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Component	Fault code	Description of DTC	Description
Crankshaft Position Sensor	P 0335	Crankshaft Position Sensor "A" Circuit	Engine Power loss
Ignition Coil 1 Cylinder	P 2301	Ignition Coil "A" Primary Control Circuit High	Engine Power loss
	P 2300	Ignition Coil "A" Primary Control Circuit Low / Open Circuit	
Throttle Position Sensor	P 0123	Throttle Position Sensor/Switch "A" Circuit High	Default value of TPS, Engine Torque reduction or stall
	P 0122	Throttle Position Sensor/Switch "A" Circuit Low / Open Circuit	
Fuel Pump	P 0232	Fuel Pump circuit short High	Engine Power loss
	P 0231	Fuel Pump circuit short Low / Open Circuit	
ECM	P 0601	Internal Control Module Memory Checksum Error	No fuel injection,Engine Power loss
Fuel Injector 1 Cylinder	P 0262	Cylinder 1 Fuel Injector "A" Circuit High	No fuel injection,Engine Power loss
	P 0261	Cylinder 1 Fuel Injector "A" Circuit Low / Open Circuit	
	P 0264	Cylinder 1 Fuel Injector "B" Circuit Low / Open Circuit	

## Service 01

PID	Description
01	Monitor status since DTCs cleared MIL, # of DTC's Number of Emission D.T.C.(s) MIL Status Continuous Diagnostic Test Supported Misfire Monitoring Fuel System Monitoring Comprehensive Component Monitoring Reserved/J1979 Misfire Monitoring Tests Complete = 0 Fuel System Monitoring Tests Complete = 0 Comprehensive Component Monitoring Tests Complete = 0 Reserved/J1979 Non-Continuous Test Supported Enhanced Evaporative Purge System Oxygen Sensor Oxygen Sensor Heater Non-Continuous Test Results Enhanced Evaporative Purge System Test Complete Oxygen Sensor Test Complete Oxygen Sensor Heater Test Complete
03	Current Fuel System Status (Fuel System. 1) Current Fuel System Status (Fuel System 2)
04	Current Calculated Load value
05	Current Undefaulted Coolant Temperature
06	Current Short Term Fuel Trim (Bank 1)
07	Current Long Term Fuel Trim (Bank 1)
08	Current Short Term Fuel Trim (Bank 2)
09	Current Long Term Fuel Trim (Bank2)
0B	Current Undefaulted Manifold Absolute Pressure
0C	Current Undefaulted Engine RPM
0D	Current Undefaulted Vehicle Speed
0E	Current Commanded Ignition timing advance Cyl#1
0F	Current Undefaulted Intake Air Temperature
11	Current Undefaulted Absolute Throttle Position A
13	Location of Manufacturer equipped O2 sensors
14	(B1-S1) Undefaulted O2 Voltage (B1-S1) Short Term Fuel Trim
18	(B2-S1) Undefaulted O2 Voltage (B2-S1) Short Term Fuel Trim
1C	On-board Diagnostic System type
1F	Time Since Engine Start
20	Supported Mode 1 PIDS \$21- \$40
21	MIL On Odometer
2F	Fuel Level Input
33	Barometric Pressure
40	Supported Mode 1 PIDS \$41- \$60
4D	Time run by the engine while MIL is activated
51	Type of fuel currently being utilized by the vehicle
60	Supported Mode 1 PIDS \$61- \$80
7F	Support of Engine Run Time Total Engine Run Time Total Idle Run Time Total Run Time With PTO Active

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Service 02

Outputs	Description
02	Failure ID
03	Current Fuel System Status (Fuel System. 1) Current Fuel System Status (Fuel System 2)
04	Current Calculated Load value
05	Current Undefaulted Coolant Temperature
07	Current Long Term Fuel Trim - (Bank 1)
09	Current Long Term Fuel Trim - (Bank 2)
0B	Current Undefaulted Manifold Absolute Pressure
0C	Current Undefaulted Engine RPM
0D	Current Undefaulted Vehicle Speed
11	Current Undefaulted Absolute Throttle Position A
7F	Support of Engine Run Time Total Engine Run Time Total Idle Run Time Total Run Time With PTO Active

Fault code	Description of DTC	Fault Class	Active MIL
P 0118	Engine Coolant Temperature Sensor Circuit High / Open Circuit	1	✓
P 0117	Engine Coolant Temperature Sensor Circuit Low	1	✓
P 0116	Engine Coolant Temperature Sensor signal performance	2	✓
P 1116	Engine Coolant Temperature Sensor signal out of range	2	✓
P 0335	Crankshaft Position Sensor "A" Circuit	1	✓
P 2301	Ignition Coil "A" Primary Control Circuit High	1	✓
P 2300	Ignition Coil "A" Primary Control Circuit Low / Open Circuit	1	✓
P 0123	Throttle Position Sensor/Switch "A" Circuit High	1	✓
P 0122	Throttle Position Sensor/Switch "A" Circuit Low / Open Circuit	1	✓
P 0232	Fuel Pump circuit short High	1	✓
P 0231	Fuel Pump circuit short Low / Open Circuit	1	✓
P 0601	Internal Control Module Memory Checksum Error	1	✓
P 0262	Cylinder 1 Fuel Injector "A" Circuit High	1	✓
P 0261	Cylinder 1 Fuel Injector "A" Circuit Low / Open Circuit	1	✓
P 0108	Manifold Absolute Pressure Sensor Circuit High	1	✓
P 0107	Manifold Absolute Pressure Sensor Circuit Low/Open Circuit	1	✓
P 3106	Manifold Absolute Pressure Sensor rationality at low TPS	2	✓
P 0105	Manifold Absolute Pressure Sensor signal stuck	2	✓
P 0113	Intake Air Temperature Sensor Circuit High / Open Circuit	1	✓
P 0112	Intake Air Temperature Sensor Circuit Low	1	✓
P 0111	Intake Air Temperature Sensor signal stuck	2	✓
P 0114	Intake Air Temperature Sensor Circuit Intermittent	2	✓
P 0132	O2 Sensor Circuit High Voltage Bank 1 Sensor 1	1	✓
P 0131	O2 Sensor Circuit Low Voltage Bank 1 Sensor 1 / Open Circuit	1	✓
P 2195	O2 Sensor Signal Lean at PE Bank 1 Sensor 1	2	✓
P 014D	O2 Sensor Slow Response - Lean to Rich Bank 1 Sensor 1	3	✓
P 014C	O2 Sensor Slow Response - Rich to Lean Bank 1 Sensor 1	3	✓
P 0031	O2 Sensor Heater Control Circuit Low Bank 1 Sensor 1 / Open Circuit	1	✓
P 0032	O2 Sensor Heater Control Circuit High Bank 1 Sensor 1	1	✓
P 00D1	O2 Sensor Heater current low Bank 1 Sensor 1	2	✓
P 00D3	O2 Sensor Heater current low Bank 2 Sensor 1	2	✓
P 0301	Cylinder 1 Misfire Detected	3	✓
P 0500	Vehicle Speed Sensor "A" Circuit	2	✓
P 0505	Idle air control system error	2	✓
P 0562	System Voltage Low	1	✓
P 0563	System Voltage High	1	✓
P 0420	Catalyst System Efficiency Below Threshold Bank 1	3	✓
P 013B	O2 Sensor Slow Response - Lean to Rich Bank 1 Sensor 2	2	✓
P 2A01	O2 Sensor Circuit Range/Performance Bank 1 Sensor 2	2	✓
P 00D2	HO2S Heater Control Circuit Range/Performance Bank 1 Sensor 2	2	✓
P 1037	O2 Sensor Circuit High Voltage Bank 1 Sensor 2	1	✓
P 1038	O2 Sensor Circuit Low Voltage Bank 1 Sensor 2	1	✓
P 1137	HO2S Heater Control Circuit Low Bank 1 Sensor 2	1	✓
P 1138	HO2S Heater Control Circuit Low Bank 1 Sensor 2	1	✓

## Service 06-CAN

MID	TID	Component	Parameter	Parameter Scalling ID	Test Value	Min/Max Test limit	Description
\$01	\$05	O2 Bank-1 Sensor-1	Rich to Lean sensor Switch Time (calculated)	\$10 1ms/bit	Calculated	Min: 0 Max: 65535	average switch-time from Rich to Lean
\$01	\$06	O2 Bank-1 Sensor-1	Lean to Rich sensor Switch Time (calculated)	\$10 1ms/bit	Calculated	Min: 0 Max: 65535	average switch-time from Lean to Rich
\$41	\$B3	O2 Bank-1 Sensor-1	O2 Under Heat Resistance	\$14 1 Ohm/bit	Calculated	Min: 0 Max: 65535	O2 Resistance
\$A2	\$0C	Misfire Cylinder-1	Misfire Counts (calculated)	\$24 1count/bit	Calculated	Min: 0 Max: 65535	Misfire Counts for last/current driving cycle

## Service 09

Info Type	Description	Size in bytes	Applicable
04	Calibration ID' s Calibration characters are ASCII	16	Y
06	Calibration Verification Number of calibration area	4	Y
08	OBD Monitoring Conditions Encountered Counts	2	Y
	Ignition Cycle Counter	2	Y
	Catalyst Monitor Completion Counts Bank 1	2	Y
	Catalyst Monitor Conditions Encountered Counts Bank 1	2	Y
	Catalyst Monitor Completion Counts Bank 2	2	N
	Catalyst Monitor Conditions Encountered Counts Bank 2	2	N
	O2 Sensor Monitor Completion Counts Bank 1	2	Y
	O2 Sensor Monitor Conditions Encountered Counts Bank 1	2	Y
	O2 Sensor Monitor Completion Counts Bank 2	2	N
	O2 Sensor Monitor Conditions Encountered Counts Bank 2	2	N
	EGR and/or VVT Monitor Completion Condition Counts	2	N
	EGR and/or VVT Monitor Conditions Encountered Counts	2	N
	AIR Monitor Completion Condition Counts(Secondary Air)	2	N
	AIR Monitor Conditions Encountered Counts(Secondary Air)	2	N
	Secondary O2 Sensor Monitor Completion Counts Bank 1	2	Y
	Secondary O2 Sensor Monitor Conditions Encountered Counts Bank 1	2	Y
	Secondary O2 Sensor Monitor Completion Counts Bank 2	2	N
	Secondary O2 Sensor Monitor Conditions Encountered Counts Bank 2	2	N