

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)
			Faulty mass air flow sensor (MAF)
			Faulty EGR valve

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				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.

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		"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 playes, 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		Vehicle Type
		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		

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	P0109	Intake Air Temperature Circuit Malfunction
	P0110	IAT Circuit Malfunction
	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)

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	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)	
	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)	

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	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
	P0187	Fuel Temperature Sensor B Circuit Low Input
	P0188	Fuel Temperature Sensor B Circuit High Input
	P0189	Fuel Temperature Sensor B Circuit Intermittent

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	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

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	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

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	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)		
	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		

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	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)

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	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	

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	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
	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

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	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)
	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)

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	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
	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

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	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
	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

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	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
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	P0706	Transmission Range Sensor Circuit Range/Performance
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	P0718	Input/Turbine Speed Sensor Circuit Intermittent	
	P0719	Torque Converter/Brake Switch B Circuit Low	
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	P0721	Output Speed Sensor Range/Performance	
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	P1120	Ford	Throttle Position Sensor A Out Of Range Low (Ratch too low)	Taurus
	P1120	GM	Throttle Positioning Sensor 1 Circuit	
	P1120	Infiniti	Secondary Throttle Position Sensor Circuit	
	P1120	Mazda	TP Sensor Signal Out of Range Low	
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	P1128	Kia	Long Term Fuel Trim Multiplicative Air System High	
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	P1128	Mazda	Upstream HO2S Sensors Swapped (see P0040)	
	P1128	Porsche	O2S Range 2 Cyl. 1-3	
	P1128	Saab	Multiplicative Adaptation, Bank 1 Max. Value	
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	P1130	Chrysler	Fuel Rail Pressure Monitoring	
	P1130	Ford	Lack Of HO2S11 Switches - Fuel Trim At Limit	Mustang

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	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)	
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	P1131	Ford	Lack Of HO2S11 Switches - Sensor Indicates Lean (see P2195)	96 Contour
	P2195	Generic	O2 Sensor Signal Stuck Lean Bank 1 Sensor 1	Mustang
	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)	
	P1132	Chrysler	Fuel Pressure Regulator Offset Rationality	
	P1132	Ford	Lack Of HO2S11 Switches - Sensor Indicates Rich (see P2196)	Mustang
	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)	
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	P1133	BMW	O2 Sensor Heater Control Circuit (Bank 2 Sensor 1)	

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	P1133	GM	HO2S/O2S Insufficient Switching Sensor 1 Or Bank 1 Sensor 1	S10 P/U
	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	
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	P1134	BMW	O2 Sensor Heater Circuit Signal Intermittent (Bank 1 Sensor 1)	01 Z8
	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.	
	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	
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		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)	O2 Pathfinder
		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)	O2 Sonata
		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)	Mystique
		P2197	Generic	O2 Sensor Signal Stuck Lean Bank 2 Sensor 1	
		P1151	Mazda	Lack Of HO2S21 Switches - Sensor Indicates Lean (see P2197)	
		P1151	Subaru	HO2S-12 Heater Circuit High Input	
		P1161	BMW	Fuel Trim Adaptation Additive Bank 2 High	
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	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	Insight
	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	Insight
	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	3-Series
	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	
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	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	
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	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	Protégé
	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	01 Ram 1500
	P1281	Ford	Injection Control Pressure Sensor Circuit High	

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	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	Altima
	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	02 Cevy
	P1336	Honda	CSF Sensor Intermittent Interruption	99 Civic
	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	
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	P1337	Mazda	Throttle Position Output Circuit	
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	P1345	Audi	Ignition Coil Power Output Stage 3 Short	
	P1345	BMW	Misfire Cylinder 2 with Fuel Cut-Off	

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	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	
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	P1351	Ford	Ignition Diagnostic Monitor Input Circuit	F150
	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	Neon
	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	

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	P1397	BMW	Camshaft Position Sensor "B" Circuit (Bank 1)	
	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	
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	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	Taurus
	P1400	Hyundai	EGR System Monitor Malfunction	
	P1400	Infiniti	EGRC Solenoid/V	
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	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	01 Crown Vic
	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	

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	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	
	P1404	BMW	Heated Catalyst Current too High during Heating (Bank 2)	
	P1404	Ford	EGR Temperature Sensor Circuit	
	P1404	GM	EGR Valve Closed Pintle Position	Buick
	P1404	GM	EGR Valve Stuck Open Or Circuit Performance	Buick
	P1404	Honda	EGR Stuck Closed	
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	P1404	Mercedes	EGR Valve Vacuum Transducer	
	P1404	Saturn	EGR Closed Position Error (1997)	
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	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	Crown Vic
	P1406	GM	EGR Valve Pintle Position Circuit	Lumina
	P1406	Honda	EGR Valve Pintle Position Circuit	
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	P1406	Mazda	DPFE Sensor Downstream Hose Off Or Plugged	
	P1406	Saturn	EGR Pintle Position Error	Saturn SL
	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	SABLE
	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	

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	P1408	Volkswagen	EGR Temperature Sensor Signal Too High	
	P1409	Audi	EVAP Canister Purge Regulator Valve Electrical Malfunction	
	P1409	Ford	EGR Vacuum Regulator Solenoid Circuit	99 Crown Vic
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	P1423	BMW	Secondary Air System Bank 1	1997 - Z3
	P1423	Ford	Exhaust Gas Ignition Functional Test	
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	P1440	BMW	Purge Control Valve Control Circuit Signal High	
	P1440	Ford	EVAP System Leak Detected, Small Leak	Cougar
	P1440	Hyundai	EVAP System Vent Circuit Malfunction	
	P1440	Infiniti	EVAP Small Leak	
	P1440	Jaguar	Purge Valve Stuck Open	
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	P1440	Nissan	EVAP System Small Leak	
	P1440	Subaru	Fuel Tank Pressure System Range / Performance No. 1	
	P1440	Volkswagen	EGR Valve Power Stage Open	Beetle
	P1440	Volvo	Fuel Cap Missing	
	P1441	Acura	EVAP System Flow During Non-Purge Leakage Diagnostic Pump Control Open Circuit	
	P1441	BMW		
	P1441	GM	EVAP System Flow During Non-Purge	97 Pontiac
	P1441	Honda	EVAP System Flow During Non-Purge	
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	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	
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	P1443	Chrysler	EVAP Purge Control Solenoid 2 Circuit	
	P1443	Ford	Evaporative Emission System Control Valve (low/no flow)	Contour
	P1443	Hyundai	EVAP System Tank Cap Missing	
	P1443	Infiniti	EVAP Canister Control Vacuum Switch Circuit	
	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	Nissan
	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	98 Altima
	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	F 150
	P1450	Geo	Barometric Pressure Sensor Circuit	
	P1450	GM	BARO Sensor Circuit	

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	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	
	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	Sable
	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)	Insight
	P1456	Mazda	Fuel Tank Temperature Sensor Circuit	
	P1456	Porsche	A/C Control Signal	
	P1491	Acura	EGR valve Lift Insufficient Detected	1999 3.2TL
	P1491	Chrysler	Radiator fan relay control circuit	
	P1491	Ford	EVAP System Vacuum Cut Bypass Solenoid Malfunction	
	P1491	Honda	EGR valve Lift Insufficient Detected	1997 Honda
	P1491	Infiniti	VC Cut/V Bypass/V	
	P1491	Isuzu	EFG Valve Lift Insufficient Detected	
	P1491	Mazda	Secondary Switch Solenoid Circuit	
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	P1491	Subaru	PCV (Blow-by) malfunction	
	P1494	Chrysler	Leak detection pump pressure switch or mechanical fault	97 Caravan
	P1494	Ford	Split air cut valve solenoid	
	P1494	Mazda	SPCUT Solenoid Circuit	

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	P1494	Subaru	EGR signal 2 circuit (Low)	
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	P1504	BMW	Idle-Speed Control Valve Closing Solenoid Control Open Circuit	
	P1504	Ford	Idle Air Control Circuit	97 Aerostar
	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)	Explorer
	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)	Crown Vic
	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	
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	P1507	Volvo	IAC Valve Closing Signal	

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	P1519	Acura	Idle Air Control Valve Circuit Failure	
	P1519	Audi	Intake Cam Control Bank 1 Malfunction	
	P1519	BMW	A Camshaft Position Actuator Bank 1	
	P1519	Ford	Intake Manifold Runner Control Stuck Closed (Bank 1) (see P2006)	SABLE
	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	01 Sonata
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	P1537	Ford	Intake Manifold Runner Control Stuck Open (Bank 1) (see P2004)	Windstar
	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)	Windstar
	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	98 Jetta

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	P1651	Chrysler	MIL/Diagnostic Lamp via J1850 Bus	
	P1651	Ford	Power Steering Pressure Switch Input	
	P1651	GM	Fan 1 Relay Control Circuit	97 Pontiac
	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	
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	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	99 RODEO
	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)	2000 Ford
	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	
	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	

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		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	98 Catera
		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	1999 3.2TL
		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	Trensfer 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	Bonneville
		P1736	Mazda	Second Gear Switch Circuit Failure	
		P1744	BMW	Pressure Control Solenoid "A" Electrical	
		P1744	Chrysler	Torque Converter Lock-Up-Clutch Heat Control	
		P1744	Ford	Torque Converter Clutch Solenoid Circuit Performance	Ranger/Sable

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	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	97 Monterro
	P1757	Chrysler	Governor pressure is above 3 PSI when 0 PSI is requested	00 Jeep
	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	Altima
	P1760	Nissan	Overrun Clutch Solenoid Valve	Altima
	P1762	Chrysler	Governor pressure sensor offset improper voltage	Dodge P/U
	P1762	Ford	Overdrive Band Failed Off	
	P1762	Mazda	Transmission SS3/SS4/OD Band Fault	
	P1764	Chrysler	Governor pressure sensor voltage to low	Dodge P/U
	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	
	P1765	Toyota	Linear Shift Solenoid Circuit	TACOMA

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	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		00 Frontera
	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		SABLE
	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		Voyager
	P1782	Ford	Performance/Economy Switch Circuit Out Of Self Test Range		
	P1782	Porsche	Engine Engagement / Nominal Engine Torque		
	P1864	GM	TCC Enable Solenoid Circuit		Beretta
	P1870	Acura	Transmission Component Slipping		
	P1870	GM	Trans Component Slipping		Chevrolet
	P1870	Honda	Transmission Component Slipping		
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	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}		

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		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 }	S10 P/U
		P2196	Generic	O2 Sensor Signal Stuck Rich Bank 1 Sensor 1 { also P1132 }	Mustang
		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	
		P2580	Generic	Turbocharger Speed Sensor Circuit Low	
		P2580	Mazda	Turbocharger Speed Sensor Circuit Low	
		P3125	Toyota	SMR ASSY malfunction	Prius
		P3191	Toyota	Cruisecontrol vehicle sensor malfunction	Prius
		P3407	Ford	Cylinder 1 Deactivation/Intake Valve Control Circuit High	
		P3407	Ford	Cylinder 1 Exhaust Valve Control Circuit Low	

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	P3407	Generic	Cylinder 1 Exhaust Valve Control Circuit Low		
	P3407	Mazda	Cylinder 1 Exhaust Valve Control Circuit Low		
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	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 deifintions	Vehicle type
	P1100			MAF Sensor Intermittent/ Check of all OBDII Systems Not Complete	
	P1101			MAF Sensor Out Of Self Test Range./ 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	

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	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
	P1131	Lack Of HO2S Switch - Sensor Indicates Lean

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	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

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	P1183	Engine Oil Temperature Circuit Malfunction
	P1184	Engine Oil Temperature Out Of Self Test Range
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	P1194	ECU A/D Converter
	P1195	SCP HBCC Failed To Initialize
	P1196	Key Off Voltage High
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	P1198	Pump Rotor Control Underfueling
	P1199	Fuel Level Input Circuit Low
	P1200	Injector Control Circuit
	P1201	Injector Circuit Open / Shorted - Cylinder #1
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	P1203	Injector Circuit Open / Shorted - Cylinder #3
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	P1210	Injector Control Pressure Above Expected Level
	P1211	Injector Control Pressure Sensor Above / Below Desired
	P1212	Injector Control Pressure Not Detected During Crank
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	P1221		Traction Control System Malfunction
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	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
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	P1233		Fuel Pump Driver Module Off Line
	P1234		Fuel Pump Driver Module Off Line
	P1235		Fuel Pump Control Out Of Range
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	P1237		Fuel Pump Secondary Circuit Malfunction
	P1238		Fuel Pump Secondary Circuit Malfunction
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	P1240		Sensor Power Supply Malfunction
	P1241		Sensor Power Supply Low Input
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	P1243		Second Fuel Pump Faulty or Ground Fault
	P1244		Alternator Load Input Failed High
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	P1247		Turbo Boost Pressure Low
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	P1260	THEFT Detected, Vehicle Immobilized
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	P1353	Ignition Coil B Primary Circuit Malfunction
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	P1479	High Fan Control Primary Circuit Malfunction
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	P1500	Vehicle Speed Sensor Intermittent
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	P1505	Idle Air Control System At Adaptive Clip
	P1506	Idle Air Control Overspeed Error
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