

Repair Assistance Knowledge Base

Category	Vehicle Test Type	Failure	Possible Solutions
Repair	ASM	Hydrocarbons (HC)	Faulty spark plug wires, distributor cap, or rotor
			Faulty oxygen sensor(s)
			Faulty mass air flow sensor (MAF)
			Faulty EGR valve
			Clogged or leaking injectors or carburetor
			Incorrect ignition timing
			Excessive engine wear
		Carbon monoxide (CO)	Clogged or dirty air filter
			Excessive fuel pressure on fuel injected vehicles
			Leaking or dripping fuel injectors
			Faulty oxygen sensor(s)
			Faulty mass air flow sensor (MAF)
			Low oxygen (O2) sensor voltage
			Incorrect ignition timing
			Faulty positive crankcase ventilation (PCV) valve
			Faulty cold engine temperature sensor reading
		Nitrogen Oxide (Nox)	Faulty or clogged Exhaust Gas Recirculation (EGR) valve, EGR port, or connecting pipes
			Incorrect engine timing
			Broken or leaking vacuum hoses
			Incorrect fuel pressure on fuel injected vehicles
			Broken or leaking vacuum hoses
			Faulty mass air flow sensor (MAF)
			Faulty or malfunctioning thermostat
			Old engine coolant/antifreeze
			Restricted coolant flow through radiator
Repair	TSI	Hydrocarbons (HC)	Faulty spark plug wires, distributor cap, or rotor
			Faulty oxygen sensor(s)

Repair Assistance Knowledge Base

				Faulty mass air flow sensor (MAF)	
				Faulty EGR valve	
				Clogged or leaking injectors or carburetor	
				Incorrect ignition timing	
				Excessive engine wear	
		Carbon monoxide (CO)		Clogged or dirty air filter	
				Excessive fuel pressure on fuel injected vehicles	
				Leaking or dripping fuel injectors	
				Faulty oxygen sensor(s)	
				Faulty mass air flow sensor (MAF)	
				Low oxygen (O2) sensor voltage	
				Incorrect ignition timing	
				Faulty positive crankcase ventilation (PCV) valve	
				Faulty cold engine temperature sensor reading	
		Nitrogen Oxide (NOx)		NOx values not required for TSI testing	
Repair	OBD-II	MIL will not illuminate momentarily when ignition is turned "ON"		The MIL lamp is burned out or has been removed. Broken or faulty signal line to MIL lamp. Defective socket for MIL lamp. Tape or other obstruction covering MIL lamp.	Repair of MIL lamp circuitry or removal of obstruction.
		MIL not illuminating, but codes are present.		The MIL lamp is burned out or has been removed. Broken or faulty signal line to MIL lamp. Defective socket for MIL lamp. Tape or other obstruction covering MIL lamp.	Repair of MIL lamp circuitry or removal of obstruction.
		OBD-II system "Not Ready"		Battery may have been replaced or disconnected recently.	The vehicle may need to be driven several times in order for the diagnostic system to reach a "Ready" state for testing.
				If the vehicle has been repaired, it must complete certain driving conditions known as a "drive cycle" in order to become ready for testing.	If the vehicle does not become "ready" after being driven several times at various speeds, then it may become necessary to contact the manufacturer to determine the correct drive cycle for the particular vehicle.

Repair Assistance Knowledge Base

		"Non-communications" a term that describes the inability of a scan tool to communicate with an OBD-II system.		The data link connector (DLC) may be damaged or a wire to the connector may be broken or disconnected. Check the fuse for the power to the DLC. No other devices should be connected the DLC fuse.	
				If any after market equipment such as a navigation system, DVD player, CD plays, stereo, satellite radio, CB radio, or vehicle alarm system has been added to the vehicle, the wiring could be interfering with the OBD-II system.	
			BMW's	BMW's have a diagnostic service connector under the hood. If the service connector cap is left off or not securely tightened, it prevents the OBD-II DLC from making a connection.	
		Trouble Codes detected. Only codes starting with the letter "P" deal with powertrain problems		P codes currently consist of the letter "P" followed four numeric characters. If the first number is a 0, 2, or 3, the numbering system is standard throughout the automotive industry. If the first digit after the "P" is a 1 or a 3, the codes are specific only to certain manufacturers vehicle.	
		P-Codes (SAE)	Generic for all vehicle makes	P-Code definition	
		P0100		Mass or Volume Air Flow Circuit Malfunction	
		P0101		Mass or Volume Air Flow Circuit Range/Performance Problem	
		P0102		Mass or Volume Air Flow Circuit Low Input	
		P0103		Mass or Volume Air Flow Circuit High Input	
		P0104		Mass or Volume Air Flow Circuit Intermittent	
		P0105		Manifold Absolute Pressure/Barometric Pressure Circuit Malfunction	
		P0106		Manifold Absolute Pressure/Barometric Pressure Circuit Range/Performance Problem	
		P0107		Manifold Absolute Pressure/Barometric Pressure Circuit Low Input	
		P0108		Manifold Absolute Pressure/Barometric Pressure Circuit High Input	
		P0109		Manifold Absolute Pressure/Barometric Pressure Circuit Intermittent	
		P0109		Intake Air Temperature Circuit Malfunction	
		P0110		IAT Circuit Malfunction	

Repair Assistance Knowledge Base

	P0111		Intake Air Temperature Circuit Range/Performance Problem
	P0112		Intake Air Temperature Circuit Low Input
	P0113		Intake Air Temperature Circuit High Input
	P0114		Intake Air Temperature Circuit Intermittent
	P0115		Engine Coolant Temperature Circuit Malfunction
	P0116		Engine Coolant Temperature Circuit Range/Performance Problem
	P0117		Engine Coolant Temperature Circuit Low Input
	P0118		Engine Coolant Temperature Circuit High Input
	P0119		Engine Coolant Temperature Circuit Intermittent
	P0120		Throttle Position Sensor/Switch A Circuit Malfunction
	P0121		Throttle Position Sensor/Switch A Circuit Range/Performance Problem
	P0122		Throttle Position Sensor/Switch A Circuit Low Input
	P0123		Throttle Position Sensor/Switch A Circuit High Input
	P0124		Throttle Position Sensor/Switch A Circuit Intermittent
	P0125		Insufficient Coolant Temperature for Closed Loop Fuel Control; ECT Excessive Time to Closed Loop Fuel Control
	P0126		Insufficient Coolant Temperature for Stable Operation
	P0128		Coolant Thermostat Malfunction
	P0130		O2 Sensor Circuit Malfunction (Bank 1 Sensor 1)
	P0131		O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1)
	P0132		O2 Sensor Circuit High Voltage (Bank 1 Sensor 1)
	P0133		O2 Sensor Circuit Slow Response (Bank 1 Sensor 1)
	P0134		O2 Sensor Circuit No Activity Detected (Bank 1 Sensor 1)
	P0135		O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1)
	P0136		O2 Sensor Circuit Malfunction (Bank 1 Sensor 2)
	P0137		O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2)
	P0138		O2 Sensor Circuit High Voltage (Bank 1 Sensor 2)
	P0139		O2 Sensor Circuit Slow Response (Bank 1 Sensor 2)
	P0140		O2 Sensor Circuit No Activity Detected (Bank 1 Sensor 2)
	P0141		O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2)
	P0142		O2 Sensor Circuit Malfunction (Bank 1 Sensor 3)
	P0143		O2 Sensor Circuit Low Voltage (Bank 1 Sensor 3)
	P0144		O2 Sensor Circuit High Voltage (Bank 1 Sensor 3)
	P0145		O2 Sensor Circuit Slow Response (Bank 1 Sensor 3)

Repair Assistance Knowledge Base

	P0146	O2 Sensor Circuit No Activity Detected (Bank 1 Sensor 3)
	P0147	O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 3)
	P0150	O2 Sensor Circuit Malfunction (Bank 2 Sensor 1)
	P0151	O2 Sensor Circuit Low Voltage (Bank 2 Sensor 1)
	P0152	O2 Sensor Circuit High Voltage (Bank 2 Sensor 1)
	P0153	O2 Sensor Circuit Slow Response (Bank 2 Sensor 1)
	P0154	O2 Sensor Circuit No Activity Detected (Bank 2 Sensor 1)
	P0155	O2 Sensor Heater Circuit Malfunction (Bank 2 Sensor 1)
	P0156	O2 Sensor Circuit Malfunction (Bank 2 Sensor 2)
	P0157	O2 Sensor Circuit Low Voltage (Bank 2 Sensor 2)
	P0158	O2 Sensor Circuit High Voltage (Bank 2 Sensor 2)
	P0159	O2 Sensor Circuit Slow Response (Bank 2 Sensor 2)
	P0160	O2 Sensor Circuit No Activity Detected (Bank 2 Sensor 2)
	P0161	O2 Sensor Heater Circuit Malfunction (Bank 2 Sensor 2)
	P0162	O2 Sensor Circuit Malfunction (Bank 2 Sensor 3)
	P0163	O2 Sensor Circuit Low Voltage (Bank 2 Sensor 3)
	P0164	O2 Sensor Circuit High Voltage (Bank 2 Sensor 3)
	P0165	O2 Sensor Circuit Slow Response (Bank 2 Sensor 3)
	P0166	O2 Sensor Circuit No Activity Detected (Bank 2 Sensor 3)
	P0167	O2 Sensor Heater Circuit Malfunction (Bank 2 Sensor 3)
	P0170	Fuel Trim Malfunction (Bank 1)
	P0171	Fuel Trim System Lean (Bank 1)
	P0172	Fuel Trim too Rich (Bank 1)
	P0173	Fuel Trim Malfunction (Bank 2)
	P0174	Fuel Trim too Lean (Bank 2)
	P0175	Fuel Trim too Rich (Bank 2)
	P0176	Fuel Composition Sensor Circuit Malfunction
	P0177	Fuel Composition Sensor Circuit Range/Performance
	P0178	Fuel Composition Sensor Circuit Low Input
	P0179	Fuel Composition Sensor Circuit High Input
	P0180	Fuel Temperature Sensor A Circuit Malfunction
	P0181	Fuel Temperature Sensor A Circuit Range/Performance
	P0182	Fuel Temperature Sensor A Circuit Low Input
	P0183	Fuel Temperature Sensor A Circuit High Input
	P0184	Fuel Temperature Sensor A Circuit Intermittent
	P0185	Fuel Temperature Sensor B Circuit Malfunction
	P0186	Fuel Temperature Sensor B Circuit Range/Performance

Repair Assistance Knowledge Base

	P0187	Fuel Temperature Sensor B Circuit Low Input
	P0188	Fuel Temperature Sensor B Circuit High Input
	P0189	Fuel Temperature Sensor B Circuit Intermittent
	P0190	Fuel Rail Pressure Sensor Circuit Malfunction
	P0191	Fuel Rail Pressure Sensor Circuit Range/Performance
	P0192	Fuel Rail Pressure Sensor Circuit Low Input
	P0193	Fuel Rail Pressure Sensor Circuit High Input
	P0194	Fuel Rail Pressure Sensor Circuit Intermittent
	P0195	Engine Oil Temperature Sensor Malfunction
	P0196	Engine Oil Temperature Sensor Range/Performance
	P0197	Engine Oil Temperature Sensor Low
	P0198	Engine Oil Temperature Sensor High
	P0199	Engine Oil Temperature Sensor Intermittent
	P0200	Injector Circuit Malfunction
	P0201	Injector Circuit Malfunction - Cylinder 1
	P0202	Injector Circuit Malfunction - Cylinder 2
	P0203	Injector Circuit Malfunction - Cylinder 3
	P0204	Injector Circuit Malfunction - Cylinder 4
	P0205	Injector Circuit Malfunction - Cylinder 5
	P0206	Injector Circuit Malfunction - Cylinder 6
	P0207	Injector Circuit Malfunction - Cylinder 7
	P0208	Injector Circuit Malfunction - Cylinder 8
	P0209	Injector Circuit Malfunction - Cylinder 9
	P0210	Injector Circuit Malfunction - Cylinder 10
	P0211	Injector Circuit Malfunction - Cylinder 11
	P0212	Injector Circuit Malfunction - Cylinder 12
	P0213	Cold Start Injector 1 Malfunction
	P0214	Cold Start Injector 2 Malfunction
	P0215	Engine Shutoff Solenoid Malfunction
	P0216	Injection Timing Control Circuit Malfunction
	P0217	Engine Overtemp Condition
	P0218	Transmission Over Temperature Condition
	P0219	Engine Overspeed Condition
	P0220	Throttle/Petal Position Sensor/Switch B Circuit Malfunction
	P0221	Throttle/Petal Position Sensor/Switch B Circuit Range/Performance Problem
	P0222	Throttle/Petal Position Sensor/Switch B Circuit Low Input

Repair Assistance Knowledge Base

	P0223		Throttle/Petal Position Sensor/Switch B Circuit High Input
	P0224		Throttle/Petal Position Sensor/Switch B Circuit Intermittent
	P0225		Throttle/Petal Position Sensor/Switch C Circuit Malfunction
	P0226		Throttle/Petal Position Sensor/Switch C Circuit Range/Performance Problem
	P0227		Throttle/Petal Position Sensor/Switch C Circuit Low Input
	P0228		Throttle/Petal Position Sensor/Switch C Circuit High Input
	P0229		Throttle/Petal Position Sensor/Switch C Circuit Intermittent
	P0230		Fuel Pump Primary Circuit Malfunction
	P0231		Fuel Pump Secondary Circuit Low
	P0232		Fuel Pump Secondary Circuit High
	P0233		Fuel Pump Secondary Circuit Intermittent
	P0234		Engine Overboost Condition
	P0235		Turbocharger Boost Sensor A Circuit Malfunction
	P0236		Turbocharger Boost Sensor A Circuit Range/Performance
	P0237		Turbocharger Boost Sensor A Circuit Low
	P0238		Turbocharger Boost Sensor A Circuit High
	P0239		Turbocharger Boost Sensor B Malfunction
	P0240		Turbocharger Boost Sensor B Circuit Range/Performance
	P0241		Turbocharger Boost Sensor B Circuit Low
	P0242		Turbocharger Boost Sensor B Circuit High
	P0243		Turbocharger Wastegate Solenoid A Malfunction
	P0244		Turbocharger Wastegate Solenoid A Range/Performance
	P0245		Turbocharger Wastegate Solenoid A Low
	P0246		Turbocharger Wastegate Solenoid A High
	P0247		Turbocharger Wastegate Solenoid B Malfunction
	P0248		Turbocharger Wastegate Solenoid B Range/Performance
	P0249		Turbocharger Wastegate Solenoid B Low
	P0250		Turbocharger Wastegate Solenoid B High
	P0251		Injection Pump Fuel Metering Control "A" Malfunction (Cam/Rotor/Injector)
	P0252		Injection Pump Fuel Metering Control "A" Range/Performance (Cam/Rotor/Injector)
	P0253		Injection Pump Fuel Metering Control "A" Low (Cam/Rotor/Injector)
	P0254		Injection Pump Fuel Metering Control "A" High (Cam/Rotor/Injector)

Repair Assistance Knowledge Base

	P0255	Injection Pump Fuel Metering Control "A" Intermittent (Cam/Rotor/Injector)
	P0256	Injection Pump Fuel Metering Control "B" Malfunction (Cam/Rotor/Injector)
	P0257	Injection Pump Fuel Metering Control "B" Range/Performance (Cam/Rotor/Injector)
	P0258	Injection Pump Fuel Metering Control "B" Low (Cam/Rotor/Injector)
	P0259	Injection Pump Fuel Metering Control "B" High (Cam/Rotor/Injector)
	P0260	Injection Pump Fuel Metering Control "B" Intermittent (Cam/Rotor/Injector)
	P0261	Cylinder 1 Injector Circuit Low
	P0262	Cylinder 1 Injector Circuit High
	P0263	Cylinder 1 Contribution/Balance Fault
	P0264	Cylinder 2 Injector Circuit Low
	P0265	Cylinder 2 Injector Circuit High
	P0266	Cylinder 2 Contribution/Balance Fault
	P0267	Cylinder 3 Injector Circuit Low
	P0268	Cylinder 3 Injector Circuit High
	P0269	Cylinder 3 Contribution/Balance Fault
	P0270	Cylinder 4 Injector Circuit Low
	P0271	Cylinder 4 Injector Circuit High
	P0272	Cylinder 4 Contribution/Balance Fault
	P0273	Cylinder 5 Injector Circuit Low
	P0274	Cylinder 5 Injector Circuit High
	P0275	Cylinder 5 Contribution/Balance Fault
	P0276	Cylinder 6 Injector Circuit Low
	P0277	Cylinder 6 Injector Circuit High
	P0278	Cylinder 6 Contribution/Balance Fault
	P0279	Cylinder 7 Injector Circuit Low
	P0280	Cylinder 7 Injector Circuit High
	P0281	Cylinder 7 Contribution/Balance Fault
	P0282	Cylinder 8 Injector Circuit Low
	P0283	Cylinder 8 Injector Circuit High
	P0284	Cylinder 8 Contribution/Balance Fault
	P0285	Cylinder 9 Injector Circuit Low

Repair Assistance Knowledge Base

	P0286		Cylinder 9 Injector Circuit High
	P0287		Cylinder 9 Contribution/Balance Fault
	P0288		Cylinder 10 Injector Circuit Low
	P0289		Cylinder 10 Injector Circuit High
	P0290		Cylinder 10 Contribution/Balance Fault
	P0291		Cylinder 11 Injector Circuit Low
	P0292		Cylinder 11 Injector Circuit High
	P0293		Cylinder 11 Contribution/Balance Fault
	P0294		Cylinder 12 Injector Circuit Low
	P0295		Cylinder 12 Injector Circuit High
	P0296		Cylinder 12 Contribution/Range Fault
	P0300		Random/Multiple Cylinder Misfire Detected
	P0301		Cylinder 1 Misfire Detected
	P0302		Cylinder 2 Misfire Detected
	P0303		Cylinder 3 Misfire Detected
	P0304		Cylinder 4 Misfire Detected
	P0305		Cylinder 5 Misfire Detected
	P0306		Cylinder 6 Misfire Detected
	P0307		Cylinder 7 Misfire Detected
	P0308		Cylinder 8 Misfire Detected
	P0309		Cylinder 9 Misfire Detected
	P0310		Cylinder 10 Misfire Detected
	P0311		Cylinder 11 Misfire Detected
	P0312		Cylinder 12 Misfire Detected
	P0320		Ignition/Distributor Engine Speed Input Circuit Malfunction
	P0321		Ignition/Distributor Engine Speed Input Circuit Range/Performance
	P0322		Ignition/Distributor Engine Speed Input Circuit No Signal
	P0323		Ignition/Distributor Engine Speed Input Circuit Intermittent
	P0325		Knock Sensor 1 Circuit Malfunction (Bank 1 or Single Sensor)
	P0326		Knock Sensor 1 Circuit Range/Performance (Bank 1 or Single Sensor)
	P0327		Knock Sensor 1 Circuit Low Input (Bank 1 or Single Sensor)
	P0328		Knock Sensor 1 Circuit High Input (Bank 1 or Single Sensor)
	P0329		Knock Sensor 1 Circuit Intermittent (Bank 1 or Single Sensor)
	P0330		Knock Sensor 2 Circuit Malfunction (Bank 2)
	P0331		Knock Sensor 2 Circuit Range/Performance (Bank 2)

Repair Assistance Knowledge Base

	P0332		Knock Sensor 2 Circuit Low Input (Bank 2)
	P0333		Knock Sensor 2 Circuit High Input (Bank 2)
	P0334		Knock Sensor 2 Circuit Intermittent (Bank 2)
	P0335		Crankshaft Position Sensor A Circuit Malfunction
	P0336		Crankshaft Position Sensor A Circuit Range/Performance
	P0337		Crankshaft Position Sensor A Circuit Low Input
	P0338		Crankshaft Position Sensor A Circuit High Input
	P0339		Crankshaft Position Sensor A Circuit Intermittent
	P0340		Camshaft Position Sensor Circuit Malfunction
	P0341		Camshaft Position Sensor Circuit Range/Performance
	P0342		Camshaft Position Sensor Circuit Low Input
	P0343		Camshaft Position Sensor Circuit High Input
	P0344		Camshaft Position Sensor Circuit Intermittent
	P0350		Ignition Coil Primary/Secondary Circuit Malfunction
	P0351		Ignition Coil A Primary/Secondary Circuit Malfunction
	P0352		Ignition Coil B Primary/Secondary Circuit Malfunction
	P0353		Ignition Coil C Primary/Secondary Circuit Malfunction
	P0354		Ignition Coil D Primary/Secondary Circuit Malfunction
	P0355		Ignition Coil E Primary/Secondary Circuit Malfunction
	P0356		Ignition Coil F Primary/Secondary Circuit Malfunction
	P0357		Ignition Coil G Primary/Secondary Circuit Malfunction
	P0358		Ignition Coil H Primary/Secondary Circuit Malfunction
	P0359		Ignition Coil I Primary/Secondary Circuit Malfunction
	P0360		Ignition Coil J Primary/Secondary Circuit Malfunction
	P0361		Ignition Coil K Primary/Secondary Circuit Malfunction
	P0362		Ignition Coil L Primary/Secondary Circuit Malfunction
	P0370		Timing Reference High Resolution Signal A Malfunction
	P0371		Timing Reference High Resolution Signal A Too Many Pulses
	P0372		Timing Reference High Resolution Signal A Too Few Pulses
	P0373		Timing Reference High Resolution Signal A Intermittent/Erratic Pulses
	P0374		Timing Reference High Resolution Signal A No Pulses
	P0375		Timing Reference High Resolution Signal B Malfunction
	P0376		Timing Reference High Resolution Signal B Too Many Pulses
	P0377		Timing Reference High Resolution Signal B Too Few Pulses
	P0378		Timing Reference High Resolution Signal B Intermittent/Erratic Pulses

Repair Assistance Knowledge Base

	P0379		Timing Reference High Resolution Signal B No Pulses
	P0380		Glow Plug/Heater Circuit "A" Malfunction
	P0381		Glow Plug/Heater Indicator Circuit Malfunction
	P0382		Exhaust Gas Recirculation Flow Malfunction
	P0385		Crankshaft Position Sensor B Circuit Malfunction
	P0386		Crankshaft Position Sensor B Circuit Range/Performance
	P0387		Crankshaft Position Sensor B Circuit Low Input
	P0388		Crankshaft Position Sensor B Circuit High Input
	P0389		Crankshaft Position Sensor B Circuit Intermittent
	P0400		Exhaust Gas Recirculation Flow Malfunction
	P0401		Exhaust Gas Recirculation Flow Insufficient Detected
	P0402		Exhaust Gas Recirculation Flow Excessive Detected
	P0403		Exhaust Gas Recirculation Circuit Malfunction
	P0404		Exhaust Gas Recirculation Circuit Range/Performance
	P0405		Exhaust Gas Recirculation Sensor A Circuit Low
	P0406		Exhaust Gas Recirculation Sensor A Circuit High
	P0407		Exhaust Gas Recirculation Sensor B Circuit Low
	P0408		Exhaust Gas Recirculation Sensor B Circuit High
	P0410		Secondary Air Injection System Malfunction
	P0411		Secondary Air Injection System Incorrect Flow Detected
	P0412		Secondary Air Injection System Switching Valve A Circuit Malfunction
	P0413		Secondary Air Injection System Switching Valve A Circuit Open
	P0414		Secondary Air Injection System Switching Valve A Circuit Shorted
	P0415		Secondary Air Injection System Switching Valve B Circuit Malfunction
	P0416		Secondary Air Injection System Switching Valve B Circuit Open
	P0417		Secondary Air Injection System Switching Valve B Circuit Shorted
	P0418		Secondary Air Injection System Relay "A" Circuit Malfunction
	P0419		Secondary Air Injection System Relay "B" Circuit Malfunction
	P0420		Catalyst System Efficiency Below Threshold (Bank 1)
	P0421		Warm Up Catalyst Efficiency Below Threshold (Bank 1)
	P0422		Main Catalyst Efficiency Below Threshold (Bank 1)

Repair Assistance Knowledge Base

	P0423		Heated Catalyst Efficiency Below Threshold (Bank 1)
	P0424		Heated Catalyst Temperature Below Threshold (Bank 1)
	P0426		Catalyst Temperature Sensor Range/Performance (Bank 1)
	P0427		Catalyst Temperature Sensor Low Input (Bank 1)
	P0428		Catalyst Temperature Sensor High Input (Bank 1)
	P0430		Catalyst System Efficiency Below Threshold (Bank 2)
	P0431		Warm Up Catalyst Efficiency Below Threshold (Bank 2)
	P0432		Main Catalyst Efficiency Below Threshold (Bank 2)
	P0433		Heated Catalyst Efficiency Below Threshold (Bank 2)
	P0434		Heated Catalyst Temperature Below Threshold (Bank 2)
	P0436		Catalyst Temperature Sensor Range/Performance (Bank 2)
	P0437		Catalyst Temperature Sensor Low Input (Bank 2)
	P0438		Catalyst Temperature Sensor High Input (Bank 2)
	P0440		Evaporative Emission Control System Malfunction
	P0441		Evaporative Emission Control System Incorrect Purge Flow
	P0442		Evaporative Emission Control System Leak Detected (small leak)
	P0443		Evaporative Emission Control System Purge Control Valve Circuit Malfunction
	P0444		Evaporative Emission Control System Purge Control Valve Circuit Open
	P0445		Evaporative Emission Control System Purge Control Valve Circuit Shorted
	P0446		Evaporative Emission Control System Vent Control Circuit Malfunction
	P0447		Evaporative Emission Control System Vent Control Circuit Open
	P0448		Evaporative Emission Control System Vent Control Circuit Shorted
	P0449		Evaporative Emission Control System Vent Valve/Solenoid Circuit Malfunction
	P0450		Evaporative Emission Control System Pressure Sensor Malfunction
	P0451		Evaporative Emission Control System Pressure Sensor Range/Performance
	P0452		Evaporative Emission Control System Pressure Sensor Low Input

Repair Assistance Knowledge Base

	P0453		Evaporative Emission Control System Pressure Sensor High Input
	P0454		Evaporative Emission Control System Pressure Sensor Intermittent
	P0455		Evaporative Emission Control System Leak Detected (gross leak)
	P0460		Fuel Level Sensor Circuit Malfunction
	P0461		Fuel Level Sensor Circuit Range/Performance
	P0462		Fuel Level Sensor Circuit Low Input
	P0463		Fuel Level Sensor Circuit High Input
	P0464		Fuel Level Sensor Circuit Intermittent
	P0465		Purge Flow Sensor Circuit Malfunction
	P0466		Purge Flow Sensor Circuit Range/Performance
	P0467		Purge Flow Sensor Circuit Low Input
	P0468		Purge Flow Sensor Circuit High Input
	P0469		Purge Flow Sensor Circuit Intermittent
	P0470		Exhaust Pressure Sensor Malfunction
	P0471		Exhaust Pressure Sensor Range/Performance
	P0472		Exhaust Pressure Sensor Low
	P0473		Exhaust Pressure Sensor High
	P0474		Exhaust Pressure Sensor Intermittent
	P0475		Exhaust Pressure Control Valve Malfunction
	P0476		Exhaust Pressure Control Valve Range/Performance
	P0477		Exhaust Pressure Control Valve Low
	P0478		Exhaust Pressure Control Valve High
	P0479		Exhaust Pressure Control Valve Intermittent
	P0480		Cooling Fan 1 Control Circuit Malfunction
	P0481		Cooling Fan 2 Control Circuit Malfunction
	P0482		Cooling Fan 3 Control Circuit Malfunction
	P0483		Cooling Fan Rationality Check Malfunction
	P0484		Cooling Fan Circuit Over Current
	P0485		Cooling Fan Power/Ground Circuit Malfunction
	P0500		Vehicle Speed Sensor Malfunction
	P0501		Vehicle Speed Sensor Range/Performance
	P0502		Vehicle Speed Sensor Low Input
	P0503		Vehicle Speed Sensor Intermittent/Erratic/High
	P0505		Idle Control System Malfunction

Repair Assistance Knowledge Base

	P0506	Idle Control System RPM Lower Than Expected
	P0507	Idle Control System RPM Higher Than Expected
	P0510	Closed Throttle Position Switch Malfunction
	P0520	Engine Oil Pressure Sensor/Switch Circuit Malfunction
	P0521	Engine Oil Pressure Sensor/Switch Circuit Range/Performance
	P0522	Engine Oil Pressure Sensor/Switch Circuit Low Voltage
	P0523	Engine Oil Pressure Sensor/Switch Circuit High Voltage
	P0530	A/C Refrigerant Pressure Sensor Circuit Malfunction
	P0531	A/C Refrigerant Pressure Sensor Circuit Range/Performance
	P0532	A/C Refrigerant Pressure Sensor Circuit Low Input
	P0533	A/C Refrigerant Pressure Sensor Circuit High Input
	P0534	Air Conditioner Refrigerant Charge Loss
	P0550	Power Steering Pressure Sensor Circuit Malfunction
	P0551	Power Steering Pressure Sensor Circuit Range/Performance
	P0552	Power Steering Pressure Sensor Circuit Low Input
	P0553	Power Steering Pressure Sensor Circuit High Input
	P0554	Power Steering Pressure Sensor Circuit Intermittent
	P0560	System Voltage Malfunction
	P0561	System Voltage Unstable
	P0562	System Voltage Low
	P0562	A/C pressure sensor low voltage(Chrysler)
	P0563	System Voltage High
	P0565	Cruise Control On Signal Malfunction
	P0566	Cruise Control Off Signal Malfunction
	P0567	Cruise Control Resume Signal Malfunction
	P0568	Cruise Control Set Signal Malfunction
	P0569	Cruise Control Coast Signal Malfunction
	P0570	Cruise Control Accel Signal Malfunction
	P0571	Cruise Control/Brake Switch A Circuit Malfunction
	P0572	Cruise Control/Brake Switch A Circuit Low
	P0573	Cruise Control/Brake Switch A Circuit High
	P0574	Cruise Control Related Malfunction
	P0575	Cruise Control Related Malfunction
	P0576	Cruise Control Related Malfunction
	P0576	Cruise Control Related Malfunction
	P0578	Cruise Control Related Malfunction
	P0579	Cruise Control Related Malfunction

Repair Assistance Knowledge Base

	P0580		Cruise Control Related Malfunction
	P0600		Serial Communication Link Malfunction
	P0601		Control Module Read Only Memory(ROM)
	P0602		Control Module Programming Error
	P0603		Internal Control Module Keep Alive Memory (KAM) Error
	P0604		Internal Control Module Random Access Memory (RAM) Error
	P0605		Internal Control Module Read Only Memory (ROM) Error
	P0606		PCM Processor Fault
	P0608		Control Module VSS Output "A" Malfunction
	P0609		Control Module VSS Output "B" Malfunction
	P0620		Generator Control Circuit Malfunction
	P0621		Generator Lamp "L" Control Circuit Malfunction
	P0622		Generator Field "F" Control Circuit Malfunction
	P0650		Malfunction Indicator Lamp (MIL) Control Circuit Malfunction
	P0654		Engine RPM Output Circuit Malfunction
	P0655		Engine Hot Lamp Output Control Circuit Malfunction
	P0656		Fuel Level Output Circuit Malfunction
	P0700		Transmission Control System Malfunction
	P0701		Transmission Control System Range/Performance
	P0702		Transmission Control System Electrical
	P0703		Torque Converter/Brake Switch B Circuit Malfunction
	P0704		Clutch Switch Input Circuit Malfunction
	P0705		Transmission Range Sensor Circuit malfunction (PRNDL Input)
	P0706		Transmission Range Sensor Circuit Range/Performance
	P0707		Transmission Range Sensor Circuit Low Input
	P0708		Transmission Range Sensor Circuit High Input
	P0709		Transmission Range Sensor Circuit Intermittent
	P0710		Transmission Fluid Temperature Sensor Circuit Malfunction
	P0711		Transmission Fluid Temperature Sensor Circuit Range/Performance
	P0712		Transmission Fluid Temperature Sensor Circuit Low Input
	P0713		Transmission Fluid Temperature Sensor Circuit High Input
	P0714		Transmission Fluid Temperature Sensor Circuit Intermittent
	P0715		Input/Turbine Speed Sensor Circuit Malfunction
	P0716		Input/Turbine Speed Sensor Circuit Range/Performance
	P0717		Input/Turbine Speed Sensor Circuit No Signal
	P0718		Input/Turbine Speed Sensor Circuit Intermittent

Repair Assistance Knowledge Base

	P0719	Torque Converter/Brake Switch B Circuit Low
	P0720	Output Speed Sensor Circuit Malfunction
	P0721	Output Speed Sensor Range/Performance
	P0722	Output Speed Sensor No Signal
	P0723	Output Speed Sensor Intermittent
	P0724	Torque Converter/Brake Switch B Circuit High
	P0725	Engine Speed input Circuit Malfunction
	P0726	Engine Speed Input Circuit Range/Performance
	P0727	Engine Speed Input Circuit No Signal
	P0728	Engine Speed Input Circuit Intermittent
	P0730	Incorrect Gear Ratio
	P0731	Gear 1 Incorrect ratio
	P0732	Gear 2 Incorrect ratio
	P0733	Gear 3 Incorrect ratio
	P0734	Gear 4 Incorrect ratio
	P0735	Gear 5 Incorrect ratio
	P0736	Reverse incorrect gear ratio
	P0740	Torque Converter Clutch Circuit Malfunction
	P0741	Torque Converter Clutch Circuit Performance or Stuck Off
	P0742	Torque Converter Clutch Circuit Stuck On
	P0743	Torque Converter Clutch Circuit Electrical
	P0744	Torque Converter Clutch Circuit Intermittent
	P0745	Pressure Control Solenoid Malfunction
	P0746	Pressure Control Solenoid Performance or Stuck Off
	P0747	Pressure Control Solenoid Stuck On
	P0748	Pressure Control Solenoid Electrical
	P0749	Pressure Control Solenoid Intermittent
	P0750	Shift Solenoid A Malfunction
	P0751	Shift Solenoid A Performance or Stuck Off/ 1-2 Shift Solenoid Valve Performance
	P0752	Shift Solenoid A Stuck On
	P0753	Shift Solenoid A Electrical/ 1-2 Shift Solenoid Circuit Electrical
	P0754	Shift Solenoid A Intermittent
	P0755	Shift Solenoid B Malfunction
	P0756	Shift Solenoid B Performance or Stuck Off/ 2-3 Shift Solenoid Valve Performance

Repair Assistance Knowledge Base

	P0757		Shift Solenoid B Stuck On
	P0758		Shift Solenoid B Electrical/ 2-3 Shift Solenoid Circuit Electrical
	P0759		Shift Solenoid B Intermittent
	P0760		Shift Solenoid C Malfunction
	P0761		Shift Solenoid C Performance or Stuck Off
	P0762		Shift Solenoid C Stuck On
	P0763		Shift Solenoid C Electrical
	P0764		Shift Solenoid C Intermittent
	P0765		Shift Solenoid D Malfunction
	P0766		Shift Solenoid D Performance or Stuck Off
	P0767		Shift Solenoid D Stuck On
	P0768		Shift Solenoid D Electrical
	P0769		Shift Solenoid D Intermittent
	P0770		Shift Solenoid E Malfunction
	P0771		Shift Solenoid E Performance or Stuck Off
	P0772		Shift Solenoid E Stuck On
	P0773		Shift Solenoid E Electrical
	P0774		Shift Solenoid E Intermittent
	P0775		Pressure Control Solenoid B Malfunction
	P0776		Pressure Control Solenoid B Performance
	P0777		Pressure Control Solenoid B Stuck On
	P0778		Pressure Control Solenoid B Electrical
	P0779		Pressure Control Solenoid B Intermittent
	P0780		Shift Malfunction
	P0781		1-2 Shift Malfunction
	P0782		2-3 Shift Malfunction
	P0783		3-4 Shift Malfunction
	P0784		4-5 Shift Malfunction
	P0785		Shift/Timing Solenoid Malfunction/ 3-2 Shift Solenoid Circuit Electrical
	P0786		Shift/Timing Solenoid Range/Performance
	P0787		Shift/Timing Solenoid Low
	P0788		Shift/Timing Solenoid High
	P0789		Shift/Timing Solenoid Intermittent
	P0790		Normal/Performance Switch Circuit Malfunction
	P0801		Reverse Inhibit Control Circuit Malfunction
	P0803		1-4 Upshift (Skip Shift) Solenoid Control Circuit Malfunction

Repair Assistance Knowledge Base

	P0804		1-4 Upshift (Skip Shift) Lamp Control Circuit Malfunction
		Known Manufacturer Specific (OEM)	Make Identified
			P-Code definition
	P0014	Generic	Exhaust Camshaft Position Timing - Over-Advanced (Bank 1)
	P1000	Ford	OBD Systems Readiness Test Not Complete
	P1000	Ford Diesel	OBD Systems Readiness Test Not Complete
	P1000	Jaguar	OBD Systems Readiness Test Not Complete
	P1000	Mazda	OBD Systems Readiness Test Not Complete
	P1001	Saab	EVAP Purge Valve, Output From Control Module Low
	P1100		MAF Sensor Intermittent/ Check of all OBDII Systems Not Complete
	P1105	Audi	Bank 1 O2S 2 Heater Circuit Short To B+
	P1105	Chrysler	Barometric Pressure Read Vent Valve Solenoid Circuit
	P1105	Chrysler	Fuel Pressure Solenoid Malfunction
	P1105	Ford Diesel	Dual Alternator Upper Fault
	P1105	Infiniti	MAP/BARO Switch SOL/V
	P1105	Kia	HO2S-12 Heater Circuit High Input
	P1105	Mercedes	Atmospheric Pressure Sensor In Control Module
	P1105	Mitsubishi	Fuel Pressure Solenoid Malfunction
	P1105	Nissan	MAP/BARO Pressure Switch Solenoid Valve
	P1105	Porsche	HO2S 1 Behind TWC Heater Short To B+
	P1105	Saab	Rear HO2S Bank 1, Control Module Input, Current in Pre-Heating Circuit Too High
	P1105	Volkswagen	O2S Heating Circuit Bank 1 Sensor 2 Short To B+
	P1120	BMW	Pedal Position Sensor Circuit
	P1120	Chrysler	Boost Pressure / Throttle Position Sensor Malfunction
	P1120	Ford	Throttle Position Sensor A Out Of Range Low (Ratch too low)
	P1120	GM	Throttle Positioning Sensor 1 Circuit
	P1120	Infiniti	Secondary Throttle Position Sensor Circuit
	P1120	Mazda	TP Sensor Signal Out of Range Low
	P1120	Nissan	Secondary Throttle Position Sensor Circuit
	P1120	Subaru	Starter Switch Circuit High Input

Repair Assistance Knowledge Base

	P1120	Toyota	Accelerator Pedal Position Sensor Circuit Malfunction
	P1128	Acura	MAP Lower Than Expected
	P1128	Audi	Long Term Fuel Trim Mult. Bank 1 System Too Lean
	P1128	Ford	Upstream HO2S Sensors Swapped (see P0040)
	P1128	Honda	MAP Lower Than Expected
	P1128	Hyundai	Long term fuel trim multiplicative, system too lean
	P1128	Kia	Long Term Fuel Trim Multiplicative Air System High
	P1128	Lexus	Throttle Control Motor Lock Malfunction
	P1128	Mazda	Upstream HO2S Sensors Swapped (see P0040)
	P1128	Porsche	O2S Range 2 Cyl. 1-3
	P1128	Saab	Multiplicative Adaptation, Bank 1 Max. Value
	P1128	Toyota	Throttle Control Motor Lock Malfunction
	P1128	Volkswagen	Long Term Fuel Trim B1 System Too Lean
	P1130	Audi	Long Term Fuel Trim Mult. Bank 2 System Too Lean
	P1130	Chrysler	Fuel Rail Pressure Monitoring
	P1130	Ford	Lack Of HO2S11 Switches - Fuel Trim At Limit
	P1130	Infiniti	Swirl Control Valve Control Solenoid Valve
	P1130	Lexus	Air/Fuel Ratio Sensor Circuit Range/Performance Malfunction (Bank 1 Sensor 1)
	P1130	Mazda	Lack Of HO2S11 Switches - Fuel Trim At Limit
	P1130	Nissan	Swirl Control Valve Control Solenoid Valve
	P1130	Porsche	O2S Range 2 Cyl. 4-6
	P1130	Saab	Multiplicative Adaptation, Bank 2 Max. Value
	P1130	Subaru	A/F Sensor Circuit Open (Bank 1 Sensor 1)
	P1130	Toyota	Air-Fuel Sensor Circuit Range/Performance
	P1130	Volkswagen	Long Term Fuel Trim B2 System Too Lean
	P1131	Chrysler	Fuel Pressure Regulator Valve
	P1131	Ford	Lack Of HO2S11 Switches - Sensor Indicates Lean (see P2195)
	P2195	Generic	O2 Sensor Signal Stuck Lean Bank 1 Sensor 1
	P1131	Mazda	Lack Of HO2S11 Switches - Sensor Indicates Lean (see P2195)
	P1131	Subaru	A/F Sensor Circuit Shorted (Bank 1 Sensor 1)
	P1132	BMW	O2 Sensor Heater Control Circuit (Bank 1 Sensor 1)

Repair Assistance Knowledge Base

	P1132	Chrysler	Fuel Pressure Regulator Offset Rationality
	P1132	Ford	Lack Of HO2S11 Switches - Sensor Indicates Rich (see P2196)
	P2196	Generic	O2 Sensor Signal Stuck Rich Bank 1 Sensor 1
	P1132	Land Rover	Pre-catalyst oxygen sensor heater bank 1.Implausible signal/condition
	P1132	Mazda	Lack Of HO2S11 Switches - Sensor Indicates Rich (see P2196)
	P1132	Porsche	Oxygen Sensor Adaptation, Upper Load Range, Bank 2, Above Limit
	P1132	Subaru	A/F Sensor Heater Circuit Low Input (Bank 1 Sensor 1)
	P1133	Acura	HO2S Insufficient Switching (Bank 1 Sensor 1)
	P1133	BMW	O2 Sensor Heater Control Circuit (Bank 2 Sensor 1)
	P1133	Ford	Bank 1 Fuel Control Shifted Lean (FAOSC)
	P1133	GM	HO2S/O2S Insufficient Switching Sensor 1 Or Bank 1 Sensor 1
	P1133	Honda	HO2S Insufficient Switching (Bank 1 Sensor 1)
	P1133	Isuzu	HO2S Insufficient Switching Bank 1 Sensor 1
	P1133	Lexus	Air/Fuel Ratio Sensor Circuit Response Malfunction (Bank 1 Sensor 1)
	P1133	Mazda	Bank 1 Fuel Control Shifted Lean (FAOSC)
	P1133	Porsche	Oxygen Sensor Adaptation, Lower Load Range, Bank 2, Above Limit
	P1133	Saturn	O2 Sensor Too Few Switches
	P1133	Subaru	A/F Sensor Heater Circuit High Input (Bank 1 Sensor 1)
	P1133	Toyota	Air-Fuel Sensor Circuit Response Malfunction
	P1133	Volvo	O2 Sensor Front, Bank 1
	P1134	Acura	HO2S Transition Time Ratio (Bank 1 Sensor !)
	P1134	BMW	O2 Sensor Heater Circuit Signal Intermittent (Bank 1 Sensor 1)
	P1134	Ford	Bank 1 Fuel Control Shifted Rich (FAOSC)
	P1134	GM	HO2S Transition Time Ratio Bank 1 Sensor 1
	P1134	Honda	HO2S Transition Time Ratio (Bank 1 Sensor !)
	P1134	Hyundai	O2S Circuit Transition Switch Time Malfunction (Bank 1 Sensor 1)
	P1134	Isuzu	HO2S Transition Time Ration Bank 1 Sensor 1
	P1134	Jaguar	Bank 1 fuel control shifted rich
	P1134	Kia	HO2S(B1S1)TRANSITION
	P1134	Land Rover	Oxygen sensor response time bank 1.Short circuit to ground.

Repair Assistance Knowledge Base

	P1134	Mazda	Bank 1 Fuel Control Shifted Rich (FAOSC)
	P1134	Porsche	Oxygen Sensing Error By Means Of Short Test, Bank 2, Above Limit
	P1134	Saturn	O2S Rich-Lean & Lean-Rich Ration Error
	P1134	Subaru	A/F Sensor Micro Computer (Bank 1 Sensor 1)
	P1134	Toyota	Air-Fuel Sensor Circuit Response Malfunction
	P1134	Volvo	O2 Sensor Front, Bank 1
	P1145	BMW	Solenoid Valve Running Losses Control Circuit Electrical
	P1145	Ford	Calculated Torque Error
	P1145	Infiniti	Intake Valve Timing Control Position Sensor (Bank 2)
	P1145	Mazda	Calculated Torque Error
	P1145	Nissan	Intake Valve Timing Control Position Sensor (Bank 2)
	P1145	Subaru	Variable intake valve solenoid circuit (High)
	P1145	Volkswagen	MAF Sensor Short To B+
	P1154	Acura	HO2S Transition Time Ratio (Bank 2 Sensor 1)
	P1154	Ford	Bank 2 Fuel Control Shifted Rich (FAOSC)
	P1154	GM	HO2S Transition Time Ratio Bank 2 Sensor 1
	P1154	Honda	HO2S Transition Time Ratio (Bank 2 Sensor 1)
	P1154	Hyundai	O2S Circuit Transition Switch Time Malfunction (Bank 2 Sensor 1)
	P1154	Isuzu	HO2S Transition Time Ration Bank 2 Sensor 1
	P1154	Jaguar	Bank 2 fuel control shifted rich
	P1154	Kia	HO2S(B2S1)TRANSITION
	P1154	Land Rover	Oxygen sensor response time bank 2.Implausible signal/condition
	P1154	Mazda	Bank 2 Fuel Control Shifted Rich (FAOSC)
	P1154	Subaru	Oxygen sensor range/performance problem (Low)
	P1154	Volvo	O2 Sensor Front, Bank 2
	P1151	BMW	O2 Sensor Heater Circuit Signal Intermittent (Bank 2 Sensor 1)
	P1151	Ford	Lack Of HO2S21 Switches - Sensor Indicates Lean (see P2197)
	P2197	Generic	O2 Sensor Signal Stuck Lean Bank 2 Sensor 1
	P1151	Mazda	Lack Of HO2S21 Switches - Sensor Indicates Lean (see P2197)

Repair Assistance Knowledge Base

	P1151	Subaru	HO2S-12 Heater Circuit High Input
	P1161	BMW	Fuel Trim Adaptation Additive Bank 2 High
	P1161	BMW	M52: Engine Oil Temperature Sensor Circuit
	P1161	GM	HO2 Sensor Heater Control Circuit (Bank 2 Sensor 2)
	P1161	Volkswagen	IAT Sensor Short To B+
	P1162	Acura	Primary HO2S (No. 1) Circuit Malfunction
	P1162	BMW	Fuel Trim Adaptation Additive per Ignition Bank 1 Low
	P1162	Honda	Primary HO2S (No. 1) Circuit Malfunction
	P1162	Land Rover	Lambda control adaption per ignition fault bank 1.Last occurrence - maximum signal
	P1162	Mercedes	TP Sensor Circuit Malfunction, Bank 2
	P1162	Volkswagen	Fuel Temperature Sensor Short To Ground
	P1164	Acura	Primary HO2S (No. 1) Circuit Range/Performance
	P1164	BMW	Fuel Trim Adaptation Additive per Ignition Bank 2 Low
	P1164	Honda	Primary HO2S (No. 1) Circuit Range/Performance
	P1164	Land Rover	Lambda control adaption per ignition fault bank 2.Last occurrence - maximum signal
	P1164	Volkswagen	Fuel Temperature Sensor Signal Fault
	P1174	BMW	Fuel Trim Adaptation Additive Bank 1 Malfunction
	P1174	Ford Diesel	Cam Sensor
	P1174	Jaguar	System Too Lean - Banks 1 and 2 (Suspect HO2S)
	P1174	Volvo	Fuel Adaption, Bank 1
	P1176	Audi	O2S Correction Behind Catalyst, B1 Limit Attained
	P1176	BMW	O2 Sensor Slow Response Bank 1
	P1176	Ford	Cam Calibration
	P1176	Ford Diesel	Cam Calibration
	P1176	Jaguar	Long Term Fuel Trim Too Lean - Banks 1 and 2 (FMFR)
	P1176	Land Rover	FMFR Correction At Maximum Positive Value
	P1176	Mazda	Cam Calibration
	P1176	Volkswagen	Rear O2S Correction

Repair Assistance Knowledge Base

	P1177	Audi	O2S Correction Behind Catalyst, B2 Limit Attained
	P1177	BMW	O2 Sensor Slow Response Bank 2
	P1177	Ford	Synchronization
	P1177	Ford Diesel	Synchronization
	P1177	Jaguar	Long Term Fuel Trim Too Rich - Banks 1 and 2 (FMFR)
	P1177	Land Rover	FMFR Correction At maximum Negative Value
	P1177	Mazda	Synchronization
	P1177	Mercedes	Oil Sensor
	P1177	Volvo	Fuel Adaption, Bank 1
	P1177	Volkswagen	O2 Correction Behind Catalyst B1 Limit Attained
	P1195	Chrysler	Slow Switching O2 Sensor Bank One Sensor One During catalyst monitoring
	P1195	Ford	EGR Boost Sensor Circuit
	P1195	Ford Diesel	SCP HBCC Chip Failed to Initialize
	P1195	Jaguar	O2 Sensor Heater Circuit Low Resistance Fault 1
	P1195	Kia	EGR Pressure Sensor (1.6L) Or Boost Sensor (1.8L) Open or Short
	P1195	Land Rover	HO2S Heater Circuit Type 1 Low Resistance, Downstream
	P1195	Mazda	EGR boost sensor open or short
	P1250	Audi	Fuel Level Too Low
	P1250	Chrysler	Vacuum Reservoir Control Circuit Open
	P1250	Ford	Fuel Pressure Regulator Control Solenoid
	P1250	Ford Diesel	Fuel Pressure Regulator Control Solenoid
	P1250	FordDiesel	Fuel Pressure Regulator Control Solenoid
	P1250	Geo	Early Fuel Evaporation Heater Circuit
	P1250	GM	Early Fuel Evaporative (EFE) Heater Circuit
	P1250	Jaguar	Throttle Valve Spring
	P1250	Kia	PRC Solenoid Valve Open Or Short
	P1250	Mazda	Fuel Pressure Regulator Control Solenoid
	P1250	Subaru	Relief valve solenoid 2 circuit (High)
	P1250	Suzuki	EFE Heater Circuit Malfunction
	P1250	Volkswagen	Fuel Level Too Low
	P1281	Chrysler	Engine is cold too long
	P1281	Ford	Injection Control Pressure Sensor Circuit High

Repair Assistance Knowledge Base

	P1281	Ford Diesel	Injector Control Pressure Sensor Circuit High
	P1281	GM	Accelerator Pedal Positioning (APP) Sensor 2 Circuit Performance
	P1281	Mazda	Injector Control Pressure Failure
	P1320	Ford	Distributor Signal Interrupt
	P1320	GM	ICM 4X Reference Circuit Intermittent No Pulses (1996-98 4.0L)
	P1320	GM	ICM 4X Reference Circuit Too Many Pulses (except 1996-98 4.0L)
	P1320	Infiniti	Ignition Signal - Primary
	P1320	Lexus	Igniter Circuit Malfunction (No. 5)
	P1320	Nissan	Distributor Signal Interrupt
	P1320	Toyota	Igniter Circuit Malfunction No. 5 (1998-2000 Land Cruiser & 2000 Tundra)
	P1336	Acura	CSF Sensor Intermittent Interruption
	P1336	Audi	Engine Torque Monitoring Control Limit Exceeded
	P1336	Ford	Crankshaft/Camshaft Sensor Range/Performance
	P1336	GM	CKP System Variation Not Learned
	P1336	Honda	CSF Sensor Intermittent Interruption
	P1336	Infiniti	CKP Sensor (PCS) Cog
	P1336	Isuzu	CKP System Variation Not Learned
	P1336	Jaguar	Crankshaft/Camshaft Sensor Range/Performance
	P1336	Land Rover	Crankshaft/camshaft sensor range/performance.
	P1336	Mazda	Misfire Monitor Hardware - (CMP) misaligned, (CKP)/(CMP) noise.
	P1336	Mercedes	CKP Sensor Signal Error
	P1336	Nissan	Crankshaft/Camshaft Sensor Range/Performance
	P1336	Saturn	Crankshaft Notch Adaptive Not Learned
	P1336	Volkswagen	Engine Torque Adaption At Limit
	P1336	Volvo	CKP Sensor Signal Not Correct
	P1337	Acura	CSF Sensor No Signal
	P1337	Audi	CMP Short To Ground, Bank 1
	P1337	Ford	Throttle Position Output Circuit
	P1337	Ford Diesel	Throttle Position Output Circuit
	P1337	Honda	CSF Sensor No Signal
	P1337	Mazda	Throttle Position Output Circuit

Repair Assistance Knowledge Base

	P1337	Volkswagen	CMP Sensor Bank 1 Short To Ground
	P1345	Audi	Ignition Coil Power Output Stage 3 Short
	P1345	BMW	Misfire Cylinder 2 with Fuel Cut-Off
	P1345	Ford	Cylinder Discrimination Signal (Signal From Camshaft Position Sensor)
	P1345	Ford Diesel	Cylinder Discrimination Signal (Signal From Camshaft Position Sensor)
	P1345	GM	Camshaft To Crankshaft Position Correlation Fault
	P1345	Isuzu	Crankshaft Position - Camshaft Position Correlation
	P1345	Kia	No SGC Signal (1.6L)
	P1345	Lexus	Variable Valve Timing / CMP Sensor Range / Performance
	P1345	Mazda	Cylinder Discrimination Signal (from CMP sensor)
	P1345	Toyota	Variable Valve Timing / CMP Sensor Range / Performance
	P1345	Volkswagen	Ignition Coil Output Stage 3 Short To Ground
	P1351	BMW	Misfire Cylinder 5 with Fuel Cut-Off
	P1351	Ford	Ignition Diagnostic Monitor Input Circuit
	P1351	GM	Ignition Control Circuit Open (1998 3.1L)
	P1351	GM	Ignition Control Circuit Voltage High (except 1998 3.1L)
	P1351	Isuzu	Ignition Coil Control Circuit High Input
	P1351	Lexus	Variable Valve Timing / CMP Sensor Range / Performance
	P1351	Mazda	IDM Signal Lost To PCM or Out of Range
	P1351	Saturn	IC Circuits 1 & 4 malfunction Or Shorted (1995-97)
	P1351	Saturn	IC Circuits 1 & 4 Voltage High (1998-2000)
	P1351	Toyota	Variable Valve Timing / CMP Sensor Range / Performance
	P1351	Volvo	Ignition Coil 1 primary
	P1390	Acura	G-Sensor Intermittent Low Voltage
	P1390	Chrysler	Timing belt skipped one tooth or more
	P1390	Ford	Octane Adjust Service Pin In Use/Circuit Open
	P1390	Honda	G-Sensor Intermittent Low Voltage
	P1390	Isuzu	G Sensor Circuit Intermittent Voltage Low
	P1390	Mazda	Octane Adjust Shorting Bar Out of Circuit Open
	P1390	Mitsubishi	Timing Belt Skipped One Tooth or More
	P1397	BMW	Camshaft Position Sensor "B" Circuit (Bank 1)

Repair Assistance Knowledge Base

	P1397	Ford	System Voltage Out Of Self Test Range
	P1397	Ford Diesel	System Voltage Out Of Self Test Range
	P1397	Jaguar	Variable Valve Timing Solenoid B Circuit Low Input
	P1397	Mercedes	CMP Sensor Circuit Range / Performance Bank 2
	P1397	Porsche	CMP Sensor 2
	P1400	Audi	EGR Valve Circuit Electrical Malfunction
	P1400	BMW	Heated Catalyst Battery Voltage or Current too Low during Heating (Bank 1)
	P1400	Chrysler	Manifold Differential Pressure Sensor Circuit Malfunction
	P1400	Ford	Differential Pressure Feedback EGR Circuit Low Input
	P1400	Hyundai	EGR System Monitor Malfunction
	P1400	Infiniti	EGRC Solenoid/V
	P1400	Jaguar	Exhaust Gas Recirculation Valve Position Control
	P1400	Lexus	Sub-TPS Malfunction
	P1400	Mazda	DPFE Sensor Circuit Low Input
	P1400	Mercedes	EGR Switchover Valve Malfunction (C230 Only)
	P1400	Mitsubishi	Manifold Differential Pressure Sensor Circuit Malfunction
	P1400	Nissan	Differential Pressure Feedback EGR Circuit Low Input
	P1400	Subaru	Fuel Tank Pressure Control Solenoid Circuit Low Input
	P1400	Toyota	Sub-Throttle Position Sensor Malfunction
	P1401	BMW	Heated Catalyst Current too High during Heating (Bank 1)
	P1401	Ford	Differential Pressure Feedback EGR Circuit High Input
	P1401	GM	Exhaust Gas Recirculation (EGR) flow test fault
	P1401	Infiniti	EGR Temperature Sensor
	P1401	Jaguar	Exhaust Gas Recirculation Valve Position Circuit
	P1401	Kia	EGR Control Solenoid Circuit Signal Low
	P1401	Lexus	Sub-TPS Range / Performance
	P1401	Mazda	DPFE Sensor Circuit High Input
	P1401	Mercedes	EGR Lifting Sensor
	P1401	Nissan	Exhaust Gas Recirculation Temperature Sensor
	P1401	Subaru	Fuel Tank Pressure Control System Performance
	P1401	Toyota	Sub-Throttle Position Sensor Range/Performance Problem
	P1401	Volkswagen	EGR Valve Power Stage Short To Ground
	P1401	Volvo	Fault in ECM, ECT Sensor Circuit's NTC - Connection
	P1404	Acura	EGR Stuck Closed

Repair Assistance Knowledge Base

	P1404	BMW	Heated Catalyst Current too High during Heating (Bank 2)
	P1404	Ford	EGR Temperature Sensor Circuit
	P1404	GM	EGR Valve Closed Pintle Position
	P1404	GM	EGR Valve Stuck Open Or Circuit Performance
	P1404	Honda	EGR Stuck Closed
	P1404	Isuzu	EGR Valve Stuck Closed
	P1404	Mercedes	EGR Valve Vacuum Transducer
	P1404	Saturn	EGR Closed Position Error (1997)
	P1404	Saturn	EGR Pintle Position (1998-2000)
	P1404	Volvo	Fault in ECM, ECM Box's Temp. Sensor
	P1406	Acura	EGR Valve Pintle Position Circuit
	P1406	BMW	Heated Catalyst Internal Control Module Checksum/ROM Error
	P1406	Ford	Differential Pressure Feedback Sensor Downstream Hose Off Or Plugged
	P1406	GM	EGR Valve Pintle Position Circuit
	P1406	Honda	EGR Valve Pintle Position Circuit
	P1406	Isuzu	EGR Valve Pintle Position Circuit
	P1406	Mazda	DPFE Sensor Downstream Hose Off Or Plugged
	P1406	Saturn	EGR Pintle Position Error
	P1406	Toyota	Turbo Pressure Sensor Range/Performance Problem
	P1406	Volvo	Temperature Warning > 100 degrees C
	P1408	Audi	EGR Temperature Sensor Signal Too High
	P1408	Ford	Exhaust Gas Recirculation Flow Out Of Self Test Range
	P1408	Geo	MAP Sensor Circuit
	P1408	GM	MAP Sensor Circuit
	P1408	Jaguar	Exhaust Gas Recirculation Thermister
	P1408	Mazda	EGR System Flow Out of KOER Self Test Range
	P1408	Suzuki	MDP Sensor Circuit Malfunction
	P1408	Volkswagen	EGR Temperature Sensor Signal Too High
	P1409	Audi	EVAP Canister Purge Regulator Valve Electrical Malfunction
	P1409	Ford	EGR Vacuum Regulator Solenoid Circuit
	P1409	GM	EGR Valve System Leak
	P1409	Jaguar	Exhaust Gas Recirculation Valve Circuit

Repair Assistance Knowledge Base

	P1409	Mazda	EGR Vacuum Regulator Solenoid Circuit
	P1409	Mazda	Exhaust Gas Recirculation Valve Circuit
	P1423	Audi	Bank 1 AIR Flow Too Low
	P1423	BMW	Secondary Air System Bank 1
	P1423	Ford	Exhaust Gas Ignition Functional Test
	P1423	Mazda	Exhaust Gas Ignition Functional Test
	P1423	Subaru	EVAP Vent Control Solenoid Circuit High Input
	P1440	BMW	Purge Control Valve Control Circuit Signal High
	P1440	Ford	EVAP System Leak Detected, Small Leak
	P1440	Hyundai	EVAP System Vent Circuit Malfunction
	P1440	Infiniti	EVAP Small Leak
	P1440	Jaguar	Purge Valve Stuck Open
	P1440	Land Rover	EVAP Purge Valve Stuck Open
	P1440	Nissan	EVAP System Small Leak
	P1440	Subaru	Fuel Tank Pressure System Range / Performance No. 1
	P1440	Volkswagen	EGR Valve Power Stage Open
	P1440	Volvo	Fuel Cap Missing
	P1441	Acura	EVAP System Flow During Non-Purge
	P1441	BMW	Leakage Diagnostic Pump Control Open Circuit
	P1441	GM	EVAP System Flow During Non-Purge
	P1441	Honda	EVAP System Flow During Non-Purge
	P1441	Infiniti	EV/V Bypass/V
	P1441	Isuzu	EVAP System Flow During Non-Purge
	P1441	Jaguar	ELC System 1
	P1441	Nissan	Vacuum Cut Valve Bypass Valve
	P1441	Saturn	EVAP Canister Purge Valve Leak
	P1441	Subaru	Fuel Tank Pressure Control System Circuit High Input
	P1441	Volkswagen	EGR Vacuum Regulator Solenoid Valve Short To Ground
	P1443	BMW	Leakage Diagnostic Pump Control Circuit Signal High
	P1443	Chrysler	EVAP Purge Control Solenoid 2 Circuit
	P1443	Ford	Evaporative Emission System Control Valve (low/no flow)
	P1443	Hyundai	EVAP System Tank Cap Missing
	P1443	Infiniti	EVAP Canister Control Vacuum Switch Circuit

Repair Assistance Knowledge Base

	P1443	Jaguar	EVAP Valve Circuit Malfunction - B Bank
	P1443	Mazda	EVAP System Purge Flow Fault
	P1443	Mercedes	EVAP System / RH Purge Control Valve Malfunction
	P1443	Mitsubishi	EVAP Purge Control Solenoid '2' Circuit
	P1443	Nissan	EVAP Canister Control Vacuum Switch Circuit
	P1443	Subaru	EVAP Vent Control Solenoid Function Fault
	P1445	BMW	Diagnostic Module Tank Leakage (DM-TL) Pump Control Circuit Signal Low
	P1445	Ford	Evaporative Emission System Purge Flow Sensor Circuit High Input
	P1445	Infiniti	Purge Volume Control/V
	P1445	Mazda	EVAP Purge Flow Sensor Circuit High Voltage
	P1445	Nissan	EVAP Canister Purge Volume Control Valve
	P1445	Subaru	Air Assist Injector Solenoid Valve Malfunction
	P1448	BMW	Diagnostic Module Tank Leakage (DM-TL) Pump Current Too Low During Switching Solenoid Test
	P1448	Ford	EVAP System Vent Control Open
	P1448	Infiniti	Vent Control Valve
	P1448	Jaguar	ELC System 2
	P1448	Land Rover	evaporative loss control system - Major leak (Driving Cycle C)
	P1448	Mazda	Vent control valve stuck open
	P1448	Nissan	Vacuum Cut Valve
	P1448	Subaru	Tank internal pressure changeover solenoid performance problem
	P1450	BMW	Diagnostic Module Tank Leakage (DM-TL) Switching Solenoid Control Open Circuit
	P1450	Chrysler	EGR Throttle Governor
	P1450	Ford	Unable to Bleed Up Fuel Tank Vacuum
	P1450	Geo	Barometric Pressure Sensor Circuit
	P1450	GM	BARO Sensor Circuit
	P1450	Kia	Excessive Vacuum Leak
	P1450	Mazda	Unable to Bleed Up Fuel Tank Vacuum
	P1450	Saab	A/C Relay, Control Module Output Low, Open Or Short To Ground

Repair Assistance Knowledge Base

	P1450	Suzuki	BARO Sensor Voltage High / Low
	P1450	Volkswagen	Secondary Air Injection System Circuit Short ToB+
	P1451	BMW	Diagnostic Module Tank Leakage (DM-TL) Switching Solenoid Control Circuit Signal Low
	P1451	Ford	Evaporative Emission System Vent Control Circuit
	P1451	Geo	Barometric Pressure Sensor Performance
	P1451	GM	BARO Sensor Circuit
	P1451	Mazda	Evaporative Emission System Vent Control Circuit
	P1451	Saab	A/C Relay, Control Module Output Low, Open Or Short To Battery +
	P1451	Suzuki	BARO Sensor Performance Problem
	P1451	Volkswagen	Secondary Air Injection Circuit Short To Ground
	P1456	BMW	Heated Catalyst Heater Power Supply Open Circuit (Bank 1)
	P1456	Honda	EVAP Emission Control System Leak Detected (Fuel Tank System)
	P1456	Mazda	Fuel Tank Temperature Sensor Circuit
	P1456	Porsche	A/C Control Signal
	P1491	Acura	EGR valve Lift Insufficient Detected
	P1491	Chrysler	Radiator fan relay control circuit
	P1491	Ford	EVAP System Vacuum Cut Bypass Solenoid Malfunction
	P1491	Honda	EGR valve Lift Insufficient Detected
	P1491	Infiniti	VC Cut/V Bypass/V
	P1491	Isuzu	EFG Valve Lift Insufficient Detected
	P1491	Mazda	Secondary Switch Solenoid Circuit
	P1491	Mercedes	Refrigerant Pressure in A/C System Too High
	P1491	Nissan	Vacuum Cut Valve Bypass Valve
	P1491	Subaru	PCV (Blow-by) malfunction
	P1494	Chrysler	Leak detection pump pressure switch or mechanical fault
	P1494	Ford	Split air cut valve solenoid
	P1494	Mazda	SPCUT Solenoid Circuit
	P1494	Mitsubishi	EVAP Leak Detection Pump Switch or Mechanical Fault
	P1494	Subaru	EGR signal 2 circuit (Low)
	P1504	Audi	Intake Air System Bypass Air

Repair Assistance Knowledge Base

	P1504	BMW	Idle-Speed Control Valve Closing Solenoid Control Open Circuit
	P1504	Ford	Idle Air Control Circuit
	P1504	Mazda	Idle Air Control Circuit (see P0511)
	P1504	Porsche	Throttle Jacking Unit Emergency Air Position, Signal Implausible
	P1506	Audi	CTP Switch Does Not Open/Short To Ground
	P1506	BMW	Idle-Speed Control Valve Opening Solenoid Control Circuit Signal High
	P1506	Ford	Idle Air Control Overspeed Error (see P0507)
	P0506	Generic	Idle Air Control System RPM Lower Than Expected
	P1506	Jaguar	Idle Air Control System RPM Lower Than Expected - B Bank
	P1506	Kia	IAC Valve Opening Coil Voltage High
	P1506	Mazda	Idle Air Control Overspeed Error (see P0507)
	P1506	Porsche	Throttle Jacking Unit Lower Mechanical Stop, Signal Implausible
	P1506	Volkswagen	Closed Throttle Position Switch Does Not Open./Short To Ground
	P1506	Volvo	IAC Valve Opening Signal
	P1507	Audi	Idle System Learned Value Lower Limit Attained
	P1507	BMW	Idle-Speed Control Valve Opening Solenoid Control Circuit Signal Low
	P1507	Ford	Idle Air Control Underspeed Error (see P0506)
	P0507	Generic	Idle Air Control System RPM Higher Than Expected
	P1507	Jaguar	Idle Air Control System RPM Higher Than Expected - B Bank
	P1507	Kia	IAC Valve Closing Coil Voltage Low
	P1507	Mazda	Idle Air Control Underspeed Error (see P0506)
	P1507	Porsche	Throttle Jacking Unit Gain Adjustment, Signal Implausible
	P1507	Subaru	Idle Control System Fault (Fail Safe Mode)
	P1507	Volvo	IAC Valve Closing Signal
	P1519	Acura	Idle Air Control Valve Circuit Failure
	P1519	Audi	Intake Cam Control Bank 1 Malfunction
	P1519	BMW	A Camshaft Position Actuator Bank 1

Repair Assistance Knowledge Base

	P1519	Ford	Intake Manifold Runner Control Stuck Closed (Bank 1) (see P2006)
	P1519	GM	Throttle Actuator Control Module
	P1519	Honda	Idle Air Control Valve Circuit Failure
	P1519	Mercedes	RH Adjustable Camshaft Timing Solenoid (Logic Chain)
	P1519	Saturn	Throttle Actual Control Module
	P1519	Volkswagen	Intake Camshaft Control Bank 1 Malfunction
	P1529	BMW	B Camshaft Position Actuator Control Circuit Signal Low Bank 1
	P1529	Hyundai	Customer Snap Shot Request
	P1529	Mazda	SCAIR Solenoid Circuit
	P1537	Ford	Intake Manifold Runner Control Stuck Open (Bank 1) (see P2004)
	P1537	GM	A/C Request Circuit Voltage Low
	P1537	Volkswagen	Fuel Cut-Off Valve Mechanical Malfunction
	P1538	Ford	Intake Manifold Runner Control Stuck Open (Bank 2) (see P2005)
	P1538	GM	A/C Request Circuit Voltage High
	P1538	Volkswagen	Fuel Cut-Off Valve Short To Ground
	P1550	BMW	Idle-Speed Control Valve Closing Solenoid Control Circuit Electrical
	P1550	Ford	Power Steering Pressure Sensor Out Of Self Test Range
	P1550	GM	Stepper Motor Speed Control
	P1550	Land Rover	IACV Circuit
	P1550	Nissan	TCC Solenoid Valve
	P1550	Volkswagen	Intake Manifold Pressure Control System
	P1582	Ford	Electronic Throttle Monitor Data Available
	P1582	GM	Cruise Control Module Direction Circuit, Low Voltage
	P1582	Jaguar	Electronic Throttle Monitor Data Available
	P1582	Saturn	Speed Control Direction Circuit Voltage Low
	P1582	Volkswagen	Idle Adaption At Limit

Repair Assistance Knowledge Base

	P1651	Chrysler	MIL/Diagnostic Lamp via J1850 Bus
	P1651	Ford	Power Steering Pressure Switch Input
	P1651	GM	Fan 1 Relay Control Circuit
	P1651	GM	Fan On Relay Control Circuit/Output Driver Module (Quad Driver) 'B' Quickset Fault (Saturn)
	P1651	Jaguar	Power steering pressure switch input malfunction
	P1651	Land Rover	CAN bus missing node - Transfer Box ECU.Last occurrence - signal fault
	P1651	Mazda	Power Steering Pressure Switch Input
	P1651	Saab	RAM Fault
	P1651	Saturn	A/C Relay Circuit Fault
	P1651	Saturn	Cooling Fan Relay Circuit Fault
	P1651	Saturn	MIL Circuit Fault
	P1651	Saturn	Quad Driver Module B Quick Set Detected A Fault
	P1651	Saturn	Upshift Lamp Circuit Fault
	P1651	Toyota	CAN Communication Malfunction
	P1651	Volvo	Torque signal comparison 2
	P1627	Chrysler	5V Output Reference Voltage 2 High
	P1627	Ford	Module Supply Voltage Out Of Range
	P1627	GM	A/D Performance
	P1627	Isuzu	PCM A/D Conversion Malfunction
	P1627	Land Rover	Engine overspeed.Implausible signal/condition
	P1627	Mazda	PCM (ECM/TCS) Line Communication Error
	P1627	Saturn	PCM/EC A/D Fault
	P1635	BMW	Throttle Valve Adaptation; Lower Mechanical Stop not Adapted
	P1635	Chrysler	Glow Plug Relay
	P1635	Ford	Tire/Axle Out of Acceptable Range (TSB after PCM Replacement)
	P1635	GM	5-Volt Reference (A Or 1) Circuit
	P1635	Isuzu	5 Volt Reference Voltage Circuit Malfunction
	P1635	Saturn	Five Volt Reference Error (1996)
	P1635	Saturn	Five Volt Reference Error Circuits High Or Low (1997-2000)
	P1635	Volvo	ECM internal temp sensor

Repair Assistance Knowledge Base

	P1684	Chrysler	The battery has been disconnected within the last 50 starts
	P1684	Ford	Metering oil pump position sensor circuit
	P1684	Mazda	Metering Oil Pump Position Sensor Circuit
	P1700	Ford	Transmission Indeterminate Failure (Failed to Neutral)
	P1700	Ford Diesel	Transmission Indeterminate Failure (Failed to Neutral)
	P1700	Jaguar	Transmission Indeterminate Failure (Failed to Neutral)
	P1700	GM	MIL Requested By TCM
	P1700	Land Rover	Low Range signal implausibleDrive cycle C:Signal implausible
	P1700	Lexus	Vehicle Speed Sensor '2' Circuit
	P1700	Mazda	Transmission failed to engage NEUTRAL.
	P1700	Mercedes	Upshift Delay Switchover Valve Without Function (Logic Chain)
	P1700	Subaru	Throttle position sensor circuit malfunction
	P1700	Suzuki	TP Signal Input Malfunction
	P1700	Toyota	Vehicle Speed Sensor '2' Circuit
	P1790	Acura	TRANS ROM Checksum Error
	P1790	Chrysler	Fault immediately after a shift
	P1790	Ford	Throttle position sensor voltage (Voltage)
	P1790	GM	Replace Electronic Control Unit (ECU)
	P1790	Honda	TRANS ROM Checksum Error
	P1790	Isuzu	Trans ROM Checksum Error
	P1790	Jaguar	Throttle position signal system range/performance.
	P1790	Mazda	TP (Mechanical) Circuit
	P1790	Toyota	Transfer N SW Circuit Malfunction
	P1717	Chrysler	No Communication with the MIC
	P1717	Ford	Shift Solenoid D Inductive Signature
	P1717	Jaguar	Shift solenoid D inductive signature malfunction
	P1717	Mazda	Shift Solenoid '4' Mechanical Fault
	P1717	Subaru	ATF oil temperature sensor 2 circuit (High)
	P1717	Suzuki	A/T Drive Range Signal Circuit Malfunction
	P1736	Chrysler	2' Gear incorrect ratio
	P1736	Mazda	Second Gear Switch Circuit Failure
	P1744	BMW	Pressure Control Solenoid "A" Electrical

Repair Assistance Knowledge Base

	P1744	Chrysler	Torque Converter Lock-Up-Clutch Heat Control
	P1744	Ford	Torque Converter Clutch Solenoid Circuit Performance
	P1744	Ford Diesel	Torque Converter Clutch Solenoid Circuit Performance
	P1744	Mazda	Torque Converter Clutch Solenoid Circuit
	P1750	Acura	TCM A/T System Fault
	P1750	BMW	M44/M52/S52/M62/M73: System Voltage Input Low
	P1750	BMW	Secondary Pressure Solenoid Circuit Range/Performance
	P1750	Chrysler	Solenoid Assembly Malfunction
	P1750	Honda	TCM A/T System Fault
	P1750	Hyundai	A/T Shift, Pressure or Damper Clutch Solenoid Fault
	P1750	Mitsubishi	Solenoid Assembly Malfunction
	P1757	Chrysler	Governor pressure is above 3 PSI when 0 PSI is requested
	P1757	Ford	Shift solenoid #2 stuck on
	P1757	Mazda	Shift Solenoid B Circuit Short
	P1760	Ford	Pressure Control Solenoid A Short Circuit Intermittent
	P1760	Ford Diesel	Pressure Control Solenoid A Short Circuit Intermittent
	P1760	GM	Transmission Control Module Supply Voltage Interrupted
	P1760	Infiniti	Overrun Clutch S/V
	P1760	Lexus	PNP Switch Malfunction
	P1760	Nissan	Overrun Clutch S/V
	P1760	Nissan	Overrun Clutch Solenoid Valve
	P1762	Chrysler	Governor pressure sensor offset improper voltage
	P1762	Ford	Overdrive Band Failed Off
	P1762	Mazda	Transmission SS3/SS4/OD Band Fault
	P1764	Chrysler	Governor pressure sensor voltage to low
	P1764	Mazda	Low and Reverse Brake Failsafe Valve Malfunction
	P1765	BMW	CAN Throttle Valve
	P1765	Chrysler	Transmission 12 volt supply relay control circuit
	P1765	Ford	Timing Solenoid Circuit
	P1765	Lexus	Linear Shift Solenoid Circuit
	P1765	Mazda	Timing Solenoid Circuit

Repair Assistance Knowledge Base

	P1765	Toyota	Linear Shift Solenoid Circuit
	P1776	Chrysler	Solenoid Switch Valve latched in the LR position
	P1776	Jaguar	Ignition Retard Request Duration
	P1776	Land Rover	Gearbox Ignition Retard Request Duration Fault
	P1776	Mazda	Torque Down Signal #2 Circuit
	P1776	Nissan	TCC Clutch Solenoid Valve
	P1780	Audi	Engine Intervention Readable
	P1780	BMW	CAN Torque Reduction
	P1780	Chrysler	Pressure switch circuit: ALL
	P1780	Ford	Transmission Control Switch (O/D Cancel) Circuit Out Of Self Test Range
	P1780	Ford Diesel	Transmission Control Switch (O/D Cancel) Circuit Out Of Self Test Range
	P1780	GM	Park Neutral Position Switch Circuit
	P1780	Kia	Transmission Controlled Spark Advance
	P1780	Lexus	PNP Switch Malfunction
	P1780	Mazda	Transmission Control Switch (O/D Cancel) Circuit Out Of Self Test Range
	P1780	Mercedes	Modulating Pressure Or Upshift Delay Switchover Valve
	P1780	Saturn	MIL
	P1780	Toyota	PNP Switch Malfunction
	P1780	Volkswagen	Engine Intervention Readable
	P1782	Chrysler	24 Pressure Switch Check
	P1782	Ford	Performance/Economy Switch Circuit Out Of Self Test Range
	P1782	Porsche	Engine Engagement / Nominal Engine Torque
	P1864	GM	TCC Enable Solenoid Circuit
	P1870	Acura	Transmission Component Slipping
	P1870	GM	Trans Component Slipping
	P1870	Honda	Transmission Component Slipping
	P1870	Isuzu	Transmission Component Slipping

Repair Assistance Knowledge Base

	P2004	Generic	Intake Manifold Runner Control Stuck Open Bank 1 {also P1537}
	P2005	Generic	Intake Manifold Runner Control Stuck Open Bank 2 {also P1538}
	P2006	Generic	Intake Manifold Runner Control Stuck Closed Bank 1 {also P1519}
	P2099	Generic	Post Catalyst Fuel Trim System Too Rich Bank 2
	P2099	Mazda	Post Catalyst Fuel Trim System Too Rich Bank 2
	P2181	Generic	Cooling System Performance
	P2182	Mazda	Cooling System Performance
	P2195	Generic	O2 Sensor Signal Stuck Lean Bank 1 Sensor 1 {also P1131}
	P2196	Generic	O2 Sensor Signal Stuck Rich Bank 1 Sensor 1 {also P1132}
	P2197	Generic	O2 Sensor Signal Stuck Lean Bank 2 Sensor 1 {also P1151}
	P2400	Generic	Evaporative Emission System Leak Detection Pump Control Circuit/Open
	P2400	Mazda	(EVAP) System Leak Detection Pump Control Circuit Open
	P2305	Generic	Ignition Coil "B" Secondary Circuit
	P2305	Mazda	Ignition Coil B Secondary Circuit
	P2305	Toyota	Fuel Pressure Regulator 2 Control Circuit High
	P2400	Generic	Evaporative Emission System Leak Detection Pump Control Circuit/Open
	P2400	Mazda	(EVAP) System Leak Detection Pump Control Circuit Open
	P2407	Generic	Evaporative Emission System Leak Detection Pump Sense Circuit Intermittent/Erratic
	P2407	Mazda	(EVAP) System Leak Detection Pump Sense Circuit Intermittent/Erratic

Repair Assistance Knowledge Base

	P2580	Generic	Turbocharger Speed Sensor Circuit Low
	P2580	Mazda	Turbocharger Speed Sensor Circuit Low
	P3125	Toyota	SMR ASSY malfunction
	P3191	Toyota	Cruisecontrol vehicle sensor malfunction
	P3407	Ford	Cylinder 1 Deactivation/Intake Valve Control Circuit High
	P3407	Ford	Cylinder 1 Exhaust Valve Control Circuit Low
	P3407	Generic	Cylinder 1 Exhaust Valve Control Circuit Low
	P3407	Mazda	Cylinder 1 Exhaust Valve Control Circuit Low
	P3434	Ford	Cylinder 5 Deactivation/Intake Valve Control Circuit Performance
	P3434	Generic	Cylinder 5 Deactivation/Intake Valve Control Performance
	P3434	Mazda	Cylinder 5 Deactivation/Intake Valve Control Circuit Performance
	U1000	Chrysler	CAN B Bus (+) Circuit
	U1000	Ford	(SCP) (J1850) Communications Bus Fault
	U1000	GM	No Class 2 Communication ID Not Learned
	U1000	Mazda	(SCP) (J1850) Communications Bus Fault
	U1001	Chrysler	CAN B Bus (-) Circuit
	U1001	Ford	(SCP) (J1850) Communications Bus Fault
	U1001	Mazda	(SCP) (J1850) Communications Bus Fault
	U1039	Ford	SCP (J1850) Invalid or Missing Data for Vehicle Speed
	U1039	Ford Diesel	SCP (J1850) Invalid or Missing Data for Vehicle Speed
	U1039	Mazda	Vehicle speed signal missing or incorrect
		Manufacturer Specific (OEM)	Make Unknown
			P-Code definitions
	P1100		MAF Sensor Intermittent/ Check of all OBDII Systems Not Complete
	P1101		MAF Sensor Out Of Self Test Range./

Repair Assistance Knowledge Base

			KOER Not Able To Complete KOER Aborted
		P1102	MAF Sensor In Range But Lower Than Expected
		P1103	MAF Sensor In Range But Higher Than Expected
		P1104	MAF Ground Malfunction
		P1105	Dual Alternator Upper Fault
		P1106	Dual Alternator Lower Fault/ Manifold Absolute Pressure (MAP) Sensor Circuit Intermittent High Voltage
		P1107	Dual Alternator Lower Circuit Malfunction/ Manifold Absolute Pressure (MAP) Sensor Circuit Intermittent Low Voltage
		P1108	Dual Alternator Battery Lamp Circuit Malfunction
		P1109	IAT - B Sensor Intermittent
		P1110	IAT Sensor (D/C) Open/Short
		P1111	Intake Air Temperature (IAT) Sensor Circuit Intermittent High Voltage
		P1112	Intake Air Temperature (IAT) Sensor Circuit Intermittent Low Voltage
		P1113	IAT Sensor Open/Short
		P1114	Engine Coolant Temperature (ECT) Sensor Circuit Intermittent Low Voltage/IAT - B Circuit Low Input
		P1115	Engine Coolant Temperature (ECT) Sensor Circuit Intermittent High Voltage/IAT - B Circuit High Input
		P1116	Engine Coolant sensor out of range/ECT Sensor Out Of Self Test Range
		P1117	Engine Coolant Sensor intermittent/ECT Sensor Intermittent
		P1118	Manifold Absolute Temperature Circuit Low Input
		P1119	Manifold Absolute Temperature Circuit High Input
		P1120	Throttle position sensor out of range
		P1121	Throttle Position (TP) Sensor Circuit Intermittent High Voltage
		P1122	Throttle Position (TP) Sensor Circuit Intermittent Low Voltage
		P1123	Throttle Position Sensor In Range But Higher Than Expected
		P1124	Throttle Position Sensor Out Of Self Test Range
		P1125	Throttle position sensor intermittent
		P1126	Throttle Position (Narrow Range) Sensor Circuit Malfunction
		P1127	Exhaust Not Warm, Downstream O2 Sensor
		P1128	Upstream Heated O2 Sensors Swapped
		P1129	Downstream Heated O2 Sensors Swapped
		P1130	Lack Of HO2S Switch - Adaptive Fuel At Limit

Repair Assistance Knowledge Base

	P1131	Lack Of HO2S Switch - Sensor Indicates Lean
	P1132	Lack Of HO2S Switch - Sensor Indicates Rich
	P1133	HO2S Insufficient Switching Sensor 1
	P1134	HO2S Transition Time Ratio Sensor 1
	P1135	Pedal Position Sensor A Circuit Intermittent
	P1136	Fan Control Circuit Malfunction
	P1137	Lack Of HO2S Switch - Sensor Indicates Lean
	P1138	Lack Of HO2S12 Switch - Sensor Indicates Rich
	P1139	Water In Fuel Indicator Circuit Malfunction
	P1140	Water In Fuel Condition
	P1141	Fuel Restriction Indicator Circuit Malfunction
	P1142	Fuel Restriction Condition
	P1143	Air Assist Control Valve Range/Performance
	P1144	Air Assist Control Valve Circuit Malfunction
	P1150	Lack Of HO2S21 Switch - Adaptive Fuel At Limit
	P1151	Lack Of HO2S21 Switch - Sensor Indicates Lean
	P1152	Lack Of HO2S21 Switch - Sensor Indicates Rich
	P1153	Bank 2 Fuel Control Shifted Lean
	P1154	Bank 2 Fuel Control Shifted Rich
	P1155	Alternative Fuel Controller
	P1156	Fuel Select Switch Malfunction
	P1157	Lack Of HO2S22 Switch - Sensor Indicates Lean
	P1158	Lack Of HO2S22 Switch - Sensor Indicates Rich
	P1159	Fuel Stepper Motor Malfunction
	P1167	Invalid Test,throttle not depressed
	P1168	Fuel Rail Sensor In-Range Low Failure
	P1169	Fuel Rail Sensor In-Range High Failure
	P1170	ESO - Engine Shut Off Solenoid Fault
	P1171	Rotor Sensor Fault
	P1172	Rotor Control Fault
	P1173	Rotor Calibration Fault
	P1174	Cam Sensor Fault
	P1175	Cam Control Fault
	P1176	Cam Calibration Fault
	P1177	Synchronization Fault
	P1178	(open)
	P1180	Fuel Delivery System Malfunction - Low

Repair Assistance Knowledge Base

	P1181	Fuel Delivery System Malfunction - High
	P1182	Fuel Shut Off Solenoid Malfunction
	P1183	Engine Oil Temperature Circuit Malfunction
	P1184	Engine Oil Temperature Out Of Self Test Range
	P1185	FTS High - Fuel Pump Temperature Sensor High
	P1186	FTS Low - Fuel Pump Temperature Sensor Low
	P1187	Variant Selection
	P1188	Calibration Memory Fault
	P1189	Pump Speed Signal Fault
	P1190	Calibration Resistor Out Of Range
	P1191	Key Line Voltage
	P1192	Voltage External
	P1193	EGR Drive Overcurrent
	P1194	ECU A/D Converter
	P1195	SCP HBCC Failed To Initialize
	P1196	Key Off Voltage High
	P1197	Key Off Voltage Low
	P1198	Pump Rotor Control Underfueling
	P1199	Fuel Level Input Circuit Low
	P1200	Injector Control Circuit
	P1201	Injector Circuit Open / Shorted - Cylinder #1
	P1202	Injector Circuit Open / Shorted - Cylinder #2
	P1203	Injector Circuit Open / Shorted - Cylinder #3
	P1204	Injector Circuit Open / Shorted - Cylinder #4
	P1205	Injector Circuit Open / Shorted - Cylinder #5
	P1206	Injector Circuit Open / Shorted - Cylinder #6
	P1209	Injector Control Pressure System Fault
	P1210	Injector Control Pressure Above Expected Level
	P1211	Injector Control Pressure Sensor Above / Below Desired
	P1212	Injector Control Pressure Not Detected During Crank
	P1213	Start Injector Circuit Malfunction
	P1214	Pedal Position Sensor B Circuit Intermittent
	P1215	Pedal Position Sensor C Circuit Low Input
	P1216	Pedal Position Sensor C Circuit High Input
	P1217	Pedal Position Sensor C Circuit Intermittent
	P1218	CID High
	P1219	CID Low

Repair Assistance Knowledge Base

	P1220		Series Throttle Control System Malfunction
	P1221		Traction Control System Malfunction
	P1222		Traction Control Output Circuit Malfunction
	P1223		Pedal Demand Sensor B Circuit High Input
	P1224		Throttle Position Sensor B Out Of Self Test Range
	P1225		Needle Lift Sensor Malfunction
	P1226		Control Sleeve Sensor Malfunction
	P1227		Wastegate Failed Closed (Over Pressure)
	P1228		Wastegate Failed Open (Under Pressure)
	P1229		Intercooler Pump Driver Fault
	P1230		Fuel Pump Low Speed Malfunction
	P1231		Fuel Pump Secondary Circuit Low, High Speed
	P1232		Fuel Pump Speed Primary Circuit Malfunction
	P1233		Fuel Pump Driver Module Off Line
	P1234		Fuel Pump Driver Module Off Line
	P1235		Fuel Pump Control Out Of Range
	P1236		Fuel Pump Control Out Of Range
	P1237		Fuel Pump Secondary Circuit Malfunction
	P1238		Fuel Pump Secondary Circuit Malfunction
	P1239		Speed Fuel Pump Positive Feed Fault
	P1240		Sensor Power Supply Malfunction
	P1241		Sensor Power Supply Low Input
	P1242		Sensor Power Supply High Input
	P1243		Second Fuel Pump Faulty or Ground Fault
	P1244		Alternator Load Input Failed High
	P1245		Alternator Load Input Failed Low
	P1246		Alternator Load Input Failed
	P1247		Turbo Boost Pressure Low
	P1248		Turbo Boost Pressure Not Detected
	P1249		Wastegate Control Valve Performance
	P1250		PRC Solenoid Circuit Malfunction
	P1251		Air Mixture Solenoid Circuit Malfunction
	P1252		Pedal Correlation PDS1 and LPDS High
	P1253		Pedal Correlation PDS1 and LPDS Low
	P1254		Pedal Correlation PDS2 and LPDS High
	P1255		Pedal Correlation PDS2 and LPDS Low
	P1256		Pedal Correlation PDS1 and HPDS

Repair Assistance Knowledge Base

	P1257	Pedal Correlation PDS2 and HPDS
	P1258	Pedal Correlation PDS1 and PDS2
	P1259	Immobilizer to PCM Signal Error
	P1260	THEFT Detected, Vehicle Immobilized
	P1261	Cylinder #1 High To Low Side Short
	P1262	Cylinder #2 High To Low Side Short
	P1263	Cylinder #3 High To Low Side Short
	P1264	Cylinder #4 High To Low Side Short
	P1265	Cylinder #5 High To Low Side Short
	P1266	Cylinder #6 High To Low Side Short
	P1267	Cylinder #7 High To Low Side Short
	P1268	Cylinder #8 High To Low Side Short
	P1269	Immobilizer Code Not Programmed
	P1270	Engine RPM Or Speed Limiter Reached
	P1271	Cylinder #1 High To Low Side Open
	P1272	Cylinder #2 High To Low Side Open
	P1273	Cylinder #3 High To Low Side Open
	P1274	Cylinder #4 High To Low Side Open
	P1275	Cylinder #5 High To Low Side Open
	P1276	Cylinder #6 High To Low Side Open
	P1277	Cylinder #7 High To Low Side Open
	P1278	Cylinder #8 High To Low Side Open
	P1280	Injection Control Pressure Out Of Range Low
	P1281	Injection Control Pressure Out Of Range High
	P1282	Excessive Injection Control Pressure
	P1283	IPR Circuit Failure
	P1284	Aborted KOER - ICP Failure
	P1285	Cylinder head over temp sensed
	P1286	Fuel Pulse In Range But Lower Than Expected
	P1287	Fuel Pulse In Range But Higher Than Expected
	P1288	Cylinder Head Temp Sensor Out Of Self Test Range
	P1289	Cylinder Head Temp Sensor High Input
	P1290	Cylinder Head Temp Sensor Low Input
	P1291	Injector High Side Short To GND Or VBATT - Bank 1
	P1292	Injector High Side Short To GND Or VBATT - Bank 2
	P1293	Injector High Side Open - Bank 1
	P1294	Injector High Side Open - Bank 2/Target idle not reached

Repair Assistance Knowledge Base

	P1295	Multi-faults - Bank 1 - With Low Side Shorts
	P1296	Multi-faults - Bank 2 - With Low Side Shorts
	P1297	Injector High Sides Shorted Together
	P1298	IDM Failure
	P1299	Cylinder Head Overtemperature Protection Active
	P1300	Boost Calibration Fault
	P1301	Boost Calibration High
	P1302	Boost Calibration Low
	P1303	EGR Calibration Fault
	P1304	EGR Calibration High
	P1305	EGR Calibration Low
	P1306	Kickdown Relay Pull - In Circuit Fault
	P1307	Kickdown Relay Hold Circuit Fault
	P1308	A/C Clutch Circuit Fault
	P1309	Misfire Monitor AICE Chip Fault
	P1313	Misfire Rate Catalyst Damage Fault - Bank 1
	P1314	Misfire Rate Catalyst Damage Fault - Bank 2
	P1315	Persistent Misfire
	P1316	Injector Circuit / IDM Codes Detected
	P1317	Injector Circuit / IDM Codes Not Updated
	P1336	Crank / Cam Sensor Range / Performance
	P1340	Camshaft Position Sensor B Circuit Malfunction
	P1341	Camshaft Position Sensor B Range / Performance
	P1345	SGC (Cam Position) Sensor Circuit Malfunction/ Crankshaft Position - Camshaft Position Correlation
	P1346	Fuel Level Sensor B Circuit Malfunction
	P1347	Fuel Level Sensor B Range / Performance
	P1348	Fuel Level Sensor B Circuit Low
	P1349	Fuel Level Sensor B Circuit High
	P1350	Fuel Level Sensor B Intermittent/Bypass Line Monitor
	P1351	IDM Input Circuit Malfunction/ Ignition Coil Control Circuit High Voltage
	P1352	Ignition Coil A Primary Circuit Malfunction
	P1353	Ignition Coil B Primary Circuit Malfunction
	P1354	Ignition Coil C Primary Circuit Malfunction
	P1355	Ignition Coil D Primary Circuit Malfunction
	P1360	Ignition Coil A Secondary Circuit Malfunction

Repair Assistance Knowledge Base

	P1361	Ignition Control (IC) Circuit Low Voltage
	P1362	Ignition Coil C Secondary Circuit Malfunction
	P1363	Ignition Coil D Secondary Circuit Malfunction
	P1364	Ignition Coil Primary Circuit Failure
	P1365	Ignition Coil Secondary Circuit Failure
	P1366	Ignition Spare
	P1367	Ignition Spare
	P1368	Ignition Spare
	P1369	Engine Temperature Light Monitor Failure
	P1370	Insufficient RMP Increase During Spark Test
	P1371	Ignition Coil - Cylinder 1 - Early Activation Fault
	P1372	Ignition Coil - Cylinder 2 - Early Activation Fault
	P1373	Ignition Coil - Cylinder 3 - Early Activation Fault
	P1374	Crankshaft Position (CKP)/Ignition Coil - Cylinder 4 - Early Activation Fault
	P1375	Ignition Coil - Cylinder 5 - Early Activation Fault
	P1376	Ignition Coil - Cylinder 6 - Early Activation Fault
	P1380	Misfire Detected - Rough Road Data Not Available
	P1381	Variable Cam Timing Overadvanced (Bank #1)/ Misfire Detected - No Communication with BCM
	P1382	Variable Cam Timing Solenoid #1 Circuit Malfunction
	P1383	Variable Cam Timing Overretarded (Bank #1)
	P1384	VVT Solenoid A Malfunction
	P1385	Variable Cam Timing Solenoid B Malfunction
	P1386	Variable Cam Timing Overadvanced (Bank #2)
	P1387	Variable Cam Timing Solenoid #2 Circuit Malfunction
	P1388	Variable Cam Timing Overretarded (Bank #2)
	P1389	Glow Plug Circuit High Side Low Input
	P1390	Octane Adjust Pin Out Of Self Test Range
	P1391	Glow Plug Circuit Low Input (Bank #1)
	P1392	Glow Plug Circuit High Input (Bank #1)
	P1393	Glow Plug Circuit Low Input (Bank #2)
	P1394	Glow Plug Circuit High Input (Bank #2)
	P1395	Glow Plug Monitor Fault (Bank #1)
	P1396	Glow Plug Monitor Fault (Bank #2)
	P1397	System Voltage Out Of Self Test Range
	P1398	VVT Solenoid B Circuit High Input

Repair Assistance Knowledge Base

	P1399		Glow Plug Circuit High Side, High Input
	P1400		DPFE Circuit Low Input
	P1401		DPFE Circuit High Input
	P1402		EGR Metering Orifice Restricted
	P1403		DPFE Sensor Hoses Reversed
	P1404		IAT - B Circuit Malfunction/ Exhaust Gas Recirculation Closed Position Performance
	P1405		DPFE Sensor Upstream Hose Off Or Plugged
	P1406		Exhaust Gas Recirculation (EGR) Position Sensor Performance
	P1407		EGR No Flow Detected
	P1408		EGR Flow Out Of Self Test Range
	P1409		EVR Control Circuit Malfunction
	P1411		SAI System Incorrect Downstream Flow Detected
	P1413		SAI System Monitor Circuit Low Input
	P1414		SAI System Monitor Circuit High Input
	P1415		Air Pump Circuit Malfunction/ (AIR) System Bank 1
	P1416		Port Air Circuit Malfunction/ (AIR) System Bank 2
	P1417		Port Air Relief Circuit Malfunction
	P1418		Split Air #1 Circuit Malfunction
	P1419		Split Air #2 Circuit Malfunction
	P1420		Catalyst Temperature Sensor Failure
	P1421		Catalyst Damage
	P1422		EGR Temperature Sensor Failure
	P1423		EGR Functionality Test Failed
	P1424		EGR Glow Plug Primary Failure
	P1425		EGR Glow Plug Secondary Failure
	P1426		EGR Mini - MAF Failed Out Of Range
	P1427		EGR Mini - MAF Failed Short Circuit
	P1428		EGR Mini - MAF Failed Open Circuit
	P1429		Electric Air Pump Primary Failure
	P1430		Electric Air Pump Secondary Failure
	P1433		A/C Refrigerant Temperature Circuit Low
	P1434		A/C Refrigerant Temperature Circuit High
	P1435		A/C Refrigerant Temperature Circuit Range/Performance
	P1436		A/C Evaporator Air Temperature Circuit Low
	P1437		A/C Evaporator Air Temperature Circuit High

Repair Assistance Knowledge Base

	P1438		A/C Evaporator Air Temperature Circuit Range/Performance
	P1439		Floor Temperature Switch Circuit Malfunction
	P1440		Purge Valve Stuck Open
	P1441		Evaporative Emission (EVAP) System Flow During Non-Purge Chevrolet Only
	P1441		Evaporative Emission (EVAP) System Flow During Non-Purge Oldsmobile Only
	P1442		Evaporative Emission Control System Leak Detected
	P1443		Evaporative Emission Control System Control Valve
	P1444		Purge Flow Sensor Circuit Low Input
	P1445		Purge Flow Sensor Circuit High Input
	P1446		Evaporative Vac Solenoid Circuit Malfunction
	P1447		ELC System Closure Valve Flow Fault
	P1448		ELC System 2 Fault
	P1449		Evaporative Check Solenoid Circuit Malfunction
	P1450		Unable To Bleed Up Fuel Tank Vacuum
	P1451		Evap Emission Control Sys Vent Control Valve Circuit
	P1452		Unable To Bleed - Up Vacuum in Tank
	P1453		Fuel Tank Pressure Relief Valve Malfunction
	P1454		Evaporative System Vacuum Test Malfunction
	P1455		Evap Emission Control Sys Leak Detected (Gross Leak/No Flow)
	P1456		Fuel Tank Temperature Sensor Circuit Malfunction
	P1457		Unable To Pull Vacuum In Tank
	P1460		Wide open throttle A/C cutoff relay circuit
	P1461		A/C pressure sensor circuit voltage low
	P1462		A/C pressure sensor circuit voltage high
	P1463		A/C Pressure Sensor Insufficient Pressure Change
	P1464		A/C Demand Out of Self Test Range
	P1465		A/C Relay Circuit Malfunction
	P1466		A/C Refrigerant Temperature Sensor/Circuit Malfunction
	P1467		A/C Compressor Temperature Sensor Malfunction
	P1468		SSPOD Open Circuit or Closed Circuit Fault
	P1469		Low A/C Cycling Period
	P1470		A/C Cycling Period Too Short
	P1471		Electrodrive Fan 1 Operational Failure (Driver Side)
	P1472		Electrodrive Fan 2 Operational Failure (Passenger Side)

Repair Assistance Knowledge Base

	P1473	Fan Secondary High With Fan(s) Off
	P1474	Low Fan Control Primary Circuit Malfunction
	P1475	Fan Relay (Low) Circuit Malfunction
	P1476	Fan Relay (High) Circuit Malfunction
	P1477	Additional Fan Relay Circuit Malfunction
	P1478	Cooling Fan Driver Fault
	P1479	High Fan Control Primary Circuit Malfunction
	P1480	Fan Secondary Low with Low Fan On
	P1481	Fan Secondary Low With High Fan On
	P1482	SCP
	P1483	Power To Fan Circuit Overcurrent
	P1484	Open Power To Ground VCRM
	P1485	EGRV Circuit Malfunction
	P1486	EGRA Circuit Malfunction
	P1487	EGRCHK Solenoid Circuit Malfunction
	P1490	Secondary Air Relief Solenoid Circuit Malfunction
	P1491	Secondary Switch Solenoid Circuit Malfunction
	P1492	APLSOL Solenoid Circuit Malfunction
	P1493	RCNT Solenoid Circuit Malfunction
	P1494	SPCUT Solenoid Circuit Malfunction
	P1495	TCSPL Solenoid Circuit Malfunction
	P1500	Vehicle Speed Sensor Intermittent
	P1501	Vehicle Speed Sensor Out Of Self Test Range
	P1502	Vehicle Speed Sensor Intermittent Malfunction
	P1503	Auxillary Speed Sensor Fault
	P1504	Idle Air Control Circuit Malfunction
	P1505	Idle Air Control System At Adaptive Clip
	P1506	Idle Air Control Overspeed Error
	P1507	Idle Air Control Underspeed Error
	P1508	Idle Control System Circuit Open
	P1509	Idle Control System Circuit Shorted
	P1510	Idle Signal Circuit Malfunction
	P1511	Idle Switch (Electric Control Throttle) Circuit Malfunction
	P1512	Intake Manifold Runner Control (Bank 1) Stuck Closed
	P1513	Intake Manifold Runner Control (Bank 2) Stuck Closed
	P1514	High Load Neutral/Drive Fault
	P1515	Electric Current Circuit Malfunction

Repair Assistance Knowledge Base

	P1516	IMRC Input Error (Bank 1)
	P1517	IMRC Input Error (Bank 2)
	P1518	Intake Manifold Runner Control (Stuck Open)
	P1519	Intake Manifold Runner Control (Stuck Closed)
	P1520	Intake Manifold Runner Control Circuit Malfunction
	P1521	Variable Intake Solenoid #1 Circuit Malfunction
	P1522	Variable Intake Solenoid #2 Circuit Malfunction
	P1523	IVC Solenoid Circuit Malfunction
	P1524	Variable Intake Solenoid System
	P1525	Air Bypass Valve System
	P1526	Air Bypass System
	P1527	Accelerate Warmup Solenoid Circuit Malfunction
	P1528	Subsidiary Throttle Valve Solenoid Circuit Malfunction
	P1529	SCAIR Solenoid Circuit Malfunction
	P1530	A/C Clutch Circuit Malfunction
	P1531	Invalid Test - Accelerator Pedal Movement
	P1532	IMCC Circuit Malfunction, Bank B
	P1533	AAI Circuit Malfunction
	P1534	Inertia Switch Activated
	P1535	Blower Fan Speed Circuit Range/Performance
	P1536	Parking Brake Switch Circuit Failure
	P1537	Intake Manifold Runner Control (Bank 1) Stuck Open
	P1538	Intake Manifold Runner Control (Bank 2) Stuck Open
	P1539	Power To A/C Clutch Circuit Overcurrent
	P1540	Air Bypass Valve Circuit Malfunction
	P1549	IMCC Circuit Malfunction, Bank B
	P1550	PSPS Out Of Self Test Range
	P1565	Speed Control Command Switch Out of Range High
	P1566	Speed Control Command Switch Out of Range Low
	P1567	Speed Control Output Circuit Continuity
	P1568	Speed Control Unable to Hold Speed
	P1571	Brake Switch Malfunction
	P1572	Brake Pedal Switch Circuit Malfunction
	P1573	Throttle Position Not Available
	P1574	Throttle Position Sensor Disagreement btwn Sensors
	P1575	Pedal Position Out of Self Test Range
	P1576	Pedal Position Not Available

Repair Assistance Knowledge Base

	P1577	Pedal Position Sensor Disagreement btwn Sensors
	P1578	ETC Power Less Than Demand
	P1579	ETC In Power Limiting Mode
	P1580	Electronic Throttle Monitor PCM Override
	P1581	Electronic Throttle Monitor Malfunction
	P1582	Electronic Throttle Monitor Data Available
	P1583	Electronic Throttle Monitor Cruise Disable
	P1584	TCU Detected IPE Circuit Malfunction
	P1585	Throttle Control Unit Malfunction
	P1586	Throttle Control Unit Throttle Position Malfunction
	P1587	Throttle Control Unit Modulated Command Malfunction
	P1588	Throttle Control Unit Detected Loss of Return Spring
	P1589	TCU Unable To Control Desired Throttle Angle
	P1600	Loss of KAM Power; Open Circuit
	P1601	ECM/TCM Serial Communication Error
	P1602	Immobilizer/ECM Communication Error
	P1603	EEPROM Malfunction
	P1604	Code Word Unregistered
	P1605	Keep Alive Memory Test Failure
	P1606	ECM Control Relay O/P Circuit Malfunction
	P1607	MIL O/P Circuit Malfunction
	P1608	Internal ECM Malfunction
	P1609	Diagnostic Lamp Driver Fault
	P1610	SBDS Interactive Codes
	P1611	SBDS Interactive Codes
	P1612	SBDS Interactive Codes
	P1613	SBDS Interactive Codes
	P1614	SBDS Interactive Codes
	P1615	SBDS Interactive Codes
	P1616	SBDS Interactive Codes
	P1617	SBDS Interactive Codes
	P1618	SBDS Interactive Codes
	P1619	SBDS Interactive Codes
	P1620	SBDS Interactive Codes
	P1621	Control Module Long Term Memory Performance/ Immobilizer Code Words Do Not Match
	P1622	Immobilizer ID Does Not Match

Repair Assistance Knowledge Base

	P1623		Immobilizer Code Word/ID Number Write Failure
	P1624		Anti Theft System
	P1625		B+ Supply To VCRM Fan Circuit Malfunction
	P1626		Theft Deterrent Fuel Enable Signal Not Received/ B+ Supply To VCRM A/C Circuit Malfunction
	P1627		Module Supply Voltage Out Of Range
	P1628		Module Ignition Supply Input Malfunction
	P1629		Internal Voltage Regulator Malfunction
	P1630		Internal Vref Malfunction
	P1631		Theft Deterrent Start Enable Signal Not Correct/ Main Relay Malfunction (Power Hold)
	P1632		Smart Alternator Faults Sensor/Circuit Malfunction
	P1633		KAM Voltage Too Low
	P1634		Data Output Link Circuit Failure
	P1635		Tire / Axle Ratio Out of Acceptable Range
	P1636		Inductive Signature Chip Communication Error
	P1637		Can Link ECM/ABSCM Circuit / Network Malfunction
	P1638		Can Link ECM/INSTM Circuit / Network Malfunction
	P1639		Vehicle ID Block Corrupted or Not Programmed
	P1640		Powertrain DTCs Available in Another Module
	P1641		Fuel Pump Primary Circuit Failure
	P1642		Fuel Pump Monitor Circuit High Input
	P1643		Fuel Pump Monitor Circuit Low Input
	P1644		Fuel Pump Speed Control Circuit Malfunction
	P1645		Fuel Pump Resistor Switch Circuit Malfunction
	P1650		PSP Switch Out of Self Test Range
	P1651		PSP Switch Input Malfunction
	P1652		IAC Monitor Disabled by PSP Switch Failed On
	P1653		Power Steering Output Circuit Malfunction
	P1654		Recirculation Override Circuit Malfunction
	P1655		Starter Disable Circuit Malfunction
	P1660		Output Circuit Check Signal High
	P1661		Output Circuit Check Signal Low
	P1662		IDM_EN Circuit Failure
	P1663		Fuel Demand Command Signal Circuit Malfunction
	P1667		CI Circuit Malfunction
	P1668		PCM - IDM Communications Error

Repair Assistance Knowledge Base

	P1670	Electronic Feedback Signal Not Detected
	P1680	Metering Oil Pump Malfunction
	P1681	Metering Oil Pump Malfunction
	P1682	Metering Oil Pump Malfunction
	P1683	Metering Oil Pump Temperature Sensor Circuit Malfunction
	P1684	Metering Oil Pump Position Sensor Circuit Malfunction
	P1685	Metering Oil Pump Stepping Motor Circuit Malfunction
	P1686	Metering Oil Pump Stepping Motor Circuit Malfunction
	P1687	Metering Oil Pump Stepping Motor Circuit Malfunction
	P1688	Metering Oil Pump Stepping Motor Circuit Malfunction
	P1689	Oil Pressure Control Solenoid Circuit Malfunction
	P1690	Wastegate Solenoid Circuit Malfunction
	P1691	Turbo Pressure Control Solenoid Circuit Malfunction
	P1692	Turbo Control Solenoid Circuit Malfunction
	P1693	Turbo Charge Control Circuit Malfunction
	P1694	Turbo Charge Relief Circuit Malfunction
	P1700	Transmission Indeterminate Failure (Failed to Neutral)
	P1701	Reverse Engagement Error
	P1702	TRS Circuit Intermittent Malfunction
	P1703	Brake Switch Out Of Self Test Range
	P1704	Digital TRS Failed to Transition States in KOEO / KOER
	P1705	Not in P or N During KOEO / KOER
	P1706	High Vehicle Speed Observed in Park
	P1707	Transfer Case Neutral Indicator Hard Fault Present
	P1708	Clutch Switch Circuit Malfunction
	P1709	PNP Switch Out Of Self Test Range
	P1711	TFT Sensor Out Of Self Test Range
	P1712	Trans Torque Reduction Request Signal Malfunction
	P1713	TFT Sensor In Range Failure Low Value
	P1714	SSA Inductive Signature Malfunction
	P1715	SSB Inductive Signature Malfunction
	P1716	SSC Inductive Signature Malfunction
	P1717	SSD Inductive Signature Malfunction
	P1718	TFT Sensor In Range Failure High
	P1720	Vehicle Speed (Meter) Circuit Malfunction
	P1721	Gear 1 Incorrect Ratio
	P1722	Gear 2 Incorrect Ratio

Repair Assistance Knowledge Base

	P1723		Gear 3 incorrect Ratio
	P1724		Gear 4 Incorrect Ratio
	P1725		Insufficient Engine Speed Increase During Self Test
	P1726		Insufficient Engine Speed Decrease During Self Test
	P1727		Coast Clutch Solenoid Inductive Signature Malfunction
	P1728		Transmission Slip Error
	P1729		4x4 Low Switch Error
	P1730		Gear Control Malfunction 2,3,5
	P1731		1-2 Shift Malfunction
	P1732		2-3 Shift Malfunction
	P1733		3-4 Shift Malfunction
	P1734		Gear Control Malfunction
	P1735		First Gear Switch Circuit Malfunction
	P1736		Second Gear Switch Circuit Malfunction
	P1737		Lockup Solenoid System
	P1738		Shift Time Error
	P1739		Slip Solenoid System
	P1740		Torque Converter Clutch Inductive Signature Malfunction
	P1741		Torque Converter Clutch Control Error
	P1742		Torque Converter Clutch Solenoid Failed On
	P1743		Torque Converter Clutch Solenoid Failed On
	P1744		Torque Converter Clutch System Performance
	P1745		Line Pressure Solenoid System
	P1746		Pressure Control Solenoid "A" Open Circuit
	P1747		Pressure Control Solenoid "A" Short Circuit
	P1748		EPC Malfunction
	P1749		Pressure Control Solenoid Failed Low
	P1751		Shift Solenoid A Performance
	P1754		Coast Clutch Solenoid Circuit Malfunction
	P1755		Intermediate Speed Sensor (ISS) Malfunction
	P1756		Shift Solenoid B Performance
	P1760		Pressure Control Solenoid "A" Short Circuit
	P1761		Shift Solenoid C Performance
	P1762		Overdrive Band Failed Off
	P1765		Timing Solenoid Circuit Malfunction
	P1767		Torque Converter Clutch Circuit Malfunction
	P1768		Performance / Normal / Winter Mode Input Malfunction

Repair Assistance Knowledge Base

	P1769		AG4 Transmission Torque Modulation Fault
	P1770		Clutch Solenoid Circuit Malfunction
	P1775		Transmission System MIL Fault
	P1776		Ignition Retard Request Duration Fault
	P1777		Ignition Retard Request Circuit Fault
	P1778		Transmission Reverse I/P Circuit Malfunction
	P1779		TCIL Circuit Malfunction
	P1780		Trans Control Switch (O/D Cancel) Out of Self Test Range
	P1781		4X4 Switch Out of Self Test Range
	P1782		P/ES Circuit Out Of Self Test Range
	P1783		Transmission Overtemperature Condition
	P1784		Transmission Mechanical Failure - First And Reverse
	P1785		Transmission Mechanical Failure - First And Second
	P1786		3-2 Downshift Error
	P1787		2-1 Downshift Error
	P1788		Pressure Control Solenoid "B" Open Circuit
	P1789		Pressure Control Solenoid "B" Short Circuit
	P1790		TP (Mechanical) Circuit Malfunction
	P1791		TP (Electric) Circuit Malfunction
	P1792		Barometer Pressure Circuit Malfunction
	P1793		Intake Air Volume Circuit Malfunction
	P1794		Battery Voltage Circuit Malfunction
	P1795		Idle Switch Circuit Malfunction
	P1796		Kick Down Switch Circuit Malfunction
	P1797		Neutral Switch Circuit Malfunction
	P1798		Coolant Temperature Circuit Malfunction
	P1799		Hold Switch Circuit Malfunction
	P1800		Transmission Clutch Interlock Safety Switch Circuit Failure
	P1801		Transmission Clutch Interlock Safety Switch Open Circuit
	P1802		Transmission Clutch Interlock Safety Switch Short Circuit To Battery
	P1803		Transmission Clutch Interlock Safety Switch Short Circuit To Ground
	P1804		Transmission 4-Wheel Drive High Indicator Circuit Failure
	P1805		Transmission 4-Wheel Drive High Indicator Open Circuit
	P1806		Transmission 4-Wheel Drive High Indicator Short Circuit To Battery

Repair Assistance Knowledge Base

	P1807		Transmission 4-Wheel Drive High Indicator Short Circuit To Ground
	P1808		Transmission 4-Wheel Drive Low Indicator Circuit Failure
	P1809		Transmission 4-Wheel Drive Low Indicator Open Circuit
	P1810		TFP Valve Position Switch Circuit/ Transmission 4-Wheel Drive Low Indicator Short Circuit To Battery
	P1811		Transmission 4-Wheel Drive Low Indicator Short Circuit To Ground
	P1812		Transmission 4-Wheel Drive Mode Select Circuit Failure
	P1813		Transmission 4-Wheel Drive Mode Select Open Circuit
	P1814		Transmission 4-Wheel Drive Mode Select Short Circuit To Battery
	P1815		Transmission 4-Wheel Drive Mode Select Short Circuit To Ground
	P1816		Transmission Neutral Safety Switch Circuit Failure
	P1817		Transmission Neutral Safety Switch Open Circuit
	P1818		Transmission Neutral Safety Switch Short Circuit To Battery
	P1819		Transmission Neutral Safety Switch Short Circuit To Ground
	P1820		Transmission Transfer Case Clockwise Shift Relay Coil Circuit Failure
	P1821		Transmission Transfer Case Clockwise Shift Relay Coil Open Circuit
	P1822		Transmission Transfer Case Clockwise Shift Relay Coil Short Circuit To Battery
	P1823		Transmission Transfer Case Clockwise Shift Relay Coil Short Circuit To Ground
	P1824		Transmission 4-Wheel Drive Clutch Relay Circuit Failure
	P1825		Transmission 4-Wheel Drive Clutch Relay Open Circuit
	P1826		Transmission 4-Wheel Drive Low Clutch Relay Circuit To Battery
	P1827		Transmission 4-Wheel Drive Low Clutch Relay Circuit To Ground
	P1828		Transmission Transfer Case Counter Clockwise Shift Relay Coil Circuit Failure
	P1829		Transmission Transfer Case Counter Clockwise Shift Relay Coil Open Circuit

Repair Assistance Knowledge Base

	P1830		Transmission Transfer Case Counter Clockwise Shift Relay Coil Short Circuit To Battery
	P1831		Transmission Transfer Case Counter Clockwise Shift Relay Coil Short Circuit To Ground
	P1832		Transmission Transfer Case Differential Lock-Up Solenoid Circuit Failure
	P1833		Transmission Transfer Case Differential Lock-Up Solenoid Open Circuit
	P1834		Transmission Transfer Case Differential Lock-Up Solenoid Short Circuit To Battery
	P1835		Transmission Transfer Case Differential Lock-Up Solenoid Short Circuit To Ground
	P1836		Transmission Transfer Case Front Shaft Speed Sensor Circuit Failure
	P1837		Transmission Transfer Case Rear Shaft Speed Sensor Circuit Failure
	P1838		Transmission Transfer Case Shift Motor Circuit Failure
	P1839		Transmission Transfer Case Shift Motor Open Circuit
	P1840		Transmission Transfer Case Shift Motor Short Circuit To Battery
	P1841		Transmission Transfer Case Shift Motor Short Circuit To Ground
	P1842		Transmission Transfer Case Differential Lock-Up Feedback Switch Circuit Failure
	P1843		Transmission Transfer Case Differential Lock-Up Feedback Switch Open Circuit
	P1844		Transmission Transfer Case Differential Lock-Up Feedback Switch Short Circuit To Battery
	P1845		Transmission Transfer Case Differential Lock-Up Feedback Switch Short Circuit To Ground
	P1846		Transmission Transfer Case Contact Plate 'A' Circuit Failure
	P1847		Transmission Transfer Case Contact Plate 'A' Open Circuit
	P1848		Transmission Transfer Case Contact Plate 'A' Short Circuit To Battery
	P1849		Transmission Transfer Case Contact Plate 'A' Short Circuit To Ground
	P1850		Transmission Transfer Case Contact Plate 'B' Circuit Failure
	P1851		Transmission Transfer Case Contact Plate 'B' Open Circuit

Repair Assistance Knowledge Base

	P1852		Transmission Transfer Case Contact Plate 'B' Short Circuit To Battery
	P1853		Transmission Transfer Case Contact Plate 'B' Short Circuit To Ground
	P1854		Transmission Transfer Case Contact Plate 'C' Circuit Failure
	P1855		Transmission Transfer Case Contact Plate 'C' Open Circuit
	P1856		Transmission Transfer Case Contact Plate 'C' Short Circuit To Battery
	P1857		Transmission Transfer Case Contact Plate 'C' Short Circuit To Ground
	P1858		Transmission Transfer Case Contact Plate 'D' Circuit Failure
	P1859		Transmission Transfer Case Contact Plate 'D' Open Circuit
	P1860		TCC PWM Solenoid Circuit Electrical/ Transmission Transfer Case Contact Plate 'D' Short Circuit To Battery
	P1861		Transmission Transfer Case Contact Plate 'D' Short Circuit To Ground
	P1862		Transmission Transfer Case Contact Plate Power Circuit Failure
	P1863		Transmission Transfer Case Contact Plate Power Open Circuit
	P1864		Transmission Transfer Case Contact Plate Power Short To Battery
	P1865		Transmission Transfer Case Contact Plate Power Short To Ground
	P1866		Transmission Transfer Case System Concern - Servicing Required
	P1867		Transmission Transfer Case Contact Plate General Circuit Failure
	P1868		Transmission Automatic 4-Wheel Drive Indicator (Lamp) Circuit Failure
	P1869		Transmission Automatic 4-Wheel Drive Indicator (Lamp) Circuit Short To Battery
	P1870		Transmission Component Slipping/ Transmission Mechanical Transfer Case 4x4 Switch Circuit Failure
	P1871		Transmission Mechanical Transfer Case 4x4 Switch Circuit Short To Battery
	P1872		Transmission Mechanical 4-Wheel Drive Axle Lock Lamp Circuit Failure

Repair Assistance Knowledge Base

	P1873		Transmission Mechanical 4-Wheel Drive Axle Lock Lamp Circuit Short To Battery
	P1874		Transmission Automatic Hall Effect Sensor Power Circuit Failure
	P1875		Transmission Automatic Hall Effect Sensor Power Circuit Short To Battery / 4WD Low Switch Circuit Electrical
	P1876		Transmission Transfer Case 2-Wheel Drive Solenoid Circuit Failure
	P1877		Transmission Transfer Case 2-Wheel Drive Solenoid Circuit Short To Battery
	P1878		Transmission Transfer Case Disengaged Solenoid Circuit Failure
	P1879		Transmission Transfer Case Disengaged Solenoid Open Circuit
	P1880		Transmission Transfer Case Disengaged Solenoid Short to Battery
	P1881		Engine Coolant Level Switch Circuit Failure, GEM
	P1882		Engine Coolant Level Switch Circuit Short to Ground
	P1883		Engine Coolant Level Switch Circuit Failure, GEM
	P1884		Engine Coolant Level Lamp Circuit Short to Ground
	P1885		Transmission Transfer Case Disengaged Solenoid Short to Ground
	P1886		4X4 Initialization Failure
	P1890		Transmission 4WD Mode Select Return Input Circuit Failure
	P1891		Transmission Transfer Case Contact Plate Ground Return Open Circuit
	P1900		OSS Circuit Intermittent Malfunction
	P1901		TSS Circuit Intermittent Malfunction
	P1902		Pressure Control Solenoid "B" Intermittent Short
	P1903		Pressure Control Solenoid "C" Short Circuit
	P1904		Pressure Control Solenoid "C" Open Circuit
	P1905		Pressure Control Solenoid "C" Intermittent Short
	P1906		Kickdown Pull Relay Open or Short Circuit to Ground
	P1907		Kickdown Hold Relay Open or Short Circuit to Ground
	P1908		Transmission Pressure Circuit Solenoid Open or Short to Ground
	P1909		Trans Temp Sensor Circuit Open or Shorted to Pwr or Gnd
	P1910		VFS A Pressure Output Failed Low
	P1911		VFS B Pressure Output Failed Low
	P1912		VFS C Pressure Output Failed Low

Repair Assistance Knowledge Base

	P1913		Pressure Switch A Circuit Malfunction	
	P1914		Manually Shifted Automatic (MSA) Sw Circuit Malf	
	P1915		Reverse Switch Circuit Malfunction	
	P1916		High Clutch Drum Speed Sensor Malfunction	
	P1917		High Clutch Drum Speed Sensor Intermittent	
	P1918		Transmission Range Display Circuit Malfunction	