertrain Relay Voltage Engine is not cranking Camshaft Position Output is commanded low	>= 11.00 Volts	40 failures out of 50 samples 1 sample every 100 msec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position Signal Output Circuit Low	P2618	Diagnoses the Crankshaft Position Signal Output low side driver circuit for circuit faults	Voltage low during driver off state (indicates short- to-ground or open circuit)	Short to ground: ≤ 0.5 Ohms impedance between signal and controller ground Open Circuit: ≥ 200 K Ohms impedance between signal and controller ground	Powertrain Relay Voltage Engine is not cranking Crankshaft Position Output is commanded high	≥ 11.00 Volts	40 failures out of 50 samples 1 sample every 100 msec	Type C, No MIL Note: In certain controlle rs P2617 may also set (Cranks haft Position Signal Output Circuit / Open)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Crankshaft Position Signal Output Circuit High	P2619	Diagnoses the Crankshaft Position Signal Output low side driver circuit for circuit faults	Voltage low during driver on state (indicates short- to-power)	Short to power: <= 0.5 Ohms impedance between signal and controller power	Powertrain Relay Voltage Engine is not cranking Crankshaft Position Output is commanded low	>= 11.00 Volts	40 failures out of 50 samples 1 sample every 100 msec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Power Off Timer Performance	P262B	<p>This DTC determines if the hardware timer does not initialize or count properly. There are two tests to ensure proper functioning of the timer: Count Up Test (CUT) and Range Test (RaTe).</p> <p>Count Up Test (CUT): Verifies that the HWIO timer is counting up with the proper increment.</p> <p>Range Test (RaTe): When the run/crank is not active both the hardware and mirror timers are started. The timers are compared when module shutdown is initiated or run/crank becomes active.</p>	<p>Count Up Test: Time difference between the current read and the previous read of the timer</p> <p>Range Test: The variation of the HWIO timer and mirror timer is</p>	<p>> 1.50 seconds</p> <p>> 24.87 %.</p>			<p>Count Up Test: 4 failures out of 20 samples</p> <p>1 sec / sample</p> <p>Continuous while run/crank is not active and until controller shutdown is initiated.</p> <p>Range Test: Once per trip when controller shutdown is initiated or run/crank becomes active.</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Malfunction Indicator Lamp (MIL) Control Circuit (ODM) Low	P263A	Diagnoses the malfunction indicator lamp control low side driver circuit for circuit faults.	Voltage low during driver off state (indicates short-to-ground)	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	Run/Crank Voltage Remote Vehicle Start is not active	Voltage ≥ 11 volts	50 failures out of 63 samples 50 ms / sample	Type B, No MIL NO MIL Note: In certain controllers P0650 may also set (MIL Control Open Circuit)

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Malfunction Indicator Lamp (MIL) Control Circuit (ODM) High	P263B	Diagnoses the malfunction indicator lamp control low side driver circuit for circuit faults.	Voltage high during driver on state (indicates short to power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	Run/Crank Voltage Remote Vehicle Start is not active	Voltage ≥ 11 volts	4 failures out of 5 samples 50 ms / sample	Type B, No MIL NO MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on Bus A Off	U0073	This DTC monitors for a BUS A off condition	Bus off failures exceeds before the sample time of is reached	5 counts (equivalent to 0.06 seconds) 0.56 seconds	General Enable Criteria: U0073 Normal CAN transmission on Bus A Device Control High Voltage Virtual Network Management Ignition Voltage Criteria: Ignition voltage Power Mode Off Cycle Enable Criteria: KeCAND_b_OffKeyCycle DiagEnbl Ignition Accessory Line and Battery Voltage General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds CAN hardware is bus OFF for	Not Active on Current Key Cycle Enabled Not Active Not Active >= 11.00 or >= 6.41 = run = 0 (1 indicates enabled) = Active > 11.00 > 0.1125 seconds	Diagnostic runs in 12.5 ms loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With TCM	U0101	This DTC monitors for a loss of communication with the transmission control module	Message is not received from controller for		General Enable Criteria:		Diagnostic runs in 12.5 ms loop	Type B, 2 Trips
			Message \$0AB	≥ 12.0 seconds	U0073	Not Active on Current Key Cycle		
			Message \$0BD	≥ 12.0 seconds	Normal CAN transmission on Bus A	Enabled		
			Message \$0C7	≥ 12.0 seconds	Device Control	Not Active		
			Message \$0F9	≥ 12.0 seconds	High Voltage Virtual Network Management	Not Active		
			Message \$189	≥ 12.0 seconds	Ignition Voltage Criteria:			
			Message \$199	≥ 12.0 seconds	Ignition voltage	≥ 11.00 or ≥ 6.41		
			Message \$19D	≥ 12.0 seconds				
			Message \$1AF	≥ 12.0 seconds	Power Mode	= run		
			Message \$1BE	≥ 12.0 seconds	Off Cycle Enable Criteria:			
			Message \$1BF	≥ 12.0 seconds	KeCAND_b_OffKeyCycle DiagEnbl	= 0 (1 indicates enabled)		
			Message \$1F5	≥ 12.0 seconds				
			Message \$4C9	≥ 12.0 seconds	Ignition Accessory Line and Battery Voltage	= Active > 11.00		
		General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds						
		Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is						

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for U0101 TCM	> 0.4000 seconds Not Active on Current Key Cycle is present on the bus		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Cruise Control Module	U0104	This DTC monitors for a loss of communication with the Cruise Control Module.	Message is not received from controller for Message \$2CB Message \$2CD	 ≥ 12.0 seconds ≥ 12.0 seconds	General Enable Criteria: U0073 Normal CAN transmission on Bus A Device Control High Voltage Virtual Network Management Ignition Voltage Criteria: Ignition voltage Power Mode Off Cycle Enable Criteria: KeCAND_b_OffKeyCycle DiagEnbl Ignition Accessory Line and Battery Voltage General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds Power Mode is in accessory or run or crank and High Voltage Virtual	Not Active on Current Key Cycle Enabled Not Active Not Active ≥= 11.00 or ≥= 6.41 = run = 0 (1 indicates enabled) = Active > 11.00	Diagnostic runs in 12.5 ms loop	Type C, No MIL

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Network Management is not active for U0104 Cruise Control Module	> 0.4000 seconds Not Active on Current Key Cycle is present on the bus		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Fuel Pump Control Module	U0109	This DTC monitors for a loss of communication with the fuel pump control module	Message is not received from controller for Message \$1EB Message \$4D9	 ≥ 12.0 seconds ≥ 12.0 seconds	General Enable Criteria: U0073 Normal CAN transmission on Bus A Device Control High Voltage Virtual Network Management Ignition Voltage Criteria: Ignition voltage Power Mode Off Cycle Enable Criteria: KeCAND_b_OffKeyCycle DiagEnbl Ignition Accessory Line and Battery Voltage General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is	Not Active on Current Key Cycle Enabled Not Active Not Active >= 11.00 or >= 6.41 = run = 0 (1 indicates enabled) = Active > 11.00	Diagnostic runs in 12.5 ms loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for U0109 Fuel Pump Control Module	> 0.4000 seconds Not Active on Current Key Cycle is present on the bus		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Anti- Lock Brake System (ABS) Control Module	U0121	This DTC monitors for a loss of communication with the Anti-Lock Brake System (ABS) Control Module (Non-OBD Module ID 243).	Message is not received from controller for Message \$0C1 Message \$0C5 Message \$0D1 Message \$1C6 Message \$1C7 Message \$1E9 Message \$2F1 Message \$2F9	 ≥ 12.0 seconds ≥ 12.0 seconds ≥ 12.0 seconds ≥ 12.0 seconds ≥ 12.0 seconds ≥ 12.0 seconds ≥ 12.0 seconds ≥ 12.0 seconds	General Enable Criteria: U0073 Normal CAN transmission on Bus A Device Control High Voltage Virtual Network Management Ignition Voltage Criteria: Ignition voltage Power Mode Off Cycle Enable Criteria: KeCAND_b_OffKeyCycle DiagEnbl Ignition Accessory Line and Battery Voltage General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds Power Mode is in accessory or run or crank and High Voltage Virtual	Not Active on Current Key Cycle Enabled Not Active Not Active ≥= 11.00 or ≥= 6.41 = run = 0 (1 indicates enabled) = Active > 11.00	Diagnostic runs in 12.5 ms loop	Type C, No MIL "Special Type C"

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Network Management is not active for U0121 Anti-Lock Brake System Control Module	> 0.4000 seconds Not Active on Current Key Cycle is present on the bus		

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Body Control Module	U0140	This DTC monitors for a loss of communication with the Body Control Module.	Message is not received from controller for		General Enable Criteria:		Diagnostic runs in 12.5 ms loop	Type C, No MIL "Special Type C"
			Message \$0F1	≥ 12.0 seconds	U0073	Not Active on Current Key Cycle		
			Message \$12A	≥ 12.0 seconds	Normal CAN transmission on Bus A	Enabled		
			Message \$1E1	≥ 12.0 seconds	Device Control	Not Active		
			Message \$1F1	≥ 12.0 seconds	High Voltage Virtual Network Management	Not Active		
			Message \$1F3	≥ 12.0 seconds	Ignition Voltage Criteria:			
			Message \$3C9	≥ 12.0 seconds	Ignition voltage	≥ 11.00 or ≥ 6.41		
			Message \$3CB	≥ 12.0 seconds				
			Message \$3F1	≥ 12.0 seconds	Power Mode	= run		
			Message \$451	≥ 12.0 seconds	Off Cycle Enable Criteria:			
			Message \$4D7	≥ 12.0 seconds	KeCAND_b_OffKeyCycle DiagEnbl	= 0 (1 indicates enabled)		
			Message \$4E1	≥ 12.0 seconds	Ignition Accessory Line and Battery Voltage	= Active > 11.00		
Message \$4E9	≥ 12.0 seconds	General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds						
		Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is	> 0.4000 seconds					

15 OBDG06 ECM Summary Tables (Initial DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for U0140 Body Control Module	Not Active on Current Key Cycle is present on the bus		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Bypass Valve Control Circuit	P0033	Detect Turbocharger Bypass Valve - Open Circuit	ECM detects that commanded and actual states of output driver do not match because the output is open circuit		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Bypass Valve Control Circuit Low	P0034	Detect Turbocharger Bypass Valve - Shorted to Ground	ECM detects that commanded and actual states of output driver do not match because the output is shorted to ground		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Bypass Valve Control Circuit High	P0035	Detect Turbocharger Bypass Valve - Shorted to Power	ECM detects that commanded and actual states of output driver do not match because the output is shorted to power		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= Volts 11.00 >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor 2 Circuit Performance (applications with humidity sensor and manifold temperature sensor)	P0096	Detects an IAT2 sensor that has stuck in range by comparing to IAT and IAT3 at startup	ABS(Power Up IAT - Power Up IAT2)	> 10 deg C	Time between current ignition cycle and the last time the engine was running	> 28,800 seconds >= 11.00 Volts >= 0.9 seconds PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA MnfdTempSensorCktFA HumTempSnsrCktFA	Executes once at the beginning of each ignition cycle if enable conditions are met	Type B, 2 Trips
			AND					
			ABS(Power Up IAT - Power Up IAT3)	<= 15 deg C	Powertrain Relay Voltage for a time			
			AND		No Active DTCs:			
			ABS(Power Up IAT2 - Power Up IAT3)	> 15 deg C				
			Power Up IAT is between Power Up IAT2 and Power Up IAT3		Time between current ignition cycle and the last time the engine was running			
			AND					
			ABS(Power Up IAT2 - Power Up IAT3)	> 15 Deg C	Powertrain Relay Voltage for a time			
			AND		No Active DTCs:			
			ABS(Power Up IAT - Power Up IAT2) > ABS(Power Up IAT - Power Up IAT3)					
			Power Up IAT3 is between Power Up IAT and Power Up IAT2		Time between current ignition cycle and the last time the engine was running			
			AND					
			ABS(Power Up IAT - Power Up IAT2)	> 10 deg C	Powertrain Relay Voltage for a time			
			AND		No Active DTCs:			
			ABS(Power Up IAT3 -					

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Power Up IAT2) > ABS(Power Up IAT3 - Power Up IAT)			HumTempSnsrCktFA		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger/ Supercharger Bypass Valve B Control Circuit If two parallel turbos are present.	P00C0	Detect Turbocharger Bypass Valve B - Open Circuit	ECM detects that commanded and actual states of output driver do not match because the output is open circuit		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50.00 failures out of 63.00 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger/ Supercharger Bypass Valve B Control Circuit Low If two parallel turbos are present.	P00C1	Detect Turbocharger Bypass Valve B - Shorted to Ground	ECM detects that commanded and actual states of output driver do not match because the output is shorted to ground		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50.00 failures out of 63.00 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger/ Supercharger Bypass Valve B Control Circuit High If two parallel turbos are present.	P00C2	Detect Turbocharger Bypass Valve B - Shorted to Power	ECM detects that commanded and actual states of output driver do not match because the output is shorted to power		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50.00 failures out of 63.00 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger/ Supercharger Bypass Valve B - Mechanical If two parallel turbos are present.	P00C4	Detect Stuck Closed Bypass Valve B	During accumulation time is high pass filtered accumulated air mass flow or boost pressure larger than thresholds Filter Frequency Filtered Air Mass Flow	0.30 Second < Accumulation time < 0.75 Second 7.20 Hz > 60.00 g/s	Diagnostic Enabled Engine Speed Pressure ratio over the compressor Relative Boost Pressure (Boost - Ambient) and Negative Transient in Manifold Air Pressure Bypass Valve Commanded Open No Active DTCs:	1 >= 1,500 rpm >KtBSTD_r_ExcsvBstPre sLim Enable condition kept true for 0.8 seconds extra See Tables in Supporting Tables Sheet IF (RelativeBoost < 5.0 kPa OR DerivativeMAP > 50.00 kPa/s) [FALSE] Else (RelativeBoost >= 15.0 kPa AND DerivativeMAP <= -150.00 kPa) [TRUE] > 6.0 percent Enable condition kept true for 0.50 seconds extra TC_BoostPresSnsrFAMA F_SensorFA BSTR_b_TurboByB_Ckt FA	2 Failed tests out of 3 Tests 1 sample every 25ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Pressure Measurement System - Multiple Sensor Correlation (twin turbo)	P00C7	Detects an inconsistency between pressure sensors in the induction system in which a particular sensor cannot be identified as the failed sensor	<p>See table "P00C7 Twin Turbo Failure Matrix" for the malfunction criteria for this diagnostic.</p> <p>Certain failure combinations in this matrix will set other DTCs if the failures can be correlated to a single sensor.</p> <p>The definition of the column headings is as follows:</p> <p>"MAP & TCBP Diff" = Y if: ABS(Turbocharger Boost Pressure - Manifold Pressure)</p> <p>"MAP & Baro Diff" = Y if: ABS(Baro Pressure - Manifold Pressure)</p> <p>"MAP & Baro2 Diff" = Y if: ABS(Baro Pressure 2 - Manifold Pressure)</p> <p>"TCBP & Baro Diff" = Y if: ABS(Turbocharger Boost Pressure - Baro Pressure)</p> <p>"TCBP & Baro2 Diff" = Y if: ABS(Turbocharger Boost</p>	<p>> 10.0 kPa</p> <p>> 10.0 kPa</p> <p>> 10.0 kPa</p> <p>> 10.0 kPa</p>	<p>Time between current ignition cycle and the last time the engine was running</p> <p>Engine is not rotating</p> <p>Manifold Pressure Manifold Pressure Baro Pressure Baro Pressure Baro Pressure 2 Baro Pressure 2 Turbocharger Boost Pressure Turbocharger Boost Pressure</p> <p>No Active DTCs:</p> <p>No Pending DTCs:</p>	<p>> 10.0 seconds</p> <p>>= 50.0 kPa <= 115.0 kPa >= 50.0 kPa <= 115.0 kPa >= 50.0 kPa <= 115.0 kPa >= 50.0 kPa <= 115.0 kPa</p> <p>EngineModeNotRunTimer Error MAP_SnsrFA AAP_SnsrFA AAP2_SnsrFA AAP3_SnsrCktFA</p> <p>MAP_SensorCircuitFP AAP_SnsrCktFP AAP2_SnsrCktFP AAP3_SnsrCktFP</p>	<p>4 failures out of 5 samples</p> <p>1 sample every 12.5 msec</p>	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Pressure - Baro Pressure 2) "Baro & Baro2 Diff" = Y if: ABS(Baro Pressure - Baro Pressure 2)	> 10.0 kPa > 10.0 kPa				

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.	
Intake Air Temperature Sensor 3 Circuit Performance (applications with humidity sensor and manifold temperature sensor)	P00E9	Detects an IAT3 sensor that has stuck in range by comparing to IAT and IAT2 at startup	ABS(Power Up IAT - Power Up IAT2)	<= 10 deg C	Time between current ignition cycle and the last time the engine was running	> 28,800 seconds	Executes once at the beginning of each ignition cycle if enable conditions are met	Type B, 2 Trips	
			AND			Powertrain Relay Voltage for a time			>= 11.00 Volts >= 0.9 seconds
			ABS(Power Up IAT - Power Up IAT3)	> 15 deg C	No Active DTCs:	PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA MnfdTempSensorCktFA HumTempSnsrCktFA			
			AND						
			ABS(Power Up IAT2 - Power Up IAT3)	> 15 deg C					
			Power Up IAT is between Power Up IAT2 and Power Up IAT3		Time between current ignition cycle and the last time the engine was running	> 28,800 seconds	Executes once at the beginning of each ignition cycle if enable conditions are met		
			AND		Powertrain Relay Voltage for a time	>= 11.00 Volts >= 0.9 seconds			
			ABS(Power Up IAT2 - Power Up IAT3)	> 15 Deg C	No Active DTCs:	PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA MnfdTempSensorCktFA HumTempSnsrCktFA			
			AND						
			ABS(Power Up IAT - Power Up IAT3) > ABS(Power Up IAT - Power Up IAT2)						
			Power Up IAT2 is between Power Up IAT and Power Up IAT3		Time between current ignition cycle and the last time the engine was running	> 28,800 seconds	Executes once at the beginning of each ignition cycle if enable conditions are met		
			AND		Powertrain Relay Voltage for a time	>= 11.00 Volts >= 0.9 seconds			
			ABS(Power Up IAT - Power Up IAT3)	> 15 deg C	No Active DTCs:	PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA MnfdTempSensorCktFA			
			AND						
			ABS(Power Up IAT2 -						

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Power Up IAT3) > ABS(Power Up IAT2 - Power Up IAT)			HumTempSnsrCktFA		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Circuit 3 Low (applications with manifold temperature and humidity)	P00EA	Detects a continuous short to ground in the IAT 3 signal circuit or the IAT 3 sensor	Raw IAT 3 Input	< 58 Ohms (~150 deg C)	Engine Run Time	> 0.00 seconds	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor Circuit 3 High (applications with manifold temperature and humidity)	P00EB	Detects a continuous open circuit in the IAT 3 signal circuit or the IAT 3 sensor	Raw IAT 3 Input	> 153,665 Ohms (~-60 deg C)	Engine Run Time	> 0.00 seconds	40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intake Air Temperature Sensor 3 Intermittent In-Range	P00EC	Detects a noisy or erratic IAT 3 signal circuit or IAT 3 sensor	String Length Where: "String Length" = sum of "Diff" calculated over And where: "Diff" = ABS(current IAT 3 reading - IAT 3 reading from 100 milliseconds previous)	> 80.00 DegC 10 consecutive IAT 3 samples	Continuous		4 failures out of 5 samples Each sample takes 1.0 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Mass Air Flow System Performance (twin turbo)	P0101	Determines if the MAF sensor is stuck within the normal operating range	See table " Turbocharger Intake Flow Rationality Diagnostic Failure Matrix " for combinations of model failures that can set this DTC. MAF1 model fails when ABS(Measured MAF1 Flow – Modeled MAF1 Flow) Filtered MAP1 model fails when ABS(Measured MAP – MAP Model 1) Filtered MAP2 model fails when ABS(Measured MAP – MAP Model 2) Filtered MAP3 model fails when ABS(Measured MAP – MAP Model 3) Filtered TIAP1 model fails when ABS(Measured TIAP – TIAP Model 1) Filtered TPS model fails when Filtered Throttle Model Error TIAP Correlation model fails when High Engine Air Flow is TRUE AND Measured TIAP - measured MAP - offset as a function of	> 25.0 grams/sec > 25.0 kPa > 25.0 kPa > 25.0 kPa > 30.0 kPa > 350 kPa*(g/s)	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 425 RPM <= 6,500 RPM > -7 Deg C < 126 Deg C > -20 Deg C < 125 Deg C >= 0.50 Modeled MAF1 Model Error multiplied by MAF1 Residual Weight Factor based on RPM and MAF1 Residual Weight Factor based on MAF Est MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM MAP Model 3 Error multiplied by MAP3 Residual Weight Factor based on RPM TIAP Model 1 Error multiplied by TIAP Residual Weight Factor based on RPM Filtered Throttle Model Error multiplied by TPS Residual Weight Factor	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			engine speed See table " TIAP-MAP Correlation Offset " OR Low Engine Air Flow is TRUE AND Measured TIAP - measured Baro - offset as a function of engine speed See table " TIAP-Baro Correlation Offset " TIAP Correlation is valid when High Engine Air Flow has been TRUE for a period of time OR Low Engine Air Flow has been TRUE for a period of time High Engine Air Flow is TRUE when Mass Air Flow AND Manifold Pressure	> 30.0 kPa > 30.0 kPa > 1.5 seconds > 1.5 seconds > a threshold in gm/sec as a function of engine speed See table " TIAP-MAP Correlation Min Air Flow " > a threshold in kPa as a function of engine speed See table " TIAP-MAP Correlation Min MAP "	No Active DTCs: No Pending DTCs:	based on RPM See Residual Weight Factor tables. MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA MnfTempSensorFA TC_BoostPresSnsrCktFA AmbientAirDefault EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP MnfTempSensorCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND Filtered Mass Air Flow - Mass Air Flow Low Engine Air Flow is TRUE when Mass Air Flow AND Manifold Pressure AND Mass Air Flow - Filtered Mass Air Flow	< 2.0 gm/sec < a threshold in gm/sec as a function of engine speed See table " TIAP-Baro Correlation Max Air Flow " < a threshold in kPa as a function of engine speed See table " TIAP-Baro Correlation Max MAP " < 2.0 gm/sec				

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Manifold Absolute Pressure Sensor Performance (twin turbo)	P0106	Determines if the MAP sensor is stuck within the normal operating range	See table " Turbocharger Intake Flow Rationality Diagnostic Failure Matrix " for combinations of model failures that can set this DTC. MAF1 model fails when ABS(Measured MAF1 Flow – Modeled MAF1 Flow) Filtered MAF2 model fails when ABS(Measured MAF2 Flow – Modeled MAF2 Flow) Filtered MAP1 model fails when ABS(Measured MAP – MAP Model 1) Filtered MAP2 model fails when ABS(Measured MAP – MAP Model 2) Filtered MAP3 model fails when ABS(Measured MAP – MAP Model 3) Filtered TIAP1 model fails when ABS(Measured TIAP – TIAP Model 1) Filtered TPS model fails when Filtered Throttle Model Error TIAP Correlation model fails when High Engine Air Flow is TRUE	> 25.0 grams/sec > 25.0 grams/sec > 25.0 kPa > 25.0 kPa > 25.0 kPa > 30.0 kPa > 350 kPa*(g/s)	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 425 RPM <= 6,500 RPM > -7 Deg C < 126 Deg C > -20 Deg C < 125 Deg C >= 0.50 Modeled MAF1 Model Error multiplied by MAF1 Residual Weight Factor based on RPM and MAF1 Residual Weight Factor based on MAF Est Modeled MAF2 Model Error multiplied by MAF2 Residual Weight Factor based on RPM and MAF2 Residual Weight Factor based on MAF Est MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM MAP Model 3 Error multiplied by MAP3 Residual Weight Factor based on RPM TIAP Model 1 Error	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>AND Measured TIAP - measured MAP - offset as a function of engine speed See table "TIAP-MAP Correlation Offset"</p> <p>OR</p> <p>Low Engine Air Flow is TRUE AND Measured TIAP - measured Baro - offset as a function of engine speed See table "TIAP-Baro Correlation Offset"</p> <p>TIAP Correlation is valid when</p> <p>High Engine Air Flow has been TRUE for a period of time OR Low Engine Air Flow has been TRUE for a period of time</p> <p>High Engine Air Flow is TRUE when Mass Air Flow</p> <p>AND Manifold Pressure</p>	<p>> 30.0 kPa</p> <p>> 30.0 kPa</p> <p>> 1.5 seconds</p> <p>> 1.5 seconds</p> <p>> a threshold in gm/sec as a function of engine speed See table "TIAP-MAP Correlation Min Air Flow"</p> <p>> a threshold in kPa as a function of</p>	<p>No Active DTCs:</p> <p>No Pending DTCs:</p>	<p>multiplied by TIAP Residual Weight Factor based on RPM</p> <p>Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM</p> <p>See Residual Weight Factor tables.</p> <p>MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA MnfdTempSensorFA TC_BoostPresSnsrCktFA AmbientAirDefault</p> <p>EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP MnfdTempSensorCktFP</p>		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND Filtered Mass Air Flow - Mass Air Flow	engine speed See table "TIAP-MAP Correlation Min MAP" < 2.0 gm/sec				
			Low Engine Air Flow is TRUE when Mass Air Flow	< a threshold in gm/sec as a function of engine speed See table "TIAP-Baro Correlation Max Air Flow"				
			AND Manifold Pressure	< a threshold in kPa as a function of engine speed See table "TIAP-Baro Correlation Max MAP"				
			AND Mass Air Flow - Filtered Mass Air Flow	< 2.0 gm/sec				
			Manifold Pressure OR Manifold Pressure	< 50.0 kPa > 115.0 kPa	Time between current ignition cycle and the last time the engine was running	> 10.0 seconds	4 failures out of 5 samples 1 sample every 12.5 msec	
			OR ABS(Manifold Pressure - Turbocharger Boost Pressure) AND ABS(Manifold Pressure - Baro Pressure) AND ABS(Manifold Pressure - Baro Pressure 2) AND	> 10.0 kPa > 10.0 kPa > 10.0 kPa	Engine is not rotating No Active DTCs:	EngineModeNotRunTimer Error MAP_SensorCircuitFA AAP_SnsrCktFA AAP2_SnsrCktFA AAP3_SnsrCktFA		
					No Pending DTCs:	MAP_SensorCircuitFP AAP_SnsrCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			ABS(Turbocharger Boost Pressure - Baro Pressure) AND ABS(Turbocharger Boost Pressure - Baro Pressure 2) AND ABS(Baro Pressure - Baro Pressure2)	<= 10.0 kPa <= 10.0 kPa <= 10.0 kPa		AAP2_SnsrCktFP AAP3_SnsrCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Mass or Volume Air Flow B Circuit Range/ Performance	P010B	Determines if the MAF sensor B is stuck within the normal operating range	See table " Turbocharger Intake Flow Rationality Diagnostic Failure Matrix " for combinations of model failures that can set this DTC. MAF2 model fails when ABS(Measured MAF2 Flow – Modeled MAF2 Flow) Filtered MAP1 model fails when ABS(Measured MAP – MAP Model 1) Filtered MAP2 model fails when ABS(Measured MAP – MAP Model 2) Filtered MAP3 model fails when ABS(Measured MAP – MAP Model 3) Filtered TIAP1 model fails when ABS(Measured TIAP – TIAP Model 1) Filtered TPS model fails when Filtered Throttle Model Error TIAP Correlation model fails when High Engine Air Flow is TRUE AND Measured TIAP - measured MAP - offset as a function of	> 25.0 grams/sec > 25.0 kPa > 25.0 kPa > 25.0 kPa > 30.0 kPa > 350 kPa*(g/s)	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 425 RPM <= 6,500 RPM > -7 Deg C < 126 Deg C > -20 Deg C < 125 Deg C >= 0.50 Modeled MAF2 Model Error multiplied by MAF2 Residual Weight Factor based on RPM and MAF2 Residual Weight Factor based on MAF Est MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM MAP Model 3 Error multiplied by MAP3 Residual Weight Factor based on RPM TIAP Model 1 Error multiplied by TIAP Residual Weight Factor based on RPM Filtered Throttle Model Error multiplied by TPS Residual Weight Factor	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			engine speed See table " TIAP-MAP Correlation Offset " OR Low Engine Air Flow is TRUE AND Measured TIAP - measured Baro - offset as a function of engine speed See table " TIAP-Baro Correlation Offset " TIAP Correlation is valid when High Engine Air Flow has been TRUE for a period of time OR Low Engine Air Flow has been TRUE for a period of time High Engine Air Flow is TRUE when Mass Air Flow AND Manifold Pressure	> 30.0 kPa > 30.0 kPa > 1.5 seconds > 1.5 seconds > a threshold in gm/sec as a function of engine speed See table " TIAP-MAP Correlation Min Air Flow " > a threshold in kPa as a function of engine speed See table " TIAP-MAP Correlation Min MAP "	No Active DTCs: No Pending DTCs:	based on RPM See Residual Weight Factor tables. MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA MnfTempSensorFA TC_BoostPresSnsrCktFA AmbientAirDefault EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP MnfTempSensorCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND Filtered Mass Air Flow - Mass Air Flow Low Engine Air Flow is TRUE when Mass Air Flow AND Manifold Pressure AND Mass Air Flow - Filtered Mass Air Flow	< 2.0 gm/sec < a threshold in gm/sec as a function of engine speed See table " TIAP-Baro Correlation Max Air Flow " < a threshold in kPa as a function of engine speed See table " TIAP-Baro Correlation Max MAP " < 2.0 gm/sec				

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Mass Air Flow B Sensor Circuit Low Frequency	P010C	Detects a continuous short to low or a open in either the signal circuit or the MAF sensor B	MAF B Output	<= 400 Hertz (~ 0.44 gm/sec)	Engine Run Time Engine Speed Ignition Voltage Above criteria present for a period of time	> 0.0 seconds >= 300 RPM >= 10.0 Volts >= 1.0 seconds	300 failures out of 375 samples 1 sample every cylinder firing event	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Mass Air Flow B Sensor Circuit High Frequency	P010D	Detects a high frequency output from the MAF sensor B	MAF B Output	>= 14,500 Hertz (~ 392.6 gm/sec)	Engine Run Time Engine Speed Ignition Voltage Above criteria present for a period of time	> 0.0 seconds >= 300 RPM >= 10.0 Volts >= 1.0 seconds	300 failures out of 375 samples 1 sample every cylinder firing event	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.	
Intake Air Temperature Sensor Circuit Performance (applications with humidity sensor and manifold temperature sensor)	P0111	Detects an IAT sensor that has stuck in range by comparing to IAT2 and IAT3 at startup	ABS(Power Up IAT - Power Up IAT2)	> 10 deg C	Time between current ignition cycle and the last time the engine was running	> 28,800 seconds	Executes once at the beginning of each ignition cycle if enable conditions are met	Type B, 2 Trips	
			AND						
			ABS(Power Up IAT - Power Up IAT3)	> 15 deg C	Powertrain Relay Voltage for a time	>= 11.00 Volts >= 0.9 seconds			
			AND		No Active DTCs:	PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA MnfdTempSensorCktFA HumTempSnsrCktFA			
			Power Up IAT2 is between Power Up IAT and Power Up IAT3		Time between current ignition cycle and the last time the engine was running	> 28,800 seconds	Executes once at the beginning of each ignition cycle if enable conditions are met		
		AND							
		ABS(Power Up IAT - Power Up IAT3)	> 15 deg C	Powertrain Relay Voltage for a time	>= 11.00 Volts >= 0.9 seconds				
		AND		No Active DTCs:	PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA MnfdTempSensorCktFA HumTempSnsrCktFA				
			Power Up IAT3 is between Power Up IAT and Power Up IAT2		Time between current ignition cycle and the last time the engine was running	> 28,800 seconds	Executes once at the beginning of each ignition cycle if enable conditions are met		
		AND							
		ABS(Power Up IAT - Power Up IAT2)	> 10 deg C	Powertrain Relay Voltage for a time	>= 11.00 Volts >= 0.9 seconds				
		AND		No Active DTCs:	PowertrainRelayFault ECT_Sensor_Ckt_FA IAT_SensorCircuitFA MnfdTempSensorCktFA				
			ABS(Power Up IAT3 -						

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Power Up IAT) > ABS(Power Up IAT3 - Power Up IAT2)			HumTempSnsrCktFA		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Throttle Position Sensor Performance (twin turbo)	P0121	Determines if the Throttle Position Sensor input is stuck within the normal operating range	See table " Turbocharger Intake Flow Rationality Diagnostic Failure Matrix " for combinations of model failures that can set this DTC. MAF1 model fails when ABS(Measured MAF1 Flow – Modeled MAF1 Flow) Filtered MAF2 model fails when ABS(Measured MAF2 Flow – Modeled MAF2 Flow) Filtered MAP1 model fails when ABS(Measured MAP – MAP Model 1) Filtered MAP2 model fails when ABS(Measured MAP – MAP Model 2) Filtered MAP3 model fails when ABS(Measured MAP – MAP Model 3) Filtered TIAP1 model fails when ABS(Measured TIAP – TIAP Model 1) Filtered TPS model fails when Filtered Throttle Model Error TIAP Correlation model fails when High Engine Air Flow is	> 25.0 grams/sec > 25.0 grams/sec > 25.0 kPa > 25.0 kPa > 25.0 kPa > 30.0 kPa > 350 kPa*(g/s)	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 425 RPM <= 6,500 RPM > -7 Deg C < 126 Deg C > -20 Deg C < 125 Deg C >= 0.50 Modeled MAF1 Model Error multiplied by MAF1 Residual Weight Factor based on RPM and MAF1 Residual Weight Factor based on MAF Est Modeled MAF2 Model Error multiplied by MAF2 Residual Weight Factor based on RPM and MAF2 Residual Weight Factor based on MAF Est MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM MAP Model 3 Error multiplied by MAP3 Residual Weight Factor based on RPM	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>TRUE AND Measured TIAP - measured MAP - offset as a function of engine speed See table "TIAP-MAP Correlation Offset"</p> <p>OR</p> <p>Low Engine Air Flow is TRUE AND Measured TIAP - measured Baro - offset as a function of engine speed See table "TIAP-Baro Correlation Offset"</p> <p>TIAP Correlation is valid when High Engine Air Flow has been TRUE for a period of time OR Low Engine Air Flow has been TRUE for a period of time</p> <p>High Engine Air Flow is TRUE when Mass Air Flow</p> <p>AND Manifold Pressure</p>	<p>> 30.0 kPa</p> <p>> 30.0 kPa</p> <p>> 1.5 seconds</p> <p>> 1.5 seconds</p> <p>> a threshold in gm sec as a function of engine speed See table "TIAP-MAP Correlation Min Air Flow"</p> <p>> a threshold in kPa as a function of engine speed See table "TIAP-MAP</p>	<p>No Active DTCs:</p> <p>No Pending DTCs:</p>	<p>TIAP Model 1 Error multiplied by TIAP Residual Weight Factor based on RPM</p> <p>Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM</p> <p>See Residual Weight Factor tables.</p> <p>MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA MnfdTempSensorFA TC_BoostPresSnsrCktFA AmbientAirDefault</p> <p>EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP MnfdTempSensorCktFP</p>		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>AND Filtered Mass Air Flow - Mass Air Flow</p> <p>Low Engine Air Flow is TRUE when Mass Air Flow</p> <p>AND Manifold Pressure</p> <p>AND Mass Air Flow - Filtered Mass Air Flow</p>	<p>Correlation Min MAP"</p> <p>< 2.0 gm/sec</p> <p>< a threshold in gm sec as a function of engine speed See table "TIAP-Baro Correlation Max Air Flow"</p> <p>< a threshold in kPa as a function of engine speed See table "TIAP-Baro Correlation Max MAP"</p> <p>< 2.0 gm/sec</p>				

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Secondary Circuit Low	P0231	This DTC detects if the fuel pump control circuit is shorted to low	Power driver output current (Fuel Pump Power Module Driver Circuit Ground Short enumeration)	Current >= 18.0 A (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_DrvrGshtDiagEnbld c) Fuel Pump Control Enable command d) Fuel Pump Control Enable time e) System Voltage f] FPPM Driver Status Alive Rolling Count Sample Faulted g] Diagnostic feedback received h] Fuel Pump Power Module output current	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE d) >= calibration value KeFRPR_Cnt_FPPM_GshtDlyThrsh (0-80 sample loops) e) 9v < System V > 32v f] <> TRUE g] == TRUE h] < 75A	64 failures / 80 samples 1 sample/12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Secondary Circuit High	P0232	This DTC detects if the fuel pump control circuit is shorted to high voltage	Voltage offset relative to low state level of duty cycle pulse measured at fuel pump circuit	> 4.0 V	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_ DrvrPshtDiagEnbld c) Fuel Pump Control Enabled d) FPPM Arbitrated Fu Pmp Duty Cycle Rate of Change e) System voltage f) FPPM Driver Status Alive Rolling Count Sample Faulted g) Diagnostic feedback Received	a) == CeFRPR_e_ECM_ FPPM_Sys b) == TRUE c) == TRUE d] >= calibration value KeFRPR_cmp_FPPM_ PshtDC_ROC_Min e] 9v < System V > 32v f] <> TRUE g] == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Engine Overboost Turbocharger with wastegate. Not supercharger with mechanical compressor	P0234	Detect Negative Boost Pressure Control Deviation	Desired Boost Pressure - Actual Boost Pressure	< (KtBSTD_p_CntrlDevN egLim - KtBSTD_p_CntrlDevA mbAirCorr) See Tables in Supporting Tables Sheet	Diagnostic Enabled	1	18 failures out of 25 samples 1 sample every 100ms	Type B, 2 Trips
					Engine Speed	> 1,500 rpm		
					Engine Speed	< 6,500 rpm		
					Desired Boost Pressure	> 70.0 kPa		
					Desired Boost Pressure	< 245.0 kPa		
					Desired Boost Pressure Derivative	> -40.0 kPa/s		
					Desired Boost Pressure Derivative	< 50.0 kPa/s		
					Ambient Pressure	> 60.0 kPa		
					Ambient Pressure	< 120.0 kPa		
					Coolant Temp	> -40.0 Deg C		
					Coolant Temp	< 126.0 Deg C		
					Intake Air Temp	> -40.0 Deg C		
					Intake Air Temp	< 80.0 Deg C		
					Wait for steady state:	> KtBSTD_t_CntrlDevEnbDelay See Table in Supporting Tables Sheet		
					No Active DTCs:	Desired Boost Pressure > BasicPressure AmbientAirDefault_Snsr BSTR_b_PCA_CktFA BSTR_b_TurboBypassCktFA ECT_Sensor_FAAT_Sen		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					No Active DVCs:	sorFA BSTR_b_ExcsvBstTFTK O BSTR_b_PCA_CktTFTK O TC_BoostPresSnsrFA AnyCamPhaser_FA BSTR_b_PresCntrlTooLo TFTKO BSTR_b_PresCntrlTooHiT FTKO EnginePowerLimited BSTR_b_DVC_PCA_DC_ Actv BSTR_b_DVC_PCA_Pstrn Actv BSTR_b_DVC_TurboCom prBypActv		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Boost Pressure (TIAP) Sensor Performance (twin turbo)	P0236	Determines if the Turbocharger Boost (TIAP) Pressure Sensor input is stuck within the normal operating range	See table " Turbocharger Intake Flow Rationality Diagnostic Failure Matrix " for combinations of model failures that can set this DTC.		Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 425 RPM <= 6,500 RPM > -7 Deg C < 126 Deg C > -20 Deg C < 125 Deg C >= 0.50	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips
			MAF1 model fails when ABS(Measured MAF1 Flow – Modeled MAF1 Flow) Filtered	> 25.0 grams/sec		Modeled MAF1 Model Error multiplied by MAF1 Residual Weight Factor based on RPM and MAF1 Residual Weight Factor based on MAF Est		
			MAF2 model fails when ABS(Measured MAF2 Flow – Modeled MAF2 Flow) Filtered	> 25.0 grams/sec		Modeled MAF2 Model Error multiplied by MAF2 Residual Weight Factor based on RPM and MAF2 Residual Weight Factor based on MAF Est		
			MAP1 model fails when ABS(Measured MAP – MAP Model 1) Filtered	> 25.0 kPa		MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM		
			MAP2 model fails when ABS(Measured MAP – MAP Model 2) Filtered	> 25.0 kPa		MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM		
			MAP3 model fails when ABS(Measured MAP – MAP Model 3) Filtered	> 25.0 kPa		MAP Model 3 Error multiplied by MAP3 Residual Weight Factor based on RPM		
			TIAP1 model fails when ABS(Measured TIAP - TIAP Model 1) Filtered	> 30.0 kPa		TIAP Model 1 Error		
			TPS model fails when Filtered Throttle Model Error	> 350 kPa*(g/s)				
		TIAP Correlation model fails when High Engine Air Flow is TRUE AND Measured TIAP -						

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			measured MAP - offset as a function of engine speed See table " TIAP-MAP Correlation Offset " OR Low Engine Air Flow is TRUE AND Measured TIAP - measured Baro - offset as a function of engine speed See table " TIAP-Baro Correlation Offset " TIAP Correlation is valid when High Engine Air Flow has been TRUE for a period of time OR Low Engine Air Flow has been TRUE for a period of time High Engine Air Flow is TRUE when Mass Air Flow AND Manifold Pressure	> 30.0 kPa > 30.0 kPa > 1.5 seconds > 1.5 seconds > a threshold in gm/sec as a function of engine speed See table " TIAP-MAP Correlation Min Air Flow " > a threshold in kPa as a function of engine speed See table	No Active DTCs: No Pending DTCs:	multiplied by TIAP Residual Weight Factor based on RPM Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM See Residual Weight Factor tables. MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA MnfTempSensorFA TC_BoostPresSnsrCktFA AmbientAirDefault EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP MnfTempSensorCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>AND Filtered Mass Air Flow - Mass Air Flow</p> <p>Low Engine Air Flow is TRUE when Mass Air Flow</p> <p>AND Manifold Pressure</p> <p>AND Mass Air Flow - Filtered Mass Air Flow</p>	<p>"TIAP-MAP Correlation Min MAP"</p> <p>< 2.0 gm/sec</p> <p>< a threshold in gm/ sec as a function of engine speed See table "TIAP-Baro Correlation Max Air Flow"</p> <p>< a threshold in kPa as a function of engine speed See table "TIAP-Baro Correlation Max MAP"</p> <p>< 2.0 gm/sec</p>				
			<p>Turbocharger Boost Pressure OR Turbocharger Bosst Pressure</p> <p>OR</p> <p>ABS(Manifold Pressure - Turbocharger Boost Pressure) AND ABS(Manifold Pressure - Baro Pressure) AND</p>	<p>< 50.0 kPa</p> <p>> 115.0 kPa</p> <p>> 10.0 kPa</p> <p><= 10.0 kPa</p>	<p>Time between current ignition cycle and the last time the engine was running</p> <p>Engine is not rotating</p> <p>No Active DTCs:</p> <p>No Pending DTCs:</p>	<p>> 10.0 seconds</p> <p>EngineModeNotRunTimer Error MAP_SensorCircuitFA AAP_SnsrCktFA AAP2_SnsrCktFA AAP3_SnsrCktFA</p> <p>MAP_SensorCircuitFP</p>	<p>4 failures out of 5 samples</p> <p>1 sample every 12.5 msec</p>	

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			ABS(Manifold Pressure - Baro Pressure 2) AND ABS(Turbocharger Boost Pressure - Baro Pressure) AND ABS(Turbocharger Boost Pressure - Baro Pressure 2) AND ABS(Baro Pressure - Baro Pressure2)	<= 10.0 kPa > 10.0 kPa > 10.0 kPa <= 10.0 kPa		AAP_SnsrCktFP AAP2_SnsrCktFP AAP3_SnsrCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharge r Boost Pressure Sensor Circuit Low	P0237	Detects a continuous short to low or open in either the signal circuit or the turbocharger boost pressure sensor.	Turbocharger Boost Pressure Voltage	< 14.4 % of 5 Volt Range (This is equal to 0.72 Volts, or 50.0 kPa)	Engine Run Time	> 0.00 seconds	320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Boost Pressure Sensor Circuit High	P0238	Detects an open sensor ground or continuous short to high in either the signal circuit or the turbocharger boost pressure sensor.	Turbocharger Boost Pressure Voltage	> 84.0% of 5 Volt Range (This is equal to 4.20 Volts, or 363.0 kPa)	Engine Run Time	> 0.00 seconds	320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Intercooler Coolant Pump Control Circuit If Intercooler pump are present	P023A	Detect Intercooler Pump - Open Circuit	ECM detects that commanded and actual states of output driver do not match because the output is open circuit		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	20 failures out of 100 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Intercooler Coolant Pump Control Circuit Low If Intercooler pump are present	P023B	Detect Intercooler Pump - Shorted to Ground	ECM detects that commanded and actual states of output driver do not match because the output is shorted to ground		Diagnostic Enabled EnabledPowertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	20 failures out of 100 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Intercooler Coolant Pump Control Circuit High If Intercooler pump are present	P023C	Detect Intercooler Pump - Shorted to Power	ECM detects that commanded and actual states of output driver do not match because the output is shorted to power		Diagnostic Enabled Powertrain relay voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	20 failures out of 100 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Wastegate / Supercharger Boost Solenoid A Control Circuit	P0243	Detect Turbocharger Boost Solenoid -Open Circuit	ECM detects that commanded and actual states of output driver do not match because the output is open circuit		Diagnostic Enabled Powertrain relay voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Wastegate / Supercharger Boost Solenoid A Control Circuit Low	P0245	Detect Turbocharger Boost Solenoid - Shorted to ground	ECM detects that commanded and actual states of output driver do not match because the output is shorted to ground		Diagnostic Enabled Powertrain relay voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Wastegate / Supercharger Boost Solenoid A Control Circuit High	P0246	Detect Turbocharger Boost Solenoid - Shorted to Power	ECM detects that commanded and actual states of output driver do not match because the output is shorted to power		Diagnostic Enabled Powertrain relay voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Wastegate / Supercharger Boost Solenoid B Control Circuit If two parallel turbos are present.	P0247	Detect Turbocharger Boost Solenoid B - Open Circuit	ECM detects that commanded and actual states of output driver do not match because the output is open circuit		Diagnostic Enabled Powertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Wastegate / Supercharger Boost Solenoid B Control Circuit Low If two parallel turbos are present.	P0249	Detect Turbocharger Boost Solenoid B - Shorted to ground	ECM detects that commanded and actual states of output driver do not match because the output is shorted to ground		Diagnostic Enabled Powertrain relay voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger Wastegate / Supercharger Boost Solenoid B Control Circuit High If two parallel turbos are present.	P0250	Detect Turbocharger Boost Solenoid B - Shorted to Power	ECM detects that commanded and actual states of output driver do not match because the output is shorted to power		Diagnostic Enabled Powertrain relay Voltage Ignition run crank voltage Engine is not cranking	1 >= 11.00 Volts >= 5.00 Volts	50 failures out of 63 samples 1 sample every 100ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbocharger or Supercharger with Intercooler	P026A	Charging Intercooler Efficiency	High Manifold Temperature OR Lengthy boost limiting due to elevated manifold temperature	> 110.00 > 10,000.00	Diagnostic Enabled Pump Enabled Engine Run Time Coolant Temp No active DTCS:	1.00 Pump enable is dynamic >= 60.00 seconds >= -10.00 deg Celsius ECTR_b_ECT_SnsrFA EITR_b_MnfdTempSnsrFA	5.00 failures out of 10.00 samples. 1 sample every 100 ms	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Engine Underboost Turbocharger with wastegate. Not supercharger with mechanical compressor	P0299	Detect Positive Boost Pressure Control Deviation	Desired Boost Pressure - Actual Boost Pressure	> (KtBSTD_p_CntrlDevPosLim + KtBSTD_p_CntrlDevAmbAirCorr) See Tables in Supporting Tables Sheet	Diagnostic Enabled	1	18 failures out of 25 samples 1 sample every 100ms	Type B, 2 Trips
					Engine Speed	> 1,500 rpm		
					Engine Speed	< 6,500 rpm		
					Desired Boost Pressure	> 70.0 kPa		
					Desired Boost Pressure	< 245.0 kPa		
					Desired Boost Pressure Derivative	> -40.0 kPa/s		
					Desired Boost Pressure Derivative	< 50.0 kPa/s		
					Ambient Pressure	> 60.0 kPa		
					Ambient Pressure	< 120.0 kPa		
					Coolant Temp	> -40.0 Deg C		
					Coolant Temp	< 126.0 Deg C		
					Intake Air Temp	> -40.0 Deg C		
					Intake Air Temp	< 80.0 Deg C		
					Wait for steady state:	> KtBSTD_t_CntrlDevEnbley See Table in Supporting Tables Sheet		
No Active DTCs:	Desired Boost Pressure > Basic Pressure AmbientAirDefault_Snsr BSTR_b_PCA_CktFA BSTR_b_TurboBypassCktFA ECT_Sensor_FA							

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					No Active DVCs:	IAT_SensorFA BSTR_b_ExcsvBstTFTK O BSTR_b_PCA_CktTFTK O TC_BoostPresSnsrFA AnyCamPhaser_FA BSTR_b_PresCntrlTooLo TFTKO BSTR_b_PresCntrlTooHiT FTKO EnginePowerLimited BSTR_b_DVC_PCA_DC_ Actv BSTR_b_DVC_PCA_Pstrn Actv BSTR_b_DVC_TurboCom prBypActv		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Catalyst System Low Efficiency Bank 1	P0420	<p>NOTE: The information below applies to applications that use the Decel Catalyst Monitor Algorithm</p> <p>Oxygen StorageThe catalyst washcoat contains Cerium Oxide. Cerium Oxide reacts with NO and O2 during lean A/F excursions to store the excess oxygen (I.e. Cerium Oxidation). During rich A/F excursions, Cerium Oxide reacts with CO and H2 to release this stored oxygen (I.e. Cerium Reduction). This is referred to as the Oxygen Storage Capacity, or OSC. CatMon's strategy is to "measure" the OSC of the catalyst through forced Rich (intrusive rich) and Lean (decel fuel cutoff) A/F excursions</p> <p>Normalized Ratio OSC Value Calculation Information and Definitions = 1. Raw OSC Calculation = (post cat O2 Resp time - pre cat O2 Resp time) 2. BestFailing OSC value from a calibration</p>	Normalized Ratio OSC Value (EWMA filtered)	< 0.35	<p>All enable criteria associated with P0420 can be found under P2270 - (O2 Sensor Signal Stuck Lean Bank 1 Sensor 2)</p> <p>Rapid Step Response (RSR) feature will initiate multiple tests:</p> <p>If the difference between current EWMA value and the current OSC Normalized Ratio value is</p> <p>and the current OSC Normalized Ratio value is</p> <p>Maximum number of RSR tests to detect failure when RSR is enabled.</p> <p>General Enable Criteria</p> <p>In addition to the p-codes listed under P2270, the following DTC's shall also not be set:</p>	<p>> 0.50</p> <p>< 0.10</p> <p>24</p> <p>O2S_Bank_1_Sensor_1_FA O2S_Bank_1_Sensor_2_FA O2S_Bank_2_Sensor_1_FA O2S_Bank_2_Sensor_2_FA</p>	<p>1 test attempted per valid decel period</p> <p>Minimum of 1 test per trip</p> <p>Maximum of 4 tests per trip</p> <p>Frequency: Fueling Related : 12.5 ms</p> <p>OSC Measurements: 100 ms</p> <p>Temp Prediction: 12.5ms</p>	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		<p>table (based on temp and exhaust gas flow) 3. WorstPassing OSC value (based on temp and exhaust gas flow)</p> <p>Normalized Ratio Calculation = (1-2) / (3-2)</p> <p>A Normalized Ratio of 1 essentially represents a good part and a ratio of 0 essentially represents a very bad part.</p> <p>Refer to the P0420_WorstPassing OSCTableB1 and P0420_BestFailingOSCTableB1 in Supporting Tables tab for details</p> <p>The Catalyst Monitoring Test is completed during a decel fuel cutoff event. This fuel cutoff event occurs following a rich intrusive fueling event initiated by the O2 Sensor Signal Stuck Lean Bank 1 Sensor 2 test (P2270). Several conditions must be met in order to execute this test.</p> <p>These conditions and their related values are listed in the "Secondary</p>						

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		Parameters" and "Enable Conditions" section of this document for P2270 (O2 Sensor Signal Stuck Lean Bank 1 Sensor 2)						

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Catalyst System Low Efficiency Bank 2	P0430	<p>Note: The information below applies to applications that use the Decel Catalyst Monitor Algorithm</p> <p>Oxygen StorageThe catalyst washcoat contains Cerium Oxide. Cerium Oxide reacts with NO and O2 during lean A/F excursions to store the excess oxygen (I.e. Cerium Oxidation). During rich A/F excursions, Cerium Oxide reacts with CO and H2 to release this stored oxygen (I.e. Cerium Reduction). This is referred to as the Oxygen Storage Capacity, or OSC. CatMon's strategy is to "measure" the OSC of the catalyst through forced Rich (intrusive rich) and Lean (decel fuel cutoff) A/F excursions</p> <p>Normalized Ratio OSC Value Calculation Information and Definitions = 1. Raw OSC Calculation = (post cat O2 Resp time - pre cat O2 Resp time) 2. BestFailing OSC value from a calibration</p>	Normalized Ratio OSC Value (EWMA filtered)	< 0.35	<p>All enable criteria associated with P0430 can be found under P2272 - (O2 Sensor Signal Stuck Lean Bank 2 Sensor 2)</p> <p>Rapid Step Response (RSR) feature will initiate multiple tests:</p> <p>If the difference between current EWMA value and the current OSC Normalized Ratio value is</p> <p>and the current OSC Normalized Ratio value is</p> <p>Maximum number of RSR tests to detect failure when RSR is enabled.</p> <p>General Enable Criteria</p> <p>In addition to the p-codes listed under P2272, the following DTC's shall also not be set:</p>	<p>> 0.52</p> <p>< 0.10</p> <p>24</p> <p>O2S_Bank_1_Sensor_1_FA O2S_Bank_1_Sensor_2_FA O2S_Bank_2_Sensor_1_FA O2S_Bank_2_Sensor_2_FA</p>	<p>1 test attempted per valid decel period</p> <p>Minimum of 1 test per trip</p> <p>Maximum of 4 tests per trip</p> <p>Frequency: Fueling Related : 12.5 ms</p> <p>OSC Measurements: 100 ms</p> <p>Temp Prediction: 12.5ms</p>	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		<p>table (based on temp and exhaust gas flow) 3. WorstPassing OSC value (based on temp and exhaust gas flow)</p> <p>Normalized Ratio Calculation = (1-2) / (3-2)</p> <p>A Normalized Ratio of 1 essentially represents a good part and a ratio of 0 essentially represents a very bad part.</p> <p>Refer to the P0430_WorstPassing OSCTableB2 and P0430_BestFailingOSCTableB2 in Supporting Tables tab for details</p> <p>The Catalyst Monitoring Test is completed during a decel fuel cutoff event. This fuel cutoff event occurs following a rich intrusive fueling event initiated by the O2 Sensor Signal Stuck Lean Bank 2 Sensor 2 test (P2272). Several conditions must be met in order to execute this test.</p> <p>These conditions and their related values are listed in the "Secondary</p>						

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		Parameters" and "Enable Conditions" section of this document for P2272 (O2 Sensor Signal Stuck Lean Bank 2 Sensor 2)						

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cooling Fan 2 Relay Control Circuit Open (ODM)	P0481	Diagnoses the cooling fan 2 relay control low side driver circuit for circuit faults	Voltage low during driver off state (indicates open circuit)	Open Circuit: ≥ 200 K Ω impedance between signal and controller ground	Powertrain Relay Voltage	Voltage ≥ 11.00 volts	50 failures out of 63 samples 100 ms / sample	Type B, 2 Trips Note: In certain controllers P0693 may also set (Fan 2 Short to Ground)

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Oil Pressure (EOP) Switch	P0520	When criteria are met that assure no oil pressure should be present, read state of oil pressure switch circuit	State of Engine Oil Pressure (EOP) switch circuit	Detecting.a.ground.wil l.set.a.fault	Run/Crank powermode active Engine movement detected Key in crank position Power down engine coolant Powertrain relay voltage Run/Crank Ignition voltage AND Time since engine last running Timer for time since engine last running validity OR Engine coolant at power up Diagnostic enabled/ disabled No active DTC's	= True = False = False > 80 Deg C >= 11 volts >= 11 volts AND > 3,600 Seconds = True OR < (Power down engine coolant) minus an additional 10 Deg C Disabled Fault bundles: ECT_Sensor_Ckt_FA	Fail detected for >= 5.00 Sec. 250 msec loop Continuous	Type C, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cooling Fan 2 Relay Control Circuit Low Voltage (ODM)	P0693	Diagnoses cooling fan 2 relay control low side driver circuit for circuit faults	Voltage low during driver off state (indicates short- to-ground)	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	Powertrain Relay Voltage	Voltage ≥ 11.00 volts	50 failures out of 63 samples 100 ms / sample	Type B, 2 Trips Note: In certain controlle rs P0481 may also set (Fan 2 Open Circuit).

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Cooling Fan 2 Relay Control Circuit High Voltage (ODM)	P0694	Diagnoses the cooling fan 2 relay control low side driver circuit for circuit faults	Voltage high during driver on state (indicates short to power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	Powertrain Relay Voltage	Voltage ≥ 11.00 volts	50 failures out of 63 samples 100 ms / sample	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Inlet Airflow System Performance (twin turbo)	P1101	Determines if there are multiple air induction problems affecting airflow and/or manifold pressure.	See table " Turbocharger Intake Flow Rationality Diagnostic Failure Matrix " for combinations of model failures that can set this DTC. MAF1 model fails when ABS(Measured MAF1 Flow – Modeled MAF1 Flow) Filtered MAF2 model fails when ABS(Measured MAF2 Flow – Modeled MAF2 Flow) Filtered MAP1 model fails when ABS(Measured MAP – MAP Model 1) Filtered MAP2 model fails when ABS(Measured MAP – MAP Model 2) Filtered MAP3 model fails when ABS(Measured MAP – MAP Model 3) Filtered TIAP1 model fails when ABS(Measured TIAP – TIAP Model 1) Filtered TPS model fails when Filtered Throttle Model Error TIAP Correlation model fails when High Engine Air Flow is	> 25.0 grams/sec > 25.0 grams/sec > 25.0 kPa > 25.0 kPa > 25.0 kPa > 30.0 kPa > 350 kPa*(g/s)	Engine Speed Engine Speed Coolant Temp Coolant Temp Intake Air Temp Intake Air Temp Minimum total weight factor (all factors multiplied together)	>= 425 RPM <= 6,500 RPM > -7 Deg C < 126 Deg C > -20 Deg C < 125 Deg C >= 0.50 Modeled MAF1 Model Error multiplied by MAF1 Residual Weight Factor based on RPM and MAF1 Residual Weight Factor based on MAF Est Modeled MAF2 Model Error multiplied by MAF2 Residual Weight Factor based on RPM and MAF2 Residual Weight Factor based on MAF Est MAP Model 1 Error multiplied by MAP1 Residual Weight Factor based on RPM MAP Model 2 Error multiplied by MAP2 Residual Weight Factor based on RPM MAP Model 3 Error multiplied by MAP3 Residual Weight Factor based on RPM	Continuous Calculation are performed every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>TRUE AND Measured TIAP - measured MAP - offset as a function of engine speed See table "TIAP-MAP Correlation Offset"</p> <p>OR</p> <p>Low Engine Air Flow is TRUE AND Measured TIAP - measured Baro - offset as a function of engine speed See table "TIAP-Baro Correlation Offset"</p> <p>TIAP Correlation is valid when High Engine Air Flow has been TRUE for a period of time OR Low Engine Air Flow has been TRUE for a period of time</p> <p>High Engine Air Flow is TRUE when Mass Air Flow</p> <p>AND Manifold Pressure</p>	<p>> 30.0 kPa</p> <p>> 30.0 kPa</p> <p>> 1.5 seconds</p> <p>> 1.5 seconds</p> <p>> a threshold in gm sec as a function of engine speed See table "TIAP-MAP Correlation Min Air Flow"</p> <p>> a threshold in kPa as a function of engine speed</p>	<p>No Active DTCs:</p> <p>No Pending DTCs:</p>	<p>TIAP Model 1 Error multiplied by TIAP Residual Weight Factor based on RPM</p> <p>Filtered Throttle Model Error multiplied by TPS Residual Weight Factor based on RPM</p> <p>See Residual Weight Factor tables.</p> <p>MAP_SensorCircuitFA EGRValvePerformance_F A MAF_SensorCircuitFA CrankSensor_FA ECT_Sensor_FA IAT_SensorFA MnfdTempSensorFA TC_BoostPresSnsrCktFA AmbientAirDefault</p> <p>EGRValve_FP ECT_Sensor_Ckt_FP IAT_SensorCircuitFP MnfdTempSensorCktFP</p>		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			<p>AND Filtered Mass Air Flow - Mass Air Flow</p> <p>Low Engine Air Flow is TRUE when Mass Air Flow</p> <p>AND Manifold Pressure</p> <p>AND Mass Air Flow - Filtered Mass Air Flow</p>	<p>See table "TIAP-MAP Correlation Min MAP"</p> <p>< 2.0 gm/sec</p> <p>< a threshold in gm sec as a function of engine speed See table "TIAP-Baro Correlation Max Air Flow"</p> <p>< a threshold in kPa as a function of engine speed See table "TIAP-Baro Correlation Max MAP"</p> <p>< 2.0 gm/sec</p>				

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Over Temperature	P1255	To detect if an internal fuel pump driver over-temperature condition exists under normal operating conditions	Fuel Pump Driver Circuit Board temperature (FP Driver Overtemperature enumeration)	T >= 160 degC (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_ OvertempDiagEnbld c] FPPM Driver Status Alive Rolling Count Sample Faulted d] Diagnostic feedback received e] System Voltage	a) == CeFRPR_e_ECM _FPPM_Sys b) == TRUE c] <> TRUE d] == TRUE e] 9V < System V < 32V	3 failures / 15 samples 1 sample / 12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Module- System Voltage Low	P129B	To detect if the system voltage is below a certain threshold	Battery Voltage	< 9.00	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_BatVo ltLoDiagEnbl c) Engine status d) FPPM Power Consumption Alive Rolling Count result e) Diagnostic feedback received f) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Running d) == VALID e) == TRUE f) 9v < System V > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Module-System Voltage High	P129C	To detect if the system voltage is above a certain threshold	Battery Voltage	> 18.00	a) FPPM configuration KeFRPR_e_ChassisFuelPresSysType b) Diagnostic KeFRPR_b_FPPM_RunC rnkRatlEnbld c) FPPM Control Status Alive Rolling Count result d) Diagnostic feedback received e) System Voltage	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == VALID d) == TRUE e) 9v < System V > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Module- Ignition Switch Run/ Start Position Circuit Low	P129D	To detect if the Run/ Start position circuit voltage is short to low / open	FPPM Run_Crank Active status	<> ECM Run_Crank Active status	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_RunC rnkRatlEnbld c) FPPM Control Status Alive Rolling Count result d) Diagnostic feedback received e) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) >= 0.0 v	64 failures / 80 samples 1 sample / 12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Control Module Signal Message Counter Incorrect	P129E	To detect if the command message received as serial data from the engine control module is valid	FPPM Received Duty Cycle Rolling Count	<> Transmitted Duty Cycle Rolling Count (ECM) (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Received Duty Cycle Count result d) FPPM Diagnostic feedback received e) CAN communication f) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) == Valid f) 9v < Sys Voltage > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	Type X, No MIL
			FPPM Received Duty Cycle Protection Value	<> Transmitted Duty Cycle Protection Value (ECM) (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Received Duty Cycle Protection Value result d) FPPM Diagnostic feedback received e) CAN communication f) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) == Valid f) 9v < Sys Voltage > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Control Module Enable Circuit Performance	P12A6	To detect a driver control circuit signal stuck in normal operating range	FPPM Fuel Control Enable Active boolean	<> Fuel Control Enable variable (ECM)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_FuelC ntrlEnblEnbld c) FPPM Control Data Rolling Count result d) Diagnostic feedback received e) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) >= 9.0 v	40 failures / 80 samples 1 sample / 12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Control Status Signal Message Counter Incorrect	P12A8	To detect if the control status message transmitted as serial data from the driver control module is valid	FPPM Control Status Alive Rolling Count	<> ECM Control Status Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	Type X, No MIL
			FPPM Power Consumption Alive Rolling Count	<> ECM Power Consumption Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	
			FPPM Driver Status Alive Rolling Count	<> ECM Driver Status Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	
			FPPM Hardware Status Alive Rolling Count	<> ECM Hardware Status Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure (BARO) Sensor Performance (twin turbo)	P2227	Compares baro sensor to the calculated baro estimate (part throttle calculation or unthrottled MAP)	Difference between baro sensor reading and estimated baro when distance since last estimated baro update	> 20.0 kPa <= 1.24 miles	No Active DTCs:	AmbPresSnsrCktFA ECT_Sensor_Ckt_FA IAT_SensorFA MAF_Snsr1_FA AfterThrottlePressureFA TPS_FA TPS_Performance_FA VehicleSpeedSensor_FA	320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips
			OR Difference between baro sensor reading and estimated baro when distance since last estimated baro update	> 25.0 kPa > 1.24 miles				
			Barometric Pressure OR Barometric Pressure OR ABS(Manifold Pressure - Turbocharger Boost Pressure) AND ABS(Manifold Pressure - Baro Pressure) AND ABS(Manifold Pressure - Baro Pressure 2) AND ABS(Turbocharger Boost Pressure - Baro Pressure) AND ABS(Turbocharger Boost Pressure - Baro Pressure 2) AND ABS(Baro Pressure - Baro Pressure2)	< 50.0 kPa > 115.0 kPa <= 10.0 kPa > 10.0 kPa <= 10.0 kPa > 10.0 kPa <= 10.0 kPa > 10.0 kPa	Time between current ignition cycle and the last time the engine was running Engine is not rotating No Active DTCs: No Pending DTCs:	> 10.0 seconds	4 failures out of 5 samples 1 sample every 12.5 msec	
						EngineModeNotRunTimer Error MAP_SensorCircuitFA AAP_SnsrCktFA AAP2_SnsrCktFA AAP3_SnsrCktFA MAP_SensorCircuitFP AAP_SnsrCktFP AAP2_SnsrCktFP AAP3_SnsrCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure (BARO) Sensor Circuit Low (boosted applications)	P2228	Detects a continuous short to low or open in either the signal circuit or the BARO sensor.	BARO Voltage	< 40.0 % of 5 Volt Range (2.0 Volts = 50.9 kPa)			320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure (BARO) Sensor Circuit High (boosted applications)	P2229	Detects an open sensor ground or continuous short to high in either the signal circuit or the BARO sensor.	BARO Voltage	> 90.0 % of 5 Volt Range (4.5 Volts = 115.0 kPa)			320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure Sensor B Circuit Range/ Performance	P222B	Compares baro sensor 2 to the calculated baro estimate	Difference between baro sensor 2 reading and estimated baro when distance since last estimated baro update	> 20.0 kPa ≤ 1.24 miles	No Active DTCs:	AmbPresSnsr2_CktFA ECT_Sensor_Ckt_FA IAT_SensorFA MAF_Snsr2_FA AfterThrottlePressureFA TPS_FA TPS_Performance_FA VehicleSpeedSensor_FA	320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips
			OR Difference between baro sensor 2 reading and estimated baro when distance since last estimated baro update	> 25.0 > 1.24 miles				
			Barometric Pressure 2 OR Barometric Pressure 2	< 50.0 kPa > 115.0 kPa	Time between current ignition cycle and the last time the engine was running	> 10.0 seconds	4 failures out of 5 samples 1 sample every 12.5 msec	
			OR ABS(Manifold Pressure - Turbocharger Boost Pressure) AND ABS(Manifold Pressure - Baro Pressure) AND ABS(Manifold Pressure - Baro Pressure 2) AND ABS(Turbocharger Boost Pressure - Baro Pressure) AND ABS(Turbocharger Boost Pressure - Baro Pressure 2) AND ABS(Baro Pressure - Baro Pressure2)	≤ 10.0 kPa ≤ 10.0 kPa > 10.0 kPa ≤ 10.0 kPa > 10.0 kPa > 10.0 kPa	Engine is not rotating No Active DTCs:	EngineModeNotRunTimer Error MAP_SensorCircuitFA AAP_SnsrCktFA AAP2_SnsrCktFA AAP3_SnsrCktFA		
					No Pending DTCs:	MAP_SensorCircuitFP AAP_SnsrCktFP AAP2_SnsrCktFP AAP3_SnsrCktFP		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure Sensor B Circuit Low	P222C	Detects a continuous short to low or open in either the signal circuit or the BARO sensor B.	BARO Voltage	< 40.0 % of 5 Volt Range (2.0 Volts = 50.9 kPa)			320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure Sensor B Circuit High	P222D	Detects an open sensor ground or continuous short to high in either the signal circuit or the BARO sensor B.	BARO Voltage	> 90.0 % of 5 Volt Range (4.5 Volts = 115.0 kPa)			320 failures out of 400 samples 1 sample every 12.5 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure Sensor B Circuit Intermittent/ Erratic	P222E	Detects a noisy or erratic barometric pressure B input	String Length Where: "String Length" = sum of "Diff" calculated over And where: "Diff" = ABS(current BARO 2 reading - BARO 2 reading from 12.5 milliseconds previous)	> 100 kPa 80 consecutive BARO 2 samples			4 failures out of 5 samples Each sample takes 1.00 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Barometric Pressure (BARO) Sensor Circuit Intermittent	P2230	Detects a noisy or erratic barometric pressure input	String Length Where: "String Length" = sum of "Diff" calculated over And where: "Diff" = ABS(current BARO reading - BARO reading from 12.5 milliseconds previous)	> 100 kPa 80 consecutive BARO samples			4 failures out of 5 samples Each sample takes 1.00 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Turbo/Super Charger Bypass Valve - Mechanical Turbocharge r with wastegate. Not supercharge r with mechanical compressor	P2261	Detect Stuck Closed Bypass Valve	Accumulation time is high pass filtered. Accumulated air mass flow or boost pressure larger then thresholds Filter Frequency Filtered Air Mass Flow Filtered Boost Pressure	0.30 Second < Accumulation time < 0.75 Second 7.20 Hz > 60.000 g/s > 40.00 kPa	Diagnostic Enabled Engine Speed Pressure ratio over the compressor Relative Boost Pressure (Boost - Ambient) and Negative Transient in Manifold Air Pressure Bypass Valve Commanded Open No Active DTCs:	1 >= 1,500 rpm >KtBSTD_r_ExcsvBstPre sLim Enable condition kept true for 0.8 seconds extra See Tables in Supporting Tables Sheet IF (RelativeBoost < 5.0 kPa OR DerivativeMAP > 50.00 kPa/s) [FALSE] Else (RelativeBoost >= 15.0 kPa AND DerivativeMAP <= -150.00 kPa) [TRUE] > 6.0 percentEnable condition kept true for 0.50 seconds extra TC_BoostPresSnsrFA MAF_SensorFABSTR_b_ TurboBypassCktFA	2 Failed tests out of 3 Tests 1 sample every 25ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump "A" Low Flow / Performance	P2635	This DTC detects degradation in the performance of the SIDI electronically regulated fuel system	Filtered fuel rail pressure error	<= Low Threshold (see Supporting Calibration tab) OR >= High Threshold (see Supporting Calibration tab) (tabulated result: function of desired fuel rail pressure and fuel flow rate)	a) Fu Rail Pres Snsr Circuit Low Fault Active (DTC P018C) b) Fu Rail Pres Snsr Circuit High Fault Active (DTC P018D) c) Fu Rail Pres Snsr Perf Fault Active (DTC P018B) d) Fu Pump Circuit Low Fault Active (DTC P0231) e) Fu Pump Circuit High Fault Active (DTC P0232) f) Fu Pump Circuit Open Fault Active (DTC P023F) g) Reference Voltage Fault Status (DTC P0641) h) Fu Pump Driver Control Module Overtemperature Fault Active (DTC P1255) j) Barometric Pressure Signal Valid (PPEI \$4C1) k) Engine run time l) Emissions Fuel Level Low (PPEI \$3FB) m) Fu Pump Control Enabled	a) <> TRUE b) <> TRUE c) <> TRUE d) <> TRUE e) <> TRUE f) <> TRUE g) <> Active This Key h) <> TRUE j) == TRUE (for absolute fuel pressure sensor) k) >= 30 sec l) <> TRUE m) == TRUE	1 sample / 12.5 millisec	Type X, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					n] Fu Pump Control state p] System Voltage q] Fuel flow rate r] Fuel Pressure Control System	n] == Normal p] 11V< System V <32V q1] > 0.047 gram/sec AND q2] <= Max allowed fuel flow rate (function of desired pressure and system voltage)(typically 11-50 gram/sec) r1] Not responding to overperformance due to pressure buildup during Deceleration Fuel Cut Off OR r2] Not responding to a decreasing desired fuel pres commnad		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Outside Air Temperature (OAT) Sensor Circuit Performance	P0071	Detects an OAT sensor that has stuck in range by comparing to IAT when conditions are appropriate	OAT-to-IAT engine off equilibrium counter	>= 300.0 counts	Time between current ignition cycle and the last time the engine was running	>= 28,800.0 seconds	Executed every 100 msec	Type B, 2 Trips
			(see below for description of this counter)		Engine is not running			
			If IAT >= OAT: IAT - OAT	> 15.0 deg C	Vehicle Speed	>= 15.5 MPH		
			If IAT < OAT: OAT - IAT	> 15.0 deg C	Coolant Temperature - IAT	< 15.0 deg C		
			The "OAT-to-IAT engine off equilibrium counter" is a counter that is incremented or decremented based on vehicle speed when the engine is off. When this counter is high enough, the vehicle has reached an equilibrium where IAT and OAT can be compared. The value that is added or subtracted to the counter every 100 msec is contained in table P0071: OAT Performance Drive Equilibrium Engine Off		IAT - Coolant Temperature	< 15.0 deg C		
					No Active DTCs:	VehicleSpeedSensor_FA IAT_SensorFA ECT_Sensor_DefaultDetected MAF_SensorFA EngModeNotRunTmErr		
			OAT-to-IAT engine running equilibrium counter	>= 300.0 counts	Engine is running		Executed every 100 msec	
			(see below for description of this counter)		Vehicle Speed	>= 15.5 MPH		
			If IAT >= OAT: IAT - OAT	> 15.0 deg C	Engine air flow	>= 10.0 grams/second		
			If IAT < OAT:		No Active DTCs:	VehicleSpeedSensor_FA IAT_SensorFA ECT_Sensor_DefaultDetected MAF_SensorFA		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			OAT - IAT The "OAT-to-IAT engine running equilibrium counter" is a counter that is incremented or decremented based on vehicle speed and engine air flow when the engine is running. When this counter is high enough, the vehicle has reached an equilibrium where IAT and OAT can be compared. The value that is added or subtracted to the counter every 100 msec is contained in table P0071: OAT Performance Drive Equilibrium Engine Running	> 15.0 deg C		EngModeNotRunTmErr		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Outside Air Temperature (OAT) Sensor Circuit Low	P0072	Detects a continuous short to ground in the OAT signal circuit or the OAT sensor	Raw OAT Input	<= 52 Ohms (~150 deg C)	Continuous		40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Outside Air Temperature (OAT) Sensor Circuit High	P0073	Detects a continuous open circuit in the OAT signal circuit or the OAT sensor	Raw OAT Input	>= 403,672 Ohms (~-60 deg C)	Continuous		40 failures out of 50 samples 1 sample every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Outside Air Temperature (OAT) Sensor Intermittent In-Range	P0074	Detects a noisy or erratic OAT signal circuit or OAT sensor	String Length Where: "String Length" = sum of "Diff" calculated over And where: "Diff" = ABS(current OAT reading - OAT reading from 100 milliseconds previous)	> 100 deg C 10 consecutive OAT samples		Continuous	4 failures out of 5 samples Each sample takes 1.0 seconds	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Evaporative Emission System Small Leak Detected (No ELCP - Conventional EVAP Diagnostic with EAT using OAT Sensor)	P0442	This DTC will detect a small leak ($\geq 0.020"$) in the EVAP system between the fuel fill cap and the purge solenoid. On some applications a small leak is defined as $\geq 0.025"$, $0.030"$, or $0.150"$. The engine off natural vacuum method (EONV) is used. EONV is an evaporative system leak detection diagnostic that runs when the vehicle is shut off when enable conditions are met. Prior to sealing the system and performing the diagnostic, the fuel volatility is analyzed. In an open system (Canister Vent Solenoid [CVS] open) high volatility fuel creates enough flow to generate a measurable pressure differential relative to atmospheric. After the volatility check, the vent solenoid will close. After the vent is closed, typically a build up of pressure from the hot soak begins (phase-1). The pressure typically will peak and then begin to decrease as the fuel cools. When	The total delta from peak pressure to peak vacuum during the test is normalized against a calibration pressure threshold table that is based upon fuel level and ambient temperature. (Please see P0442: EONV Pressure Threshold (Pascals) Table in Supporting Tables). The normalized value is calculated by the following equation: $1 - (\text{peak pressure} - \text{peak vacuum}) / \text{pressure threshold}$. The normalized value is entered into EWMA (with 0= perfect pass and 1= perfect fail). When EWMA is the DTC light is illuminated. The DTC light can be turned off if the EWMA is and stays below the EWMA fail threshold for 3 additional consecutive trips.	> 0.60 (EWMA Fail Threshold), ≤ 0.35 (EWMA Re-Pass Threshold)	Fuel Level Drive Time Drive length ECT Baro Distance since assembly plant Engine not run time before key off must be Time since last complete test if normalized result and EWMA is passing OR Time since last complete test if normalized result or EWMA is failing Estimated Ambient Temperature (EAT) using OAT sensor at end of drive Conditions for Estimated Ambient Temperature Using OAT Sensor to be Valid ***** 1. Startup OAT is less than previous trip EAT	$10\% \leq \text{Percent} \leq 90\%$ ≥ 600 seconds ≥ 5.2 miles ≥ 63 °C ≥ 70 kPa ≥ 10.0 miles \leq refer to P0442: Engine Off Time Before Vehicle Off Maximum as a Function of Estimated Ambient Temperature Table in Supporting Tables. ≥ 17 hours ≥ 10 hours 0 °C \leq Temperatures ≤ 34 °C *****	Once per trip, during hot soak (up to 2,400 sec.). No more than 2 unsuccessful attempts between completed tests.	Type A, 1 Trips EWMA Average run length is 8 to 12 trips under normal conditions Run length is 3 to 6 trips after code clear or non-volatile reset

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		the pressure drops (-62.27) Pa from peak pressure, the vent is then opened for 60 seconds to normalize the system pressure. The vent is again closed to begin the vacuum portion of the test (phase-2). As the fuel temperature continues to fall, a vacuum will begin forming. The vacuum will continue until it reaches a vacuum peak. When the pressure rises 62.27 Pa from vacuum peak, the test then completes. If the key is turned on while the diagnostic test is in progress, the test will abort.			OR 2. Startup ECT - previous trip EAT OR 3. Engine off time OR 4. At startup, time since previous EAT valid and able to learn OR 5. EAT - current OAT OR 6. EAT < current OAT and speed timer and current OAT - EAT Speed timer increments at 100 msec rate and increments vary based on vehicle speed as follows: vehicle speed < 19 mph - 10.0 seconds 19 mph < speed < 47 mph 0.50 seconds 47 mph < speed < 123.7 0.75 seconds 123.7 mph < speed < 124.3 2.00 seconds Speed timer can never be less than 0 seconds ***** 1. High Fuel Volatility During the volatility phase, pressure in the fuel tank is integrated vs. volatility time. If the integrated pressure is then test aborts and	≤ 100 °C ≥ 7,200 seconds ≤ 3,600 seconds 0 °C ≤ difference ≤ 2 °C ≥ 300 seconds ≤ 2 °C ***** ***** < -5		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					<p>unsuccessful attempts is incremented. This value equates to an average integrated fuel tank pressure > 1,245 Pa. Please see P0442: Volatility Time as a Function of Estimate of Ambient Temperature in Supporting Tables.</p> <p>OR</p> <p>2. Vacuum Refueling Detected</p> <p>See P0454 Fault Code for information on vacuum refueling algorithm.</p> <p>OR</p> <p>3. Fuel Level Refueling Detected</p> <p>See P0464 Fault Code for information on fuel level refueling.</p> <p>OR</p> <p>4. Vacuum Out of Range and No Refueling</p> <p>See P0451 Fault Code for information on vacuum sensor out of range and P0464 Fault Code for information on fuel level refueling.</p> <p>OR</p> <p>5. Vacuum Out of Range</p>			

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					and Refueling Detected See P0451 Fault Code for information on vacuum sensor out of range and P0464 Fault Code for information on fuel level refueling. OR 6. Vent Valve Override Failed Device control using an off-board tool to control the vent solenoid, cannot exceed during the EONV test OR 7. Key up during EONV test No active DTCs:	0.50 seconds MAF_SensorFA ECT_Sensor_FA IAT_SensorFA VehicleSpeedSensor_FA IgnitionOffTimeValid AmbientAirDefault P0443 P0446 P0449 P0452 P0453 P0455 P0496		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Oil Pressure (EOP) Sensor Performance - Single Stage Oil Pump	P0521	Determines if the Engine Oil Pressure (EOP) Sensor is stuck or biased in range	<p>Single Stage Oil Pump EOP Sensor Test with Engine Running</p> <p>If enabled:</p> <p><u>To fail a currently failing test:</u></p> <p>The filtered, weighted difference between measured EOP and predicted EOP (a function of engine speed and engine oil temp.):</p> <p><u>To pass a currently passing test:</u></p> <p>The filtered, weighted difference between measured EOP and predicted EOP (a function of engine speed and engine oil temp.):</p>	<p>< -50.0 kPa OR > 50.0 kPa</p> <p>> -47.0 kPa AND < 47.0 kPa</p>	<p>Two Stage Oil Pump is Present = FALSE</p> <p>Diagnostic Status</p> <p>Oil Pressure Sensor In Use</p> <p>Quality or weighting factor values less than "1" indicate that we don't have 4sigma/2sigma robustness in that region. The quality of the data is determined via statistical analysis of Variance data. Regions where diagnosis is possible have a quality or weighting factor value that is a function of engine speed, engine oil temperature, predicted oil pressure, and engine load stability.</p> <p>(RPM_Weighting_Factor * Oil_Temp_Weighting_Factor * Eng_Load_Stability_Weighting_Factor * Eng_Oil_Pred_Weighting_Factor) with a first order filter coefficient of 0.01</p> <p>(See Details on P0521 Supporting Tables Tab)</p> <p>RPM_Weighting_Factor RPM_Weighting_Factor</p>	<p>FALSE</p> <p>Enabled</p> <p>Yes</p> <p>>= 0.30 weighting</p>	Performed every 100 msec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					_X_Axis Oil_Temp_Weighting_Fa ctor Oil_Temp_Weighting_Fa ctor_Axis Eng_Load_Stability_Wei ghting_Factor Eng_Load_Stability_Wei ghting_Factor_Axis Eng_Oil_Pred_Weightin g_Factor Eng_Oil_Pred_Weightin g_Factor_Axis No active DTC's	Fault bundles: EngOilPressureSensorCkt FA CrankSensorFA ECT_Sensor_FA MAF_SensorFA IAT_SensorFA		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transfer Case Speed Sensor Output (TCSS)	P2160	No activity in the TCSS Signal circuit	TCSS Raw Speed	≤ 50 RPM	Engine Torque Throttle Position Transmission gear Garage Shift PTO EngineTorqureInaccurate	60.0 ≤ N-M ≤ 8,191.8 8 ≤ % ≤ 99 Not in Park or Neutral Not active Not active Not a hybrid vehicle FALSE	≥ 5.0 sec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Four Wheel Drive Low Switch Circuit	P2771	Fail Case 1: Continuous Open (Stuck Off) in the Four Wheel Drive Low Switch Circuit Fail Case 2: Ground (Stuck On) in the Four Wheel Drive Low Switch Circuit	4WD Low Switch Transfer case gear ratio 4WD Low Switch Transfer case gear ratio	= TRUE ≥ 2.400 and ≤ 2.800 = FALSE ≥ 0.900 and ≤ 1.100	Engine Torque Engine Speed Ignition voltage Throttle position Transmission Temperature Engine Run time Vehicle Speed TPS_FA VehicleSpeedSensor_FA EngineTorqureInaccurate Transmission gear P0502, P0503, P0722, P0723, P215C, P2160, P2161, U0101 Clutch Transmission Input Speed Signal	30.0 ≤ N-M ≤ 8,191.8 1,000 ≤ RPM ≤ 5,500 9.0 ≤ Volts ≤ 32.00 3.0 ≤ % ≤ 99.0 -40.0 ≤ °C ≤ 130.0 >= 10.0 Sec >= 5.00 Mph False False FALSE Not in Park, Reverse, or Neutral Not Fault Active Engaged (Manual transmission only) Valid (Automatic transmission only)	≥ 2.0 sec ≥ 7.0 sec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Transfer Case Control Module	U0102	This DTC monitors for a loss of communication with the transfer case control module	Message is not received from controller for	<p>Message \$1CB ≥ 12.0 seconds</p> <p>Message \$1CC ≥ 12.0 seconds</p>	<p>General Enable Criteria:</p> <p>U0073</p> <p>Normal CAN transmission on Bus A</p> <p>Device Control</p> <p>High Voltage Virtual Network Management</p> <p>Ignition Voltage Criteria:</p> <p>Run/Crank Ignition voltage</p> <p>Power Mode</p> <p>Off Cycle Enable Criteria:</p> <p>KeCAND_b_OffKeyCycle DiagEnbl</p> <p>Ignition Accessory Line and Battery Voltage</p> <p>General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds</p> <p>Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is</p>	<p>Not Active on Current Key Cycle</p> <p>Enabled</p> <p>Not Active</p> <p>Not Active</p> <p>> 6.41 Volts</p> <p>= run</p> <p>= 0 (1 indicates enabled)</p> <p>= Active</p> <p>> 11.00 Volts</p>	Diagnostic runs in 12.5 ms loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for U0102 TCCM	> 0.4000 seconds Not Active on Current Key Cycle is present on the bus		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Composition Sensor Circuit Low	P0178	<p>Detects Out of Range Low Frequency Signal</p> <p>The ethanol sensor is designed to measure ethanol concentrations from E0 (50Hz) to E100 (150Hz), with a specified accuracy of 5% ethanol (i.e. 5Hz). Therefore, values less than 45Hz or greater than 155Hz are considered as faults.</p>	Flex Fuel Sensor Output Frequency	< 45 Hertz	Powertrain Relay	> 11.0 Volts	50 failures out of 63 samples 100 ms loop Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Composition Sensor Circuit High	P0179	<p>Detects Out of Range High Frequency Signal</p> <p>The ethanol sensor is designed to measure ethanol concentrations from E0 (50Hz) to E100 (150Hz), with a specified accuracy of 5% ethanol (i.e. 5Hz). Therefore, values less than 45Hz or greater than 155Hz are considered as faults.</p>	Flex Fuel Sensor Output Frequency	> 155 Hertz <= 185	Powertrain Relay	> 11.0 Volts	50 failures out of 63 samples 100 ms loop Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pressure Sensor "B" Circuit Range/ Performance	P018B	This DTC detects a fuel pressure sensor response stuck within the normal operating range using an intrusive test (see Notes)	Absolute value of fuel pressure change (as sensed during intrusive test)	<= 30 kPa	a) Diagnostic KeFRPD_b_FPSS_DiagEnbld b) Engine Run Time c) Engine Fuel Flow d) Fu Pump Control Enabled e) Fu Pump Control State f) Emissions Fuel Level Low g) Validity status VeFRPD_b_FPSS_DataIntegrityOK IF [1] FRP Circuit Low Fault Active (DTC P018C) [2] FRP Circuit High Fault Active (DTC P018D) [3] Fu Pump Circuit Low Fault Active (DTC P0231) [4] Fu Pump Circuit High Fault Active (DTC P0232) [5] Fu Pump Circuit Open Fault Active (DTC P023F) [6] Reference Voltage Fault Status (DTC P0641) [7] Fu Pump Control Module Driver Over-temperature Fault Active (DTC P1255) [8] Fu Pump Driver Mod	a) == TRUE b) >= 5 sec c) > calibration value KeFRPD_dm_StkPresMin FuelFlow (0.047 gram/ sec typical) d) == TRUE e) Normal OR Fu Pres Snsr Stk Ctrl (rationality) f) <> TRUE g) == TRUE IF [1] <> TRUE [2] <> TRUE [3] <> TRUE [4] <> TRUE [5] <> TRUE [6] <> Active This Key [7] <> TRUE [8] <> TRUE	1 sample / 12.5 millisec Intrusive Test Duration: Fu Flow -related (5 to 12 sec)	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Ign Sw RunStart Pstn Ckt Low Fault Active (DTC P129D) [9] Fu Pump Driver Control Mod Enable Ckt Perf Fault Active(DTC P12A6)	[9] <> TRUE		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pressure Sensor "B" Circuit Low	P018C	This DTC detects if the fuel pressure sensor circuit is shorted low	Fuel Pressure Sensor Voltage Percent, 5.0V Nominal ((Abs(5.0V - SensorV_actual) /5.0V) *100)	< 4.00	Ignition circuit input state	High (Run or Crank)	64 failures / 80 samples 1 sample/12.5 ms	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pressure Sensor "B" Circuit High	P018D	This DTC detects if the fuel pressure sensor circuit is shorted high	Fuel Pressure Sensor Voltage Percent, 5.0V Nominal ((Abs(5.0V - SensorV_actual) /5.0V) *100)	> 96.00	Ignition circuit input state	High (Run or Crank)	64 failures / 80 samples 1 sample/12.5 millisec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Secondary Circuit Low	P0231	This DTC detects if the fuel pump control circuit is shorted to low	Power driver output current (Fuel Pump Power Module Driver Circuit Ground Short enumeration)	Current >= 18.0 A (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_ DvrGshtDiagEnbld c) Fuel Pump Control Enable command d) Fuel Pump Control Enable time e) System Voltage f] FPPM Driver Status Alive Rolling Count Sample Faulted g] Diagnostic feedback received h] Fuel Pump Power Module output current	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == TRUE d) >= calibration value KeFRPR_Cnt_FPPM_ GshtDlyThrsh (0-80 sample loops) e) 9v < System V > 32v f] <> TRUE g] == TRUE h] < 75A	64 failures / 80 samples 1 sample/12.5 millisec	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Secondary Circuit High	P0232	This DTC detects if the fuel pump control circuit is shorted to high voltage	Voltage offset relative to low state level of duty cycle pulse measured at fuel pump circuit	> 4.0 V	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_ DrvrPshtDiagEnbld c) Fuel Pump Control Enabled d) FPPM Arbitrated Fu Pmp Duty Cycle Rate of Change e) System voltage f) FPPM Driver Status Alive Rolling Count Sample Faulted g) Diagnostic feedback Received	a) == CeFRPR_e_ECM_ FPPM_Sys b) == TRUE c) == TRUE d] >= calibration value KeFRPR_cmp_FPPM_ PshtDC_ROC_Min e] 9v < System V > 32v f] <> TRUE g] == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Secondary Circuit Open	P023F	This DTC detects if the fuel pump control circuit is open	Output driver current (Fuel Pump Power Module Driver Circuit Open enumeration)	Current <= 1.0 A (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_ OpenCktDiagEnbld c) Arbitrated Fu Pmp Duty Cycle (%) d) Fuel Pump Control Enable Faulted e) FPPM Fu Pmp Driver Over-temperature Faulted f) FPPM Driver Status Alive Rolling Count Sample Faulted g) Diagnostic feedback received h) System Voltage	a) == CeFRPR_e_ECM_ FPPM_Sys b) == TRUE c) > calibration value KeFRPR_Pct_FPPM_ OpenCktDC_Thrsh (30% - 60%) d] <> TRUE e] <> TRUE f] <> TRUE g] == TRUE h] 9v < System V > 32v	40 test failures / 80 test samples; 1 sample/12.5ms	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Over Temperature	P1255	To detect if an internal fuel pump driver over- temperature condition exists under normal operating conditions	Fuel Pump Driver Circuit Board temperature (FP Driver Overtemperature enumeration)	T >= 160 degC (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_ OvertempDiagEnbld c] FPPM Driver Status Alive Rolling Count Sample Faulted d] Diagnostic feedback received e] System Voltage	a) == CeFRPR_e_ECM _FPPM_Sys b) == TRUE c] <> TRUE d] == TRUE e] 9V < System V < 32V	3 failures / 15 samples 1 sample / 12.5 millisec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Module- System Voltage Low	P129B	To detect if the system voltage is below a certain threshold	Battery Voltage	< 7.00	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_BatVo ltLoDiagEnbl c) Engine status d) FPPM Power Consumption Alive Rolling Count result e) Diagnostic feedback received f) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Running d) == VALID e) == TRUE f) 9v < System V > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Module- System Voltage High	P129C	To detect if the system voltage is above a certain threshold	Battery Voltage	> 18.00	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_RunC rnkRatlEnbld c) FPPM Control Status Alive Rolling Count result d) Diagnostic feedback received e) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == VALID d) == TRUE e) 9v < System V > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	Type C, No MIL

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Module- Ignition Switch Run/ Start Position Circuit Low	P129D	To detect if the Run/ Start position circuit voltage is short to low / open	FPPM Run_Crank Active status	<> ECM Run_Crank Active status	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_RunC rnkRatlEnbld c) FPPM Control Status Alive Rolling Count result d) Diagnostic feedback received e) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) >= 0.0 v	64 failures / 80 samples 1 sample / 12.5 millisec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Control Module Signal Message Counter Incorrect	P129E	To detect if the command message received as serial data from the engine control module is valid	FPPM Received Duty Cycle Rolling Count	<> Transmitted Duty Cycle Rolling Count (ECM) (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Received Duty Cycle Count result d) FPPM Diagnostic feedback received e) CAN communication f) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) == Valid f) 9v < Sys Voltage > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	Type B, 2 Trips
			FPPM Received Duty Cycle Protection Value	<> Transmitted Duty Cycle Protection Value (ECM) (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Received Duty Cycle Protection Value result d) FPPM Diagnostic feedback received e) CAN communication f) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) == Valid f) 9v < Sys Voltage > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Control Module Enable Circuit Performance	P12A6	To detect a driver control circuit signal stuck in normal operating range	FPPM Fuel Control Enable Active boolean	<> Fuel Control Enable variable (ECM)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Diagnostic KeFRPR_b_FPPM_FuelC ntrlEnblEnbld c) FPPM Control Data Rolling Count result d) Diagnostic feedback received e) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Valid d) == TRUE e) >= 9.0 v	40 failures / 80 samples 1 sample / 12.5 millisec	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Control Status Signal Message Counter Incorrect	P12A8	To detect if the control status message transmitted as serial data from the driver control module is valid	FPPM Control Status Alive Rolling Count	<> ECM Control Status Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	Type B, 2 Trips
			FPPM Power Consumption Alive Rolling Count	<> ECM Power Consumption Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	
			FPPM Driver Status Alive Rolling Count	<> ECM Driver Status Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	
			FPPM Hardware Status Alive Rolling Count	<> ECM Hardware Status Alive Rolling Count (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate test state)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) FPPM Diagnostic feedback received	a) == CeFRPR_e_ECM_FPPM_Sys b) == TRUE c) == TRUE	64 failures / 80 samples 1 sample / 12.5 millisec	

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Conductivity Out Of Range (water in fuel)	P2269	Detects the presence of High Conductivity Fuel (e.g. water in fuel) via a specific range of sensor frequency. High conductivity in the fuel causes a significant upward shift in the sensor's output frequency.	Flex Fuel Sensor Output Frequency	> 185 Hertz	Powertrain Relay	> 11.0 Volts	50 failures out of 63 samples 100 ms loop Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on Bus "B" Off	U0074	To detect that a fault has caused the CAN serial data expansion bus to the Off state	Bus Status	Off	Ignition circuit input state	High (Run or Crank)	5 failures / 5 samples 1 sample / 12.5 millisec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Fuel Pump Driver Control Module	U18A2	This DTC monitors for a loss of communication with the Fuel Pump Driver Control Module on Bus B	Message is not received from controller for Message \$0D5 Message \$0D7	 ≥ 10.0 seconds ≥ 10.0 seconds	General Enable Criteria: U0074 Normal CAN transmission on Bus B Device Control High Voltage Virtual Network Management Ignition Voltage Criteria: Ignition voltage Power Mode Off Cycle Enable Criteria: KeCAND_b_OffKeyCycle DiagEnbl Ignition Accessory Line and Battery Voltage General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 3.0000 seconds Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is not active for	 Not Active on Current Key Cycle Enabled Not Active Not Active ≥= 11.00 or ≥= 6.41 = run = 0 (1 indicates enabled) =Active > 11.00 > 0.4000 seconds	Diagnostic runs in 12.5 ms loop	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					U18A2 Fuel Pump Driver Control Module	Not Active on Current Key Cycle is present on the bus		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Fuel Pump Driver Control Module Lost Communication with ECM/PCM	U2616	To detect lost serial data communication from the power driver controller to the ECM	Timer - Fuel System Control message CAN \$0D9 not received (FPPM Received Serial Data Communication Status)	t > 10 s (Fu Pmp Pwr Mod smart device reports Faulted, Not Faulted or Indeterminate)	a) FPPM configuration KeFRPR_e_ChassisFuel PresSysType b) Fault state determination enabled c) Run_Crank status d) FPPM Control Status Alive Rolling Count result e) FPPM Diagnostic feedback received f) System Voltage	a) == CeFRPR_e_ECM_FPPM _Sys b) == TRUE c) == Active d) == Valid e) == TRUE f) 9v < Sys Voltage > 32v	64 failures / 80 samples 1 sample / 12.5 millisec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Output Speed Sensor (TOSS)	P0502	No activity in the TOSS circuit	TOSS Raw Speed	≤ 60 RPM	Engine Torque Minimum Throttle opening Engine Speed Ignition voltage PTO EngineTorquereInaccurate	54.0 ≤ N-M ≤ 8,191.8 ≥ 8.0% 1,500 ≤ RPM ≤ 6,500 9.0 ≤ Volts ≤ 32.00 not active KeETQC_b_MinTransRemedial = TRUE: MSFR_b_EngMisfDtctd_FA, MAFR_b_MAF_SnsrTFTKO, MAPR_b_MAP_SnsrTFTKO KeETQC_b_MinTransRemedial = FALSE: FULR_b_FuellnjCkt_TFTKO, MAFR_b_MAF_SnsrTFTKO, XOYR_b_SecurityFit,	≥ 4.5 sec	Type B, 2 Trips
					P0503	Not failed this key cycle		

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Output Speed Sensor (TOSS)	P0503	TOSS Signal Intermittent	Loop-to-Loop change in TOSS	≥ 350 RPM	Raw Output Speed Output Speed change Time since transfer case range change Ignition voltage Engine Speed Vehicle Speed PTO	> 300 RPM for ≥ 2.0 sec ≤ 150 RPM for ≥ 2.0 sec ≥ 6.0 sec 9.0 ≤ Volts ≤ 32.00 200 ≤ RPM ≤ 7,500 for ≥ 5.0 seconds ≤ 511.99 MPH for ≥ 5.0 sec not active	≥ 3.3 sec	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Clutch Pedal Position Sensor Circuit Range / Performance	P0806	Detects if Clutch Pedal Position Sensor is Stuck in a range indicative of a vehicle NOT in gear, when the vehicle is determined to be in gear. Gear determination is made by verifying that the ratio of engine RPM versus Transmission Output Speed (N/TOS) represents a valid gear.	Filtered Clutch Pedal Position Error when the vehicle is determined to be in gear	> 5 %	N/TOS Ratio: Transfer Case: Vehicle speed: Engine Torque: Clutch Pedal Position: OR No Active DTCs:	Must match actual gear (i.e. vehicle in gear) Not in 4WD Low range > 3.4 MPH > EngTorqueThreshold (see Supporting Tables) < ResidualErrEnableLow (see Supporting Tables) > ResidualErrEnableHigh (see Supporting Tables) ClutchPstnSnsrCktHi FA ClutchPstnSnsrCktLo FA CrankSensor_FA Transmission Output Shaft Angular Velocity Validity VehicleSpeedSensor_FA	25 ms loop Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Clutch Pedal Position Sensor Circuit Low	P0807	Detects Continuous Circuit Out-of-Range Low or Open	Clutch Position Sensor Circuit for	< 4 % of Vref 200 counts out of 250 samples	Engine Not Cranking System Voltage No active DTCs:	> 11.0 Volts	25 ms loop Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Clutch Pedal Position Sensor Circuit High	P0808	Detects Continuous Circuit Out-of-Range High	Clutch Position Sensor Circuit for	> 96 % of Vref 200 counts out of 250 samples	Engine Not Cranking System Voltage No active DTCs:	> 11.0 Volts	25 ms loop Continuous	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Unique DTCs)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Clutch Pedal Position Not Learned	P080A	Detects Invalid Clutch Pedal Fully Applied Learn Position values	Fully Applied Learn Position OR	< 9.0 % > 36.0 %	OBD Manufacturer's Enable Counter	= 0	250 ms loop Continuous	Type C, SVS one trip

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Mode Switch Signal Circuit Include for programs that are NOT hybrid start stop conventional	P1762	Vehicles that are not hybrid start stop conventional applications, this diagnoses the transmission mode switch signal circuit (BCM to ECM Rolling Count check)	Rolling count value received from BCM does not match expected value	= TRUE	Engine Speed Engine Speed Engine speed between min/max for Vehicle Speed for	≥ 200 RPM ≤ 7,500 RPM ≥ 5.0 seconds ≤ 318.14 MPH ≥ 5.0 seconds	> 3 error counts for > 10.0 seconds 100 ms / sample	Type C, No MIL

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transfer Case Control Module Transfer Case Command State Rationality - 4wd high command not 4wd high ratio	P279A	Monitor measures transfer case gear ratio is 4wd low ratio or neutral ratio while the transfer case control module command state is 4wd high.	measured transfer case ratio is 4wd high ratio AND measured transfer case ratio calculation updated (measured transfer case ratio = transmission output speed / transfer case output speed)	= FALSE = TRUE	transfer case control module transfer case command state weighted fail count measured transfer case ratio is 4wd high ratio set to TRUE AND measured transfer case ratio calculation updated set to TRUE transfer case output speed sensor configuration = CeFWDD_e_UseTCSS	= 4wd high = P279A P279B P279C Transfer Case Control Module Transfer Case Command State Rationality (weighting factor) (see supporting table) measured transfer case ratio >= P279A Transfer Case Control Module Transfer Case Command State Rationality (margin of error low) (see supporting table) AND measured transfer case ratio <= P279A Transfer Case Control Module Transfer Case Command State Rationality (margin of error high) (see supporting table) transfer case output speed sensor configuration = CeFWDD_e_UseTCSS = FALSE	weighted fail count >= 5 out of sample count >= 280 (12.5 milliseconds per count)	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0502 fault active AND P0503 fault active AND P0722 fault active AND P0723 fault active AND P2160 fault active AND P2616 fault active vehicle drive wheel type configuration NOT CeFWDG_e_No_AWD_O r_FWD AND NOT CeFWDG_e_Versatrak_A WD AND NOT CeFWDG_e_FWD_AWD_ SingleSpd	= FALSE = FALSE = FALSE = FALSE = FALSE = FALSE vehicle drive wheel type configuration = CeFWDR_e_FWD_ECM _TCM_TCCM		

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transfer Case Control Module Transfer Case Command State Rationality - 4wd low command not 4wd low ratio	P279B	Monitor measures transfer case gear ratio is 4wd high ratio or neutral ratio while the transfer case control module command state is 4wd low.	measured transfer case ratio is 4wd low ratio AND measured transfer case ratio calculation updated (measured transfer case ratio = transmission output speed / transfer case output speed)	= FALSE = TRUE	transfer case control module transfer case command state weighted fail count measured transfer case ratio is 4wd low ratio set to TRUE AND measured transfer case ratio calculation updated set to TRUE transfer case output speed sensor configuration = CeFWDD_e_UseTCSS	= 4wd low = P279A P279B P279C Transfer Case Control Module Transfer Case Command State Rationality (weighting factor) (see supporting table) measured transfer case ratio >= P279A Transfer Case Control Module Transfer Case Command State Rationality (margin of error low) (see supporting table) AND measured transfer case ratio <= P279A Transfer Case Control Module Transfer Case Command State Rationality (margin of error high) (see supporting table) transfer case output speed sensor configuration = CeFWDD_e_UseTCSS = FALSE	weighted fail count >= 5 out of sample count >= 280 (12.5 milliseconds per count)	Type B, 2 Trips

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0502 fault active AND P0503 fault active AND P0722 fault active AND P0723 fault active AND P2160 fault active AND P2616 fault active vehicle drive wheel type configuration NOT CeFWDG_e_No_AWD_O r_FWD AND NOT CeFWDG_e_Versatrak_A WD AND NOT CeFWDG_e_FWD_AWD_ SingleSpd	= FALSE = FALSE = FALSE = FALSE = FALSE = FALSE vehicle drive wheel type configuration = CeFWDR_e_FWD_ECM _TCM_TCCM		

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transfer Case Control Module Transfer Case Command State Rationality - 4wd neutral command not 4wd neutral ratio	P279C	Monitor measures transfer case gear ratio is 4wd high ratio or 4wd low ratio while the transfer case control module command state is 4wd neutral.	measured transfer case ratio is 4wd neutral ratio AND measured transfer case ratio calculation updated (measured transfer case ratio = transmission output speed / transfer case output speed)	= FALSE = TRUE	transfer case control module transfer case command state weighted fail count measured transfer case ratio is 4wd neutral ratio set to TRUE AND measured transfer case ratio calculation updated set to TRUE when ratio check 1 AND ratio check 2	= 4wd neutral = P279A P279B P279C Transfer Case Control Module Transfer Case Command State Rationality (weighting factor) (see supporting table) ratio check 1: measured transfer case ratio >= P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error high 1) (see supporting table) OR measured transfer case ratio <= P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error low 1) ratio check 2 measured transfer case ratio >=	weighted fail count >= 5 out of sample count >= 280 (12.5 milliseconds per count)	Type A, 1 Trips

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					transfer case output speed sensor configuration = CeFWDD_e_UseTCSS P0502 fault active AND P0503 fault active AND P0722 fault active AND P0723 fault active AND P2160 fault active AND P2616 fault active vehicle drive wheel type configuration NOT CeFWDG_e_No_AWD_O r_FWD AND NOT CeFWDG_e_Versatrak_A WD AND NOT CeFWDG_e_FWD_AWD_ SingleSpd	P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error high 2) (see supporting table) OR measured transfer case ratio <= P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error low 2) transfer case output speed sensor configuration = CeFWDD_e_UseTCSS = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE vehicle drive wheel type configuration = CeFWDR_e_FWD_ECM _TCM_TCCM		

15 OBDG06 ECM Summary Tables (Additional Parameters)

Component/ System	Fault Code	Monitor Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					neutral rationality enabled	= 1		

Closed Loop Enable Clarification: Calibration values are in the Supporting Tables

Engine run time greater than

KtFSTA_t_ClosedLoopAutostart (HYBRID ONLY)

AutoStart Coolant	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
Close Loop Enable Time	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11

and

KtFSTA_t_ClosedLoopTime

Start-Up Coolant	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
Close Loop Enable Time	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11

and pre converter O2 sensor voltage less than

KfFULC_U_O2_SensorReadyThresh

Lo

Voltage < XXXXmilliVolts

for

KcFULC_O2_SensorReadyEvents

Time (events * 12.5 milliseconds) > XXXXevents

and

COSC (Converter Oxygen Storage Control) not enabled

and

Consumed AirFuel Ratio is stoichiometry i.e. not in component protection

and

POPD or Catalyst Diagnostic not intrusive

and

Turbo Scavenging Mode not enabled

and

All cylinders whose valves are active also have their injectors enabled

and

O2S_Bank_1_TFTKO, O2S_Bank_2_TFTKO, FuelInjectorCircuit_FA and CylinderDeacDriverTFTKO = False

Long Term FT Enable Criteria

Closed Loop Enable Clarification: Calibration values are in the Supporting Tables

**Closed Loop Enable and
Coolant greater than
KfFCLL_T_AdaptiveLoCoolant**

Coolant > XXXXCelcius

**or less than
KfFCLL_T_AdaptiveHiCoolant**

Coolant < XXXXCelcius

**and
KtFCLL_p_AdaptiveLowMAP_Limit**

Barometric Pressure	X1	X2	X3	X4	X5	X6	X7	X8	X9
Manifold Air Pressure	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9

**and
TPS_ThrottleAuthorityDefaulted =
False**

**and
Flex Fuel Estimate Algorithm is not active**

**and
Excessive fuel vapors boiling off from the engine oil algorithm (BOFR) is not
enabled**

**and
Catalyst or EVAP large leak test not
intrusive**

**Secondary Fuel Trim Enable
Criteria**

**Closed Loop Enable and
KfFCLP_U_O2ReadyThrshLo**

Voltage < XXXXmilliVolts

**for
KcFCLP_Cnt_O2RdyCyclesThrsh**

Time (events * 12.5 milliseconds) > XXXXevents

**Long Term Secondary Fuel Trim
Enable Criteria**

KtFCLP_t_PostIntglDisableTime

Closed Loop Enable Clarification: Calibration values are in the Supporting Tables

Start-Up Coolant	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
Post Integral Enable Time	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11

Plus

KtFCLP_t_PostIntglRampInTime

Start-Up Coolant	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
Post Integral Ramp In Time	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11

and

KeFCLP_T_IntegrationCatalystMax

Modeled Catalyst Temperature < XXXXCelcius

and

KeFCLP_T_IntegrationCatalystMin

Modeled Catalyst Temperature > XXXXCelcius

and

PO2S_Bank_1_Snsr_2_FA and

PO2S_Bank_2_Snsr_2_FA = False

and

(KeFCLP_Pct_CatAccuSlphrPostDsbl

Modeled converter sulfur percent < XXXX Percent

and

Post Integral < KaFCLP_U_SlphrintglOfst_Thrsh)

X axis: Post O2 Sensor

Y axis: Post O2 Mode

Z: Post Integral threshold

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Multiple DTC Use_Green Sensor Delay Criteria - Airflow

Description: This Calibration is the airflow (in gps) above which the green airflow is acculmulated to expire the condition.

Notes: Used for: P0133, P013A, P013B, P013C, P013D, P013E, P013F, P014A, P014B, P0153, P015A, P015B, P015C, P015D, P1133, P1153, P2270, P2271, P2272 and P2273. The specific diagnostic (from summary table) will not be enabled until the next ignition cycle after the airflow criteria below (by sensor location) has been met:

y/x	1
1	22

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Multiple DTC Use_Green Sensor Delay Criteria - Limit

Description: This Calibration is the accumulated airflow (in grams) limit above which the green condition is expired

Notes: Used for: P0133, P013A, P013B, P013C, P013D, P013E, P013F, P014A, P014B, P0153, P015A, P015B, P015C, P015D, P1133, P1153, P2270, P2271, P2272 and P2273. Note: This feature is only enabled when the vehicle is new and cannot be enabled in service

y/x	CiOXYR_O2_Bank1_Sensor1	CiOXYR_O2_Bank1_Sensor2	CiOXYR_O2_Bank2_Sensor1	CiOXYR_O2_Bank2_Sensor2
1	120,000	120,000	120,000	120,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0016_P0017_P0018_P0019 Cam Correlation Oil Temperature Threshold

Description: P0016_P0017_P0018_P0019 Cam Correlation Oil Temperature Threshold

Notes: KtEPSI_t_RtnHomeDlyLmt

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	300.0	300.0	7.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P012B_P0236_P1101 MAP1 Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P0236_P1101 MAP1 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.834	0.894	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P012B_P0236_P1101 MAP2 Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P0236_P1101 MAP2 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
1	1.000	1.000	0.946	0.896	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P012B_P0236_P1101 TPS Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P0236_P1101 TPS Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P0236_P1101 TIAP Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P0236_P1101 TIAP Residual Weight Factor based on RPM

Notes:

y/x	0	400	800	1,200	1,600	2,000	2,400	2,800	3,200	3,600	4,000	4,400	4,800	5,200	5,600	6,000	6,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Max Air Flow

Description: P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Max Air Flow

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	2.6	3.3	4.5	5.4	7.0	8.8	11.0	12.4	12.4

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Max MAP

Description: P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Max MAP

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	34.1	27.3	26.1	25.4	25.7	24.1	29.5	29.4	29.4

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Offset

Description: P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Offset

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Min Air Flow

Description: P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Min Air Flow

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	15.0	27.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Min MAP

Description: P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Min MAP

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	124.0	126.0	127.0	128.0	129.0	128.0	127.0	127.0	127.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Offset

Description: P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Offset

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0133_KnEOSD_t_ST_LRC_LimRS1

Description: KnEOSD_t_ST_LRC_LimRS1. X Table Axis (in sec) for P0133, L2R Reponse time breakpoints for table

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0.000	0.010	0.021	0.032	0.043	0.054	0.065	0.076	0.088	0.099	0.110	0.121	0.132	0.143	0.154	0.165	2.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0133_KnEOSD_t_ST_RLC_LimRS1

Description: KnEOSD_t_ST_RLC_LimRS1. Y Table Axis (in sec) for P0133, R2L Reponse time breakpoints for table

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0.000	0.010	0.021	0.033	0.044	0.056	0.067	0.079	0.090	0.101	0.113	0.124	0.136	0.147	0.159	0.170	2.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0133_O2S Slow Response Bank 1 Sensor 1 "Pass/Fail Threshold table"

Description: KaEOSD_x_ST_ResponseLimRS1[x][y]

Notes: X axis is Lean to Rich response time (in sec), Please see the table below named "KnEOSD_t_ST_LRC_LimRS1" for the 17 X axis table breakpoints. Y axis is Rich to Lean response time (sec), Please see the cal table below named "KnEOSD_t_ST_RLC_LimRS1" for the 17 Y axis table breakpoints. Z axis is the pass/fail result, Note: If the cell contains a "0" then the fault is indicated, if it contains a "1" a fault is not indicated.

y/x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0153_KnEOSD_t_ST_LRC_LimRS2

Description: KnEOSD_t_ST_LRC_LimRS2. X Table Axis (in sec) for P0153, L2R Reponse time breakpoints for table

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0.000	0.010	0.021	0.032	0.043	0.054	0.065	0.076	0.088	0.099	0.110	0.121	0.132	0.143	0.154	0.165	2.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0153_KnEOSD_t_ST_RLC_LimRS2

Description: KnEOSD_t_ST_RLC_LimRS2. Y Table Axis (in sec) for P0153, R2L Reponse time breakpoints for table

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0.000	0.010	0.021	0.033	0.044	0.056	0.067	0.079	0.090	0.101	0.113	0.124	0.136	0.147	0.159	0.170	2.000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0153_O2S Slow Response Bank 2 Sensor 1 "Pass/Fail Threshold table"

Description: KaEOSD_x_ST_ResponseLimRS2[x][y]

Notes: X axis is Lean to Rich response time (in sec), Please see the table below named "KnEOSD_t_ST_LRC_LimRS2" for the 17 X axis table breakpoints. Y axis is Rich to Lean response time (sec), Please see the cal table below named "KnEOSD_t_ST_RLC_LimRS2" for the 17 Y axis table breakpoints. Z axis is the pass/fail result, Note: If the cell contains a "0" then the fault is indicated, if it contains a "1" a fault is not indicated.

y/x	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1133_O2S HC L to R Switches Limit Bank 1 Sensor 1 "Pass/Fail Threshold table"

Description: KtEOSD_d_HC_LRSLimRS1

Notes: X axis is estimated Ethanol percentage, Please see the table below named "KnE85G_Pct_FFS_CompAtEngAxis" for the 5 X axis table breakpoints. Y axis is Average airflow during the response test (gps). Z axis is the limit for L2R Half Cycle switches, Note: The cell contains the mininum switches, below which the fault is indicated.

y/x	0	10	20	50	80
0.0	22	22	22	22	22
6.3	22	22	22	22	22
12.5	22	22	22	22	22
18.8	22	22	22	22	22
25.0	23	23	23	23	23
31.3	24	24	24	24	24
37.5	24	24	24	24	24
43.8	25	25	25	25	25
50.0	25	25	25	25	25
56.3	25	25	25	25	25
62.5	25	25	25	25	25
68.8	25	25	25	25	25
75.0	25	25	25	25	25
81.3	25	25	25	25	25
87.5	25	25	25	25	25
93.8	25	25	25	25	25
100.0	25	25	25	25	25

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1133_O2S HC R to L Switches Limit Bank 1 Sensor 1 "Pass/Fail Threshold table"

Description: KtEOSD_d_HC_RLSLimRS1

Notes: X axis is estimated Ethanol percentage, Please see the table below named "KnE85G_Pct_FFS_CompAtEngAxis" for the 5 X axis table breakpoints. Y axis is Average airflow during the response test (gps). Z axis is the limit for R2L Half Cycle switches, Note: The cell contains the mininum switches, below which the fault is indicated.

y/x	0	10	20	50	80
0.0	22	22	22	22	22
6.3	22	22	22	22	22
12.5	22	22	22	22	22
18.8	22	22	22	22	22
25.0	23	23	23	23	23
31.3	24	24	24	24	24
37.5	24	24	24	24	24
43.8	25	25	25	25	25
50.0	25	25	25	25	25
56.3	25	25	25	25	25
62.5	25	25	25	25	25
68.8	25	25	25	25	25
75.0	25	25	25	25	25
81.3	25	25	25	25	25
87.5	25	25	25	25	25
93.8	25	25	25	25	25
100.0	25	25	25	25	25

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1133_P1153_KnE85G_Pct_FFS_CompAtEngAxis

Description: KnE85G_Pct_FFS_CompAtEngAxis. X Table Axis for P1133, P1153 (both L2R and R2L tables)

Notes: Ethanol percentage breakpoints

y/x	1	2	3	4	5
1	0	10	20	50	80

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1153_O2S HC L to R Switches Limit Bank 2 Sensor 1 "Pass/Fail Threshold table"

Description: KtEOSD_d_HC_LRSLimRS2

Notes: X axis is estimated Ethanol percentage, Please see the table below named "KnE85G_Pct_FFS_CompAtEngAxis" for the 5 X axis table breakpoints. Y axis is Average airflow during the response test (gps). Z axis is the limit for L2R Half Cycle switches, Note: The cell contains the mininum switches, below which the fault is indicated.

y/x	0	10	20	50	80
0.0	22	22	22	22	22
6.3	22	22	22	22	22
12.5	22	22	22	22	22
18.8	22	22	22	22	22
25.0	23	23	23	23	23
31.3	24	24	24	24	24
37.5	24	24	24	24	24
43.8	25	25	25	25	25
50.0	25	25	25	25	25
56.3	25	25	25	25	25
62.5	25	25	25	25	25
68.8	25	25	25	25	25
75.0	25	25	25	25	25
81.3	25	25	25	25	25
87.5	25	25	25	25	25
93.8	25	25	25	25	25
100.0	25	25	25	25	25

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1153_O2S HC R to L Switches Limit Bank 2 Sensor 1 "Pass/Fail Threshold table"

Description: KtEOSD_d_HC_RLSLimRS2

Notes: X axis is estimated Ethanol percentage, Please see the table below named "KnE85G_Pct_FFS_CompAtEngAxis" for the 5 X axis table breakpoints. Y axis is Average airflow during the response test (gps). Z axis is the limit for R2L Half Cycle switches, Note: The cell contains the mininum switches, below which the fault is indicated.

y/x	0	10	20	50	80
0.0	22	22	22	22	22
6.3	22	22	22	22	22
12.5	22	22	22	22	22
18.8	22	22	22	22	22
25.0	23	23	23	23	23
31.3	24	24	24	24	24
37.5	24	24	24	24	24
43.8	25	25	25	25	25
50.0	25	25	25	25	25
56.3	25	25	25	25	25
62.5	25	25	25	25	25
68.8	25	25	25	25	25
75.0	25	25	25	25	25
81.3	25	25	25	25	25
87.5	25	25	25	25	25
93.8	25	25	25	25	25
100.0	25	25	25	25	25

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0071: OAT Performance Drive Equilibrium Engine Off

Description: OAT Performance Diagnostic counter increment for determining OAT-IAT equilibrium for engine off (for hybrid applications)

Notes:

y/x	0.0	5.0	10.0	15.0	20.0	25.0	30.0	50.0	80.0
1.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0071: OAT Performance Drive Equilibrium Engine Running

Description: OAT Performance Diagnostic counter increment for determining OAT-IAT equilibrium for engine running

Notes:

y/x	0.0	5.0	10.0	15.0	20.0	25.0	30.0	50.0	80.0
1.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
5.0	-5.0	-2.0	-1.0	0.0	1.0	2.0	3.0	4.0	5.0
10.0	-4.0	-1.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0
20.0	-2.0	-1.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0
30.0	-1.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0
40.0	0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0
50.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0
60.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
70.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

Description: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

Notes: This table describes combinations of individual model failures that will set P0101, P0106, P010B, P0121, P0236 and P1101 on turbocharged applications.

y/x	1	2	3	4	5	6	7	8	9
1	MAF Model	MAP1 Model	MAP2 Model	MAP3 Model	TIAP1 Model	TPS Model	TIAP Correlation	TIAP Correlation	DTC Set
2	Failed	Failed	Failed	Failed	Failed	Failed	Failed	Valid	
3	F	F	F	F	F	F	F	F	No DTC
4	F	F	F	F	F	F	F	T	No DTC
5	F	F	F	F	F	F	T	F	No DTC
6	F	F	F	F	F	F	T	T	No DTC
7	F	F	F	F	F	T	F	F	No DTC
8	F	F	F	F	F	T	F	T	No DTC
9	F	F	F	F	F	T	T	F	No DTC
10	F	F	F	F	F	T	T	T	No DTC
11	F	F	F	F	T	F	F	F	No DTC
12	F	F	F	F	T	F	F	T	No DTC
13	F	F	F	F	T	F	T	F	No DTC
14	F	F	F	F	T	F	T	T	No DTC
15	F	F	F	F	T	T	F	F	P1101
16	F	F	F	F	T	T	F	T	P0121
17	F	F	F	F	T	T	T	F	P1101
18	F	F	F	F	T	T	T	T	P0236
19	F	F	F	T	F	F	F	F	P1101
20	F	F	F	T	F	F	F	T	P1101
21	F	F	F	T	F	F	T	F	P1101
22	F	F	F	T	F	F	T	T	P1101
23	F	F	F	T	F	T	F	F	P1101
24	F	F	F	T	F	T	F	T	P1101
25	F	F	F	T	F	T	T	F	P1101
26	F	F	F	T	F	T	T	T	P1101
27	F	F	F	T	T	F	F	F	P1101
28	F	F	F	T	T	F	F	T	P1101
29	F	F	F	T	T	F	T	F	P1101
30	F	F	F	T	T	F	T	T	P1101
31	F	F	F	T	T	T	F	F	P1101
32	F	F	F	T	T	T	F	T	P1101
33	F	F	F	T	T	T	T	F	P1101
34	F	F	F	T	T	T	T	T	P1101

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

35	F	F	T	F	F	F	F	F	P1101
36	F	F	T	F	F	F	F	T	P1101
37	F	F	T	F	F	F	T	F	P1101
38	F	F	T	F	F	F	T	T	P1101
39	F	F	T	F	F	T	F	F	P1101
40	F	F	T	F	F	T	F	T	P1101
41	F	F	T	F	F	T	T	F	P1101
42	F	F	T	F	F	T	T	T	P1101
43	F	F	T	F	T	F	F	F	P1101
44	F	F	T	F	T	F	F	T	P1101
45	F	F	T	F	T	F	T	F	P1101
46	F	F	T	F	T	F	T	T	P1101
47	F	F	T	F	T	T	F	F	P1101
48	F	F	T	F	T	T	F	T	P1101
49	F	F	T	F	T	T	T	F	P1101
50	F	F	T	F	T	T	T	T	P1101
51	F	F	T	T	F	F	F	F	P1101
52	F	F	T	T	F	F	F	T	P1101
53	F	F	T	T	F	F	T	F	P1101
54	F	F	T	T	F	F	T	T	P1101
55	F	F	T	T	F	T	F	F	P1101
56	F	F	T	T	F	T	F	T	P1101
57	F	F	T	T	F	T	T	F	P1101
58	F	F	T	T	F	T	T	T	P1101
59	F	F	T	T	T	F	F	F	No DTC
60	F	F	T	T	T	F	F	T	No DTC
61	F	F	T	T	T	F	T	F	No DTC
62	F	F	T	T	T	F	T	T	No DTC
63	F	F	T	T	T	T	F	F	P1101
64	F	F	T	T	T	T	F	T	P1101
65	F	F	T	T	T	T	T	F	P1101
66	F	F	T	T	T	T	T	T	P1101
67	F	T	F	F	F	F	F	F	P1101
68	F	T	F	F	F	F	F	T	P1101
69	F	T	F	F	F	F	T	F	P1101
70	F	T	F	F	F	F	T	T	P0236
71	F	T	F	F	F	T	F	F	P1101
72	F	T	F	F	F	T	F	T	P0121

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

73	F	T	F	F	F	T	T	F	P1101
74	F	T	F	F	F	T	T	T	P0236
75	F	T	F	F	T	F	F	F	P1101
76	F	T	F	F	T	F	F	T	P1101
77	F	T	F	F	T	F	T	F	P1101
78	F	T	F	F	T	F	T	T	P0236
79	F	T	F	F	T	T	F	F	P1101
80	F	T	F	F	T	T	F	T	P0121
81	F	T	F	F	T	T	T	F	P1101
82	F	T	F	F	T	T	T	T	P0236
83	F	T	F	T	F	F	F	F	P1101
84	F	T	F	T	F	F	F	T	P1101
85	F	T	F	T	F	F	T	F	P1101
86	F	T	F	T	F	F	T	T	P1101
87	F	T	F	T	F	T	F	F	P1101
88	F	T	F	T	F	T	F	T	P1101
89	F	T	F	T	F	T	T	F	P1101
90	F	T	F	T	F	T	T	T	P1101
91	F	T	F	T	T	F	F	F	P1101
92	F	T	F	T	T	F	F	T	P1101
93	F	T	F	T	T	F	T	F	P1101
94	F	T	F	T	T	F	T	T	P1101
95	F	T	F	T	T	T	F	F	P1101
96	F	T	F	T	T	T	F	T	P1101
97	F	T	F	T	T	T	T	F	P1101
98	F	T	F	T	T	T	T	T	P1101
99	F	T	T	F	F	F	F	F	P1101
100	F	T	T	F	F	F	F	T	P1101
101	F	T	T	F	F	F	T	F	P1101
102	F	T	T	F	F	F	T	T	P1101
103	F	T	T	F	F	T	F	F	P1101
104	F	T	T	F	F	T	F	T	P1101
105	F	T	T	F	F	T	T	F	P1101
106	F	T	T	F	F	T	T	T	P1101
107	F	T	T	F	T	F	F	F	P1101
108	F	T	T	F	T	F	F	T	P1101
109	F	T	T	F	T	F	T	F	P1101
110	F	T	T	F	T	F	T	T	P1101

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

111	F	T	T	F	T	T	F	F	P1101
112	F	T	T	F	T	T	F	T	P1101
113	F	T	T	F	T	T	T	F	P1101
114	F	T	T	F	T	T	T	T	P1101
115	F	T	T	T	F	F	F	F	P0106
116	F	T	T	T	F	F	F	T	P0106
117	F	T	T	T	F	F	T	F	P0106
118	F	T	T	T	F	F	T	T	P0106
119	F	T	T	T	F	T	F	F	P1101
120	F	T	T	T	F	T	F	T	P1101
121	F	T	T	T	F	T	T	F	P1101
122	F	T	T	T	F	T	T	T	P1101
123	F	T	T	T	T	F	F	F	P1101
124	F	T	T	T	T	F	F	T	P1101
125	F	T	T	T	T	F	T	F	P1101
126	F	T	T	T	T	F	T	T	P1101
127	F	T	T	T	T	T	F	F	P1101
128	F	T	T	T	T	T	F	T	P1101
129	F	T	T	T	T	T	T	F	P1101
130	F	T	T	T	T	T	T	T	P1101
131	T	F	F	F	F	F	F	F	P1101
132	T	F	F	F	F	F	F	T	P1101
133	T	F	F	F	F	F	T	F	P1101
134	T	F	F	F	F	F	T	T	P0236
135	T	F	F	F	F	T	F	F	P1101
136	T	F	F	F	F	T	F	T	P0121
137	T	F	F	F	F	T	T	F	P1101
138	T	F	F	F	F	T	T	T	P0236
139	T	F	F	F	T	F	F	F	P1101
140	T	F	F	F	T	F	F	T	P1101
141	T	F	F	F	T	F	T	F	P1101
142	T	F	F	F	T	F	T	T	P0236
143	T	F	F	F	T	T	F	F	P1101
144	T	F	F	F	T	T	F	T	P0121
145	T	F	F	F	T	T	T	F	P1101
146	T	F	F	F	T	T	T	T	P0236
147	T	F	F	T	F	F	F	F	P1101
148	T	F	F	T	F	F	F	T	P1101

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

149	T	F	F	T	F	F	T	F	P1101
150	T	F	F	T	F	F	T	T	P1101
151	T	F	F	T	F	T	F	F	P1101
152	T	F	F	T	F	T	F	T	P1101
153	T	F	F	T	F	T	T	F	P1101
154	T	F	F	T	F	T	T	T	P1101
155	T	F	F	T	T	F	F	F	P1101
156	T	F	F	T	T	F	F	T	P1101
157	T	F	F	T	T	F	T	F	P1101
158	T	F	F	T	T	F	T	T	P1101
159	T	F	F	T	T	T	F	F	P1101
160	T	F	F	T	T	T	F	T	P1101
161	T	F	F	T	T	T	T	F	P1101
162	T	F	F	T	T	T	T	T	P1101
163	T	F	T	F	F	F	F	F	P1101
164	T	F	T	F	F	F	F	T	P1101
165	T	F	T	F	F	F	T	F	P1101
166	T	F	T	F	F	F	T	T	P1101
167	T	F	T	F	F	T	F	F	P1101
168	T	F	T	F	F	T	F	T	P1101
169	T	F	T	F	F	T	T	F	P1101
170	T	F	T	F	F	T	T	T	P1101
171	T	F	T	F	T	F	F	F	P1101
172	T	F	T	F	T	F	F	T	P1101
173	T	F	T	F	T	F	T	F	P1101
174	T	F	T	F	T	F	T	T	P1101
175	T	F	T	F	T	T	F	F	P1101
176	T	F	T	F	T	T	F	T	P1101
177	T	F	T	F	T	T	T	F	P1101
178	T	F	T	F	T	T	T	T	P1101
179	T	F	T	T	F	F	F	F	P1101
180	T	F	T	T	F	F	F	T	P1101
181	T	F	T	T	F	F	T	F	P1101
182	T	F	T	T	F	F	T	T	P1101
183	T	F	T	T	F	T	F	F	P1101
184	T	F	T	T	F	T	F	T	P1101
185	T	F	T	T	F	T	T	F	P1101
186	T	F	T	T	F	T	T	T	P1101

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

187	T	F	T	T	T	F	F	F	P0101 or P010B
188	T	F	T	T	T	F	F	T	P0101 or P010B
189	T	F	T	T	T	F	T	F	P0101 or P010B
190	T	F	T	T	T	F	T	T	P0101 or P010B
191	T	F	T	T	T	T	F	F	P1101
192	T	F	T	T	T	T	F	T	P1101
193	T	F	T	T	T	T	T	F	P1101
194	T	F	T	T	T	T	T	T	P1101
195	T	T	F	F	F	F	F	F	P1101
196	T	T	F	F	F	F	F	T	P1101
197	T	T	F	F	F	F	T	F	P1101
198	T	T	F	F	F	F	T	T	P0236
199	T	T	F	F	F	T	F	F	P1101
200	T	T	F	F	F	T	F	T	P0121
201	T	T	F	F	F	T	T	F	P1101
202	T	T	F	F	F	T	T	T	P0236
203	T	T	F	F	T	F	F	F	P1101
204	T	T	F	F	T	F	F	T	P1101
205	T	T	F	F	T	F	T	F	P1101
206	T	T	F	F	T	F	T	T	P0236
207	T	T	F	F	T	T	F	F	P1101
208	T	T	F	F	T	T	F	T	P0121
209	T	T	F	F	T	T	T	F	P1101
210	T	T	F	F	T	T	T	T	P0236
211	T	T	F	T	F	F	F	F	P1101
212	T	T	F	T	F	F	F	T	P1101
213	T	T	F	T	F	F	T	F	P1101
214	T	T	F	T	F	F	T	T	P1101
215	T	T	F	T	F	T	F	F	P1101
216	T	T	F	T	F	T	F	T	P1101
217	T	T	F	T	F	T	T	F	P1101
218	T	T	F	T	F	T	T	T	P1101
219	T	T	F	T	T	F	F	F	P1101
220	T	T	F	T	T	F	F	T	P1101
221	T	T	F	T	T	F	T	F	P1101
222	T	T	F	T	T	F	T	T	P1101
223	T	T	F	T	T	T	F	F	P1101
224	T	T	F	T	T	T	F	T	P1101

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: Turbocharger Intake Flow Rationality Diagnostic Failure Matrix

225	T	T	F	T	T	T	T	F	P1101
226	T	T	F	T	T	T	T	T	P1101
227	T	T	T	F	F	F	F	F	P1101
228	T	T	T	F	F	F	F	T	P1101
229	T	T	T	F	F	F	T	F	P1101
230	T	T	T	F	F	F	T	T	P1101
231	T	T	T	F	F	T	F	F	P1101
232	T	T	T	F	F	T	F	T	P1101
233	T	T	T	F	F	T	T	F	P1101
234	T	T	T	F	F	T	T	T	P1101
235	T	T	T	F	T	F	F	F	P1101
236	T	T	T	F	T	F	F	T	P1101
237	T	T	T	F	T	F	T	F	P1101
238	T	T	T	F	T	F	T	T	P1101
239	T	T	T	F	T	T	F	F	P1101
240	T	T	T	F	T	T	F	T	P1101
241	T	T	T	F	T	T	T	F	P1101
242	T	T	T	F	T	T	T	T	P1101
243	T	T	T	T	F	F	F	F	P1101
244	T	T	T	T	F	F	F	T	P1101
245	T	T	T	T	F	F	T	F	P1101
246	T	T	T	T	F	F	T	T	P1101
247	T	T	T	T	F	T	F	F	P1101
248	T	T	T	T	F	T	F	T	P1101
249	T	T	T	T	F	T	T	F	P1101
250	T	T	T	T	F	T	T	T	P1101
251	T	T	T	T	T	F	F	F	P1101
252	T	T	T	T	T	F	F	T	P1101
253	T	T	T	T	T	F	T	F	P1101
254	T	T	T	T	T	F	T	T	P1101
255	T	T	T	T	T	T	F	F	P1101
256	T	T	T	T	T	T	F	T	P1101
257	T	T	T	T	T	T	T	F	P1101
258	T	T	T	T	T	T	T	T	P1101

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P0236, P1101: MAP1 Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P0236_P1101 MAP1 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000	3,500	4,000	4,500	5,000	5,500	6,500	7,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P0236, P1101: MAP2 Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P0236_P1101 MAP2 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000	3,500	4,000	4,500	5,000	5,500	6,500	7,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P0236, P1101: MAP3 Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P0236_P1101 MAP3 Residual Weight Factor based on RPM

Notes:

y/x	0	400	800	1,200	1,600	2,000	2,400	2,800	3,200	3,600	4,000	4,400	4,800	5,200	5,600	6,000	6,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P0236, P1101: TPS Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P0236_P1101 TPS Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000	3,500	4,000	4,500	5,000	5,500	6,500	7,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P1101: Boost Residual Weight Factor based on % of Boost

Description: P0101_P0106_P0121_P012B_P1101 Boost Residual Weight Factor based on % of Boost

Notes:

y/x	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P1101: SCIAP1 Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P1101 SCIAP1 Residual Weight Factor based on RPM

Notes:

y/x	0	400	800	1,200	1,600	2,000	2,400	2,800	3,200	3,600	4,000	4,400	4,800	5,200	5,600	6,000	6,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P1101: SCIAP2 Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P012B_P1101 SCIAP2 Residual Weight Factor based on RPM

Notes:

y/x	0	400	800	1,200	1,600	2,000	2,400	2,800	3,200	3,600	4,000	4,400	4,800	5,200	5,600	6,000	6,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P1101: Supercharger Intake Flow Rationality Diagnostic Failure Matrix

Description: Supercharger Intake Flow Rationality Diagnostic Failure Matrix

Notes: This table describes combinations of individual model failures that will set P0101, P0106, P012B, P0121 and P1101 on supercharged applications.

y/x	1	2	3	4	5	6	7
1	TPS Model Failure	MAF Model Failure	MAP1 Model Failure	MAP2 Model Failure	SCIAP1 Model Failure	SCIAP2 Model Failure	DTC Set
2	F	F	F	F	F	F	No DTC
3	F	F	F	F	F	T	No DTC
4	F	F	F	F	T	F	No DTC
5	F	F	F	F	T	T	P012B
6	F	F	F	T	F	F	No DTC
7	F	F	F	T	F	T	P1101
8	F	F	F	T	T	F	P1101
9	F	F	F	T	T	T	P1101
10	F	F	T	F	F	F	No DTC
11	F	F	T	F	F	T	P1101
12	F	F	T	F	T	F	P1101
13	F	F	T	F	T	T	P1101
14	F	F	T	T	F	F	P0106
15	F	F	T	T	F	T	P1101
16	F	F	T	T	T	F	P1101
17	F	F	T	T	T	T	P1101
18	F	T	F	F	F	F	No DTC
19	F	T	F	F	F	T	P0101
20	F	T	F	F	T	F	No DTC
21	F	T	F	F	T	T	P0101 & P012B
22	F	T	F	T	F	F	P1101
23	F	T	F	T	F	T	P0101
24	F	T	F	T	T	F	P1101
25	F	T	F	T	T	T	P0101 & P012B
26	F	T	T	F	F	F	P1101
27	F	T	T	F	F	T	P1101
28	F	T	T	F	T	F	P1101
29	F	T	T	F	T	T	P1101
30	F	T	T	T	F	F	P1101
31	F	T	T	T	F	T	P1101
32	F	T	T	T	T	F	P1101
33	F	T	T	T	T	T	P1101
34	T	F	F	F	F	F	P0121

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P012B, P1101: Supercharger Intake Flow Rationality Diagnostic Failure Matrix

35	T	F	F	F	F	T	No DTC
36	T	F	F	F	T	F	P0121
37	T	F	F	F	T	T	P1101
38	T	F	F	T	F	F	P1101
39	T	F	F	T	F	T	P1101
40	T	F	F	T	T	F	P1101
41	T	F	F	T	T	T	P1101
42	T	F	T	F	F	F	P0121
43	T	F	T	F	F	T	P1101
44	T	F	T	F	T	F	P0121
45	T	F	T	F	T	T	P1101
46	T	F	T	T	F	F	P1101
47	T	F	T	T	F	T	P1101
48	T	F	T	T	T	F	P1101
49	T	F	T	T	T	T	P1101
50	T	T	F	F	F	F	P0121
51	T	T	F	F	F	T	P1101
52	T	T	F	F	T	F	P0121
53	T	T	F	F	T	T	P1101
54	T	T	F	T	F	F	P1101
55	T	T	F	T	F	T	P1101
56	T	T	F	T	T	F	P1101
57	T	T	F	T	T	T	P1101
58	T	T	T	F	F	F	P0121
59	T	T	T	F	F	T	P1101
60	T	T	T	F	T	F	P0121
61	T	T	T	F	T	T	P1101
62	T	T	T	T	F	F	P1101
63	T	T	T	T	F	T	P1101
64	T	T	T	T	T	F	P1101
65	T	T	T	T	T	T	P1101

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P0236, P1101: TIAP Residual Weight Factor based on RPM

Description: P0101_P0106_P0121_P0236_P1101 TIAP Residual Weight Factor based on RPM

Notes:

y/x	0	400	800	1,200	1,600	2,000	2,400	2,800	3,200	3,600	4,000	4,400	4,800	5,200	5,600	6,000	6,500
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P0236, P1101: TIAP-Baro Correlation Max Air Flow

Description: P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Max Air Flow

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	2.6	3.3	4.5	5.4	7.0	8.8	11.0	12.4	12.4

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P0236, P1101: TIAP-Baro Correlation Max MAP

Description: P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Max MAP

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	34.1	27.3	26.1	25.4	25.7	24.1	29.5	29.4	29.4

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P0236, P1101: TIAP-Baro Correlation Offset

Description: P0101_P0106_P0121_P0236_P1101 TIAP-Baro Correlation Offset

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P0236, P1101: TIAP-MAP Correlation Min Air Flow

Description: P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Min Air Flow

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	15.0	27.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P0236, P1101: TIAP-MAP Correlation Min MAP

Description: P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Min MAP

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	124.0	126.0	127.0	128.0	129.0	128.0	127.0	127.0	127.0

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P0121, P0236, P1101: TIAP-MAP Correlation Offset

Description: P0101_P0106_P0121_P0236_P1101 TIAP-MAP Correlation Offset

Notes:

y/x	1,000	1,750	2,500	3,250	4,000	4,750	5,500	6,250	7,000
1	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_CamPosErrorLimlc1

Description: P0011 - Cam Position Error Limit for performance diagnostic

Notes: KtPHSD_phi_CamPosErrorLimlc1

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_EngOilPressEnblIc

Description: P0011 P0021 P05CC P05CD Delay time before the oil pressure enable flag is set assuming all the oil pressure enable criteria are met

Notes: KtPHSC_t_EngOilPressEnblIc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_HiEngSpdHiDsbllc

Description: P0011 P0021 P05CC P05CD Intake cam is disabled when engine speed exceeds this value

Notes: KtPHSC_n_HiEngSpdHiDsbllc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_HiEngSpdLoEnbllc

Description: P0011 P0021 P05CC P05CD Intake cam is enabled when engine speed remains below this value

Notes: KtPHSC_n_HiEngSpdLoEnbllc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_LoPresHiEnblEc

Description: P0011 P0021 P05CC P05CD Intake cam is enabled when oil pressure exceeds this value

Notes: KtPHSC_p_LoPresHiEnblEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_LoPresLoDsbllc

Description: P0011 P0021 P05CC P05CD Intake cam is disabled when oil pressure falls below this value

Notes: KtPHSC_p_LoPresLoDsbllc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_LoRpmHiEnbllc

Description: P0011 P0021 P05CC P05CD Intake cam is enabled when engine speed exceeds this value.

Notes: KtPHSC_n_LoRpmHiEnbllc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	800	1,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_LoRpmLoDsbllc

Description: P0011 P0021 P05CC P05CD Intake cam is disabled when engine speed is below this value.

Notes: KtPHSC_n_LoRpmLoDsbllc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	750	850

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P0021_P05CC_P05CD_P0014_P0024_P05CE_P05CF_ColdStartEngRunning

Description: P0011 P0021 P05CC P05CD P0014 P0024 P05CE P05C Engine running time must be greater than this threshold during a cold start to enable cam phasing

Notes: KtPHSR_t_ColdStartEngRunning

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	30	15	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_P05CC_StablePositionTimelc1

Description: P0011 P05CC - Delay after transient move

Notes: KtPHSD_t_StablePositionTimelc1

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0011_PerfMaxlc1

Description: P0011 - Range of phaser travel where diagnostic cannot make a decision if both desired & measured positions are greater than

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
2	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
4	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
6	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
7	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
8	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
10	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
11	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
12	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
13	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
14	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
15	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
16	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
17	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_CamPosErrorLimEc1

Description: P0014 - Cam Position Error Limit for performance diagnostic

Notes: KtPHSD_phi_CamPosErrorLimEc1

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P0024_P05CE_P05CF_EngOilPressEnblEc

Description: P0014 P0024 P05CE P05CF Delay time before the oil pressure enable flag is set assuming all the oil pressure enable criteria are met

Notes: KtPHSC_t_EngOilPressEnblEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P0024_P05CE_P05CF_HiEngSpdHiDsbIEc

Description: P0014 P0024 P05CE P05CF Exhaust cam is disabled when engine speed exceeds this value

Notes: KtPHSC_n_HiEngSpdHiDsbIEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P0024_P05CE_P05CF_HiEngSpdLoEnblEc

Description: P0014 P0024 P05CE P05CF Exhaust cam is enabled when engine speed remains below this value

Notes: KtPHSC_n_HiEngSpdLoEnblEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800	7,800

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P0024_P05CE_P05CF_LoPresHiEnblEc

Description: P0014 P0024 P05CE P05CF Exhaust cam is enabled when oil pressure exceeds this value

Notes: KtPHSC_p_LoPresHiEnblEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P0024_P05CE_P05CF_LoPresLoDsbIEc

Description: P0014 P0024 P05CE P05CF Exhaust cam is disabled when oil pressure falls below this value

Notes: KtPHSC_p_LoPresLoDsbIEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P0024_P05CE_P05CF_LoRpmHiEnbIEc

Description: P0014 P0024 P05CE P05CF Exhaust cam is enabled when engine speed exceeds this value.

Notes: KtPHSC_n_LoRpmHiEnbIEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	800	1,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P0024_P05CE_P05CF_LoRpmLoDsblEc

Description: P0014 P0024 P05CE P05CF Exhaust cam is disabled when engine speed is below this value.

Notes: KtPHSC_n_LoRpmLoDsblEc

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	750	850

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_P05CE_StablePositionTimeEc1

Description: P0014 P05CE - Delay after transient move

Notes: KtPHSD_t_StablePositionTimeEc1

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0014_PerfMaxEc1

Description: P0014 - Range of phaser travel where diagnostic cannot make a decision if both desired & measured positions are greater than

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
2	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
4	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
6	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
7	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
8	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
10	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
11	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
12	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
13	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
14	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
15	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
16	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
17	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0021_CamPosErrorLimlc2

Description: P0021 - Cam Position Error Limit for performance diagnostic

Notes: KtPHSD_phi_CamPosErrorLimlc2

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0021_P05CD_StablePositionTimelc2

Description: P0021 P05CD - Delay after transient move

Notes: KtPHSD_t_StablePositionTimelc2

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0021_PerfMaxlc2

Description:

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
2	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
4	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
6	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
7	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
8	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
10	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
11	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
12	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
13	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
14	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
15	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
16	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
17	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0024_CamPosErrorLimEc2

Description: P0024 - Cam Position Error Limit for performance diagnostic

Notes: KtPHSD_phi_CamPosErrorLimEc2

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
4,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,200	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5,600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,000	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,400	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
6,800	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0024_P05CF_StablePositionTimeEc2

Description: P0024 P05CF - Delay after transient move

Notes: KtPHSD_t_StablePositionTimeEc2

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5,600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6,800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0024_PerfMaxEc2

Description:

Notes:

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
2	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
4	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
6	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
7	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
8	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
10	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
11	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
12	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
13	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
14	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
15	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
16	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
17	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0068_Delta MAF Threshold f(TPS)

Description: Table of delta MAF values as a function of desired throttle position. The output of this table provides a delta MAF that if the measured minus the estimated MAF exceeds, is considered a fail.

Notes: P0068, KtTPSD_dm_MAF_DesThrDelt

y/x	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	100.00
1.00	16.86	14.70	17.12	19.88	29.48	35.30	44.98	41.52	255.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0068_Delta MAP Threshold f(TPS)

Description: Table of delta MAP values as a function of desired throttle position. The output of this table provides a delta MAP that if the measured minus the estimated MAP exceeds, is considered a fail.

Notes: P0068, KtTPSD_p_MAP_DesThrDelt

y/x	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	100.00
1.00	38.91	23.81	28.86	27.14	24.97	20.33	18.57	15.02	255.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0068_Maximum MAF f(RPM)

Description: Table of maximum MAF values vs. engine speed. This is the maximum MAF the engine can see under all ambient conditions.

Notes: P0068, KtTPSD_dm_MaxMAF_VsRPM

y/x	600.00	1,400.00	2,200.00	3,000.00	3,800.00	4,600.00	5,400.00	6,200.00	7,000.00
1.00	20.00	50.00	80.00	115.00	150.00	176.00	194.00	203.00	210.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0068_Maximum MAF f(Volts)

Description: Table of maximum MAF values vs. system voltage. The output of the air meter is clamped to lower values as system voltage drops off.

Notes: P0068, KtTPSD_dm_MaxMAF_VsVoltage

y/x	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00
1.00	0.00	20.00	60.00	150.00	250.00	300.00	300.00	300.00	300.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P010B_P0121_P012B_P0236_P1101 MAF1 Residual Weight Factor based on MAF Est

Description: P0101_P0106_P010B_P0121_P012B_P0236_P1101 MAF1 Residual Weight Factor based on MAF Est

Notes:

y/x	0	50	70	73	76	79	82	85	89	95	100	110	120	150	200	280	350
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P010B_P0121_P012B_P0236_P1101 MAF1 Residual Weight Factor based on RPM

Description: P0101_P0106_P010B_P0121_P012B_P0236_P1101 MAF1 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P010B_P0121_P0236_P1101 MAF2 Residual Weight Factor based on MAF Est

Description: P0101_P0106_P010B_P0121_P0236_P1101 MAF2 Residual Weight Factor based on MAF Est

Notes:

y/x	0	50	70	73	76	79	82	85	89	95	100	110	120	150	200	280	350
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0101_P0106_P010B_P0121_P0236_P1101 MAF2 Residual Weight Factor based on RPM

Description: P0101_P0106_P010B_P0121_P0236_P1101 MAF2 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0116_Fail if power up ECT exceeds IAT by these values

Description: KtECTD_T_HSC_FastFailTempDiff

Notes: X axis is IAT Temperature at Power up (° C), Z axis is the Fast Failure temp difference (° C)

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	80	80	80	60	60	40	40	30	30	30	30	30	30	30	30	30	30

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0128_Maximum Accumulated Energy for Start-up ECT conditions - Alternate

Description: KtECTR_E_CTR_WrmUpEnrgyLimTest1

Notes: Z axis is the cooling system energy failure threshold (kJ), X axis is ECT Temperature at Power up (° C), (Deluxe version)

y/x	-16	-4	8	20	32	44	68
1	11,340	9,854	8,369	6,883	5,718	5,306	4,500

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0128_Maximum Accumulated Energy for Start-up ECT conditions - Primary

Description: KtECTR_E_CTR_WrmUpEnrgyLimTest0

Notes: Z axis is the cooling system energy failure threshold (kJ), X axis is ECT Temperature at Power up (° C) , (Deluxe version)

y/x	-16	-4	8	20	32	44	68
1	13,181	11,703	10,225	8,747	7,568	7,378	7,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0171_P0172_P0174_P0175 Long-Term Fuel Trim Cell Usage

Description: Identifies which Long Term Fuel Trim Cell I.D.s are used for diagnosis. Only cells identified as "CeFADD_e_NonSelectedCell" are not used for diagnosis.

Notes: DTCs: P0171, P0172, P0174, P0175; Calibration Name: KaFADD_e_SelectCellSet; Axis is Long Term Fuel Trim Cell I.D.

P0171_P0172_P0174_P0175 Long-Term Fuel Trim Cell Usage - Part 1

y/x	CeFADR_e_Cell00_PurgOnAirMode 5	CeFADR_e_Cell01_PurgOnAirMode 4	CeFADR_e_Cell02_PurgOnAirMode 3	CeFADR_e_Cell03_PurgOnAirMode 2
1	CeFADD_e_SelectedPurgeCell	CeFADD_e_SelectedPurgeCell	CeFADD_e_SelectedPurgeCell	CeFADD_e_SelectedPurgeCell

P0171_P0172_P0174_P0175 Long-Term Fuel Trim Cell Usage - Part 2

y/x	CeFADR_e_Cell04_PurgOnAirMode 1	CeFADR_e_Cell05_PurgOnAirMode 0	CeFADR_e_Cell06_PurgOnIdle	CeFADR_e_Cell07_PurgOnDecel
1	CeFADD_e_SelectedPurgeCell	CeFADD_e_SelectedPurgeCell	CeFADD_e_SelectedPurgeCell	CeFADD_e_NonSelectedCell

P0171_P0172_P0174_P0175 Long-Term Fuel Trim Cell Usage - Part 3

y/x	CeFADR_e_Cell08_PurgOffAirMode 5	CeFADR_e_Cell09_PurgOffAirMode 4	CeFADR_e_Cell10_PurgOffAirMode 3	CeFADR_e_Cell11_PurgOffAirMode 2
1	CeFADD_e_SelectedNonPurgeCell	CeFADD_e_SelectedNonPurgeCell	CeFADD_e_SelectedNonPurgeCell	CeFADD_e_SelectedNonPurgeCell

P0171_P0172_P0174_P0175 Long-Term Fuel Trim Cell Usage - Part 4

y/x	CeFADR_e_Cell12_PurgOffAirMode 1	CeFADR_e_Cell13_PurgOffAirMode 0	CeFADR_e_Cell14_PurgOffIdle	CeFADR_e_Cell15_PurgOffDecel
1	CeFADD_e_SelectedNonPurgeCell	CeFADD_e_SelectedNonPurgeCell	CeFADD_e_SelectedNonPurgeCell	CeFADD_e_NonSelectedCell

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0196_FastFailTempDiff

Description: EOT Sensor Cold Start Fast Fail Threshold

Notes: For P0196: KtEOTD_T_FastFailTempDiff with X Axis is defined as PowerUp Coolant Temperature

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	80.0	80.0	80.0	60.0	60.0	40.0	40.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0196_TotalAccumulatedFlow

Description: Total accumulated air consumed by engine since engine start as a function of powerup undefaulted Oil Temperature

Notes: For P0196: KtEOTD_m_TotalAirGramsMin

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	15,000	14,000	13,000	12,000	11,000	10,000	9,000	8,000	7,000	6,000	5,000	4,000	5,000	4,000	3,000	3,000	3,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300 EngineOverSpeedLimit

Description: Engine OverSpeed Limit versus gear

Notes: Used for P0300-P0308. Cal Name: KaEOSC_n_EngOvrspdLimitGear

P0300 EngineOverSpeedLimit - Part 1

y/x	CeTGRR_e_TransGr1	CeTGRR_e_TransGr2	CeTGRR_e_TransGr3	CeTGRR_e_TransGr4	CeTGRR_e_TransGr5	CeTGRR_e_TransGr6	CeTGRR_e_TransGrEVT1
1	7,150	7,150	7,150	7,150	7,150	7,150	7,150

P0300 EngineOverSpeedLimit - Part 2

y/x	CeTGRR_e_TransGrEVT2	CeTGRR_e_TransGrNeut	CeTGRR_e_TransGrRvs	CeTGRR_e_TransGrPark	CeTGRR_e_TransGr7	CeTGRR_e_TransGr8	
1	7,150	3,200	7,150	3,200	7,150	7,150	

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300 Number of Normals

Description: Number of Normals for the Driveline Ring Filter
After a low level misfire, another misfire may not be detectable until driveline ringing ceases. If no ringing seen, stop filter early.

Notes: Used for P0300-P0308. Cal Name: KaMSFD_Cnt_NumOfNormalsFil

y/x	0	1	2	3	4	5	6	7	8
1	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300 Ring Filter

Description: Driveline Ring Filter

After a low level misfire, another misfire may not be detectable until driveline ringing ceases. If no ringing seen, stop filter early.

Notes: Used for P0300-P0308. Cal Name: KaMSFD_Cnt_RingFilter

y/x	0	1	2	3	4	5	6	7	8
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_1st_FireAftrMisfr_Acel

Description: Multiplier for establishing the expected acceleration of the cylinder after the misfire

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_CylAftMsfr

y/x	500	1,200	2,400	3,600	7,000
0	0.29	0.34	0.37	0.39	0.51
20	0.26	0.25	0.30	0.35	0.48
40	0.19	0.21	0.25	0.30	0.44
60	0.13	0.18	0.20	0.25	0.39
100	0.09	0.15	0.16	0.20	0.31

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_1st_FireAftMisfr_Jerk

Description: Multiplier for establishing the expected Jerk of the cylinder after the misfire

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_CylAftMsfr

y/x	500	1,200	2,400	3,600	7,000
0	-0.92	-0.86	-0.92	-0.84	-0.58
20	-1.18	-1.15	-1.20	-0.93	-0.93
40	-1.30	-1.25	-1.30	-0.92	-0.92
60	-1.40	-1.33	-1.35	-0.91	-0.91
100	-1.45	-1.38	-1.40	-0.90	-0.90

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Abnormal Cylinder Mode

Description: Number of consecutive number of decelerating cylinders after the misfire that would be considered abnormal. (Cylinder Mode Equation)

Notes: Used for P0300-P0308. Cal Name: KaMSFD_Cnt_CylAbnormal

y/x	0	1	2	3	4	5	6	7	8
1	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Abnormal Rev Mode

Description: Abnormal Rev Mode Number of consecutive number of decelerating cylinders after the misfire that would be considered abnormal. (Rev Mode Equation)

Notes: Used for P0300-P0308. Cal Name: KaMSFD_Cnt_RevAbnormal

y/x	0	1	2	3	4	5	6	7	8
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Abnormal SCD Mode

Description: Number of consecutive number of decelerating cylinders after the misfire that would be considered abnormal. (SCD Mode Equation)

Notes: Used for P0300-P0308. Cal Name: KaMSFD_Cnt_SCD_CylAbnormal

y/x	0	1	2	3	4	5	6	7	8
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Bank_SCD_Decel

Description: Multitplier to SCD decel to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_MEDRES_Bank

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
12	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
16	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
18	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
20	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
24	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
30	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
40	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
60	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
98	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Bank_SCD_Jerk

Description: Multplier to Medres SCD jerk to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_MEDRES_Bank

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
12	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
16	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
18	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
20	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
24	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
30	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
40	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
60	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
98	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_BankCylModeDecel

Description: Multplier to Lores Decel to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_LORES_Bank

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
12	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
16	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
18	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
20	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
24	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
30	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
40	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
60	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
98	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_BankCylModeJerk

Description: Multplier to Lores Jerk to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_LORES_Bank

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
12	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
16	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
18	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
20	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
24	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
30	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
40	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
60	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10
98	1.40	1.00	1.20	1.20	1.10	1.10	1.10	1.10	1.10

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Catalyst_Damage_Misfire_Percentage

Description: Catalyst Damaging Misfire Percentage" Table whenever secondary conditions are met.

Notes: Used for P0300-P0308. Cal Name: KtMSFD_Pct_CatalystMisfire

y/x	0	1,000	2,000	3,000	4,000	5,000	6,000	7,000
0	11.3	11.3	4.8	4.8	4.8	4.8	4.8	4.8
10	11.3	11.3	4.8	4.8	4.8	4.8	4.8	4.8
20	11.3	11.3	4.8	4.8	4.8	4.8	4.8	4.8
30	9.0	9.0	4.8	4.8	4.8	4.8	4.8	4.8
40	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
50	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
60	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
70	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
90	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
100	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ClyAfterAFM_Decel

Description: Multplier to Lores decel to account for different pattern of misfire after a deactivated cylider. Similar to the second cylinder of consecutive cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_LORES_PostDeac

y/x	800	1,000	1,200	1,600	2,000	2,400	2,600	3,000	3,500
5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
100	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ClyBeforeAFM_Jerk

Description: Multplier to Lores decel to account for different pattern of misfire before a deactivated cylider, but after an active cylinder that follows an deactive cylinder on engine that supports cylinder deactivation in non even fire patterns.. Multipliers are a function of engine rpm and % engine Load.

Notes: KtMSFD_K_ddt_LORES_PreDeac KtMSFD_K_ddt_LORES_PreDeac

y/x	800	1,000	1,200	1,600	2,000	2,400	2,600	3,000	3,500
5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
100	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ConsecCylModDecel

Description: Multplier to Lores decel to account for different pattern of the second cylinder of consecutive misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_LORES_Consec

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
8	1.00	0.95	0.92	0.67	0.65	0.75	0.65	0.65	0.70
12	1.00	0.88	0.92	0.67	0.65	0.75	0.65	0.65	0.70
16	1.00	0.97	0.92	0.67	0.65	0.75	0.65	0.65	0.70
20	1.00	0.97	0.99	0.67	0.65	0.75	0.65	0.65	0.70
24	1.00	0.95	0.96	0.80	0.67	0.52	0.65	0.65	0.70
30	1.00	0.95	0.89	0.74	0.72	0.66	0.65	0.65	0.70
40	1.00	0.95	0.86	0.86	0.65	0.70	0.65	0.65	0.70
60	1.00	0.95	0.86	0.86	0.67	0.78	0.77	0.57	0.70
98	1.00	0.95	0.86	0.86	0.67	0.78	0.77	0.57	0.70

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ConsecCylModeJerk

Description: Multitplier to Lores Jerk to account for different pattern of the second cylinder of consecutive misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_LORES_Consec

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
8	-1	-1	0	-1	-1	-1	-1	-1	0
12	-1	-1	0	-1	-1	-1	-1	-1	0
16	-1	-1	-1	-1	-1	-1	-1	-1	0
20	-1	-1	-1	-1	-1	-1	-1	-1	0
24	-1	-1	-1	-1	-1	-1	-1	-1	0
30	-1	-1	0	-1	-1	-1	-1	-1	0
40	-1	-1	-1	-1	-1	-1	-1	-1	0
60	-1	-1	-1	-1	-1	-1	-1	-1	-1
98	-1	-1	-1	-1	-1	-1	-1	-1	-1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ConsecSCD_Decel

Description: Multitplier to medres decel to account for different pattern of the second cylinder of consecutive misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_MEDRES_Consec

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
8	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
12	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
16	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
20	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
24	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
30	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
40	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
60	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
98	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ConsecSCD_Jerk

Description: Multitplier to medres Jerk to account for different pattern of the second cylinder of consecutive misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_MEDRES_Consec

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
8	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
12	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
16	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
20	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
24	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
30	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
40	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
60	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17
98	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_CylAfterAFM_Jerk

Description: Multplier to Lores JerkI to account for different pattern of misfire after a deactivated cylider. Similar to the second cylinder of consecutive cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_LORES_PostDeac

y/x	800	1,000	1,200	1,600	2,000	2,400	2,600	3,000	3,500
5	-1	-1	-1	-1	-1	-1	-1	-1	-1
10	-1	-1	-1	-1	-1	-1	-1	-1	-1
20	-1	-1	-1	-1	-1	-1	-1	-1	-1
30	-1	-1	-1	-1	-1	-1	-1	-1	-1
40	-1	-1	-1	-1	-1	-1	-1	-1	-1
50	-1	-1	-1	-1	-1	-1	-1	-1	-1
60	-1	-1	-1	-1	-1	-1	-1	-1	-1
80	-1	-1	-1	-1	-1	-1	-1	-1	-1
100	-1	-1	-1	-1	-1	-1	-1	-1	-1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_CylBeforeAFM_Decel

Description: Multiplier to Lores decel to account for different pattern of misfire before a deactivated cylinder, but after an active cylinder that follows an deactive cylinder on engine that supports cylinder deactivation in non even fire patterns.. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_LORES_PreDeac

y/x	800	1,000	1,200	1,600	2,000	2,400	2,600	3,000	3,500
5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
100	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_CylModeDecel

Description: Crankshaft decel threshold. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMISF_CylinderMode

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
3	5,198	4,158	2,772	1,584	1,100	680	500	350	280	158	110	120	80	60	55	40	34	28	21	16	11	10	8	10	7	9
6	4,620	3,465	2,310	1,320	946	567	417	291	240	132	92	93	65	55	42	30	27	21	16	12	9	7	6	7	5	7
8	4,200	3,450	2,300	1,200	800	515	400	300	224	120	84	77	60	43	33	25	22	18	13	10	7	6	5	6	5	6
10	4,200	3,383	2,255	1,332	900	556	400	305	230	140	100	70	60	44	32	25	20	16	12	9	7	6	5	6	4	5
12	4,750	4,500	3,000	1,500	1,000	693	446	376	240	150	105	75	61	45	32	26	20	16	12	9	7	6	5	6	4	5
14	5,040	4,500	3,000	1,700	1,279	831	541	447	345	211	137	94	62	45	35	30	23	21	13	10	7	6	5	6	4	5
16	5,712	4,725	3,150	1,900	1,451	968	635	519	362	210	138	95	65	50	38	30	25	23	13	10	7	6	5	5	4	5
18	6,300	5,029	3,353	2,200	1,623	1,106	730	590	423	240	160	105	75	55	42	35	30	23	14	12	8	7	5	4	4	5
20	6,855	5,440	3,627	2,400	1,795	1,243	825	661	484	290	185	131	85	77	45	39	34	26	15	13	8	8	6	5	4	5
22	7,409	5,852	3,901	2,546	1,967	1,381	920	732	545	396	282	179	123	94	76	57	46	36	20	16	8	9	7	6	5	5
24	7,963	6,263	4,175	2,743	2,139	1,518	1,015	803	606	444	320	201	139	107	84	63	49	41	22	15	9	9	7	6	5	5
26	8,518	6,674	4,450	2,939	2,311	1,656	1,110	874	668	497	349	201	150	121	96	74	58	44	24	18	10	9	8	7	5	6
30	9,240	7,497	4,998	3,500	2,655	1,931	1,299	1,016	790	558	391	213	166	130	107	82	65	54	31	17	14	11	7	6	6	7
40	9,976	9,976	6,370	4,317	3,515	2,618	1,773	1,372	1,194	844	532	352	257	189	140	110	88	69	42	25	19	14	11	8	7	8
60	9,976	9,976	9,976	6,285	5,235	3,993	2,722	2,083	1,705	1,085	724	458	427	308	244	189	150	122	70	45	29	23	17	13	9	15
78	9,976	9,976	9,976	8,007	6,740	5,196	3,552	2,706	2,239	1,426	952	600	457	345	269	230	170	150	80	50	34	29	23	18	11	32
97	9,976	9,976	9,976	9,976	8,460	6,571	4,700	3,600	2,850	1,815	1,212	764	583	439	342	258	198	162	89	63	44	36	30	23	15	39

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_CylModeJerk

Description: Crankshaft jerk threshold. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMISF_ddt_CylinderMode

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	
3	4,500	3,750	2,500	1,683	1,000	700	525	400	297	195	117	89	80	52	43	40	31	27	21	14	10	9	9	7	7	7	7
6	4,620	3,000	2,000	1,320	800	500	400	250	228	150	90	69	65	42	33	30	24	21	16	11	7	7	7	5	5	5	5
8	4,500	3,450	2,300	1,275	830	550	400	300	190	125	75	57	55	35	28	22	20	17	13	9	6	6	6	5	5	5	5
10	4,600	3,600	2,400	1,332	900	663	450	305	200	140	100	52	50	40	25	25	18	16	12	8	6	5	5	4	4	4	4
12	4,900	4,500	3,000	1,500	1,100	820	480	376	240	148	100	55	51	40	28	25	18	16	12	8	6	5	5	4	4	4	4
14	5,500	5,250	3,500	1,700	1,279	977	580	447	334	207	136	79	53	45	28	30	18	16	12	8	6	5	5	4	4	4	4
16	5,900	5,325	3,550	1,900	1,450	1,134	680	519	391	210	138	88	55	48	35	33	23	19	12	8	5	6	4	4	4	4	4
18	6,300	5,460	3,640	2,150	1,622	1,291	780	590	409	237	163	105	65	50	38	36	27	20	14	9	6	7	5	4	4	4	4
20	6,855	5,910	3,940	2,348	1,800	1,448	880	661	424	250	188	126	80	66	45	39	31	26	16	10	7	8	5	4	4	4	4
22	7,409	6,360	4,240	2,546	1,964	1,605	980	732	476	344	242	153	107	84	69	50	43	35	22	15	8	8	6	5	4	5	5
24	7,963	6,810	4,540	2,743	2,136	1,762	1,080	803	528	381	286	181	130	95	74	56	43	38	25	15	9	9	7	5	4	5	5
26	8,518	7,388	4,925	2,939	2,307	1,920	1,180	874	580	411	298	194	146	110	86	67	52	43	25	16	10	9	7	6	5	6	6
30	9,240	8,160	5,440	3,500	2,650	2,234	1,380	1,016	683	468	345	213	156	122	94	80	62	54	32	13	13	11	6	5	6	7	7
40	9,976	9,976	6,940	4,317	3,507	3,019	1,880	1,372	1,070	712	481	336	239	172	132	101	81	67	42	20	18	14	11	8	5	10	10
60	9,976	9,976	9,940	6,285	5,222	4,591	2,880	2,083	1,461	880	681	473	432	308	232	170	131	111	64	40	27	21	18	15	9	17	17
78	9,976	9,976	9,976	8,007	6,722	5,966	3,755	2,706	1,915	1,156	897	625	431	348	242	210	160	136	80	45	32	24	26	23	13	23	23
97	9,976	9,976	9,976	9,976	8,436	7,000	4,755	3,417	2,434	1,650	1,144	799	550	446	308	234	191	147	95	53	41	30	33	29	15	29	29

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_IdleCyl_Decel

Description: Crankshaft decel threshold. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMSFD_dt_IdleCylinderMode

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,350	1,600	1,800	2,000
3	5,198	4,158	2,772	1,584	1,100	680	500	396	280	158	110	120	80
6	4,620	3,465	2,310	1,320	946	567	417	330	240	132	92	93	65
8	4,200	3,450	2,400	1,500	800	515	400	300	224	120	84	77	60
10	4,200	3,383	2,728	1,637	900	556	400	326	230	140	100	70	60
12	4,750	4,500	2,750	1,584	1,000	693	446	378	240	180	105	75	61
14	5,040	4,500	3,000	1,723	1,279	831	541	431	300	207	115	85	62
16	5,712	4,725	3,150	1,933	1,451	968	635	483	355	221	138	95	65
18	6,300	5,029	3,353	2,143	1,623	1,106	730	536	380	271	160	105	75
20	6,855	5,440	3,627	2,353	1,795	1,243	825	589	410	284	185	131	85
22	7,409	5,852	3,901	2,563	1,967	1,381	920	641	523	296	230	147	98
24	7,963	6,263	4,175	2,773	2,139	1,518	1,015	694	584	334	256	164	110
26	8,518	6,674	4,450	2,983	2,311	1,656	1,110	746	644	392	282	180	125
28	8,879	7,086	4,724	3,193	2,483	1,793	1,204	799	704	462	308	196	141
30	9,240	7,497	4,998	3,403	2,655	1,931	1,299	851	764	501	334	213	157
32	9,387	7,993	5,273	3,613	2,827	2,068	1,394	904	824	540	360	229	170
34	9,534	8,489	5,547	3,823	2,999	2,206	1,489	957	885	579	386	245	182
36	9,682	8,984	5,821	4,033	3,171	2,343	1,584	1,009	945	618	412	262	195

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_IdleCyl_Jerk

Description: Crankshaft jerk threshold. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMSFD_ddt_IdleCylinderMode

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,350	1,600	1,800	2,000
3	4,500	3,750	2,500	1,683	1,000	650	525	450	297	195	117	89	80
6	4,620	3,000	2,000	1,320	850	500	400	350	228	150	90	69	65
8	4,500	3,450	2,300	1,500	830	550	400	300	190	125	75	57	55
10	4,600	3,600	2,655	1,504	900	663	450	347	230	140	100	52	50
12	4,900	4,500	2,928	1,677	1,100	820	480	413	292	200	100	55	51
14	5,500	5,250	3,202	1,849	1,279	977	580	479	354	225	114	70	53
16	5,900	5,325	3,476	2,022	1,450	1,134	680	545	416	255	138	88	55
18	6,300	5,460	3,750	2,195	1,622	1,291	780	610	477	285	163	105	65
20	6,855	5,910	4,024	2,368	1,800	1,448	880	676	539	300	188	126	80
22	7,409	6,360	4,298	2,540	1,964	1,605	980	742	601	345	212	143	99
24	7,963	6,810	4,572	2,713	2,136	1,762	1,080	807	663	375	237	161	111
26	8,518	7,388	4,845	2,886	2,307	1,920	1,180	873	725	405	262	178	123
28	8,879	7,774	5,119	3,059	2,479	2,077	1,280	939	787	435	286	195	135
30	9,240	8,160	5,393	3,232	2,650	2,234	1,380	1,005	849	465	311	213	147
32	9,387	8,523	5,667	3,404	2,822	2,391	1,480	1,070	911	495	336	230	159
34	9,534	8,886	5,941	3,577	2,993	2,548	1,580	1,136	973	525	360	248	171
36	9,682	9,250	6,215	3,750	3,164	2,705	1,680	1,202	1,035	555	385	265	183

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_IdleSCD_Decel

Description: Crankshaft decel threshold while in SCD mode. SCD mode uses smaller windows near TDC. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMISF_dt_SCD_IdleMode

Note: Misfire's Load term is %, but not PID\$04. PID \$04 is not robust to temperature and altitude shifts. (especially decel and jerk thresholds since they track actual air trapped in cylinder)

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000
3	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
6	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
8	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
10	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
12	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
14	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
16	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
18	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
20	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
22	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
24	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
26	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
28	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
30	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
32	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
34	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
36	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_IdleSCD_Jerk

Description: Crankshaft jerk threshold while in SCD mode. SCD mode uses smaller windows near TDC. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMISF_ddt_SCD_IdleMode

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000
3	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
6	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
8	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
10	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
12	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
14	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
16	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
18	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
20	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
22	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
24	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
26	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
28	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
30	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
32	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
34	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
36	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Pair_SCD_Decel

Description: Multitplier to P0300_SCD_Decel to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_MEDRES_Opp

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Pair_SCD_Jerk

Description: Multplier to P0300_SCD_Jerk to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_MEDRES_Opp

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_PairCylModeDecel

Description: Multplier to Cyl Mode Deceleration to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_LORES_Opp

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
8	0.90	0.90	0.85	1.00	1.00	0.80	1.00	0.90	0.95
12	0.71	0.88	0.80	1.00	0.93	0.88	1.00	0.85	0.95
16	0.71	0.82	0.81	0.92	0.92	0.90	0.96	0.80	0.95
20	0.89	0.89	0.79	0.75	0.94	0.96	1.00	0.70	0.70
24	0.86	0.88	0.85	0.75	0.95	0.82	1.00	0.70	0.70
30	0.90	0.75	0.96	0.74	0.78	0.83	1.00	0.60	0.73
40	0.93	0.80	0.86	0.63	0.67	0.78	0.99	0.70	0.75
60	0.95	0.83	0.90	0.70	0.75	0.78	0.96	0.80	0.80
98	1.00	0.85	0.92	0.75	0.80	0.85	1.00	0.80	0.80

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_PairCylModeJerk

Description: Multplier to P0300_CylModeJerk to account for different pattern of Paired cylinder misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_LORES_Opp

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
8	0.75	1.00	1.10	1.30	1.30	1.25	1.25	1.00	1.00
12	0.75	1.00	1.10	1.30	1.30	1.25	1.25	1.00	1.00
16	0.80	1.00	1.20	1.20	1.20	1.20	1.25	1.00	1.00
20	0.85	1.00	1.20	1.20	1.20	1.20	1.25	1.00	1.00
24	0.90	1.00	1.20	1.20	1.20	1.20	1.25	0.90	1.00
30	1.00	1.00	1.20	1.20	1.20	1.20	1.25	1.00	0.90
40	1.10	1.00	1.20	1.20	1.20	1.20	1.25	1.10	1.10
60	1.10	1.00	1.20	1.20	1.20	1.20	1.25	1.10	1.10
98	1.10	1.00	1.20	1.28	1.30	1.30	1.30	1.20	1.20

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Random_SCD_Decel

Description: Multplier to SCD_Decel to account for different pattern of light level misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_MEDRES_Emiss

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_Random_SCD_Jerk

Description: Multplier to Random_SCD_Jerk to account for different pattern of light level misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_MEDRES_Emiss

y/x	500	600	700	800	900	1,000	1,200	1,400	1,600
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_RandomAFM_Decl

Description: Multplier to Cylinder_Decel while in CylnDer Deactivation mode to account for different pattern of light level misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dt_LORES_AFM_Emiss

y/x	800	1,000	1,200	1,600	2,000	2,400	2,600	3,000	3,500
5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
100	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_RandomAFM_Jerk

Description: Multplier to Cylinder_Jerk while in Cylnder Deactivation mode to account for different pattern of light level misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_LORES_AFM_Emiss

y/x	800	1,000	1,200	1,600	2,000	2,400	2,600	3,000	3,500
5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
100	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_RandomCylModDecel

Description: Multiplier to P0300_CylMode_Decel. account for different pattern of light level misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308. Cal Name: KtMSFD_K_dt_LORES_Emiss

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
8	1.00	1.05	1.10	1.00	1.00	1.10	1.20	1.20	1.20
12	1.20	1.20	1.20	1.10	1.20	1.20	1.20	1.20	1.20
16	1.20	1.20	1.20	1.20	1.30	1.30	1.20	1.20	1.20
20	1.20	1.20	1.20	1.20	1.30	1.30	1.40	1.20	1.20
24	1.20	1.20	1.20	1.20	1.30	1.30	1.40	1.20	1.20
30	1.20	1.20	1.20	1.20	1.20	1.20	1.40	1.20	1.20
40	1.20	1.20	1.20	1.20	1.20	1.20	1.40	1.20	1.20
60	1.20	1.20	1.20	1.20	1.20	1.20	1.40	1.20	1.00
98	1.20	1.20	1.20	1.20	1.20	1.20	1.40	1.20	1.20

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_RandomCylModJerk

Description: Multiplier to P0300_CylMode_Jerk to account for different pattern of light level misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_ddt_LORES_Emiss

y/x	700	900	1,100	1,400	2,000	2,600	3,500	5,000	6,500
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_RandomRevModDecl

Description: Multplier to P0300_RevMode_Decel to account for different pattern of light level misfire. Multipliers are a function of engine rpm and % engine Load.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_RevModeEmiss

y/x	3,000	3,500	4,000	4,500	5,000	5,500	6,000	7,000	8,000
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_RepetSnapDecayAdjst

Description: If misfire is present in consecutive engine cycles, this multiplier is applied to the misfire jerk threshold and compared to a crankshaft snap value after the misfire has taken place.. Table lookup as a function of engine rpm.

Notes: Used for P0300 - P0308, Cal Name:KtMSFD_K_dddPostCylCnscMsfr

y/x	1,000	1,200	1,600	2,000	2,600	3,500	4,500	5,500	6,500
1	1.40	1.30	1.20	1.20	1.20	1.20	1.20	1.20	1.20

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_RevMode_Decel

Description: Crankshaft decel threshold. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMISF_RevolutionMode

y/x	1,100	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	
3	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
6	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
8	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
10	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
12	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
14	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
16	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
18	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
20	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
22	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
24	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
26	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
30	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
40	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
60	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
78	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
97	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_SCD_Decel

Description: Crankshaft decel threshold. SCD mode uses smaller windows near TDC. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMISF_dt_SCD_OffIdleMode

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000
3	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
6	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
8	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
10	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
12	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
14	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
16	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
18	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
20	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
22	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
24	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
26	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
30	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
40	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
60	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
78	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
97	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_SCD_Jerk

Description: Crankshaft jerk threshold. SCD mode uses smaller windows near TDC. Thresholds are a function of rpm and % engine Load.

Notes: Used for P0300-P0308. Cal Name: KtMISF_ddt_SCD_OffIdleMode

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000
3	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
6	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
8	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
10	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
12	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
14	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
16	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
18	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
20	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
22	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
24	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
26	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
30	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
40	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
60	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
78	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767
97	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767	32,767

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_SnapDecayAfterMisfire

Description: multiplier times the ddt_jerk value used used to detect misfire at that speed and load to see if size of disturbance has died down as expected of real misfire. Table lookup as a function of engine rpm and trans gear ratio.

Notes: Used for P0300 - P0308, Cal Name: KtMSFD_K_dddt_PostCylAft

y/x	1,000	1,200	1,600	2,000	2,600	3,500	4,500	5,500	6,500
0	0.84	1.19	1.28	1.41	1.33	0.75	0.75	0.75	0.87
1	0.84	1.19	1.28	1.41	1.33	0.75	0.75	0.75	0.87
1	0.84	1.19	1.28	1.41	1.33	0.75	0.75	0.75	0.87
1	0.77	1.23	1.30	1.24	1.03	1.14	0.75	0.81	0.96
1	0.75	1.13	1.37	1.33	0.83	1.42	1.53	1.92	1.29
2	0.75	0.94	1.34	1.19	0.90	1.38	2.09	1.91	2.00
2	0.75	0.82	1.17	1.05	1.12	1.21	1.82	2.00	2.25
4	0.75	0.75	1.10	1.05	1.16	1.21	1.82	2.13	2.25
8	0.75	0.75	1.10	1.05	1.16	1.21	1.82	2.13	2.25

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_TOSSRoughRoadThres

Description: Only used if Rough Road source = TOSS: dispersion value on Transmission Output Speed Sensor above which rough road is indicated present

Notes: Used for P0300-P0308. Cal Name: KtRRDI_a_RoughRoadThresh

y/x	600	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,500	4,000	4,500	5,000	5,500	6,000
100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
300	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
500	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
600	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
700	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
800	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
900	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,300	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
1,400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_WSSRoughRoadThres

Description: Only used if Wheel speed from ABS is used. If difference between wheel speed readings is larger than this limit, rough road is present

Notes: Used for P0300-P0308. Cal Name: KtRRDI_a_WhlSpdRoughRoadLim

y/x	0	12	24	36	48	60	72	85	97	109	121	133	145	157	169	181	193
1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ZeroTorqBaro

Description: adjusts zero torque for altitude

Notes: Used for P0300-P0308. Cal Name: KtMSFD_K_ZeroTorqBaro

y/x	65	70	75	80	85	90	95	100	105
1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ZeroTorqDoD

Description: Zero torque engine load while in Active Fuel Management

Notes: Used for P0300-P0308. Cal Name: KtMSFD_ZeroTorqDoD

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
1	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	3.28	4.71	6.13	7.56	8.99	10.42

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0300_ZeroTorqueEngLoad

Description: %air load that represents Zero Brake torque along the Neutral rev line. The Zero torque threshold is adjusted for Baro via P0300_ZeroTorqueBaro

Notes: Used for P0300-P0308. Cal Name: KtMISF_ZeroTorqSpd

y/x	400	500	600	700	800	900	1,000	1,100	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
1	-2.70	-2.70	-2.70	-2.70	-2.25	-1.80	-1.20	0.10	0.80	0.65	0.25	-0.15	-0.60	-1.00	-1.20	-1.20	-1.20	-1.00	1.70	4.25	6.80	9.35	11.90	14.45	17.00	19.55

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0324_P0326_P0331_AbnormalNoise_CylsEnabled

Description: Specifies which cylinders will be used for the Abnormal Noise portion of the performance diagnostics (1 = cylinder used, 0 = cylinder not used)

Notes: Used for P0324, P0326 and P0331. Cal name: KaKNKD_b_PerfAbnIncludeCyl. x-axis = Cylinder number in firing order (i.e. Cyl 0 = first cylinder in firing order, Cyl 1 = second cylinder in firing order....)

A cal value = 1 specifies the cylinder is used for the Abnormal Noise diagnostic. A cal value = 0 specifies the cylinder is not used. Only the first four values in the table are relevant for a four-cylinder engine and only the first six values in the table are relevant for a six-cylinder engine.

Typically, all cylinders are used. Cylinders are only excluded if the signal from that cylinder is weak and there is no separation between normal and faulted conditions (can occur if the sensor location results in poor signal-to-noise ratio for a given cylinder).

y/x	0	1	2	3	4	5	6	7
1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0324_P0326_P0331_AbnormalNoise_Threshold

Description: Fail threshold for the Knock Performance Abnormal Noise Diagnostic

Notes: Used for P0324, P0326 and P0331. Cal Name: KtKNKD_k_PerfAbnLimitLo. X-axis = Engine Speed (RPM). Diagnostic fails when VaKNKD_k_PerfCylAbnFiltIntnsity < KtKNKD_k_PerfAbnLimitLo

y/x	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500
1	0.212	0.212	0.212	0.212	0.206	0.242	0.261	0.291	0.284	0.295	0.311	0.464	0.531	0.531	0.531	0.531	0.531

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0325_P0330_OpenCktThrshMax (20 kHz)

Description: Knock Open Circuit Diagnostic Maximum Threshold when using the 20 kHz method (see "OpenMethod" description)

Notes: Used for P0325 and P0330. Cal name: KtKNKD_k_OpenMax20K. x-axis = Engine Speed (RPM).

Diagnostic fails when the filtered diagnostic output is between the OpenCktThrshMin and OpenCktThrshMax:
i.e.: KtKNKD_k_OpenMin20K < VaKNKD_k_OpenFiltIntensity < KtKNKD_k_OpenMax20K.

y/x	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500
1	11.1563	11.0293	11.0332	11.0273	10.7891	10.8184	10.7832	10.7539	10.7598	10.3633	9.7109	9.1758	9.1758	9.1758	9.1758	9.1758	9.1758

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0325_P0330_OpenCktThrshMax (Normal Noise)

Description: Knock Open Circuit Diagnostic Minimum Threshold when using the Normal Noise method (see "OpenMethod" description): When using the Normal Noise method (see "OpenMethod" description).

Notes: Used for P0325 and P0330. Cal name: KtKNKD_k_OpenMaxNN. x-axis = Engine Speed (RPM)

Diagnostic fails when the filtered diagnostic output is between the OpenCktThrshMin and OpenCktThrshMax:

i.e.: $KtKNKD_k_OpenMinNN < VaKNKD_k_OpenFilIntensity < KtKNKD_k_OpenMaxNN$.

y/x	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7891	0.8242	0.8242	0.8242	0.8242

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0325_P0330_OpenCktThrshMin (20 kHz)

Description: Knock Open Circuit Diagnostic Minimum Threshold when using the 20 kHz method (see "OpenMethod" description)

Notes: Used for P0325 and P0330. Cal name: KtKNKD_k_OpenMin20K. x-axis = Engine Speed (RPM)

Diagnostic fails when the filtered diagnostic output is between the OpenCktThrshMin and OpenCktThrshMax:
 i.e.: KtKNKD_k_OpenMin20K < VaKNKD_k_OpenFiltIntensity < KtKNKD_k_OpenMax20K.

y/x	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500
1	3.6348	3.6055	3.5996	3.5938	3.4922	3.5039	3.5039	3.5332	3.5059	3.4141	3.4531	3.2637	3.4434	3.8145	3.8145	3.8145	3.8145

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0325_P0330_OpenCktThrshMin (Normal Noise)

Description: Knock Open Circuit Diagnostic Minimum Threshold when using the Normal Noise method (see "OpenMethod" description): When using the Normal Noise method (see "OpenMethod" description).

Notes: Used for P0325 and P0330. Cal name: KtKNKD_k_OpenMinNN. x-axis = Engine Speed (RPM)

Diagnostic fails when the filtered diagnostic output is between the OpenCktThrshMin and OpenCktThrshMax:

i.e.: $KtKNKD_k_OpenMinNN < VaKNKD_k_OpenFilIntensity < KtKNKD_k_OpenMaxNN$.

y/x	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0325_P0330_OpenMethod_2

Description: Defines which Knock Open Circuit Diagnostic method to use.

Notes: Used for P0325 and P0330. Cal name: KaKNKD_e_OpenMethod. x-axis = Engine Speed Index, 500 to 8500 (RPM) by 500 rpm increments.

Selects 1 of 3 available methods: "20kHz Method", "Normal Noise Method," or "Disabled." The mode chosen dictates which set of threshold tables are used. Typically, either: A) the 20 kHz Method is used for all RPM or B) the 20 kHz Method is used for low/medium RPM and the Normal Noise Method is used for high RPM.

P0325_P0330_OpenMethod_2 - Part 1

y/x	0	1	2	3	4	5
1	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z

P0325_P0330_OpenMethod_2 - Part 2

y/x	6	7	8	9	10	11
1	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z	CeKNKD_e_Open_20KH z

P0325_P0330_OpenMethod_2 - Part 3

y/x	12	13	14	15	16	
1	CeKNKD_e_Open_Norm alNoise	CeKNKD_e_Open_Norm alNoise	CeKNKD_e_Open_Norm alNoise	CeKNKD_e_Open_Norm alNoise	CeKNKD_e_Open_Norm alNoise	

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0401_SamplesAfterReset

Description: P0401 - Total number of samples allowed after a reset.

Notes: KtEGRD_Cnt_SamplesAfterReset

y/x	65	70	75	80	85	90	95	100	105
1	20	20	20	15	10	10	10	10	10

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0401_SamplesAfterStep

Description: P0401 - Total number of samples needed after a step change.

Notes: KtEGRD_Cnt_SamplesAfterStep

y/x	65	70	75	80	85	90	95	100	105
1	20	20	20	15	10	10	10	10	10

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0401_StepDelta

Description: P0401 - Minimum difference between MAPDIFF and EWMA to trigger multiple tests for step change.

Notes: KtEGRD_p_StepDelta

y/x	65	70	75	80	85	90	95	100	105
1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0401_StepMAP_DIFF

Description: P0401 - Minimum value of MAPDIFF to trigger multiple tests for step change.

Notes: KtEGRD_p_StepMAP_DIFF

y/x	65	70	75	80	85	90	95	100	105
1	0.7	0.7	0.8	0.8	0.8	0.9	0.9	1.0	1.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0401_StepSamplesPerTrip

Description: P0401 - Maximum number of samples per trip after a step change

Notes: KtEGRD_ nt_StepSamplesPer rip

y/x	65	70	75	80	85	90	95	100	105
1	7	7	7	5					

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0442: Volatility Time as a Function of Estimate of Ambient Temperature

Description: Data is Volatility Time (in seconds) and Axis is Estimated Ambient Coolant in Deg C

Notes: KtEONV_t_VolatilityTimeMax

y/x	-10	-4	1	7	13	18	24	29	35	41	46	52	58	63	69	74	80
1	30	30	45	60	80	120	220	300	400	400	400	400	400	400	400	400	400

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0442: Engine Off Time Before Vehicle Off Maximum as a Function of Estimated Ambient Temperature Table

Description: Data is Engine Off Time Before Vehicle Off Maximum Table (in seconds) and Axis is Estimated Ambient Coolant in Deg C

Notes: KtEONV_t_EngOffTimeBefVehOffMax

y/x	-10	-4	1	7	13	18	24	29	35	41	46	52	58	63	69	74	80
1	44	44	44	44	68	82	105	153	320	480	480	480	480	480	480	480	480

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0442: EONV Pressure Threshold (Pascals) Table

Description: Data is EONV Pressure Threshold in Pascals, X axis (horizontal) is fuel level in % from 0 to 100 with step size 6.25, and Y axis (vertical) is temperature in deg C from -10 to 80 with step size 5.625

Notes: KtEONV_p_PressureThreshold

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
2	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
3	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
4	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
5	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
7	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
8	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
9	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
10	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
11	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
12	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
13	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
14	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
15	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
16	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6
17	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6	-373.6

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0461, P2066, P2636: Transfer Pump Enable Time Table

Description: Data is TransferPumpOnTimeLimit (in seconds) and Axis is Fuel Level in %

Notes: KtFLVC_t_XferFuelPmpOnTmLim

P0461, P2066, P2636: Transfer Pump Enable Time Table - Part 1

y/x	0	3	6	9	13	16	19	22	25	28	31	34	38	41	44	47	50
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

P0461, P2066, P2636: Transfer Pump Enable Time Table - Part 2

y/x	53	56	59	63	66	69	72	75	78	81	84	88	91	94	97	100	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0496: Purge Valve Leak Test Engine Vacuum Test Time (Cold Start) as a Function of Fuel Level Table

Description: Data is Purge Valve Leak Test Engine Vacuum Test Time (in seconds) and Axis is Fuel Level in %

Notes: KtEVPD_t_PVLT_EngineVacTimeCold

y/x	0	6	12	19	25	31	37	44	50	56	62	69	75	81	87	94	100
1	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_Eng_Load_Stability_Weighting_Factor - Single Stage Oil Pump

Description: Engine Load Stability Weighting Factor - Single Stage Oil Pump

Notes: KtEOPD_r_EngLoadStblWeight with axis as Engine Load Stability defined by KnEOPD_m_EngLoadStabilityBpt

y/x	0	5	10	20	30	50	100	200	399
1	1.00	1.00	0.50	0.30	0.10	0.00	0.00	0.00	0.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_Eng_Load_Stability_Weighting_Factor_Axis - Single Stage Oil Pump

Description: Engine Load Stability Weighting Factor Axis - Single Stage Oil Pump

Notes: KnEOPD_m_EngLoadStabilityBpt engine load axis used by KtEOPD_r_EngLoadStblWeight

y/x	1	2	3	4	5	6	7	8	9
1	0	5	10	20	30	50	100	200	399

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_Eng_Oil_Pred_Weighting_Factor - Single Stage Oil Pump

Description: Oil Pressure Predicted Weighting Factor - Single Stage Oil Pump

Notes: KtEOPD_r_EOP_PredictWeight with axis as Predicted Oil Pressure defined by KnEOPD_p_EngOilPredictedBpt

y/x	0	170	250	275	360	375	400	500	600
1	0.00	0.00	0.10	1.00	1.00	1.00	1.00	0.86	0.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_Eng_Oil_Pred_Weighting_Factor_Axis - Single Stage Oil Pump

Description: Oil Pressure Predicted Weighting Factor Axis - Single Stage Oil Pump

Notes: KnEOPD_p_EngOilPredictedBpt predicted oil pressure axis used by KtEOPD_r_EOP_PredictWeight

y/x	1	2	3	4	5	6	7	8	9
1	0	170	250	275	360	375	400	500	600

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_LowMinOilPresFail - Two Stage Oil Pump

Description: Minimum expected oil presure readings

Notes: For P0521: KtLUBD_p_OP_SnsrMinOilPresFail with X Axis is defined by KnLUBD_n_OP_SnsrMinRPMAxs

y/x	1,000.0	1,500.0	2,000.0	2,500.0	3,000.0	3,500.0	4,000.0	4,500.0	5,000.0
1.0	25.0	64.0	76.0	90.0	104.0	118.0	130.0	136.0	142.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_Oil_Temp_Weighting_Factor - Single Stage Oil Pump

Description: Oil Temperature Weighting Factor - Single Stage Oil Pump

Notes: KtEOPD_r_EOT_Weight with axis as Oil Temperature defined by KnEOPD_T_EngFilteredBpt

y/x	-40	40	60	80	90	100	120	130	140
1	0.58	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_Oil_Temp_Weighting_Factor_Axis - Single Stage Oil Pump

Description: Oil Temperature Weighting Factor Axis - Single Stage Oil Pump

Notes: KnEOPD_T_EngFilteredBpt oil temperature axis for use by KtEOPD_r_EOT_Weight

y/x	1	2	3	4	5	6	7	8	9
1	-40	40	60	80	90	100	120	130	140

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_RPM_Weighting_Factor - Single Stage Oil Pump

Description: Engine RPM Weighting Factor - Single Stage Oil Pump

Notes: KtEOPD_r_EngSpdWeight with axis as Engine RPM defined by KnEOPD_n_EngSpdFilteredBpt

y/x	0	500	900	1,000	1,500	1,750	2,000	3,500	4,000
1	0.00	0.00	0.00	0.45	0.45	0.45	0.46	0.44	0.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0521_RPM_Weighting_Factor_X_Axis - Single Stage Oil Pump

Description: Engine RPM Weighting Factor Axis - Single Stage Oil Pump

Notes: KnEOPD_n_EngSpdFilteredBpt Engine RPM Axis for use by KtEOPD_r_EngSpdWeight

y/x	1	2	3	4	5	6	7	8	9
1	0	500	900	1,000	1,500	1,750	2,000	3,500	4,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Cold_Test_Threshold

Description: AC High Side Pressure Sensor Rationality Cold Test Threshold

Notes: For P0531: KtACCD_p_HSPRat_ColdTestTarget with X Axis is defined by KnACCD_T_HSPRat_ColdTestTarget

y/x	-20	0	20	60	100
1	150	250	600	1,300	1,500

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Cold_Test_Threshold_Axis

Description: Ambient Temperature Axis for the Cold Test

Notes: For P0531: KnACCD_T_HSPRat_ColdTestTarget

y/x	1	2	3	4	5
1	-20	0	20	60	100

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Coolant_Weighting_Factor_Axis

Description: Coolant Weighting Factor Axis for Delta Predicted AC Pressure

Notes: For P0531: KnACCD_T_HSPRat_EngageTstCool

y/x	1	2	3	4	5	6	7	8	9
1	-40	-20	0	20	40	60	80	100	120

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Coolant_Weighting_Factor

Description: Coolant Weighting Factor for Delta Predicted AC Pressure

Notes: For P0531: KtACCD_k_HSPRat_EngageCoolCoeff with X Axis is Engine Coolant defined by KnACCD_T_HSPRat_EngageTstCool to weight the Delta Predicted Pressure

y/x	-40	-20	0	20	40	60	80	100	120
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8999	0.7500	0.5000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Delta_Predicted_Pressure

Description: AC High Side Pressure Sensor Sensor Engage Test Predicted Delta Pressure

Notes: For P0531: KtACCD_p_HSPR_DeltaPredicted with X Axis is defined by KnACCD_T_HSPRat_EngageTstAmb and Y Axis is defined by KnACCD_v_HSPRat_EngageTstVehSpd

y/x	0	20	30	40	50	60	70	80	100
0	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
20	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
40	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
60	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
80	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
100	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
120	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
140	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00
160	40.00	50.00	60.00	70.00	75.00	80.00	100.00	100.00	100.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Delta_Predicted_Quality_Factor

Description: Delta Predicted Quality Factor for the Engage Test

Notes: For P0531: KtACCD_k_HSPR_QualFactor with X Axis is defined by KnACCD_T_HSPRat_EngageTstAmb and Y Axis is defined by KnACCD_v_HSPRat_EngageTstVehSpd

y/x	0	20	30	40	50	60	70	80	100
0	0.05000	0.25999	0.42999	0.46001	0.53000	0.63000	0.72000	0.84000	0.99001
20	0.05000	0.24001	0.38000	0.42999	0.49001	0.58000	0.67000	0.81000	0.99001
40	0.05000	0.16000	0.28000	0.31000	0.39000	0.50999	0.62000	0.75999	0.95000
60	0.05000	0.14999	0.25999	0.28999	0.35001	0.44000	0.53999	0.69000	0.92999
80	0.05000	0.14000	0.25000	0.28000	0.34000	0.41000	0.49001	0.63000	0.88000
100	0.05000	0.12000	0.23000	0.25999	0.31000	0.38000	0.46001	0.58000	0.78000
120	0.05000	0.10001	0.20000	0.25000	0.30000	0.33000	0.39999	0.52000	0.73000
140	0.05000	0.09000	0.17999	0.22000	0.25000	0.28000	0.35001	0.39999	0.48000
160	0.05000	0.08000	0.17999	0.19000	0.21001	0.23000	0.28000	0.33000	0.41000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Delta_Predicted_Weighting_Factor_X_Axis

Description: Ambient Temperature Axis for Delta Predicted AC Pressure

Notes: For P0531: KnACCD_T_HSPRat_EngageTstAmb used in both the Quality Factor and Delta Predicted table lookup

y/x	1	2	3	4	5	6	7	8	9
1	0	20	30	40	50	60	70	80	100

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Delta_Predicted_Weighting_Factor_Y_Axis

Description: Vehicle Speed Axis for Delta Predicted AC Pressure

Notes: For P0531: KnACCD_v_HSPRat_EngageTstVehSpd used in both the Quality Factor and Delta Predicted table lookup

y/x	1	2	3	4	5	6	7	8	9
1	0	20	40	60	80	100	120	140	160

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_FanSpeed_Weighting_Factor

Description: FanSpeed Weighting Factor for Delta Predicted AC Pressure

Notes: For P0531: KtACCD_k_HSPRat_EngageFanCoeff with X Axis is Fan Speed as desfined by KnACCD_Pct_HSPRat_EngageTestFan to weight the Delta Predicted Pressure

y/x	10	20	30	40	50	60	70	80	99
1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_FanSpeed_Weighting_Factor_Axis

Description: FanSpeed Weighting Factor Axis for Delta Predicted AC Pressure

Notes: For P0531: KnACCD_Pct_HSPRat_EngageTstFan

y/x	1	2	3	4	5	6	7	8	9
1	10	20	30	40	50	60	70	80	99

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Off_Test_Threshold

Description: AC High Side Pressure Sensor Rationality Off Test Threshold

Notes: For P0531: KtACCD_p_HSPRat_OffTestPresMax with X Axis is defined by KnACCD_T_HSPRat_OffTestPresMax

y/x	0	20	40	60	100
1	1,000	1,400	1,800	2,000	2,300

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_Off_Test_Threshold_Axis

Description: Ambeint Temperature Axis for the Off Test

Notes: For P0531: KnACCD_T_HSPRat_OffTestPresMax

y/x	1	2	3	4	5
1	0	20	40	60	100

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_On_Test_Threshold

Description: AC High Side Pressure Sensor Rationality On Test Threshold

Notes: For P0531: KtACCD_p_HSPRat_OnTestPresMin with X Axis is defined by KnACCD_T_HSPRat_OnTestPresMin

y/x	0	20	40	60	100
1	65.0	195.0	260.0	325.0	455.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0531_On_Test_Threshold_Axis

Description: Ambient Temperature Axis for the On Test

Notes: For P0531: KnACCD_T_HSPRat_OnTestPresMin

y/x	1	2	3	4	5
1	0	20	40	60	100

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0606_Last Seed Timeout f(Loop Time)

Description: The max time for the Last Seed Timeout as a function of operating loop time sequence.

Notes: P0606, KaPISD_t_LastSeedTimeout[x]

y/x	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C
1	0.175	0.175	0.175	409.594

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0606_Program Sequence Watch Enable f(Loop Time)

Description: The enabling flags for the program sequence watch as a function of operating loop time sequence.

Notes: P0606, KaPISD_b_ProgSeqWatchEnbl

y/x	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C
1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0606_PSW Sequence Fail f(Loop Time)

Description: Fail threshold for PSW per operating loop.

Notes: P0606, KaPISD_Cnt_SequenceFail[x]

y/x	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C
1	3	3	3	3

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0606_PSW Sequence Sample f(Loop Time)

Description: Sample threshold for PSW per operating loop.

Notes: P0606, KaPISD_Cnt_SequenceSmp[x]

y/x	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C
1	4	4	4	4

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06B6_P06B7_OpenTestCktThrshMax

Description: Knock Open Circuit Minimum Threshold for Internal Circuit Diagnostic. Used only when the 20 kHz method is being used (see "OpenMethod" description). The Open Test Circuit ensures that the internal circuit used to generate the 20 kHz signal for the Open Circuit diags (P0325, P0330) is within range.

Notes: Used for P0325 and P0330. Cal name: KtKNKD_k_OpenTestCktMax. x-axis = Engine Speed (RPM).

Diagnostic fails when the filtered diagnostic output is between the OpenTestCktThrshMin and OpenTestCktThrshMax:

i.e. $KtKNKD_k_OpenTestCktMin < VaKNKD_k_OpenTestCktIntFilter < KtKNKD_k_OpenTestCktMax$

y/x	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500
1	0.281	0.283	0.291	0.342	0.420	0.400	0.518	0.771	0.885	1.023	1.334	1.744	1.758	1.693	1.693	1.693	1.703

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06B6_P06B7_OpenTestCktThrshMin

Description: Knock Open Circuit Minimum Threshold for Internal Circuit Diagnostic. Used only when the 20 kHz method is being used (see "OpenMethod" description). The Open Test Circuit ensures that the internal circuit used to generate the 20 kHz signal for the Open Circuit diags (P0325, P0330) is within range.

Notes: Used for P0325 and P0330. Cal name: KtKNKD_k_OpenTestCktMin. x-axis = Engine Speed (RPM).

Diagnostic fails when the filtered diagnostic output is between the OpenTestCktThrshMin and OpenTestCktThrshMax:

i.e. $KtKNKD_k_OpenTestCktMin < VaKNKD_k_OpenTestCktIntFilter < KtKNKD_k_OpenTestCktMax$

y/x	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500
1	0.129	0.129	0.137	0.156	0.197	0.178	0.262	0.307	0.410	0.381	0.543	0.662	1.441	1.441	1.441	1.441	1.441

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_MaxEnableTorque_OP

Description: Two Stage Oil Pump Rationality Test Torque Max Enable Threshold

Notes: For P06DD and P06DE: KtLUBD_M_OP_InDiagEngTorqMax with X Axis is defined by KnLUBD_n_OP_InDiEngTorqMxRPMAxs

y/x	1,000.0	1,250.0	1,500.0	1,750.0	2,000.0	2,250.0	2,500.0	2,750.0	3,000.0
1.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_MaxEnableTorque_OP_Axis

Description: Engine Speed Axis for Two Stage Oil Pump maximum torque enable threshold

Notes: KnLUBD_n_OP_InDiEngTorqMxRPMAxs X Axis for KtLUBD_M_OP_InDiagEngTorqMax

y/x	1	2	3	4	5	6	7	8	9
1	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_MinEnableTorque_OP

Description: Two Stage Oil Pump Rationality Test Torque Min Enable Threshold

Notes: For P06DD and P06DE: KtLUBD_M_OP_InDiagEngTorqMin with X Axis is defined by KnLUBD_n_OP_InDiEngTorqMnRPMAXs

y/x	1,000.0	1,250.0	1,500.0	1,750.0	2,000.0	2,250.0	2,500.0	2,750.0	3,000.0
1.0	0.0	0.0	20.0	20.0	20.0	20.0	20.0	0.0	0.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_MinEnableTorque_OP_Axis

Description: Engine Speed Axis for Two Stage Oil Pump minimum torque enable threshold

Notes: KnLUBD_n_OP_InDiEngTorqMnRPMAxs X Axis for KtLUBD_M_OP_InDiagEngTorqMin

y/x	1	2	3	4	5	6	7	8	9
1	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_MinOilPresThresh

Description: Intrusive diagnostic minimum pressure limit that is a function of Engine Speed and Oil Temperature

Notes: For P06DD and P06DE: KtLUBD_p_InDiagMinPresThresh with X Axis is defined by KnLUBD_n_OP_OilPresRPMMaxs and Y Axis is defined by KnLUBD_T_OP_OilPresTempAxs

y/x	40	50	60	70	80	90	100	110	120
1,000	25	32	38	45	52	59	65	68	71
1,500	25	32	38	45	52	59	65	68	71
2,000	25	32	38	45	52	59	65	68	71
2,500	25	32	38	45	52	59	65	68	71
3,000	25	32	38	45	52	59	65	68	71
3,500	25	32	38	45	52	59	65	68	71
4,000	25	32	38	45	52	59	65	68	71
4,500	25	32	38	45	52	59	65	68	71
5,000	25	32	38	45	52	59	65	68	71

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_OP_HiStatePressure

Description: Two Stage Oil Pump Oil Pressure in High State

Notes: For P06DD and P06DE: KtLUBD_p_OP_OilPresHighState with X Axis is defined by KnLUBD_n_OP_OilPresRPMMaxs and Y Axis is defined by KnLUBD_T_OP_OilPresTempAxs

y/x	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0
1,000.0	413.0	383.0	352.0	322.0	292.0	262.0	232.0	201.0	174.0
1,500.0	483.0	456.0	429.0	402.0	374.0	347.0	320.0	393.0	265.0
2,000.0	524.0	500.0	477.0	453.0	429.0	405.0	382.0	358.0	334.0
2,500.0	549.0	530.0	510.0	491.0	471.0	452.0	432.0	413.0	393.0
3,000.0	561.0	545.0	529.0	513.0	497.0	481.0	465.0	449.0	433.0
3,500.0	569.0	556.0	543.0	531.0	518.0	505.0	492.0	480.0	467.0
4,000.0	572.0	562.0	552.0	542.0	532.0	522.0	512.0	502.0	492.0
4,500.0	573.0	565.0	558.0	550.0	542.0	535.0	527.0	520.0	512.0
5,000.0	575.0	570.0	564.0	558.0	552.0	546.0	540.0	534.0	528.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_OP_LoStatePressure

Description: Two Stage Oil Pump Oil Pressure in Low State

Notes: For P06DD and P06DE: KtLUBD_p_OP_OilPresLowState with X Axis is defined by KnLUBD_n_OP_OilPresRPMAxs and Y Axis is defined by KnLUBD_T_OP_OilPresTempAxs

y/x	40	50	60	70	80	90	100	110	120
1,000	299	283	268	252	237	221	205	190	174
1,500	325	312	299	286	273	260	248	235	222
2,000	343	333	324	314	305	295	285	276	266
2,500	356	350	343	337	331	324	318	312	305
3,000	363	359	355	352	348	344	341	337	333
3,500	363	361	360	358	356	355	353	351	349
4,000	363	361	360	358	356	355	353	351	349
4,500	363	361	360	358	356	355	353	351	349
5,000	363	361	360	358	356	355	353	351	349

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_OP_PressureRPMAxis

Description: Engine Speed Axis for Two Stage Oil Pump Pressure estimate

Notes: KnLUBD_n_OP_OilPresRPMAxis X Axis for KtLUBD_p_OP_OilPresHighState X Axis

y/x	1	2	3	4	5	6	7	8	9
1	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_OP_PressureTempAxis

Description: Oil Temperature Axis for Two Stage Oil Pump Pressure estimate

Notes: KnLUBD_T_OP_OilPresTempAxis Y Axis for KtLUBD_p_OP_OilPresHighState

y/x	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
1.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P06DD_P06DE_OP_StateChangeMin

Description: Minimum allowed pressure change on a Two Stage Oil Pump state change

Notes: For P06DD and P06DE: KtLUBD_p_OP_StateChangeMin with X Axis is defined by KnLUBD_n_OP_OilPresRPMAx and Y Axis is defined by KnLUBD_T_OP_OilPresTempAx

y/x	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0
1,000.0	80.0	50.0	42.0	35.0	28.0	21.0	14.0	6.0	0.0
1,500.0	79.0	72.0	65.0	58.0	51.0	44.0	36.0	29.0	22.0
2,000.0	91.0	84.0	77.0	70.0	62.0	55.0	49.0	41.0	34.0
2,500.0	97.0	90.0	84.0	77.0	70.0	64.0	57.0	51.0	44.0
3,000.0	99.0	93.0	87.0	81.0	75.0	69.0	62.0	56.0	50.0
3,500.0	103.0	98.0	92.0	87.0	81.0	75.0	70.0	65.0	59.0
4,000.0	105.0	101.0	96.0	92.0	88.0	84.0	80.0	76.0	72.0
4,500.0	105.0	102.0	99.0	96.0	93.0	90.0	87.0	85.0	82.0
5,000.0	106.0	105.0	102.0	100.0	98.0	96.0	94.0	92.0	90.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1682_PT Relay Pull-in Run/Crank Voltage f(IAT)

Description: The Run/Crank voltages required to pull in the PT relay as a function of induction air temperature.

Notes: P1682, KtEROR_U_PT_RelayPullInEnbl

y/x	23.00	85.00	95.00	105.00	125.00
1.00	7.00	8.70	9.00	9.20	10.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P16F3_Delta MAP Threshold f(Desired Engine Torque)

Description: Engine Sync based and Time based delta pressure threshold above which Torque Security error is reported.

Notes: P16F3, KtMAPI_p_ES_TB_MAP_DeltaThresh

y/x	0.00	50.00	100.00	150.00	200.00	300.00
1.00	15.02	15.02	15.02	15.02	15.02	15.02

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P16F3_Delta Spark Threshold f(RPM,APC)

Description: Threshold for determining when the difference between commanded spark and applied spark exceeds the torque security requirement. It is a function of engine rpm and APC.

Notes: P16F3, KtSPRK_phi_DeltTorqueScrtyAdv

y/x	500.00	980.74	1,461.48	1,942.23	2,422.97	2,903.71	3,384.45	3,865.20	4,345.94	4,826.68	5,307.42	5,788.16	6,268.91	6,749.65	7,230.39	7,711.13	8,191.88
80.00	125.00	15.42	21.48	25.70	25.64	25.91	23.97	22.30	20.84	20.92	21.19	20.83	19.50	18.19	18.05	18.05	18.05
160.00	125.00	15.63	20.31	24.45	25.56	24.81	21.61	19.23	17.53	18.17	19.13	19.19	17.86	16.52	16.38	16.38	16.38
240.00	125.00	15.84	19.28	23.31	25.50	23.83	19.75	16.94	15.20	16.17	17.50	17.78	16.47	15.14	15.00	15.00	15.00
320.00	125.00	16.06	18.39	22.27	25.44	22.97	18.22	15.73	15.08	15.58	16.23	16.38	15.72	15.06	15.00	15.00	15.00
400.00	125.00	16.06	17.58	21.09	23.91	20.63	16.73	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
480.00	125.00	15.72	16.73	19.67	21.02	18.34	16.03	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
560.00	125.00	15.38	15.94	17.67	18.77	16.56	15.48	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
640.00	125.00	15.02	15.20	16.05	16.94	15.14	15.05	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
720.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
800.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
880.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
960.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
1,040.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
1,120.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
1,200.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
1,280.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
1,360.00	125.00	15.00	15.00	15.00	15.66	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P16F3_Speed Control External Load f(Oil Temp, RPM)

Description: Specifies the external load table for SPDR torque security as a function of engine oil temperature and engine RPM.

Notes: P16F3, KtSPDC_M_ExternalLoad

y/x	-40.00	-20.00	-10.00	0.00	50.00	90.00
350.00	400.00	400.00	400.00	400.00	400.00	400.00
450.00	400.00	400.00	400.00	400.00	400.00	400.00
550.00	400.00	400.00	400.00	400.00	400.00	400.00
600.00	400.00	400.00	400.00	400.00	400.00	400.00
700.00	368.15	368.15	368.15	368.15	314.88	304.65
800.00	336.29	336.29	336.29	336.29	229.76	209.31
900.00	336.29	336.29	336.29	336.29	218.79	199.15
1,000.00	336.29	336.29	336.29	336.29	207.81	188.99
1,100.00	336.29	336.29	336.29	289.05	170.30	152.99
1,200.00	336.29	336.29	336.29	241.81	132.79	116.99
1,300.00	336.29	336.29	321.48	194.27	97.80	82.77
1,400.00	336.29	336.29	306.67	146.73	62.80	48.55
2,000.00	168.74	140.81	121.49	58.77	18.73	12.75
2,500.00	64.60	51.85	44.87	30.23	11.89	7.22
3,000.00	48.36	38.11	33.50	28.90	13.74	8.50
4,000.00	58.66	46.64	41.30	36.40	18.59	12.36
6,000.00	88.34	74.49	68.33	62.69	42.16	34.98

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P219A Normalizer Bank1 Table

Description: Bank 1 Normalizer table used in the calculation of the Ratio for the current sample period.

Notes: DTCs: P219A; Calibration Name: KtFABD_U_Normalizer1; Horizontal axis is RPM; Vertical Axis is Air Per Cylinder (APC) in mg/cylinder

y/x	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000
40	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
80	9,999.00	152.75	152.75	189.25	188.75	143.00	129.50	138.25	157.50	148.75	97.50	90.50	66.75	80.50	59.75	60.00	59.75
120	9,999.00	152.75	152.75	189.25	188.75	143.00	129.50	138.25	157.50	148.75	97.50	90.50	66.75	80.50	59.75	60.00	59.75
160	9,999.00	168.00	168.00	164.25	9.00	9.00	16.00	80.00	165.50	132.25	138.75	130.25	110.50	104.00	91.00	81.50	76.50
200	9,999.00	223.25	223.25	263.75	25.00	17.00	16.00	54.00	160.00	176.50	155.50	152.25	135.75	126.50	112.25	117.25	101.75
240	9,999.00	238.75	238.75	255.75	113.00	77.00	67.00	75.00	100.00	140.00	224.75	209.25	189.75	176.75	170.00	180.75	171.75
280	9,999.00	250.25	250.25	252.50	111.00	93.00	73.00	86.00	75.00	150.00	259.75	263.00	236.50	212.00	200.50	205.00	198.25
320	9,999.00	277.25	277.25	270.00	199.00	129.00	63.00	70.00	87.00	98.00	281.50	283.00	255.75	227.25	224.75	203.00	205.75
360	9,999.00	270.50	270.50	268.25	233.00	128.00	75.00	122.00	148.00	100.00	269.00	286.25	274.50	267.25	251.75	232.00	216.75
400	9,999.00	274.75	274.75	267.50	280.50	202.00	278.50	222.00	293.00	145.00	280.50	282.25	271.50	274.50	263.50	257.00	238.75
440	9,999.00	283.50	283.50	304.50	291.25	291.75	277.75	238.50	255.00	264.50	268.25	274.25	268.00	266.75	252.75	243.50	230.75
480	9,999.00	278.75	278.75	305.00	304.00	297.00	275.25	243.25	252.75	246.75	260.50	267.50	258.25	259.00	250.00	240.25	231.00
520	9,999.00	270.75	270.75	292.25	301.50	291.25	296.50	286.00	267.50	250.00	222.25	272.75	260.50	259.25	264.25	243.25	225.50
560	9,999.00	274.00	274.00	280.75	277.75	262.50	270.25	252.00	249.50	245.50	234.00	272.75	260.50	259.25	264.25	243.25	225.50
600	9,999.00	274.00	274.00	280.75	277.75	262.50	257.25	252.00	249.50	245.50	245.50	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
640	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
680	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P219A Quality Factor Bank1 Table

Description: Bank 1 lookup table of Quality Factors used in the calculation of the Ratio for the current sample period

Notes: DTCs: P219A; Calibration Name: KtFABD_K_QualFactor1; Horizontal axis is RPM; Vertical Axis is Air Per Cylinder (APC) in mg/cylinder

y/x	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
160	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
200	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
240	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
280	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
320	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
360	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
400	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
440	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
480	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
520	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
560	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P219A Variance Threshold Bank1 Table

Description: Bank 1 lookup table of Variance metric used to calculate the Ratio for the current sample period

Notes: DTCs: P219A; Calibration Name: KtFABD_U_VarThresh1; Horizontal axis is RPM; Vertical Axis is Air Per Cylinder (APC) in mg/cylinder

y/x	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000
40	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
80	9,999.00	14.25	14.25	11.50	8.50	12.50	12.50	15.50	10.75	10.50	13.50	7.50	9.25	7.50	6.50	6.75	5.25
120	9,999.00	14.25	14.25	11.50	8.50	12.50	12.50	15.50	10.75	10.50	13.50	7.50	9.25	7.50	6.50	6.75	5.25
160	9,999.00	24.00	24.00	14.00	2.50	4.00	4.00	5.00	5.00	19.00	12.75	6.50	10.50	7.00	6.50	7.00	8.50
200	9,999.00	64.00	64.00	28.75	5.25	4.00	4.50	7.00	6.50	15.25	9.50	6.75	10.00	10.25	7.00	6.00	8.00
240	9,999.00	53.25	53.25	26.50	6.75	6.25	6.00	8.00	12.00	15.00	14.25	9.00	17.25	8.25	9.00	9.25	12.00
280	9,999.00	73.00	73.00	35.50	9.50	8.50	12.00	13.00	13.00	15.00	19.75	6.50	13.00	9.50	7.50	9.00	14.75
320	9,999.00	42.00	42.00	31.50	11.00	9.00	11.00	11.50	11.00	13.00	19.50	8.50	17.25	12.00	11.25	13.75	24.25
360	9,999.00	47.25	47.25	39.50	31.25	25.00	13.00	15.00	14.00	15.00	23.00	13.75	17.50	14.50	13.50	19.75	25.25
400	9,999.00	64.00	64.00	52.00	50.50	32.00	28.00	40.50	24.75	31.00	23.00	15.50	20.50	14.75	14.25	16.75	23.75
440	9,999.00	63.25	63.25	37.25	46.25	40.75	45.75	79.00	42.25	39.00	32.25	21.50	18.50	17.75	20.50	22.25	30.50
480	9,999.00	57.50	57.50	38.00	39.00	42.00	58.00	78.75	62.25	58.25	39.75	18.75	16.50	20.75	18.50	23.75	25.00
520	9,999.00	54.00	54.00	35.00	26.00	38.00	38.75	43.25	47.25	62.00	79.00	15.00	19.50	21.00	17.50	20.25	33.75
560	9,999.00	54.75	54.75	34.75	37.50	38.50	41.00	45.25	56.50	62.00	70.50	15.00	19.50	21.00	17.50	20.25	33.75
600	9,999.00	54.75	54.75	34.75	37.50	38.50	42.00	45.25	56.50	62.00	62.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
640	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
680	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P219B Normalizer Bank2 Table

Description: Bank 2 Normalizer table used in the calculation of the Ratio for the current sample period.

Notes: DTCs: P219B; Calibration Name: KtFABD_U_Normalizer2; Horizontal axis is RPM; Vertical Axis is Air Per Cylinder (APC) in mg/cylinder

y/x	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000
40	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
80	9,999.00	154.00	154.00	186.25	189.50	141.50	131.50	138.75	156.75	134.25	96.75	90.50	65.50	80.25	60.00	60.50	60.25
120	9,999.00	154.00	154.00	186.25	189.50	141.50	131.50	138.75	156.75	134.25	96.75	90.50	65.50	80.25	60.00	60.50	60.25
160	9,999.00	167.50	167.50	165.50	20.00	40.00	28.00	90.00	170.50	130.00	138.00	130.50	111.00	103.00	93.00	82.25	75.50
200	9,999.00	224.50	224.50	262.75	40.00	45.00	29.00	73.00	150.00	150.00	159.00	152.75	133.50	128.25	113.00	116.25	105.50
240	9,999.00	238.50	238.50	254.00	95.00	57.00	47.00	60.00	120.00	120.00	221.00	212.50	191.00	176.00	169.00	179.75	174.50
280	9,999.00	250.50	250.50	253.50	125.00	101.00	97.00	118.00	110.00	140.00	260.00	262.50	235.50	212.50	200.75	205.25	196.50
320	9,999.00	278.00	278.00	270.50	175.00	125.00	167.00	117.00	116.00	116.00	281.00	282.50	254.25	226.00	223.25	204.00	206.50
360	9,999.00	269.00	269.00	266.00	243.00	140.00	222.00	190.00	113.00	120.00	269.00	286.50	272.50	267.50	252.75	231.00	216.50
400	9,999.00	273.75	273.75	267.00	282.25	140.00	278.25	222.00	273.25	147.00	280.75	282.50	270.75	274.75	263.50	256.00	238.25
440	9,999.00	282.25	282.25	304.50	288.00	291.00	279.00	238.75	253.50	264.50	268.75	276.00	268.25	266.25	253.75	243.50	231.75
480	9,999.00	277.25	277.25	307.50	303.00	297.00	275.75	241.75	253.75	247.25	258.75	269.50	259.25	259.75	250.75	238.50	231.00
520	9,999.00	270.75	270.75	292.50	301.25	292.50	295.00	285.00	268.50	249.75	218.75	273.00	261.00	260.75	264.25	241.25	227.25
560	9,999.00	272.25	272.25	281.25	277.75	262.25	270.00	252.50	247.50	246.50	232.50	273.00	261.00	260.75	264.25	241.25	227.25
600	9,999.00	272.25	272.25	281.25	277.75	262.25	257.25	252.50	247.50	246.50	246.50	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
640	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
680	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P219B Quality Factor Bank2 Table

Description: Bank 2 lookup table of Quality Factors used in the calculation of the Ratio for the current sample period

Notes: DTCs: P219B; Calibration Name: KtFABD_K_QualFactor2; Horizontal axis is RPM; Vertical Axis is Air Per Cylinder (APC) in mg/cylinder

y/x	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
160	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
200	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
240	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
280	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
320	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
360	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
400	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
440	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
480	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
520	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
560	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P219B Variance Threshold Bank2 Table

Description: Bank 2 lookup table of Variance metric used to calculate the Ratio for the current sample period

Notes: DTCs: P219B; Calibration Name: KtFABD_U_VarThresh2; Horizontal axis is RPM; Vertical Axis is Air Per Cylinder (APC) in mg/cylinder

y/x	800	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	3,800	4,000
40	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
80	9,999.00	14.50	14.50	11.50	8.00	12.75	12.50	15.25	11.00	11.00	14.75	8.00	9.25	7.50	6.50	6.75	7.00
120	9,999.00	14.50	14.50	11.50	8.00	12.75	12.50	15.25	11.00	11.00	14.75	8.00	9.25	7.50	6.50	6.75	7.00
160	9,999.00	26.00	26.00	13.50	5.00	6.50	7.00	5.00	18.25	19.25	12.75	6.50	10.50	7.25	6.00	7.25	8.50
200	9,999.00	63.75	63.75	28.75	8.50	6.50	5.00	6.00	6.00	15.25	9.00	7.00	9.50	10.25	7.25	6.00	8.00
240	9,999.00	51.75	51.75	27.75	8.25	7.50	8.00	8.00	11.00	19.00	12.00	8.75	17.25	8.00	9.00	9.75	12.00
280	9,999.00	72.25	72.25	35.25	15.00	15.00	20.00	20.00	15.50	23.00	11.00	7.00	14.25	9.50	7.50	9.00	14.75
320	9,999.00	41.50	41.50	30.25	17.00	14.00	13.00	14.00	13.00	22.00	19.75	8.50	19.00	11.50	11.25	13.50	23.50
360	9,999.00	47.75	47.75	41.00	21.00	22.00	16.00	18.00	14.00	15.00	23.00	13.50	18.75	14.00	13.25	21.50	25.00
400	9,999.00	65.00	65.00	52.00	48.75	32.00	28.00	41.25	24.75	22.00	23.00	15.75	21.00	14.75	14.25	17.75	23.75
440	9,999.00	64.00	64.00	37.25	49.00	41.25	44.50	78.50	43.50	39.00	32.25	19.50	18.50	18.00	20.25	22.50	30.25
480	9,999.00	58.50	58.50	35.50	38.50	41.75	57.50	80.00	61.25	58.25	41.25	16.75	15.75	20.75	17.00	25.50	24.50
520	9,999.00	54.00	54.00	34.75	26.50	36.50	40.50	44.25	45.75	62.00	82.25	15.00	19.25	19.25	17.50	20.75	32.00
560	9,999.00	56.50	56.50	34.50	37.50	39.25	41.50	44.75	58.25	60.75	71.50	15.00	19.25	19.25	17.50	20.75	32.00
600	9,999.00	56.50	56.50	34.50	37.50	39.25	42.00	44.75	58.25	60.75	60.75	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
640	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00
680	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00	9,999.00

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P012B, P0236, P1101: MAF1 Residual Weight Factor based on MAF Est

Description: P0101_P0106_P010B_P0121_P012B_P0236_P1101 MAF1 Residual Weight Factor based on MAF Est

Notes:

y/x	0	50	70	73	76	79	82	85	89	95	100	110	120	150	200	280	350
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P012B, P0236, P1101: MAF1 Residual Weight Factor based on RPM

Description: P0101_P0106_P010B_P0121_P012B_P0236_P1101 MAF1 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000	3,500	4,000	4,500	5,000	5,500	6,500	7,500
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: MAF2 Residual Weight Factor based on MAF Est

Description: P0101_P0106_P010B_P0121_P0236_P1101 MAF2 Residual Weight Factor based on MAF Est

Notes:

y/x	0	50	70	73	76	79	82	85	89	95	100	110	120	150	200	280	350
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P0101, P0106, P010B, P0121, P0236, P1101: MAF2 Residual Weight Factor based on RPM

Description: P0101_P0106_P010B_P0121_P0236_P1101 MAF2 Residual Weight Factor based on RPM

Notes:

y/x	500	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000	3,500	4,000	4,500	5,000	5,500	6,500	7,500
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KaFCLP_U_SlphrIntgIOfst_Thrsh

Description: Integral Offset voltage thresholds (bank and cell specific calcs) used with KeFCLP_Pct_CatAccuSlphrPostDsbl to check for sulphur poisoning.

Notes: millivolts

y/x	CiOXYR_O2_PostCat1	CiOXYR_O2_PostCat2
CiFCLP_Decel	2,048	2,048
CiFCLP_Idle	2,048	2,048
CiFCLP_Cruise	2,048	2,048
CiFCLP_LightAccel	2,048	2,048
CiFCLP_HeavyAccel	2,048	2,048

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KcFCLP_Cnt_O2RdyCyclesThrsh

Description: Number of post catalyst oxygen sensor samples which must be outside not ready window before post oxygen sensor is READY.

Notes: Time (events * 12.5 milliseconds)

y/x	1
1	10

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KcFULC_O2_SensorReadyEvents

Description: Number of times an oxygen sensor value must be in range before declaring it ready

Notes: Time (events * 12.5 milliseconds)

y/x	
1	10

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KeFCLP_Pct_CatAccuSlphrPostDsbl

Description: Sulphur percent threshold above which post integral learning is disabled if the threshold criteria KaFCLP_U_SlphrIntglOfst_Thrsh is also met.

Notes: Percent

y/x	1
1	255

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KeFCLP_T_IntegrationCatalystMax

Description: Maximum allowed estimated catalytic converter temperature for post O2 integral terms to be updated.

Notes: Modeled catalyst Temperature in Celcius

y/x	1
1	1,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KeFCLP_T_IntegrationCatalystMin

Description: Minimum allowed estimated catalytic converter temperature to begin using post O2 integration correction terms. Converter temperature must remain above this threshold to ramp-in the post O2 integration adjustments. Once the ramp-in has started, a converter temperature below this threshold will freeze the ramp-in multiplier. Post O2 integration will not be allowed below this converter temperature

Notes: Modeled catalyst Temperature in Celcius

y/x	1
1	450

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KfFCLL_T_AdaptiveHiCoolant

Description: LTM learning is inhibited if the engine coolant temperature is above this calibration.

Notes: Degrees Celcius

y/x	1
1	255

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KfFCLL_T_AdaptiveLoCoolant

Description: LTM learning is inhibited if the engine coolant temperature is below this calibration.

Notes: Degrees Celcius

y/x	
1	55

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KfFCLP_U_O2ReadyThrshLo

Description: Lower threshold defining not ready window for post oxygen sensor voltage.

Notes: Voltage in millivolts

y/x	1
1	1,100

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KfFULC_U_O2_SensorReadyThrshLo

Description: Lower limit checked against when determining if an oxygen sensor is in range

Notes: Voltage in millivolts

y/x	1
1	1,100

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KtFCLL_p_AdaptiveLowMAP_Limit

Description: KtFCLL_p_AdaptiveLowMAP_Limit

Notes: MAP in KPa

y/x	65	70	75	80	85	90	95	100	105
1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KtFCLP_t_PostIntglDisableTime

Description: Disable integral offset after engine start for this amount of time.

Notes: Time in seconds

y/x	-40	-29	-18	-6	5	16	28	39	50	61	73	84	95	106	118	129	140
1	100.0	100.0	100.0	100.0	75.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KtFCLP_t_PostIntglRampInTime

Description: Time required to ramp integral offset to desired value.

Notes: Time in seconds

y/x	-40	-29	-18	-6	5	16	28	39	50	61	73	84	95	106	118	129	140
1	50.0	50.0	50.0	45.0	40.0	40.0	40.0	40.0	30.0	25.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KtFSTA_t_ClosedLoopAutostart

Description: Engine run time following an autostart, as a function of begin run coolant, which must be exceeded to enable CLOSED LOOP.

Notes: Time in seconds: Hybrid use Only

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	320.0	225.0	190.0	130.0	70.0	19.0	19.0	19.0	19.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - Closed Loop Enable Clarification - KtFSTA_t_ClosedLoopTime

Description: Engine run time, as a function of startup coolant temperature, which must be exceeded to enable CLOSED LOOP.

Notes: Time in seconds

y/x	-40	-28	-16	-4	8	20	32	44	56	68	80	92	104	116	128	140	152
1	320.0	225.0	190.0	130.0	70.0	19.0	19.0	19.0	19.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0089 - P163A - P228C - P228D - P0191 - KtFHPD_t_PumpCntrlEngRunThrsh

Description: The High Pressure Control Performance Diagnostic and Pump Current Diagnostic will not run when the engine run time is below this timer following an engine start.

Notes:

y/x	-30	-20	-10	0	10	20	80	100	110
1	120.0	120.0	80.0	60.0	60.0	60.0	60.0	80.0	120.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P00C6 - KtFHPC_p_HighPressStart

Description: This calibration is the minimum pressure in MPa that will exit High Pressure Start mode and allow fuel delivery

Notes:

y/x	-40	-32	-24	-16	-8	0	8	16	20	24	32	40	48	64	80	96	112
0	15.0	15.0	10.0	8.0	5.5	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	3.0
13	15.0	15.0	10.0	8.0	5.5	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	3.0
25	15.0	15.0	10.0	8.0	5.5	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
38	15.0	15.0	12.0	9.0	6.1	4.4	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
50	15.0	15.0	15.0	12.0	8.0	5.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
63	15.0	15.0	15.0	15.0	11.0	7.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
75	15.0	15.0	15.0	15.0	12.0	9.0	5.5	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
88	15.0	15.0	15.0	15.0	15.0	13.0	8.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
100	15.0	15.0	15.0	15.0	15.0	13.0	10.0	6.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P00C6 - KtFHPC_t_HighPressStartTmout

Description: High Pressure Pump Control Mode will exit (Fuel will be delivered) if this timeout in seconds is reached.

Notes:

y/x	-40	-32	-24	-16	-8	0	8	16	20	24	32	40	48	64	80	96	112
1	11.0	11.0	10.4	9.6	8.6	7.0	5.5	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	5.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0191 - KeFHPD_p_DPSPrsDiffFailThrsh (Dual Sensors)

Description:

Notes:

y/x	1.00
1.00	1.00

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0191 - KtFHPD_cmp_DPS_FailHiThrsh (Dual Sensors)

Description: High fail limit of fuel control due to pressure sensor error as Function of desired pressure

Notes:

y/x	0.00	4.00	8.00	12.00	16.00	20.00	24.00	28.00	32.00
1.00	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0191 - KtFHPD_cmp_DPS_FailLoThrsh (Dual sensors)

Description: Low fail limit of fuel control due to pressure sensor error as Function of desired pressure

Notes:

y/x	0.00	4.00	8.00	12.00	16.00	20.00	24.00	28.00	32.00
1.00	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0191 - KtFHPD_Cnt_SnsPrfIdlePumpOffDly

Description: The delay counter following the disabling of the high pressure pump used Only for the Sensor Performance Idle Test

Notes:

y/x	0	13	25	38	50	63	75	88	100
65	390.0	390.0	390.0	390.0	390.0	390.0	390.0	390.0	390.0
70	380.0	380.0	380.0	380.0	380.0	380.0	380.0	380.0	380.0
75	370.0	370.0	370.0	370.0	370.0	370.0	370.0	370.0	370.0
80	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0
85	350.0	350.0	350.0	350.0	350.0	350.0	350.0	350.0	350.0
90	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0
95	330.0	330.0	330.0	330.0	330.0	330.0	330.0	330.0	330.0
100	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0
105	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0191 - KtFHPD_t_SnsPrfStuckCrankTmout

Description: The maximum crank time allowed before allowing the Sensor Performance Stuck Test to fail

Notes:

y/x	-30	-20	-10	0	10	20	80	100	110
1	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0420_BestFailingOSCTableB1

Description: This table is a 9x17 table of baseline Best Failing (e.g. threshold converter) OSC times for catalyst Bank 1. The axis' for this table include the average airflow and the catalyst temperature. After OSC is measured for a specific temp and airflow, the BestFailing OSC value is found within this table for the measured temp and airflow and is used along with the OSC_TimeRaw (and the WorstPassing value) to calculate the Normalized Ratio for that specific test. The values in this table are based on the measured OSC for the identified BPU converter that is used for MIL illumination across the specific temp and airflow range for a given program.

Notes: KtCATD_t_1_OSC_BestFailing - Used for norm ratio calculation of P0420

y/x	4.50	4.85	5.19	5.54	5.88	6.23	6.57	6.92	7.26	7.61	7.95	8.30	8.64	8.99	9.33	9.68	10.02
533.00	0.70	0.63	0.58	0.54	0.51	0.48	0.46	0.44	0.42	0.40	0.39	0.38	0.37	0.36	0.35	0.34	0.34
570.00	0.71	0.65	0.59	0.55	0.52	0.49	0.47	0.44	0.43	0.41	0.40	0.39	0.38	0.37	0.36	0.35	0.34
607.00	0.73	0.66	0.61	0.56	0.53	0.50	0.48	0.46	0.44	0.42	0.41	0.40	0.38	0.38	0.37	0.36	0.35
644.00	0.75	0.68	0.62	0.58	0.54	0.51	0.49	0.46	0.45	0.43	0.42	0.40	0.39	0.38	0.37	0.37	0.36
681.00	0.76	0.69	0.64	0.59	0.55	0.52	0.50	0.48	0.46	0.44	0.43	0.41	0.40	0.39	0.38	0.37	0.37
719.00	0.78	0.71	0.65	0.60	0.57	0.54	0.51	0.49	0.47	0.45	0.44	0.42	0.41	0.40	0.39	0.38	0.37
756.00	0.80	0.73	0.67	0.62	0.58	0.55	0.52	0.50	0.48	0.46	0.45	0.43	0.42	0.41	0.40	0.39	0.38
793.00	0.82	0.74	0.68	0.63	0.59	0.56	0.53	0.51	0.49	0.47	0.46	0.44	0.43	0.42	0.41	0.40	0.39
830.00	0.84	0.76	0.70	0.65	0.61	0.57	0.54	0.52	0.50	0.48	0.46	0.45	0.44	0.43	0.42	0.41	0.40

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0420_P0430_CatmonMinAirflowForWarmCatalystDetermination

Description: This is a 1x3 table with the axis being engine coolant temperature. The implementation of this cal value as a table also included some changes to the way that the WarmedUpEvents counter increments and resets. To summarize, whenever WarmedUpEvents resets to 0 (this could be either at startup, if the closed throttle time exceeds a cal value, or if the predicted exhaust temperature falls below the ExhWarmMin cal value), the appropriate MinAirflowToWrmupCat value is chosen from the table based on engine coolant at the time the WarmedUpEvents counter reset to 0. This cal value is used along with the min exhaust temp to increment the WarmedUpEvents counter.

Notes: KtCATD_dm_MinAirFlowToWrmCat - Used for P0420 and P0430. Axis is the engine coolant and the output is the minimum airflow required to warmup the catalyst.

y/x	0	45	90
1	12	8	4

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0420_P0430_CatmonMinEngineRunTimeToEnable

Description: This cal value is a 1x5 array of minimum engine run time values based on powerup coolant temperatures. When the appropriate required minimum engine run time value is chosen based on the coolant temperature at powerup, this value is the minimum time from engine start before stabilized conditions are met. Used in determining if a ValidIdleIsMet condition exists.

Notes: KtCATD_t_EngRunTimeMin - Used for P0420 and P0430. Axis is the coolant and the output is the min engine run time

y/x	40	50	60	70	80
1	0	0	0	0	0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0420_WorstPassingOSCTableB1

Description: This table is a 9x17 table of WorstPassing (e.g. 120k) OSC times for catalyst Bank 1. The axis' for this table include the average airflow and the catalyst temperature. After OSC is measured for a specific temp and airflow, the WorstPassing OSC value is found within this table for the measured temp and airflow and is used along with the OSC_TimeRaw (and the BestFailing OSC value) to calculate the Normalized Ratio for that specific test. The values in this table are based on the measured OSC for the WPA part across the temp and airflow range.

Notes: KtCATD_t_1_OSC_WorstPassing - Used for norm ratio calculation of P0420

y/x	4.50	4.85	5.19	5.54	5.88	6.23	6.57	6.92	7.26	7.61	7.95	8.30	8.64	8.99	9.33	9.68	10.02
533.00	2.35	2.03	1.79	1.60	1.44	1.31	1.21	1.11	1.04	0.97	0.91	0.85	0.81	0.77	0.73	0.70	0.67
570.00	2.36	2.04	1.80	1.60	1.45	1.32	1.21	1.12	1.04	0.97	0.91	0.86	0.81	0.77	0.74	0.70	0.67
607.00	2.37	2.05	1.81	1.61	1.46	1.32	1.22	1.12	1.05	0.98	0.92	0.86	0.82	0.78	0.74	0.71	0.68
644.00	2.38	2.06	1.82	1.62	1.46	1.33	1.22	1.13	1.05	0.98	0.92	0.87	0.82	0.78	0.74	0.71	0.68
681.00	2.39	2.07	1.83	1.63	1.47	1.34	1.23	1.13	1.06	0.99	0.93	0.87	0.83	0.79	0.75	0.71	0.68
719.00	2.40	2.08	1.83	1.63	1.48	1.34	1.24	1.14	1.06	0.99	0.93	0.88	0.83	0.79	0.75	0.72	0.69
756.00	2.41	2.09	1.84	1.64	1.48	1.35	1.24	1.15	1.07	1.00	0.94	0.88	0.84	0.79	0.76	0.72	0.69
793.00	2.42	2.10	1.85	1.65	1.49	1.36	1.25	1.15	1.07	1.00	0.94	0.89	0.84	0.80	0.76	0.73	0.70
830.00	2.44	2.11	1.86	1.66	1.50	1.36	1.25	1.16	1.08	1.01	0.95	0.89	0.85	0.80	0.77	0.73	0.70

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0430_BestFailingOSCTableB2

Description: This table is a 9x17 table of baseline Best Failing (e.g. threshold converter) OSC times for catalyst Bank 2. The axis' for this table include the average airflow and the catalyst temperature. After OSC is measured for a specific temp and airflow,the BestFailing OSC value is found within this table for the measured temp and airflow and is used along with the OSC_TimeRaw (and the WorstPassing value) to calculate the Normalized Ratio for that specific test. The values in this table are based on the measured OSC for the identified BPU converter that is used for MIL illumination across the specific temp and airflow range for a given program.

Notes: KtCATD_t_1_OSC_BestFailing - Used for norm ratio calculation of P0430

y/x	4.50	4.85	5.19	5.54	5.88	6.23	6.57	6.92	7.26	7.61	7.95	8.30	8.64	8.99	9.33	9.68	10.02
533.00	0.74	0.67	0.62	0.57	0.54	0.51	0.48	0.46	0.44	0.43	0.41	0.40	0.39	0.38	0.37	0.36	0.35
570.00	0.77	0.70	0.64	0.59	0.56	0.53	0.50	0.48	0.46	0.44	0.43	0.41	0.40	0.39	0.38	0.38	0.37
607.00	0.80	0.72	0.66	0.62	0.58	0.54	0.52	0.50	0.47	0.46	0.44	0.43	0.42	0.41	0.40	0.39	0.38
644.00	0.83	0.75	0.69	0.64	0.60	0.57	0.54	0.51	0.49	0.47	0.46	0.44	0.43	0.42	0.41	0.40	0.39
681.00	0.86	0.78	0.71	0.66	0.62	0.59	0.56	0.53	0.51	0.49	0.47	0.46	0.45	0.44	0.42	0.42	0.41
719.00	0.89	0.81	0.74	0.69	0.64	0.61	0.58	0.55	0.53	0.51	0.49	0.48	0.46	0.45	0.44	0.43	0.42
756.00	0.93	0.84	0.77	0.71	0.67	0.63	0.60	0.57	0.55	0.53	0.51	0.49	0.48	0.47	0.46	0.45	0.44
793.00	0.96	0.87	0.80	0.74	0.69	0.65	0.62	0.59	0.57	0.55	0.53	0.51	0.50	0.48	0.47	0.46	0.45
830.00	1.00	0.90	0.83	0.77	0.72	0.68	0.64	0.61	0.59	0.57	0.55	0.53	0.51	0.50	0.49	0.48	0.47

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P0430_WorstPassingOSCTableB2

Description: This table is a 9x17 table of WorstPassing (e.g. 120k) OSC times for catalyst Bank 2. The axis' for this table include the average airflow and the catalyst temperature. After OSC is measured for a specific temp and airflow, the WorstPassing OSC value is found within this table for the measured temp and airflow and is used along with the OSC_TimeRaw (and the BestFailing OSC value) to calculate the Normalized Ratio for that specific test. The values in this table are based on the measured OSC for the WPA part across the temp and airflow range.

Notes: KtCATD_t_2_OSC_WorstPassing - Used for norm ratio calculation of P0430

y/x	4.50	4.85	5.19	5.54	5.88	6.23	6.57	6.92	7.26	7.61	7.95	8.30	8.64	8.99	9.33	9.68	10.02
533.00	1.76	1.53	1.35	1.20	1.08	0.99	0.91	0.84	0.78	0.73	0.68	0.64	0.61	0.58	0.55	0.52	0.50
570.00	1.80	1.56	1.38	1.23	1.11	1.01	0.93	0.86	0.80	0.75	0.70	0.66	0.63	0.59	0.56	0.54	0.51
607.00	1.84	1.60	1.41	1.26	1.14	1.04	0.95	0.88	0.82	0.77	0.72	0.68	0.64	0.61	0.58	0.55	0.53
644.00	1.88	1.63	1.44	1.29	1.17	1.06	0.98	0.90	0.84	0.79	0.74	0.70	0.66	0.63	0.60	0.57	0.55
681.00	1.92	1.67	1.48	1.32	1.19	1.09	1.00	0.93	0.86	0.81	0.76	0.72	0.68	0.65	0.62	0.59	0.56
719.00	1.97	1.71	1.51	1.35	1.22	1.12	1.03	0.95	0.89	0.83	0.78	0.74	0.70	0.67	0.63	0.61	0.58
756.00	2.01	1.75	1.55	1.38	1.25	1.14	1.05	0.98	0.91	0.85	0.80	0.76	0.72	0.68	0.65	0.63	0.60
793.00	2.05	1.79	1.58	1.42	1.28	1.17	1.08	1.00	0.93	0.88	0.82	0.78	0.74	0.70	0.67	0.64	0.62
830.00	2.10	1.82	1.62	1.45	1.31	1.20	1.11	1.03	0.96	0.90	0.85	0.80	0.76	0.72	0.69	0.66	0.64

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P050D_P1400_CatalystLightOffExtendedEngineRunTimeExit

Description: Exit Catalyst Warm-up mode if Engine Run Time is greater than this value. This table is based on percent ethanol (x-axis) and catmon's NormRatio_EWMA value (y-axis). The NormRatio_EWMA value determines the state of the catalyst. Typically, NormRatio_EWMA values below 0.35 (0 is bad and 1 is good) represent catalysts that have degraded. The emission performance of these degraded catalysts can be improved by extending catalyst light off of GetE85R_Pct_FFS_CompAtEngFloat.

Notes: KtCSEC_t_ExtendedEngineExit. Used for both P050D and P1400.

y/x	0	25	50	75	100
0.000	18	18	18	18	18
0.125	18	18	18	18	18
0.250	18	18	18	18	18
0.375	18	18	18	18	18
0.500	18	18	18	18	18
0.625	18	18	18	18	18
0.750	18	18	18	18	18
0.875	18	18	18	18	18
1.000	18	18	18	18	18

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1400_ColdStartDiagnosticDelayBasedOnEngineRunTime

Description: Quality weight-based on engine run time. This allows adjustment of the weighting factors at various engine run times in order to prevent the updating of the cumulative quality timer or to change the value of the average qualified residual energy calculation to prevent false Fails of the diagnostic under circumstances inappropriate to update the calculation of the average qualified residual value.

Notes: KtCSED_K_TimeWght - This is used for P1400.

y/x	0	1	3	3	4	5	10	15	20
1	0	0	0	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1400_ColdStartDiagnosticDelayBasedOnEngineRunTimeCalAxis

Description: This is the x-axis for the KtCSED_K_TimeWght calibration table. Refer to the description for KtCSED_K_TimeWght for details.

Notes: KnCSED_t_TimeWght - This is used for P1400.

y/x	1	2	3	4	5	6	7	8	9
1	0	1	3	3	4	5	10	15	20

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1400_EngineSpeedResidual_Axis

Description: This calibration is used as the x-axis for KtCSED_dm_Exh. An engine speed value will be chosen from this axis based on the value of VeSPDR_n_EngDsrd or actual engine speed. Subsequently, the engine speed value chosen from KnCSED_n_Exh determines the appropriate exhaust airflow value from the KtCSED_dm_Exh calibration table.

Notes: KnCSED_n_Exh - This is used for P1400

y/x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0	400	600	800	850	924	925	950	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,800	2,000

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1400_EngineSpeedResidual_Table

Description: This 1x17 table of engine exhaust flow values is used to calculate both the desired and the actual engine exhaust flow based on desired and actual engine speed. The desired engine exhaust flow is gathered from the desired engine speed (VeSPDR_n_EngDsrd). The value used for the actual engine exhaust flow is based on the actual engine RPM value.

Notes: KtCSED_dm_Exh - This is used for P1400

y/x	0	400	600	800	850	924	925	950	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,800	2,000
1	4	8	8	8	8	8	16	16	16	16	16	16	16	16	16	16	16

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1400_SparkResidual_Axis

Description: Calibratable axis into KtCSED_E_ExhEngyPerUnitMass. This is a table of spark values. Spark value used for desired spark is the desired spark during cat light off. Actual spark value used is the final commanded spark.

Notes: KnCSED_phi_ExhEngyPerUnitMass - Used for P1400

y/x	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00
1	-16	-12	-8	-4	0	2	5	8	12

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P1400_SparkResidual_Table

Description: Predicted engine-out energy potential based on either the desired cold start spark advance value or the actual spark advance value. ExhEngyPerUnitMass calibration is used to calculate both desired exhaust energy and actual energy. The desired and actual exhaust energy per unit mass values are used in part to calculate the desired exhaust energy per unit time and actual exhaust energy per unit time. Both desired and actual go into the residual exhaust energy per unit time calculation.

Notes: KtCSED_E_ExhEngyPerUnitMass

y/x	-16	-12	-8	-4	0	2	5	8	12
1	1.00	1.00	1.00	1.00	1.00	0.95	0.75	0.45	0.40

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P057B KtBRKI_K_CmpltTestPointWeight

Description:

Notes:

y/x	0.000	0.050	0.080	0.250	0.350	0.450	0.550	0.750	1.000
1	0	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P057B KtBRKI_K_FastTestPointWeight

Description:

Notes:

y/x	0.000	0.050	0.080	0.250	0.350	0.450	0.550	0.750	1.000
1	0	1	1	1	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P2635 Max Fuel Flow

Description: P2635 Max Fuel Flow allowed -- diagnostic is disabled above this value

Notes:

y/x	200.0000	250.0000	300.0000	350.0000	400.0000	450.0000	500.0000	550.0000	600.0000
4.5000	24.0000	24.0000	24.0000	22.4766	19.1797	16.0703	13.1250	10.3359	7.6797
6.0000	24.0000	24.0000	24.0000	22.4766	19.1797	16.0703	13.1250	10.3359	7.6797
7.5000	24.0000	24.0000	24.0000	22.4766	19.1797	16.0703	13.1250	10.3359	7.6797
9.0000	24.0000	24.0000	24.0000	22.4766	19.1797	16.0703	13.1250	10.3359	7.6797
10.5000	24.0000	24.0000	24.0000	22.4766	19.1797	16.0703	13.1250	10.3359	7.6797
12.0000	24.0000	24.0000	24.0000	24.0000	24.0000	23.3281	20.1875	17.2109	14.3906
13.5000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	21.0938
15.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
16.5000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
18.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
19.5000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
21.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
22.5000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
25.5000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
27.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000
28.5000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P2635 Threshold High

Description: P2635 Threshold - Under performing

Notes: Measured value = instantaneous Filtered Fuel Pressure Error

y/x	200.0	250.0	300.0	350.0	400.0	450.0	500.0	550.0	600.0
0.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
1.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
3.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
4.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
6.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
7.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
9.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
10.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
12.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
13.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
15.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
16.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
18.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
19.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
21.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
24.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
25.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
27.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
28.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
30.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
31.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
33.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
34.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
36.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
37.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
39.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
40.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
42.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
43.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
45.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
46.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
48.0	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P2635 Threshold High RePass

Description: P2635 Threshold Hysterisis - Under performing

Notes: Measured value = instantaneous Filtered Fuel Pressure Error

y/x	200.0	250.0	300.0	350.0	400.0	450.0	500.0	550.0	600.0
0.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
1.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
3.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
4.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
6.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
7.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
9.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
10.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
12.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
13.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
15.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
16.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
18.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
19.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
21.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
22.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
24.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
25.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
27.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
28.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
30.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
31.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
33.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
34.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
36.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
37.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
39.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
40.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
42.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
43.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
45.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
46.5	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5
48.0	25.5	31.9	38.3	44.6	51.0	57.4	63.8	70.1	76.5

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P2635 Threshold Low

Description: P2635 Threshold - Over performing

Notes: Measured value = instantaneous Filtered Fuel Pressure Error

y/x	200.0	250.0	300.0	350.0	400.0	450.0	500.0	550.0	600.0
0.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
1.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
3.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
4.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
6.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
7.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
9.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
10.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
12.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
13.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
15.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
16.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
18.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
19.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
21.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
22.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
24.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
25.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
27.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
28.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
30.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
31.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
33.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
34.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
36.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
37.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
39.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
40.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
42.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
43.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
45.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
46.5	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0
48.0	-30.0	-37.5	-45.0	-52.5	-60.0	-67.5	-75.0	-82.5	-90.0

15 OBDG06 ECM Diagnostic Supporting Tables

Unique Supporting table - P2635 Threshold Low RePass

Description: P2635 Threshold Hysterisis - Over performing

Notes: Measured value = instantaneous Filtered Fuel Pressure Error

y/x	200.0	250.0	300.0	350.0	400.0	450.0	500.0	550.0	600.0
0.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
1.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
3.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
4.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
6.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
7.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
9.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
10.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
12.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
13.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
15.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
16.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
18.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
19.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
21.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
22.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
24.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
25.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
27.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
28.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
30.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
31.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
33.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
34.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
36.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
37.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
39.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
40.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
42.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
43.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
45.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
46.5	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5
48.0	-25.5	-31.9	-38.3	-44.6	-51.0	-57.4	-63.8	-70.1	-76.5

15 OBDG06 ECM Diagnostic Supporting Tables

Supporting table - P279A P279B P279C Transfer Case Control Module Transfer Case Command State Rationality (weighting factor)

Description: KtFWDD_Cnt_SampleWeighthing: Calibration table that defines the weighting factor used in a sample of the measured transfer case ratio for full range diagnostics, based on vehicle speed and axle torque.

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: KtFWDD_Cnt_SampleWeighthing

y/x	0	3	5	5	12	15	18	21	24
-200	0	0	0	0	0	0	0	0	0
-150	0	0	0	0	0	0	0	0	0
-100	0	0	0	0	0	0	0	0	0
-50	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279A Transfer Case Control Module Transfer Case Command State Rationality (margin of error high)

Description: LeFWDD_r_RatioHiBound_P279A = KeFWDD_r_TCaseHiRange + KtFWDD_r_TCaseHiRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioHiBound_P279A

y/x	1	2	3	4	5	6	7	8	9
1	9	9	9	9	1	1	1	1	1
2	9	9	9	9	1	1	1	1	1
3	9	9	9	9	1	1	1	1	1
4	9	9	9	9	1	1	1	1	1
5	9	9	9	9	1	1	1	1	1
6	9	9	9	9	1	1	1	1	1
7	9	9	9	9	1	1	1	1	1
8	9	9	9	9	1	1	1	1	1
9	9	9	9	9	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279A Transfer Case Control Module Transfer Case Command State Rationality (margin of error low)

Description: LeFWDD_r_RatioLoBound_P279A = KeFWDD_r_TCaseHiRange - KtFWDD_r_TCaseHiRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioLoBound_P279A

y/x	1	2	3	4	5	6	7	8	9
1	-7	-7	-7	-7	1	1	1	1	1
2	-7	-7	-7	-7	1	1	1	1	1
3	-7	-7	-7	-7	1	1	1	1	1
4	-7	-7	-7	-7	1	1	1	1	1
5	-7	-7	-7	-7	1	1	1	1	1
6	-7	-7	-7	-7	1	1	1	1	1
7	-7	-7	-7	-7	1	1	1	1	1
8	-7	-7	-7	-7	1	1	1	1	1
9	-7	-7	-7	-7	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279B Transfer Case Control Module Transfer Case Command State Rationality (margin of error high)

Description: LeFWDD_r_RatioHiBound_P279B = KeFWDD_r_TCaseLoRange + KtFWDD_r_TCaseLoRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioHiBound_P279B

y/x	1	2	3	4	5	6	7	8	9
1	11	11	11	11	3	3	3	3	3
2	11	11	11	11	3	3	3	3	3
3	11	11	11	11	3	3	3	3	3
4	11	11	11	11	3	3	3	3	3
5	11	11	11	11	3	3	3	3	3
6	11	11	11	11	3	3	3	3	3
7	11	11	11	11	3	3	3	3	3
8	11	11	11	11	3	3	3	3	3
9	11	11	11	11	3	3	3	3	3

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279B Transfer Case Control Module Transfer Case Command State Rationality (margin of error low)

Description: LeFWDD_r_RatioLoBound_P279B = KeFWDD_r_TCaseLoRange - KtFWDD_r_TCaseLoRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioLoBound_P279B

y/x	1	2	3	4	5	6	7	8	9
1	-5	-5	-5	-5	2	2	2	2	2
2	-5	-5	-5	-5	2	2	2	2	2
3	-5	-5	-5	-5	2	2	2	2	2
4	-5	-5	-5	-5	2	2	2	2	2
5	-5	-5	-5	-5	2	2	2	2	2
6	-5	-5	-5	-5	2	2	2	2	2
7	-5	-5	-5	-5	2	2	2	2	2
8	-5	-5	-5	-5	2	2	2	2	2
9	-5	-5	-5	-5	2	2	2	2	2

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error high 1)

Description: LeFWDD_r_RatioHiBound1_P279C = KeFWDD_r_TCaseHiRange + KtFWDD_r_TCaseNeutRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioHiBound1_P279C

y/x	1	2	3	4	5	6	7	8	9
1	9	9	9	9	1	1	1	1	1
2	9	9	9	9	2	2	2	2	2
3	9	9	9	9	3	3	2	2	2
4	9	9	9	9	5	5	3	3	3
5	9	9	9	9	9	9	9	9	9
6	9	9	9	9	5	5	3	3	3
7	9	9	9	9	3	3	2	2	2
8	9	9	9	9	2	2	2	2	2
9	9	9	9	9	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error high 2)

Description: LeFWDD_r_RatioHiBound2_P279C = KeFWDD_r_TCaseLoRange + KtFWDD_r_TCaseNeutRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioHiBound2_P279C

y/x	1	2	3	4	5	6	7	8	9
1	11	11	11	11	3	3	3	3	3
2	11	11	11	11	4	4	3	3	3
3	11	11	11	11	5	5	4	4	4
4	11	11	11	11	7	7	5	5	5
5	11	11	11	11	11	11	11	11	11
6	11	11	11	11	7	7	5	5	5
7	11	11	11	11	5	5	4	4	4
8	11	11	11	11	4	4	3	3	3
9	11	11	11	11	3	3	3	3	3

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error low 1)

Description: LeFWDD_r_RatioLoBound1_P279C = KeFWDD_r_TCaseHiRange - KtFWDD_r_TCaseNeutRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioLoBound1_P279C

y/x	1	2	3	4	5	6	7	8	9
1	-7	-7	-7	-7	1	1	1	1	1
2	-7	-7	-7	-7	0	0	1	1	1
3	-7	-7	-7	-7	-1	-1	0	0	0
4	-7	-7	-7	-7	-3	-3	-1	-1	-1
5	-7	-7	-7	-7	-7	-7	-7	-7	-7
6	-7	-7	-7	-7	-3	-3	-1	-1	-1
7	-7	-7	-7	-7	-1	-1	0	0	0
8	-7	-7	-7	-7	0	0	1	1	1
9	-7	-7	-7	-7	1	1	1	1	1

15 OBDG06 ECM Diagnostic Supporting Tables

Initial Supporting table - P279C Transfer Case Control Module Transfer Case Command State Rationality (margin of error low 2)

Description: LeFWDD_r_RatioLoBound2_P279C = KeFWDD_r_TCaseLoRange - KtFWDD_r_TCaseNeutRatioMargin

KnFWDD_v_TCaseRatioMarginSpd
KnFWDD_M_TCaseRatioMarginTrq

Notes: LeFWDD_r_RatioLoBound2_P279C

y/x	1	2	3	4	5	6	7	8	9
1	-5	-5	-5	-5	3	3	3	3	3
2	-5	-5	-5	-5	2	2	2	2	2
3	-5	-5	-5	-5	1	1	2	2	2
4	-5	-5	-5	-5	-1	-1	1	1	1
5	-5	-5	-5	-5	-5	-5	-5	-5	-5
6	-5	-5	-5	-5	-1	-1	1	1	1
7	-5	-5	-5	-5	1	1	2	2	2
8	-5	-5	-5	-5	2	2	2	2	2
9	-5	-5	-5	-5	3	3	3	3	3

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: 5VoltReferenceA_FA
P0641
Bundle Name: 5VoltReferenceB_FA
P0651
Bundle Name: 5VoltReferenceMAP_OOR_Fit
P0697
Bundle Name: A/F Imbalance Bank1
P219A
Bundle Name: A/F Imbalance Bank2
P219B
Bundle Name: AAP_SnsrCktFA
Naturally aspirated: P2228, P2229. Turbocharged: P0237, P0238
Bundle Name: AAP_SnsrCktFP
Naturally aspirated: P2228, P2229. Turbocharged: P0237, P0238
Bundle Name: AAP_SnsrFA
Naturally Aspirated: P2227, P2228, P2229, P2230. Turbocharged: P0237, P0238.
Bundle Name: AAP_SnsrTFTKO
Naturally Aspirated: P2227, P2228, P2229, P2230. Turbocharged: P0237, P0238.
Bundle Name: AAP2_SnsrCktFA
P2228, P2229
Bundle Name: AAP2_SnsrCktFP
P2228, P2229
Bundle Name: AAP2_SnsrFA
P2227, P2228, P2229, P2230
Bundle Name: AAP2_SnsrTFTKO
P2227, P2228, P2229, P2230
Bundle Name: AAP3_SnsrCktFA
P222C, P222D
Bundle Name: AAP3_SnsrCktFP
P222C, P222D
Bundle Name: AccCktLo_FA
P2537
Bundle Name: AcceleratorPedalFailure
P2122, P2123, P2127, P2128, P2138, P0697, P06A3
Bundle Name: ACCMLostComm
U016B
Bundle Name: ACFailedOnSD
See ACCM Document

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: ACHighSidePressSnsrCktFA
P0532, P0533
Bundle Name: ACThrmIRefrigSpdVld
See ACCM Document
Bundle Name: AfterThrottlePressTFTKO
Naturally Aspirated or Turbocharged: P0106, P0107, P0108. Supercharged: P012B, P012C, P012D.
Bundle Name: AfterThrottlePressureFA
Naturally Aspirated or Turbocharged: P0106, P0107, P0108. Supercharged: P012B, P012C, P012D.
Bundle Name: AfterThrottleVacuumTFTKO
Naturally Aspirated or Turbocharged: P0106, P0107, P0108. Supercharged: P012B, P012C, P012D.
Bundle Name: AIR System FA
P0411, P2440, P2444
Bundle Name: AIRPumpControlCircuit FA
P0418, P2257, P2258
Bundle Name: AIRSystemPressureSensor FA
P2430, P2431, P2432, P2433, P2435, P2436, P2437, P2438
Bundle Name: AIRValveControlCircuit FA
P0412, P041F, P044F
Bundle Name: AllTwoStepDrvr_TFTKO
P16CF, P16D2, P16D3, P2645, P2648, P2649
Bundle Name: AllVCE_Driver_TFTKO
P16CF, P16D2, P16D3, P2645, P2648, P2649
Bundle Name: AmbientAirDefault
Baro Sensor Present: P2227, P2228, P2229, P2230. No Baro Sensor Present: P0101, P0102, P0103, P0106, P0107, P0108, P0111, P0112, P0113, P0114, P0121, P0122, P0123, P012B, P012C, P012D, P0222, P0223, P1221
Bundle Name: AmbPresDfltStatus
Baro Sensor Present: P2227, P2228, P2229, P2230. No Baro Sensor Present: P0101, P0102, P0103, P0106, P0107, P0108, P0111, P0112, P0113, P0114, P0121, P0122, P0123, P012B, P012C, P012D, P0222, P0223, P1221
Bundle Name: AmbPresSnsr2_CktFA
P222C, P222D
Bundle Name: AmbPresSnsrCktFA
P2228, P2229
Bundle Name: AmbPresSnsrCktFP
P2228, P2229
Bundle Name: AnyCamPhaser_FA
P0010, P0011, P0013, P0014, P0020, P0021, P0023, P0024, P2088, P2089, P2090, P2091, P2092, P2093, P2094, P2095, P05CC, P05CD, P05CE, P05CF, P25CA, P25CB, P25CC, P25CD, P25CE, P25CF

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: AnyCamPhaser_TFTKO
P0010, P0011, P0013, P0014, P0020, P0021, P0023, P0024, P2088, P2089, P2090, P2091, P2092, P2093, P2094, P2095, P05CC, P05CD, P05CE, P05CF, P25CA, P25CB, P25CC, P25CD, P25CE, P25CF
Bundle Name: BrakeBoosterSensorCktFA
P0557, P0558
Bundle Name: BrakeBoosterSensorFA
P0556, P0557, P0558
Bundle Name: BrakeBoosterVacuumValid
P0556, P0557, P0558
Bundle Name: BSTR_b_BoostSnsrFA
P0236, P0237, P0238
Bundle Name: BSTR_b_ExcsvBstFA
P226B
Bundle Name: BSTR_b_ExcsvBstTFTKO
P226B
Bundle Name: BSTR_b_IC_Pmp_EffPerfTFTKO
P026A
Bundle Name: BSTR_b_IC_PmpCktFA
P023A, P023C
Bundle Name: BSTR_b_PCA_CktFA
P0033, P0034, P0035, P0045, P0047, P0048, P0243, P0245, P0246, P0247, P0249, P0250
Bundle Name: BSTR_b_PCA_CktLoFA
P0034, P0047, P0245, P0249
Bundle Name: BSTR_b_PCA_CktLoTFTKO
P0034, P0047, P0245, P0249
Bundle Name: BSTR_b_PCA_CktTFTKO
P0033, P0034, P0035, P0045, P0047, P0048, P0243, P0245, P0246, P0247, P0249, P0250
Bundle Name: BSTR_b_PCA_FA
P0234, P0299, P0033, P0034, P0035, P0045, P0047, P0048, P0243, P0245, P0246, P2261, P0247, P0249, P0250
Bundle Name: BSTR_b_PCA_PstnSnsrFA
P003A, P2564, P2565
Bundle Name: BSTR_b_PCA_PstnSnsrTFTKO
P003A, P2564, P2565
Bundle Name: BSTR_b_PCA_TFTKO
P0234, P0299, P0033, P0034, P0035, P0045, P0047, P0048, P0243, P0245, P0246, P2261, P0247, P0249, P0250
Bundle Name: BSTR_b_PresCntrlTooHiFA
P0234
Bundle Name: BSTR_b_PresCntrlTooHiTFTKO

15 OBDG06 ECM Fault Bundle Definitions

P0234
Bundle Name: BSTR_b_PresCntrlTooLoFA
P0299
Bundle Name: BSTR_b_PresCntrlTooLoTFTKO
P0299
Bundle Name: BSTR_b_PstnCntrlFA
P166D, P166E
Bundle Name: BSTR_b_PstnCntrlTooHiFA
P166E
Bundle Name: BSTR_b_PstnCntrlTooHiTFTKO
P166E
Bundle Name: BSTR_b_PstnCntrlTooLoFA
P166D
Bundle Name: BSTR_b_PstnCntrlTooLoTFTKO
P166D
Bundle Name: BSTR_b_TurboBypassA_StkFA
P2261
Bundle Name: BSTR_b_TurboBypassCktFA
P0033, P0034, P0035, P00C0, P00C1, P00C2
Bundle Name: BSTR_b_TurboBypassCktTFTKO
P0033, P0034, P0035, P00C0, P00C1, P00C2
Bundle Name: BSTR_b_TurboBypB_CktFA
P00C0, P00C1, P00C2
Bundle Name: BSTR_b_TurboBypB_CktTFTKO
P00C0, P00C1, P00C2
Bundle Name: CamLctnExhFA
P0017, P0019, P0365, P0366, P0390, P0391
Bundle Name: CamLctnIntFA
P0016, P0018, P0340, P0341, P0345, P0346
Bundle Name: CamSensor_FA
P0016, P0017, P0018, P0019, P0340, P0341, P0345, P0346, P0365, P0366, P0390, P0391
Bundle Name: CamSensor_TFTKO
P0016, P0017, P0018, P0019, P0340, P0341, P0345, P0346, P0365, P0366, P0390, P0391
Bundle Name: CamSensorAnyLctnTFTKO
P0016, P0017, P0018, P0019, P0340, P0341, P0345, P0346, P0365, P0366, P0390, P0391
Bundle Name: CamSensorAnyLocationFA
P0016, P0017, P0018, P0019, P0340, P0341, P0345, P0346, P0365, P0366, P0390, P0391
Bundle Name: CamSensorFA

15 OBDG06 ECM Fault Bundle Definitions

P0016, P0017, P0018, P0019, P0340, P0341, P0345, P0346, P0365, P0366, P0390, P0391
Bundle Name: CamSensorTFTKO
P0016, P0017, P0018, P0019, P0340, P0341, P0345, P0346, P0365, P0366, P0390, P0391
Bundle Name: CatalystSysEfficiencyLoB1_FA
P0420
Bundle Name: CatalystSysEfficiencyLoB2_FA
P0430
Bundle Name: Clutch Sensor FA
P0806, P0807, P0808
Bundle Name: ClutchPositionSensorCircuitHi FA
P0808
Bundle Name: ClutchPositionSensorCircuitLo FA
P0807
Bundle Name: ClutchPstnSnsr FA
P0806, P0807, P0808
Bundle Name: ClutchPstnSnsrCktHi FA
P0808
Bundle Name: ClutchPstnSnsrCktLo FA
P0807
Bundle Name: ClutchPstnSnsrNotLearned
P080A
Bundle Name: CommBusAOff_VICM_FA
U0073
Bundle Name: CommBusBOff_VICM_FA
U0074
Bundle Name: CoolingFanSpeedTooHigh_FA
P0495
Bundle Name: CrankCamCorrelationTFTKO
P0016, P0017, P0018, P0019
Bundle Name: CrankExhaustCamCorrelationFA
P0017, P0019
Bundle Name: CrankExhaustCamCorrFA
P0017, P0019
Bundle Name: CrankIntakeCamCorrelationFA
P0016, P0018
Bundle Name: CrankIntakeCamCorrFA
P0016, P0018
Bundle Name: CrankSensor_FA

15 OBDG06 ECM Fault Bundle Definitions

P0335, P0336
Bundle Name: CrankSensor_TFTKO
P0335, P0336
Bundle Name: CrankSensorFA
P0335, P0336
Bundle Name: CrankSensorFaultActive
P0335, P0336
Bundle Name: CrankSensorTestFailedTKO
P0335, P0336
Bundle Name: CrankSensorTFTKO
P0335, P0336
Bundle Name: CylDeacAllDriverFault
P3401, P03403, P03404, P3409, P03411, P03412, P3417, P3419, P3420, P3425, P3427, P3428, P3433, P3435, P3436, P3441, P3443, P3444, P3449, P3451, P3452, P3457, P3459, P3460
Bundle Name: CylDeacDriverFault
P3401, P03403, P03404, P3409, P03411, P03412, P3417, P3419, P3420, P3425, P3427, P3428, P3433, P3435, P3436, P3441, P3443, P3444, P3449, P3451, P3452, P3457, P3459, P3460
Bundle Name: CylDeacSystemTFTKO
P3400
Bundle Name: ECT_Sensor_Ckt_FA
P0117, P0118
Bundle Name: ECT_Sensor_Ckt_FP
P0117, P0118
Bundle Name: ECT_Sensor_Ckt_High_FP
P0118
Bundle Name: ECT_Sensor_Ckt_Low_FP
P0117
Bundle Name: ECT_Sensor_Ckt_TFTKO
P0117, P0118
Bundle Name: ECT_Sensor_Ckt_TPTKO
P0117, P0118
Bundle Name: ECT_Sensor_DefaultDetected
P0116, P0117, P0118, P0119, P111E
Bundle Name: ECT_Sensor_FA
P0116, P0117, P0118, P0119, P0128, P111E
Bundle Name: ECT_Sensor_Perf_FA
P0116, P111E
Bundle Name: ECT_Sensor_TFTKO

15 OBDG06 ECM Fault Bundle Definitions

P0116, P0117, P0118, P0119, P0128, P111E
ECT_Sensor_TFTKO - Other Definitions:
Bundle Name: EGRValve_FP
P0405, P0406, P042E
Bundle Name: EGRValveCircuit_FA
P0403, P0404, P0405, P0406, P0489, P0490, P042E
Bundle Name: EGRValveCircuit_TFTKO
P0403, P0404, P0405, P0406, P0489, P0490
Bundle Name: EGRValvePerformance_FA
P0404, P042E
Bundle Name: EGRValvePerformance_TFTKO
P0404, P042E
Bundle Name: ELCP_PumpCircuit_FA
P2400, P2401, P2402
Bundle Name: ELCP_SwitchCircuit_FA
P2418, P2419, P2420
Bundle Name: ELCP_Circuit_FA
P24BA, P24BB
Bundle Name: EngineMetalOvertempActive
P1258
Bundle Name: EngineMisfireDetected_FA
P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308
Bundle Name: EngineMisfireDetected_TFTKO
P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308
Bundle Name: EngineModeNotRunTimer_FA
P262B
Bundle Name: EngineModeNotRunTimerError
P262B
Bundle Name: EnginePowerLimited
P0068, P00C8, P00C9, P00CA, P0090, P0091, P0092, P0122, P0123, P0191, P0192, P0193, P0222, P0223, P0601, P0604, P0606, P0697, P06A3, P06DB, P06DE, P0A1D, P1104, P127A, P127C, P127D, P15F2, P160D, P160E, P1682, P16A0, P16A1, P16A2, P16F3, P2100, P2101, P2102, P2103, P2122, P2123, P2127, P2128, P2135, P2138, P215B, P2176, P228C, P228D, U0073, U0074, U0293, U1817
Bundle Name: EngineTorqueEstInaccurate
EngineMisfireDetected_FA, FuelInjectorCircuit_FA, FuelInjectorCircuit_TFTKO, FuelTrimSystemB1_FA, FuelTrimSystemB2_FA, MAF_SensorTFTKO, MAP_SensorTFTKO, EGRValuePerforamnce_FA, P16F3
EngineTorqueEstInaccurate - Other Definitions:
P16F3 with GetXOYR_b_SecurityFlt (CeXOYR_e_MAPR_AfterThrotPresFlt, CeXOYR_e_MAPR_EngineVacuumFlt, CeXOYR_e_MAPR_IntkMnfdPresFlt, CeXOYR_e_MAFR_Ahead1vs2FinalFlt)

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: EngModeNotRunTmErr
P262B
Bundle Name: EngOilModeledTempValid
ECT_Sensor_FA, IAT_SensorCircuitFA
Bundle Name: EngOilPressureSensorCktFA
P0522, P0523
Bundle Name: EngOilPressureSensorFA
P0521, P0522, P0523
Bundle Name: EngOilTempFA
EngOilTempSensorCircuitFA, EngOilModeledTempValid, P16F3
EngOilTempFA - Other Definitions:
P16F3 with GetXOYR_b_SecurityFlt(CeXOYR_e_EOTR_SecurityFlt)
Bundle Name: EngOilTempSensorCircuitFA
P0197, P0198
Bundle Name: Ethanol Composition Sensor FA
P0178, P0179, P2269
Bundle Name: EvapEmissionSystem_FA
P0455, P0446
Bundle Name: EvapExcessPurgePsbl_FA
ELCP sealed/vented fuel system, P0442, P0455, P0458 OR Conventional fuel system, P0442, P0455, P0458, P0496
Bundle Name: EvapFlowDuringNonPurge_FA
P0496
Bundle Name: EvapPurgeSolenoidCircuit_FA
P0443, P0458, P0459
Bundle Name: EvapReducedPurgePsbl_FA
ELCP sealed/vented fuel system, P0443, P0446, P0449, P0459, P0497, P0499, P1463, P2419, P2422 OR Conventional fuel system, P0443, P0446, P0455, P0459, P0498
Bundle Name: EvapSmallLeak_FA
P0442
Bundle Name: EvapVentSolenoidCircuit_FA
P0449, P0498, P0499
Bundle Name: ExhaustCamSensor_FA
P0017, P0019, P0365, P0366, P0390, P0391
Bundle Name: ExhaustCamSensor_TFTKO
P0017, P0019, P0365, P0366, P0390, P0391
Bundle Name: ExhaustCamSensorFA
P0017, P0019, P0365, P0366, P0390, P0391
Bundle Name: ExhaustCamSensorTFTKO
P0017, P0019, P0365, P0366, P0390, P0391

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: ExhaustVVT_Enabled

ExhaustVVT_Enabled - Other Definitions:

ExhaustVVT_Enabled = TRUE if:

CrankExhaustCamCorrelationFA diagnostic has executed and passed AND

Cam Edge Locations have been learned AND

CrankSensor_TFTKO = False AND

ExhaustCamSensorTFTKO = False AND

CamLctnExhFA = False AND

(**IntakeVVT_Enabled** = True OR Intake Park Position (CePHSR_e_Retarded) = CePHSR_e_Retarded) AND

Engine Mode Run = True AND

Engine Power Requested = True AND

ExhEngineSpeed is Enabled AND

ExhOilPressure is Enabled AND

ExhEngineOilTemp is Enabled AND

(Engine Power Requested = True

OR

CSER_Enabled AND Engine Speed > 900.00 AND Engine Mode Run Time > **ColdStartEngRunning**)

ExhEngineSpeed is Enabled if:

LoRpmHiEnbIEc < Engine RPM < **HiEngSpdLoEnbIEc**

ExhEngineSpeed Disables if:

Engine RPM < **LoRpmLoDsblEc**

OR

Engine RPM > **HiEngSpdHiDsblEc**

ExhOilPressure is Enabled if:

(Oil Pressure Sensor In Use (1.00) = 1.00 (Note: 1.00 equals TRUE) AND

Oil Pressure Sensor Present (0.00) = 1.00 (Note: 1.00 equals Present) AND

Oil Pressure > **LoPresHiEnbIEc** for **EngOilPressEnbIEc** sec)

OR

(Engine RPM > **LoRpmHiEnbIEc** for **EngOilPressEnbIEc** sec)

ExhOilPressure Disables if:

Oil Pressure Sensor In Use (1.00) = 1.00 (Note: 1.00 equals TRUE) AND

Oil Pressure Sensor Present (0.00) = 1.00 (Note: 1.00 equals Present) AND

Oil Pressure < **LoPresLoDsblEc**

ExhEngineOilTemp is Enabled if:

15 OBDG06 ECM Fault Bundle Definitions

-10.00 < Engine Oil Temp < 150.00

ExhEngineOilTemp Disables if:

Engine Oil Temp < -13.00

OR

Engine Oil Temp > 160.00

Bundle Name: FanOutputDriver_FA

P0480, P0481, P0482, P0691, P0692, P0693, P0694, P0695, P0696, P1485 (EREV), P1486 (EREV), P1487 (EREV)

Bundle Name: FHPD_b_FRP_SnsrCkt_FP

P0192, P0193, P16E4, P16E5, P128F, P128A

Bundle Name: FHPD_b_HPC_PresErrNeg_FA

P228D

Bundle Name: FHPD_b_HPC_PresErrNeg_TFTKO

P228D

Bundle Name: FHPD_b_HPC_PresErrPos_FA

P228C

Bundle Name: FHPD_b_HPC_PresErrPos_TFTKO

P228C

Bundle Name: FHPD_b_HPC_Windup_TFTKO

P0089

Bundle Name: FHPD_b_HPC_Windup_FA

P0089

Bundle Name: FHPD_b_PumpCurr_FA

P163A

Bundle Name: FHPD_b_PumpCurr_TFTKO

P163A

Bundle Name: FHPR_b_FRP_SnsrCkt_FA

P0192, P0193, P127C, P127D, P16E4, P16E5, P128F, P128A, P128B

Bundle Name: FHPR_b_FRP_SnsrCkt_TFTKO

P0192, P0193, , P127C, P127D, P16E4, P16E5, P128F, P128A, P128B

Bundle Name: FHPR_b_FRP_SnsrPerfDiag_FA

P0191, P127A

Bundle Name: FHPR_b_FRP_SnsrPerfDiag_TFTKO

P0191, P127A

Bundle Name: FHPR_b_PumpCkt_FA

P0090, P0091, P0092, P00C8, P00C9, P00CA

Bundle Name: FHPR_b_PumpCkt_FP

P0090, P0091, P0092, P00C8, P00C9, P00CA

Bundle Name: FHPR_b_PumpCkt_TFTKO

15 OBDG06 ECM Fault Bundle Definitions

P0090, P0091, P0092, P00C8, P00C9, P00CA
Bundle Name: FourWheelDriveLowStateInvalid
P2771
Bundle Name: FPSR_b_SENT_WaveForm_FPBndl
P128F, P16E4, P16E5
Bundle Name: FTP_SensorCircuit_FA
P0452, P0453
Bundle Name: FuelInjectorCircuit_FA
PFI: P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0261, P0264, P0267, P0270, P0273, P0276, P0279, P0282, P0262, P0265, P0268, P0271, P0274, P0277, P0280, P0283 SIDI: P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0261, P0264, P0267, P0270, P0273, P0276, P0279, P0282, P0262, P0265, P0268, P0271, P0274, P0277, P0280, P0283, P2147, P2150, P2153, P2156, P216B, P216E, P217B, P217E, P2148, P2151, P2154, P2157, P216C, P216F, P217C, P217F, P1248, P1249, P124A, P124B, P124C, P124D, P124E, P124F
Bundle Name: FuelInjectorCircuit_TFTKO
PFI: P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0261, P0264, P0267, P0270, P0273, P0276, P0279, P0282, P0262, P0265, P0268, P0271, P0274, P0277, P0280, P0283 SIDI: P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0261, P0264, P0267, P0270, P0273, P0276, P0279, P0282, P0262, P0265, P0268, P0271, P0274, P0277, P0280, P0283, P2147, P2150, P2153, P2156, P216B, P216E, P217B, P217E, P2148, P2151, P2154, P2157, P216C, P216F, P217C, P217F, P1248, P1249, P124A, P124B, P124C, P124D, P124E, P124F
Bundle Name: FuelLevelDataFault
P0461, P0462, P0463, P2066, P2067, P2068
Bundle Name: FuelPumpRlyCktFA
P0627, P0628, P0629
Bundle Name: FuelTankPressureSnsrCkt_FA
P0452, P0453
Bundle Name: FuelTrimSystemB1_FA
P0171, P0172
Bundle Name: FuelTrimSystemB1_TFTKO
P0171, P0172
Bundle Name: FuelTrimSystemB2_FA
P0174, P0175
Bundle Name: FuelTrimSystemB2_TFTKO
P0174, P0175
Bundle Name: HumidityFA
P0097, P0098, P11C2, P11C3, P2227, P2228, P2229, P2230
Bundle Name: HumTempSnsrCktFA
P0097, P0098
Bundle Name: HumTempSnsrCktFP
P0097, P0098
Bundle Name: HumTempSnsrFA
P0096, P0097, P0098, P0099

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: IAC_SystemRPM_FA
P0506, P0507
Bundle Name: IAT_ContCorrFA
P2199
Bundle Name: IAT_SensorCircuitFA
P0112, P0113
Bundle Name: IAT_SensorCircuitFP
P0112, P0113
Bundle Name: IAT_SensorCircuitTFTKO
P0112, P0113
Bundle Name: IAT_SensorFA
P0111, P0112, P0113, P0114
Bundle Name: IAT_SensorTFTKO
P0111, P0112, P0113, P0114
Bundle Name: IgnitionOffTimer_FA
P262B
Bundle Name: IgnitionOffTimeValid
P262B
Bundle Name: IgnitionOutputDriver_FA
P0351, P0352, P0353, P0354, P0355, P0356, P0357, P0358, P2300, P2301, P2303, P2304, P2306, P2307, P2309, P2310, P2312, P2313, P2315, P2316, P2318, P2319, P2321, P2322
Bundle Name: IntakeCamSensor_FA
P0016, P0018, P0340, P0341, P0345, P0346
Bundle Name: IntakeCamSensor_TFTKO
P0016, P0018, P0340, P0341, P0345, P0346
Bundle Name: IntakeCamSensorFA
P0016, P0018, P0340, P0341, P0345, P0346
Bundle Name: IntakeCamSensorTFTKO
P0016, P0018, P0340, P0341, P0345, P0346
Bundle Name: IntakeVVT_Enabled
IntakeVVT_Enabled - Other Definitions: IntakeVVT_Enabled = TRUE if:
CrankIntakeCamCorrelationFA diagnostic has executed and passed AND
Cam Edge Locations have been learned AND
CrankSensor_TFTKO = False AND
IntakeCamSensorTFTKO = False AND
CamLctnIntFA = False AND
Engine Mode Run = True AND

15 OBDG06 ECM Fault Bundle Definitions

Engine Power Requested = True AND
IntEngineSpeed is Enabled AND
IntOilPressure is Enabled AND
IntEngineOilTemp is Enabled AND
 (Engine Power Requested = True
 OR
CSER_Enabled AND Engine Speed > 900.00 AND Engine Mode Run Time > **ColdStartEngRunning**)

IntEngineSpeed is Enabled if:
LoRpmHiEnblc < Engine RPM < **HiEngSpdLoEnblc**

IntEngineSpeed Disables if:
 Engine RPM < **LoRpmLoDsblc**
 OR
 Engine RPM > **HiEngSpdHiDsblc**

IntOilPressure is Enabled if:
 (Oil Pressure Sensor In Use (1.00) = 1.00 (Note: 1.00 equals "TRUE") AND
 Oil Pressure Sensor Present (0.00) = 1.00 (Note: 1.00 equals "Present") AND
 Oil Pressure > **LoPresHiEnblc** for **EngOilPressEnblc** sec)
 OR
 (Engine RPM > **LoRpmHiEnblc** for **EngOilPressEnblc** sec)

IntOilPressure Disables if:
 Oil Pressure Sensor In Use (1.00) = 1.00 (Note: 1.00 equals "TRUE") AND
 Oil Pressure Sensor Present (0.00) = 1.00 (Note: 1.00 equals "Present") AND
 Oil Pressure < **LoPresLoDsblc**

IntEngineOilTemp is Enabled if:
 -25.00 < Engine Oil Temp < 150.00

IntEngineOilTemp Disables if:
 Engine Oil Temp < -13.00
 OR
 Engine Oil Temp > 160.00

Bundle Name: IntkCamPhaser_FA
P0010, P0011, P0020, P0021, P05CC, P05CD, P2088, P2089, P2092, P2093, P25CA, P25CB, P25CC, P25CD, P25CE, P25CF
Bundle Name: IntkCamPhsrCircuit_TFTKO
P0010, P0020, P2088, P2089, P2092, P2093, P25CA, P25CB, P25CC, P25CD, P25CE, P25CF
Bundle Name: KS_Ckt_Perf_B1B2_FA
P0324, P0325, P0326, P0327, P0328, P0330, P0332, P0333, P06B6, P06B7
Bundle Name: LostCommBCM_FA
U0140
Bundle Name: LostCommBusB_VICM_FA

15 OBDG06 ECM Fault Bundle Definitions

U182D
Bundle Name: LowFuelConditionDiagnostic
LowFuelConditionDiagnostic - Other Definitions: Flag set to TRUE if the fuel level < 10.0 % AND No Active DTCs: FuelLevelDataFault, P0462, P0463 for at least 30.0seconds
Bundle Name: MAF_SensorCircuitFA
P0102, P0103, P010C, P010D
Bundle Name: MAF_SensorCircuitTFTKO
P0102, P0103, P010C, P010D
Bundle Name: MAF_SensorFA
P0101, P0102, P0103, P010B, P010C, P010D
Bundle Name: MAF_SensorFP
P0102, P0103, P010C, P010D
Bundle Name: MAF_SensorPerfFA
P0101
Bundle Name: MAF_SensorPerfTFTKO
P0101
Bundle Name: MAF_SensorTFTKO
P0101, P0102, P0103, P010B, P010C, P010D
Bundle Name: MAF_Snsr1_FA
P0101, P0102, P0103
Bundle Name: MAF_Snsr2_FA
P010B, P010C, P010D
Bundle Name: MAF_SnsrCktFA
P0102, P0103, P010C, P010D
Bundle Name: MAF_SnsrCktTFTKO
P0102, P0103, P010C, P010D
Bundle Name: MAP_EngineVacuumStatus
P0106, P0107, P0108 Fault Active OR P0107, P0108 Fault Pending
Bundle Name: MAP_SensorCircuitFA
P0107, P0108
Bundle Name: MAP_SensorCircuitFP
P0107, P0108
Bundle Name: MAP_SensorFA
P0106, P0107, P0108
Bundle Name: MAP_SensorPerfFA
P0106

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: MAP_SensorPerfTFTKO
P0106
Bundle Name: MAP_SensorTFTKO
P0106, P0107, P0108
Bundle Name: MnfdTempSensorCktFA
Turbocharged or Supercharged, with Humidity sensor: P112C, P112D. Turbocharged or Supercharged, without Humidity sensor: P0097, P0098. Naturally Aspirated: P0112, P0113.
Bundle Name: MnfdTempSensorCktFP
Turbocharged or Supercharged, with Humidity sensor: P112C, P112D. Turbocharged or Supercharged, without Humidity sensor: P0097, P0098. Naturally Aspirated: P0112, P0113.
Bundle Name: MnfdTempSensorCktTFTKO
Turbocharged or Supercharged, with Humidity sensor: P112C, P112D. Turbocharged or Supercharged, without Humidity sensor: P0097, P0098. Naturally Aspirated: P0112, P0113.
Bundle Name: MnfdTempSensorFA
Turbocharged or Supercharged, with Humidity sensor: P112B, P112C, P112D, P112E. Turbocharged or Supercharged, without Humidity sensor: P0096, P0097, P0098, P0099. Naturally Aspirated: P0111, P0112, P0113, P0114.
Bundle Name: MnfdTempSensorTFTKO
Turbocharged or Supercharged, with Humidity sensor: P112B, P112C, P112D, P112E. Turbocharged or Supercharged, without Humidity sensor: P0096, P0097, P0098, P0099. Naturally Aspirated: P0111, P0112, P0113, P0114.
Bundle Name: ModuleOffTime_FA
P262B
Bundle Name: ModuleOffTimeErr
P262B
Bundle Name: O2S_Bank_1_TFTKO
P0131, P0132, P0134, P2A00
Bundle Name: O2S_Bank_2_TFTKO
P0151, P0152, P0154, P2A03
Bundle Name: O2S_Bank_1_Sensor_1_FA
P2A00, P0131, P0132, P0133, P0134, P0135, P0053, P1133, P015A, P015B, P0030
Bundle Name: O2S_Bank_1_Sensor_2_FA
P013A, P013B, P013E, P013F, P2270, P2271, P0137, P0138, P0140, P0141, P0054, P0036
Bundle Name: O2S_Bank_2_Sensor_1_FA
P2A03, P0151, P0152, P0153, P0154, P0155, P0059, P1153, P015C, P015D, P0050
Bundle Name: O2S_Bank_2_Sensor_2_FA
P013C, P013D, P014A, P014B, P2272, P2273, P0157, P0158, P0160, P0161, P0060, P0056
Bundle Name: OAT_AmbientFilteredFA
ECM OAT: P0071, P0072, P0073, P0074, EngModeNotRunTmErr, VehicleSpeedSensor_FA, IAT_SensorFA, ECT_Sensor_DefaultDetected, MAF_SensorFA. VIMC OAT: P0072, P0073, EngModeNotRunTmErr, VehicleSpeedSensor_FA, ECT_Sensor_DefaultDetected. IAT-Based OAT: not applicable. All other cases: not applicable.
Bundle Name: OAT_AmbientSensorFA
ECM OAT: P0071, P0072, P0073, P0074. VIMC OAT: P0071, P0072, P0073, EngModeNotRunTmErr, VehicleSpeedSensor_FA, ECT_Sensor_DefaultDetected. IAT-Based OAT: not applicable. All other cases: not applicable.
Bundle Name: OAT_EstAmbTemp_FA

15 OBDG06 ECM Fault Bundle Definitions

ELCP sealed/vented fuel system, P0071, P0072, P0073, P0502, P0503, P0722, P0723 OR Conventional fuel system, P0071, P0072, P0073, P0074, P262B
Bundle Name: OAT_PtEstFiltFA
ECM OAT: P0071, P0072, P0073, P0074, EngModeNotRunTmErr, VehicleSpeedSensor_FA, IAT_SensorFA, ECT_Sensor_DefaultDetected, MAF_SensorFA. VIMC OAT: P0072, P0073, EngModeNotRunTmErr, VehicleSpeedSensor_FA, ECT_Sensor_DefaultDetected. IAT-Based OAT: VehicleSpeedSensor_FA, IAT_SensorFA, MAF_SensorFA. All other cases: EngModeNotRunTmErr, VehicleSpeedSensor_FA, IAT_SensorFA, ECT_Sensor_DefaultDetected.
Bundle Name: OAT_PtEstRawFA
ECM OAT: P0071, P0072, P0073, P0074. VIMC OAT: P0071, P0072, P0073, EngModeNotRunTmErr, VehicleSpeedSensor_FA, ECT_Sensor_DefaultDetected. IAT-Based OAT: IAT_SensorFA. All other cases: IAT_SensorFA, ECT_Sensor_DefaultDetected.
Bundle Name: OilPmpCktFA
P06DA, P06DB, P06DC
OilPmpCktFA - Other Definitions: Output Driver Codes
Bundle Name: OilPmpFA
P06DA, P06DB, P06DC, P06DD, P06DE
OilPmpFA - Other Definitions: FA only for Output Driver and rationality
Bundle Name: OilPmpStuckHigh
P06DA, P06DB, P06DD
OilPmpStuckHigh - Other Definitions: TFTKO and FA
Bundle Name: OilPmpStuckLow
P06DC, P06DE
OilPmpStuckLow - Other Definitions: TFTKO and FA
Bundle Name: OilPmpTFTKO
P06DA, P06DB, P06DC, P06DD, P06DE
OilPmpTFTKO - Other Definitions: TFTKO only for Output Driver and rationality
Bundle Name: OilSenDiagBndl_TFTKO
P055B, P055C, P055D
Bundle Name: PO2S_Bank_1_Snsr_2_FA
P0137, P0138, P0140, P0036, P0054, P0141, P2270, P2271
Bundle Name: PO2S_Bank_2_Snsr_2_FA
P0157, P0158, P0160, P0056, P0060, P0161, P2272, P2273
Bundle Name: PostCatFuelTrimHiB1
P2097
Bundle Name: PostCatFuelTrimHiB2
P2099
Bundle Name: PostCatFuelTrimLoB1
P2096

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: PostCatFuelTrimLoB2
P2098
Bundle Name: PowertrainRelayFault
P1682
Bundle Name: PowertrainRelayStateOn_Error
P0685
Bundle Name: PowertrainRelayStateOn_FA
P0685
Bundle Name: PPS1_OutOfRange
P2122, P2123
Bundle Name: PPS1_OutOfRange_Composite
P2122, P2123, P06A3
Bundle Name: PPS2_OutOfRange
P2127, P2128
Bundle Name: PPS2_OutOfRange_Composite
P2127, P2128, P0697
Bundle Name: SCIAP_SensorCircuitFA
P012C, P012D
Bundle Name: SCIAP_SensorCircuitFP
P012C, P012D
Bundle Name: SCIAP_SensorFA
P012B, P012C, P012D
Bundle Name: SCIAP_SensorPerfFA
P012B
Bundle Name: SCIAP_SensorPerfTFTKO
P012B
Bundle Name: SCIAP_SensorTFTKO
P012B, P012C, P012D
Bundle Name: SuperchargerBypassValveFA
P2261
Bundle Name: SystemVoltageHigh_FA
P0563
Bundle Name: SystemVoltageLow_FA
P0562
Bundle Name: TC_BoostPresSnsrCktFA
P0237, P0238
Bundle Name: TC_BoostPresSnsrFA
P0236, P0237, P0238

15 OBDG06 ECM Fault Bundle Definitions

Bundle Name: TCM_EngSpdReqCkt
P150C
Bundle Name: THMR_AHV_FA
P2681, P26A3, P26A6, P26A7, P26A9
THMR_AHV_FA - Other Definitions:
Bundle Name: THMR_AWP_AuxPumpFA
B269A, B269C, B269D
Bundle Name: THMR_ECT_Sensor_Ckt_FA
P0116, P0117, P0118, P0119, P111E
Bundle Name: THMR_Insuff_Flow_FA
P00B7
Bundle Name: THMR_RCT_Sensor_Ckt_FA
P00B3, P00B4
Bundle Name: THMR_SWP_Control_FA
P261A, P261D, P261C
Bundle Name: THMR_SWP_FlowStuckOn_FA
P261A, P261D, P261E
Bundle Name: THMR_SWP_NoFlow_FA
P261B, P261C
Bundle Name: THMR_Therm_Control_FA
P0597, P0598, P0599
Bundle Name: ThrotTempSensorFA
Turbocharged or Supercharged, with Humidity sensor: P112B, P112C, P112D, P112E. Turbocharged or Supercharged, without Humidity sensor: P0096, P0097, P0098, P0099. Naturally Aspirated: P0111, P0112, P0113, P0114.
Bundle Name: ThrotTempSensorTFTKO
Turbocharged or Supercharged, with Humidity sensor: P112B, P112C, P112D, P112E. Turbocharged or Supercharged, without Humidity sensor: P0096, P0097, P0098, P0099. Naturally Aspirated: P0111, P0112, P0113, P0114.
Bundle Name: ThrottlePositionSnsrPerfFA
P0121
Bundle Name: ThrottlePositionSnsrPerfTFTKO
P0121
Bundle Name: TIAP_SensorPerfFA
P0236
Bundle Name: TPS_FA
P0122, P0123, P0222, P0223, P16A0, P16A1, P16A2, P2135
Bundle Name: TPS_FaultPending
P0122, P0123, P0222, P0223, P16A0, P16A1, P16A2, P2135
Bundle Name: TPS_Performance_FA

15 OBDG06 ECM Fault Bundle Definitions

P0068, P0121, P1104, P2100, P2101, P2102, P2103
Bundle Name: TPS_Performance_TFTKO
P0068, P0121, P1104, P2100, P2101, P2102, P2103
Bundle Name: TPS_TFTKO
P0122, P0123, P0222, P0223, P16A0, P16A1, P16A2, P2135
Bundle Name: TPS_ThrottleAuthorityDefaulted
P0068, P0122, P0123, P0222, P0223, P16F3, P16A0, P16A1, P16A2, P1104, P2100, P2101, P2102, P2103, P2135
Bundle Name: TPS1_OutOfRange_Composite
P0122, P0123, P06A3, P16A0, P16A1, P16A2
Bundle Name: TPS2_OutOfRange_Composite
P0222, P0223, P06A3, P16A0, P16A1, P16A2
Bundle Name: Trans Output Rotations Rolling Count Validity
P0722, P0723, P077C, P077D
Bundle Name: TransActualGearValidity
P182E, P1915
Bundle Name: Transfer Pump is Commanded On
Transfer Pump is Commanded On - Other Definitions: Fuel Volume in Primary Fuel Tank < 0.0 liters AND Fuel Volume in Secondary Fuel Tank ≥ 0.0 liters AND Transfer Pump on Time < P0461, P2066, P2636: Transfer Pump Enable (see supporting table for numeric value) AND Transfer Pump had been Off for at least 0.0 seconds AND Evap Diagnostic (Purge Valve Leak Test, Large Leak Test, and Waiting for Purge) is not running AND Engine Running
Bundle Name: Transmission Actual Gear Validity
P182E, P1915
Bundle Name: Transmission Engaged State Validity
P182E, P1915
Bundle Name: Transmission Estimated Gear Validity
P182E, P1915
Bundle Name: Transmission Gear Ratio Validity
P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0
Bundle Name: Transmission Gear Selector Position Validity
P182E, P1915
Bundle Name: Transmission Oil Temperature Validity
P0667, P0668, P0669, P0711, P0712, P0713
Bundle Name: Transmission Output Shaft Angular Velocity Validity
P0722, P0723, P077C, P077D
Bundle Name: Transmission Overall Actual Torque Ratio Validity

15 OBDG06 ECM Fault Bundle Definitions

P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P182E, P1915
Bundle Name: Transmission Overall Estimated Torque Ratio Validity
P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P182E, P1915
Bundle Name: Transmission Shift Lever Position Validity
P182E, P1915
Bundle Name: Transmission Turbine Angular Velocity Validity
P0716, P0717, P07BF, P07C0
Bundle Name: TransmissionEngagedState_FA
P182E, P1915
Bundle Name: TransmissionGearDefaulted
P182E, P1915
Bundle Name: TransmissionOutputRotationalStatusValidity
P0722, P0723, P077C, P077D
Bundle Name: TransmissionRatioControlSystemFault
P0751, P0752, P0756, P0757, P0973, P0974, P0976, P0977
Bundle Name: TwoStepMechBndl_FA
P2646, P2647, P16D0, P16D1
Bundle Name: VCER_TorqueSecurity
P16F3
VCER_TorqueSecurity - Other Definitions: P16F3 with GetXOYR_b_SecurityFlt(CeXOYR_e_AFM_PreloadAreaFlt, CeXOYR_e_AFM_PreloadTimerFlt, CeXOYR_e_AFM_DualPreloadAreaFlt, CeXOYR_e_CDAR_SecurityFlt)
Bundle Name: VehicleSpeedSensor_FA
P0502, P0503, P0722, P0723
Bundle Name: VehicleSpeedSensorError
P0502, P0503, P0722, P0723
Bundle Name: VentCircuit_FA
ELCP sealed/vented fuel system, P0449, P0498, P0499
Bundle Name: VICM_WakeupDiag_FA
P06E4
Bundle Name: VICM_WakeupDiag_TFTKO
P06E4
Bundle Name: VITR_LVT_FltBndl
P058B, P058D, P118C, P118D

15 OBDG06 CCM Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumination
Fuel Rail Pressure (FRP) Sensor Performance (rationality)	P018B	This DTC detects a fuel pressure sensor response stuck within the normal operating range	Absolute value of fuel pressure change as sensed during intrusive test.	<= 30 kPa	<ul style="list-style-type: none"> 1. FRP Circuit Low DTC (P018C) 2. FRP Circuit High DTC (P018D) 3. FuelPump Circuit Low DTC (P0231) 4. FuelPump Circuit High DTC (P0232) 5. FuelPump Circuit Open DTC (P023F) 6. Reference Voltage DTC (P0641) 7. Fuel Pump Control Module Driver Over-temperature DTC (P064A) 8. Control Module Internal Performance DTC (P0606) 9. Engine run time 10. Emissions fuel level low (PPEI \$3FB) 11. Fuel pump control 	<ul style="list-style-type: none"> Not active Not active Not active Not active Not active Not active Not active Not active >=5 seconds Not low Enabled 	<p><u>Frequency:</u> Continuous; 12.5 ms loop. 60 seconds between intrusive tests that pass</p> <p>Intrusive test requested if fuel system is clamped for >= 5 seconds or fuel pressure error variance <= typically (0.3 to 0.6) (calculated over a 2.5sec period); otherwise report pass</p> <p>Duration of intrusive test is fueling related (5 to 12 seconds).</p> <p>Intrusive test is run when fuel flow is below Max allowed fuel flow rate (Typical values in the range of 11 to 50 g/s)</p>	DTC Type B 2 trips

15 OBDG06 CCM Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumination
					12. Fuel pump control state 13. Engine fuel flow 14. ECM fuel control system failure (PPEI \$1E7)	Normal or FRP rationality control > 0.047 g/s Not failed		
Fuel Rail Pressure (FRP) Sensor Circuit Low Voltage	P018C	This DTC detects if the fuel pressure sensor circuit is shorted low	FRP sensor voltage	< 0.14 V	Ignition	Run or Crank	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type B 2 trips
Fuel Rail Pressure (FRP) Sensor Circuit High Voltage	P018D	This DTC detects if the fuel pressure sensor circuit is shorted high	FRP sensor voltage	> 4.86 V	Ignition	Run or Crank	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type B 2 trips
Fuel Pump Control Circuit Low Voltage	P0231	This DTC detects if the fuel pump control circuit is shorted to low	Fuel Pump Current	> 14.48A	Ignition OR Ignition OR Fuel Pump Control AND Ignition Run/Crank Voltage	Run or Crank Accessory enabled 9V < voltage < 32V	72 test failures in 80 test samples if Fuel Pump Current <100A 1 sample/12.5 ms	DTC Type A 1 trip
Fuel Pump Control Circuit High Voltage	P0232	This DTC detects if the fuel pump control circuit is shorted to high	Voltage measured at fuel pump circuit	> 3.86 V	Commanded fuel pump output Fuel pump control enable Time that above conditions are met	0% duty cycle (off) False >=4.0 seconds	36 test failures in 40 test samples; 1 sample/12.5ms Pass/Fail determination made only once per trip	DTC Type B 2 trips
Fuel Pump Control Circuit (Open)	P023F	This DTC detects if the fuel pump control circuit is open	Fuel Pump Current AND	<=0.5A	Ignition switch OR	Run or Crank	72 test failures in 80 test samples; 1 sample/12.5ms	DTC Type A 1 trip

15 OBDG06 CCM Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumination
			Fuel Pump Duty Cycle	>20%	Ignition switch OR Fuel Pump Control AND Ignition Run/Crank Voltage	Accessory enabled 9V < voltage < 32V		
Fuel System Control Module Enable Control Circuit	P025A	This DTC detects if there is a fault in the fuel pump control enable circuit	PPEI (Powertrain Platform Electrical Interface) Fuel System Request (\$1E7)	≠ Fuel Pump Control Module Enable Control Circuit	Ignition AND PPEI Fuel System Request (\$1E7)	Run or Crank valid	72 failures out of 80 samples 1 sample/12.5 ms	DTC Type A 1 trip
Mechanical Actuator Performance (Functionality)	P059F	Compare commanded shutter position to sensed position	Failure to achieve commanded position	Two (2) consecutive intrusive tests fail to achieve commanded position. Intrusive tests are triggered immediately following any failure to achieve a commanded position.	1. Power mode 2. Shutter Control 3. Ignition Run/Crank Voltage	Run/Crank Enabled 11V < voltage < 32V	Frequency: 1 sample after every shutter movement. Intrusive test requested if shutter movement is commanded and position feedback differs after 19.5 seconds; otherwise report pass. Duration of intrusive test is shutter movement related (40 to 80 seconds).	DTC Type B 2 trips
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if any software or calibration checksum is incorrect	Calculated Checksum (CRC16)	≠ stored checksum for any of the parts (boot, software, application calibration, system calibration)	Ignition switch	Run or Crank	1 failure if it occurs during the first ROM test of the ignition cycle, otherwise 5 failures	DTC Type A 1 trip

15 OBDG06 CCM Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumination
					OR Ignition switch OR Fuel Pump Control	Accessory enabled	Frequency: Runs continuously in the background	
Control Module Not Programmed	P0602	Indicates that the ECU needs to be programmed	Calibration KeMEMD_b_NoStartCal	= TRUE	Ignition switch OR Ignition switch OR Fuel Pump Control	Run or Crank Accessory enabled	Runs once at power up	DTC Type A 1 trip
Control Module Long Term Memory Reset	P0603	Non-volatile memory checksum error at controller power-up	Checksum at power-up	≠ checksum at power-down	Ignition switch OR Ignition switch OR Fuel Pump Control	Run or Crank Accessory enabled	1 failure Frequency: Once at power-up	DTC Type A 1 trip
Control Module Random Access Memory (RAM)	P0604	Indicates that control module is unable to correctly write and read data to and from RAM	Data read	≠ Data written	Ignition switch OR Ignition switch OR Fuel Pump Control	Run or Crank Accessory enabled	1 failure if it occurs during the first RAM test of the ignition cycle, otherwise 5 failures Frequency: Runs continuously in the background.	DTC Type A 1 trip

15 OBDG06 CCM Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumination
			(Reference voltage AND Output) OR	(<= 4.5V active)				
			Reference voltage	> 105% nominal OR < 95% nominal (i.e., > 5.25v OR < 4.75v)				
Fuel Pump Control Module Driver 1 Over-temperature	P064A	Detects if an internal fuel pump driver overtemperature condition exists under normal operating conditions	Pump Driver Temp	> 150C	Ignition switch OR Ignition switch OR Fuel pump control	Run or Crank Accessory Enabled	3 failures out of 15 samples 1 sample/12.5 ms	DTC Type B 2 trips
					KeFRPD_b_FPOverTempDiagEnbl	TRUE		
					Ignition Run_Crank terminal	9V<voltage<32V		
Lost Communication With "Actuator"	P151E	Detects loss of communication condition has occurred between ECU and device Active Grill Air Shutter "A" actuator	PWM Message	Undetected	1. Power mode 2. Ignition Run/Crank Voltage	Run/Crank 11V < voltage < 32V	Frequency: 100ms 150 failures out of 167 samples	DTC Type B 2 trips
Ignition 1 Switch Circuit Low Voltage	P2534	Detects if the Ignition1 Switch circuit is shorted to low or open	Ignition 1 voltage	<= 6 V	Engine	Running	180 failures out of 200 samples 1 sample/25.0 ms	DTC Type A 1 trip
Ignition 1 Switch Circuit High Voltage	P2535	Detects if the Ignition1 Switch circuit is shorted to vehicle supply voltage	Ignition 1 voltage	> 11.7 V	Ignition Run_Crank terminal	Off	180 failures out of 200 samples 1 sample/25.0 ms	DTC Type A 1 trip

15 OBDG06 CCM Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumination	
Fuel Pump Flow Performance (rationality)	P2635	Detects degradation in the performance of the electronically regulated fuel system	Filtered fuel rail pressure error	<= Low Threshold (tabulated function of desired fuel rail pressure and fuel flow rate -- 15% of requested Target Pressure) OR >= High Threshold (tabulated function of desired fuel rail pressure and fuel flow rate -- 15% of requested Target Pressure) (See Supporting Tables tab)			Filtered fuel rail pressure error Time Constant = 12.5 seconds Frequency: Continuous 12.5 ms loop	DTC Type B 2 trips	
						1. FRP Circuit Low DTC (P018C)			Not active
						2. FRP Circuit High DTC (P018D)			Not active
						3. Fuel Rail Pressure Sensor Performance DTC (P018B)			Not active
						4. FuelPump Circuit Low DTC (P0231)			Not active
						5. FuelPump Circuit High DTC (P0232)			Not active
						6. FuelPump Circuit Open DTC (P023F)			Not active
						7. Reference Voltage DTC (P0641)			Not active
						8. Fuel Pump Control Module Driver Over-temperature DTC's (P064A)			Not active
						9. Control Module Internal Performance DTC (P0606)			Not active
						10. ECM fuel control system failure (PPEI \$1E7)			Not occurred
						11. Barometric pressure signal (PPEI \$4C1)			Valid (for absolute fuel pressure sensor)
						12. Engine run time			>= 30 seconds
						13. Emissions fuel level (PPEI \$3FB)			Not low

15 OBDG06 CCM Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumination
					14. Fuel pump control	Enabled		
					15. Fuel pump control state	Normal		
					16. Battery Voltage	11V<=voltage=<32V		
					17. Fuel flow rate (See Supporting Tables tab)	> 0.047 g/s AND <= Max allowed fuel flow rate as a function of desired rail pressure & Vbatt (Typical values in the range of 11 to 50 g/s)		
					18. Fuel Pressure Control System	Is not responding to an over-pressurization due to pressure build during DFCO or a decreasing desired pressure command.		
Control Module Communication Bus "A" Off	U0073	Detects that a CAN serial data bus shorted condition has occurred to force the CAN device driver to enter a bus-off state	Bus Status	Off	Power mode	Run/Crank	5 failures out of 5 samples (5 seconds)	DTC Type B 2 trips
Lost Communication With ECM/PCM "A"	U0100	Detects that CAN serial data communication has been lost with the ECM	Message \$0C9	Undetected	1. Power mode 2. Ignition Run/Crank Voltage 3. U0073	Run/Crank 11V<voltage<32V not active	12 failures out of 12 samples (12 seconds)	DTC Type B 2 trips

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Maximum Fuel Flow map (grams / s)

X-axis= Desired Fuel Pressure (kiloPascals)

Y-axis= Battery voltage (volts)

	200	250	300	350	400	450	500	550	600
4.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
6	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
7.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
9	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
10.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
12	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
13.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
15	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
16.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
18	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
19.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
21	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
22.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
24	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
25.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
27	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
28.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Filtered Pressure Error Fault Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)

Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	30	37.5	45	52.5	60	67.5	75	82.5	90
1.5	30	37.5	45	52.5	60	67.5	75	82.5	90
3	30	37.5	45	52.5	60	67.5	75	82.5	90
4.5	30	37.5	45	52.5	60	67.5	75	82.5	90
6	30	37.5	45	52.5	60	67.5	75	82.5	90
7.5	30	37.5	45	52.5	60	67.5	75	82.5	90
9	30	37.5	45	52.5	60	67.5	75	82.5	90
10.5	30	37.5	45	52.5	60	67.5	75	82.5	90
12	30	37.5	45	52.5	60	67.5	75	82.5	90
13.5	30	37.5	45	52.5	60	67.5	75	82.5	90
15	30	37.5	45	52.5	60	67.5	75	82.5	90
16.5	30	37.5	45	52.5	60	67.5	75	82.5	90
18	30	37.5	45	52.5	60	67.5	75	82.5	90
19.5	30	37.5	45	52.5	60	67.5	75	82.5	90
21	30	37.5	45	52.5	60	67.5	75	82.5	90
22.5	30	37.5	45	52.5	60	67.5	75	82.5	90
24	30	37.5	45	52.5	60	67.5	75	82.5	90
25.5	30	37.5	45	52.5	60	67.5	75	82.5	90
27	30	37.5	45	52.5	60	67.5	75	82.5	90
28.5	30	37.5	45	52.5	60	67.5	75	82.5	90
30	30	37.5	45	52.5	60	67.5	75	82.5	90
31.5	30	37.5	45	52.5	60	67.5	75	82.5	90
33	30	37.5	45	52.5	60	67.5	75	82.5	90

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Filtered Pressure Error Fault Threshold High map (kiloPascals)----- (CONTINUED)

X-axis= Target Fuel Pressure (kiloPascals)

Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
34.5	30	37.5	45	52.5	60	67.5	75	82.5	90
36	30	37.5	45	52.5	60	67.5	75	82.5	90
37.5	30	37.5	45	52.5	60	67.5	75	82.5	90
39	30	37.5	45	52.5	60	67.5	75	82.5	90
40.5	30	37.5	45	52.5	60	67.5	75	82.5	90
42	30	37.5	45	52.5	60	67.5	75	82.5	90
43.5	30	37.5	45	52.5	60	67.5	75	82.5	90
45	30	37.5	45	52.5	60	67.5	75	82.5	90
46.5	30	37.5	45	52.5	60	67.5	75	82.5	90
48	30	37.5	45	52.5	60	67.5	75	82.5	90

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold High map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
1.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
3	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
4.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
6	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
7.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
9	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
10.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
12	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
13.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
15	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
16.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
18	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
19.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
21	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
22.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
24	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
25.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
27	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
28.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
30	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
31.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
33	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold High map (kiloPascals)---(CONTINUED)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
34.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
36	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
37.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
39	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
40.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
42	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
43.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
45	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
46.5	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5
48	25.5	31.875	38.25	44.625	51	57.375	63.75	70.125	76.5

P2635 Fuel Pump Performance Filtered Pressure Error Fault Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-260	-210	-160	-110	-60	-67.5	-75	-82.5	-90
1.5	-145	-125	-102.5	-81.25	-60	-67.5	-75	-82.5	-90
3	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
4.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
6	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
7.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
9	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
10.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Filtered Pressure Error Fault Threshold Low map (kiloPascals)---(CONTINUED)

X-axis= Target Fuel Pressure (kiloPascals)

Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
12	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
13.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
15	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
16.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
18	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
19.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
21	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
22.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
24	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
25.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
27	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
28.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
30	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
31.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
33	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
34.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
36	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
37.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
39	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
40.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
42	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
43.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
45	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
46.5	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90
48	-30	-37.5	-45	-52.5	-60	-67.5	-75	-82.5	-90

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold Low map (kiloPascals)

X-axis= Target Fuel Pressure (kiloPascals)

Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
0	-221	-178.5	-136	-93.5	-51	-57.375	-63.75	-70.125	-76.5
1.5	-123.25	-106.25	-87.125	-69.0625	-51	-57.375	-63.75	-70.125	-76.5
3	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
4.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
6	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
7.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
9	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
10.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
12	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
13.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
15	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
16.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
18	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
19.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
21	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
22.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
24	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
25.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
27	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
28.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
30	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
31.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
33	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5

15 OBDG06 CCM Diagnostic Supporting Tables

P2635 Fuel Pump Performance Filtered Pressure Error Fault RePass Threshold Low map (kiloPascals)---(CONTINUED)

X-axis= Target Fuel Pressure (kiloPascals)
Y-axis= Fuel Flow (grams / s)

	200	250	300	350	400	450	500	550	600
34.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
36	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
37.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
39	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
40.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
42	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
43.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
45	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
46.5	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5
48	-25.5	-31.875	-38.25	-44.625	-51	-57.375	-63.75	-70.125	-76.5