Mini Mania Inc., on the web:

Limited technical information for the MSR is available online at:

www.new.minimania.com/msrtech.htm

Note: We have done our best to provide a high quality scan tool for the Mini at a very low cost. Unfortunately, the level of technical assistance we can provide is minimal. Please note that we are not staffed to answer questions about codes, diagnostics, or Mini problems or offer repair advice. We apologize for any inconvenience this may cause.

Warranty:

Warranty:
Mini Mania Inc. of Nevada City, CA., hereinafter called "Mini Mania Inc." warrants, to the original purchaser, that your model number MSR, Mini ScarvReset tool, hereinafter called "unit", is free from any defects in material and workmanship for a period not exceeding ninety days from the date of purchase. If any such defect is discovered within the warranty period, Mini Mania Inc. will repair or replace the unit free of charge, subject to verification of proof of purchase, and verification of the defect or malfunction upon delivery. This warranty does not apply to defects resulting from abuse, alterations, or unreasonable use of the unit; resulting in cracked or broken parts, or units damaged by excessive heat, cold, or moisture. This warranty does not apply to non-functional and cosmetic attributes of the unit such as color, finish, or labels. In no event does Mini Mania Inc. assume liability for any damage beyond the refund of the purchase price of the unit. This warranty is null and void if the unit has been disassembled, modified, or if the inner tamper seals are broken.

To process a warranty claim please contact the original seller for information & return authorization. All warranty claims must be accompanied by the original receipt. Warranty claims can only be processed by the original purchaser. This warranty is non-transferrable.

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Thank you for purchasing the MSR scanner/resetter for BMW Mini Cooper and Mini Cooper S. This product was designed to provide a long service life and ease of use at a low cost. In designing this product we went to great lengths to a saure comparability and safe operation with BMW Mini built up to 2004. As with any othware-based device, there is a risk that a small number of unique Engine ECU variants may not be compatible with this device. Mini Mania lor. class referent or as Mini Mania Inc. and any not be held liable for any problem resulting from incompatibilities. Addisonally, the code definitions contained in this manual should be regarded as a starting point for disposing a problem - the codes your Mini generates can othen be misleading, and there may be errors in our code definitions. Before spending your money on a regair, make sure you have a clear understanding of the problem by using addisonal sources of information, such as a good quality regair manual, seperat advice, the intermet, etc. Mini Mania lin. cm any to be held liable for any expenses you incur in response to the codes or instructions contained in this manual.

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General Information



Code-Scan/Reset Tool for Mini Cooper & Mini Cooper S

Instruction Manual & Code Tables

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WHERE TO PLUG IT IN

The Diagnostic Connector Location

To use the MSR you must plug it into the diagnostic connector. To locate the Diagnostic Connector, open the driver's door, kneel down and look up at the underside of the dashboard. You will see the diagnostic connector near the pedals, above the driver's left leg (see illustration below.) You will see a rectangular access panel, (often embossed with the letters OBD) with a rounded thumb grip you will use to snap it off. The cover will swing downward revealing the 16 pin diagnostic connector inside.



Under The dashboard: black arrow shows location of the diagnostic connector's protective cover.

MSR FACE PANEL

The MSR Face Panel Explained

- 1. Display: Shows menu selections, activity and fault codes.
- 2. Select button: Used to review and select the available functions. (See page 5)
- 3. GO button: After using "Select" to choose a function (see page 5). The GO button causes the function to execute.



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Making sense of the codes

IMPORTANT: Please read the following before using the MSR

Reading Five-Digit Codes using a Two-Digit Display:

The Mini stores and reports codes in a five digit format. The MSR has only two digits. To account for this we use a three frame display method. The tool automatically displays each frame for about a second then starts over. The following illustration shows an example code of "P1234."

This example shows code "P1234"

Frame 1 will always show " P"



The second and third frames contain the four numeric digits of the code, in this example "1234"



In this example the tool flashes P....12... 34 over and over again until "GO" is pressed, which then displays the next code.



When the MSR has reached the end of the code list stored in the Mini's ECU it will just display two dashes.



Press GO again to return to "FC"

After reading a code with the MSR, locate the correct code table for your Mini Cooper or Mini Cooper S (pages 7 though 13). Look up the code definition in the code table by locating the code (left column), and the definition (right column.)

DIRECTIONS

- Turn on key (DO NOT START ENGINE)
- Plug tool into diagnostic connector (see page 3 for description) Tool is ready to use when it displays "Fc".
- Use the "Select" button to select one of the functions shown below
- Press "GO" to execute the function

Function Reference

Fault Code Read. The tool automatically starts in this mode, (though it won't read the fault codes until you press the "GO" button). When GO is pressed the unit will attempt to read the fault codes. If there are no faults it will display "--". If it finds faults, it will display the first code found. Look up the code in the Table (see pages 6 through 13) for your Mini Model. To then view further faults press GO again, repeat until the end of the fault list - (tool will show "--"). Press GO to return to "Fc" (starting point.)

MIL Reset. (Resets "Check Engine" or "Service Engine Soon") When you have selected cE in the display, you are now ready to reset the MIL. "malfunction indicator lamp". Pressing GO will execute the reset. When finished it will return to "Fo". This clears all faults and extinguishes the MIL. To verify the reset, <u>UNPLUG</u> the tool and start the engine- MIL should be off. (Note: After a MIL reset on some models with Automatic Transmission, the Automatic Transmission Light will be on. To clear it, simply start the engine twice.)

Oilservice Reset. When you have selected oL in the display, you are now ready to reset the "oilservice" light. Pressing GO will execute the reset. During the reset procedure the display will count from 0 to 2. When finished the display will return to "Fc". Si indicator will indicate a successful reset when finished. (See page 14 for trouble shooting)

Inspection reset. When you have selected "in" in the display, you are now ready to reset the "inspection" light. Pressing GO will execute reset. During the reset procedure the display will count from 0 to 9. When finished the display will return to "Fc". Si indicator will indicate a successful reset when finished. (See page 14 for troubleshooting)

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CODE TABLES:

USE THESE CODE DEFINITIONS WISELY

The code definitions contained in this manual should be regarded as a starting point for diagnosing a problem. The codes that your Mini generates can be misleading. There may also be errors in this manual. Before spending your money on a repair or replacement parts, make sure you have a clear understanding of the problem by using additional sources of information, such as a good quality repair manual, expert advice, the internet, etc. Note: Unfortunately, we are not staffed to answer your questions about codes, diagnostics, or Mini problems or offer repair advice. We apologize for any inconvenience this may cause.

Mini Cooper			Sensor/Switch 'A' Circuit High
(See page 10 for Mini Cooper S table)		P0125	Insufficient Coolant Temperature for
(oce be	age to for with cooper o table)		Closed Loop Fuel Control
P0030	HO2S Heater Control Circuit (Bank	P0128	Coolant Thermostat (Coolant
F0030	1 Sensor 1)		Temperature Below Thermostat
P0031	HO2S Heater Control Circuit Low		Regulating Temperature)
P0031	(Bank 1 Sensor 1)	P0130	O2 Sensor Circuit (Bank 1 Sensor
P0032			1)
P0032	HO2S Heater Control Circuit High	P0131	O2 Sensor Circuit Low Voltage
Danna	(Bank 1 Sensor 1)		(Bank 1 Sensor 1)
P0036	HO2S Heater Control Circuit (Bank	O2 Sensor Circuit High Voltage	
	1 Sensor 2)		(Bank 1 Sensor 1)
P0037	HO2S Heater Control Circuit Low	P0133	O2 Sensor Circuit Slow Response
	(Bank 1 Sensor 2)		(Bank 1 Sensor 1)
P0038	HO2S Heater Control Circuit High	P0135	O2 Sensor Heater Circuit (Bank 1
	(Bank 1 Sensor 2)		Sensor 1)
P0053	HO2S Heater Resistance (Bank 1	P0136	O2 Sensor Circuit (Bank 1 Sensor
	Sensor 1)		2)
P0054	HO2S Heater Resistance (Bank 1	P0137	O2 Sensor Circuit Low Voltage
	Sensor 2)		(Bank 1 Sensor 2)
P0107	Manifold Absolute	P0138	O2 Sensor Circuit High Voltage
	Pressure/Barometric Pressure	10100	(Bank 1 Sensor 2)
	Circuit Low Input	P0141	O2 Sensor Heater Circuit (Bank 1
P0108	Manifold Absolute		Sensor 2)
	Pressure/Barometric Pressure	P0171	System Too Lean (Bank 1)
	Circuit High Input	P0172	System Too Rich (Bank 1)
P0112	Intake Air Temperature Sensor 1	P0201	Injector Circuit/Open - Cylinder 1
	Circuit Low	P0202	Injector Circuit/Open - Cylinder 1
P0113	Intake Air Temperature Sensor 1	P0202	Injector Circuit/Open - Cylinder 2
	Circuit High	P0204	Injector Circuit/Open - Cylinder 3
P0114	Intake Air Temperature Sensor 1	P0204	Throttle/Pedal Position
	Circuit Intermittent	PUZZZ	
P0116	Engine Coolant Temperature Circuit	Doggo	Sensor/Switch 'B' Circuit Low
	Range/Performance	P0223	Throttle/Pedal Position
P0117	Engine Coolant Temperature Circuit	DOGGA	Sensor/Switch 'B' Circuit High
	Low	P0261	Cylinder 1 Injector Circuit Low
P0118	Engine Coolant Temperature Circuit	P0262	Cylinder 1 Injector Circuit High
	High	P0264	Cylinder 2 Injector Circuit Low
P0119	Engine Coolant Temperature Circuit	P0265	Cylinder 2 Injector Circuit High
	Intermittent	P0267	Cylinder 3 Injector Circuit Low
P0122	Throttle/Pedal Position	P0268	Cylinder 3 Injector Circuit High
	Sensor/Switch 'A' Circuit Low	P0270	Cylinder 4 Injector Circuit Low
P0123	Throttle/Pedal Position	P0271	Cylinder 4 Injector Circuit High

			10.1		D1477	Leakage Diagnostic Pump Reed		Level 2/3 Motorised Throttle Control
P0300	Random/Multiple Cylinder Misfire Detected	P0652	High Sensor Reference Voltage 'B' Circuit		P14//	Switch Did Not Open		Engine Speed Limitation Error
P0301	Cylinder 1 Misfire Detected		Low		P1570	Electronic Control Module Sensor	P1692	Electronic Throttle Control Monitor Level 2/3 Motorised Throttle Control
P0302 P0303	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected	P0653	Sensor Reference Voltage 'B' Circuit High		P1571	Supply A Low Output Electronic Control Module Sensor		and Fuel Injection Switch Off 'A'
P0304	Cylinder 4 Misfire Detected	P0705	Transmission Range Sensor 'A'			Supply A High Output	P1693	Electronic Throttle Control Monitor
P0304	Cylinder 4 Misfire Detected	P0815	Circuit Malfunction (PRNDL Input) Upshift Switch Circuit		P1572	Electronic Control Module Sensor Supply A Noisy Signal		Level 2/3 Motorised Throttle Control and Fuel Injection Switch Off 'B'
P0304 P0313	Cylinder 4 Misfire Detected Misfire Detected with Low Fuel	P0816	Downshift Switch Circuit		P1573	Electronic Control Module Sensor	P1698	Transmission Control Module
P0324	Knock Control System Error	P1106	Manifold Air Pressure Sensor Too	(DATE	Supply B Low Output	P1699	Control Error Transmission Control Module
P0326	Knock Sensor Circuit Range/Performance	P1107	Low at Engine Stop Manifold Air Pressure Sensor Too	(P1574	Electronic Control Module Sensor Supply B High Output	F 1099	Checksum Error
P0335	Crankshaft Position Sensor 'A'	1 1107	Low at Idle Engine Running		P1575	Electronic Control Module Sensor	P1705	Transmission Control Module LED
	Circuit	P1108	Manifold Air Pressure Sensor Too		P1600	Supply B Noisy Signal External Control Module Random	P1706	Output Open Circuit Transmission Control Module LED
P0336	Crankshaft Position Sensor 'A' Circuit Range/Performance		Low at Full Load for Low Engine Speed		11000	Access Memory (RAM) Error		Output Short Circuit
P0340	Camshaft Position Sensor 'A' Circuit	P1109	Manifold Air Pressure Too High in		P1607	CAN-Version	P1739	Clutch Solenoid Communication
P0341	Camshaft Position Sensor 'A' Circuit	P1122	Deceleration Pedal Position Sensor 1 Low Input		P1611	Serial Communication Link Transmission Control Module	P1741	Error Clutch Solenoid Open Circuit
P0351	Range/Performance Ignition Coil 'A' Primary/Secondary	P1122	Pedal Position Sensor 1 High Input		P1612	Serial Communication Link	P1742	Clutch Solenoid Short Circuit
	Circuit	P1125	Throttle Position Sensor A and B		D4040	Instrument Pack Serial Communication Link ASC	P1749	Secondary Pressure Solenoid Communication Error
P0352	Ignition Coil 'B' Primary/Secondary	P1126	Range/Performance Small Error Throttle Position Sensor A and B		P1613	(Automatic Stability Control)	P1751	Secondary Pressure Solenoid Open
P0420	Circuit Catalyst System Efficiency Below	F1120	Range/Performance Large Error		P1615	Electronic Control Module Processor		Circuit
	Threshold (Bank 1)	P1143	O2 Sensor Activity Check Signal		P1617	SPI-Bus Failure Electronic Control Module H Bridge	P1752	Secondary Pressure Solenoid Short Circuit
P0441	Evaporative Emission System Incorrect Purge Flow	P1144	Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal		P1017	Controller	P1785	Transmission Ratio Control Actuator
P0442	Evaporative Emission System Leak		Too Low (Bank 1 Sensor 2)		P1679	Electronic Throttle Control Monitor		Circuit Malfunction
	Detected (small leak)	P1222	Pedal Position Sensor 2 Low Input		P1680	Level 2/3 Torque Loss Calculation Electronic Throttle Control Monitor	P1786	Transmission Ratio Control Actuator Circuit Range/Performance
P0443	Evaporative Emission System Purge Control Valve Circuit	P1223 P1224	Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2		11000	Level 2/3 ADC Processor Fault	P1787	Transmission Ratio Control Actuator
P0444	Evaporative Emission System Purge		Range/Performance Error		P1681	Electronic Throttle Control Monitor	D+700	Open Circuit
	Control Valve Circuit Open	P1226	Throttle Malfunction (Flap Malfunction)			Level 2/3 Engine Speed Calculation Error	P1788	Transmission Ratio Control Actuator Short Circuit
P0445	Evaporative Emission System Purge Control Valve Circuit Shorted	P1229	Throttle Sensor Adaptation Failure		P1682	Electronic Throttle Control Monitor	P1789	Transmission Ratio Control Actuator
P0455	Evaporative Emission System Leak	P1320	Flywheel Adaptation for Misfire			Level 2/3 Idle Speed 'A' Calculation	D101E	Communication Error Wheel Plus Switch Error Low Input
	Detected (large leak)	D1221	Detection Range		P1683	Fault Electronic Throttle Control Monitor	P1815 P1816	Wheel Minus Switch Error Low Input
P0456	Evaporative Emission System Leak Detected (very small leak)	P1321	Flywheel Adaptation for Misfire Detection Performance		. 1003	Level 2/3 Idle Speed 'B' Calculation	P2096	Post Catalyst Fuel Trim System Too
P0500	Vehicle Speed Sensor 'A'	P1366	Ignition Coil 'A' Primary/Secondary		Dies	Fault	P2097	Lean (Bank 1) Post Catalyst Fuel Trim System Too
P0506	Idle Air Control System RPM Lower Than Expected	P1367	Circuit Low Ignition Coil 'B' Primary/Secondary		P1684	Electronic Throttle Control Monitor Level 2/3 Clutch Torque Min Error	1 2031	Rich (Bank 1)
P0507	Idle Air Control System RPM Higher		Circuit Low		P1685	Electronic Throttle Control Monitor	P2122	Throttle/Pedal Position
	Than Expected	P1436	Leakage Diagnostic Pump Open	,	P1686	Level 2/3 Clutch Torque Max Error Electronic Throttle Control Monitor	P2123	Sensor/Switch 'D' Circuit Low Input Throttle/Pedal Position
P0601	Internal Control Module Memory Check Sum Error	P1437	Circuit Leakage Diagnostic Pump	(F 1686	Level 2/3 Pedal Position Sensor	. 2123	Sensor/Switch 'D' Circuit High Input
P0603	Internal Control Module Keep Alive	1.1307	Range/Performance	(Diagnostic Error	P2127	Throttle/Pedal Position
	Memory (KAM) Error	P1442	Leakage Diagnostic Pump Control		P1687	Electronic Throttle Control Monitor Level 2/3 Throttle Position Sensor	P2128	Sensor/Switch 'E' Circuit Low Input Throttle/Pedal Position
P0604	Internal Control Module Random Access Memory (RAM) Error	P1443	Circuit Signal Low Leakage Diagnostic Pump Control			Diagnostic Error		Sensor/Switch 'E' Circuit High Input
P0638	Throttle Actuator Control		Circuit Signal High		P1688	Electronic Throttle Control Monitor	P2138	Throttle/Pedal Position
00010	Range/Performance (Bank 1)	P1475	Leakage Diagnostic Pump Reed Switch Did not Close		P1689	Level 2/3 Mass Air Flow Calculation Electronic Throttle Control Monitor		Sensor/Switch 'D' / 'E' Voltage Correlation
P0642	Sensor Reference Voltage 'A' Circuit Low	P1476	Leakage Diagnostic Pump Clamped			Level 2/3 Torque Calculation Error	P2270	O2 Sensor Signal Stuck Lean (Bank
P0643	Sensor Reference Voltage 'A' Circuit		Tube		P1691	Electronic Throttle Control Monitor		1 Sensor 2)
		_					9	
	14	8					9	
P2271	O2 Sensor Signal Stuck Rich (Bank	P0116	Engine Coolant Temperature Circuit		P0301	Cylinder 1 Misfire Detected		Circuit Malfunction (PRNDL Input)
	1 Sensor 2)		Range/Performance		P0302	Cylinder 2 Misfire Detected	P0815	Upshift Switch Circuit
P2300	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low	P0117	Range/Performance Engine Coolant Temperature Circuit Low		P0302 P0303	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected	P0816	Upshift Switch Circuit Downshift Switch Circuit
	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control		Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit		P0302 P0303 P0304 P0313	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel	P0816 P1106	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop
P2300	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low	P0117	Range/Performance Engine Coolant Temperature Circuit Low		P0302 P0303 P0304 P0313 P0324	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error	P0816	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too
P2300 P2301 P2303	1 Sensor 2) Ignition Coli 'A' Primary Control Circuit Low Ignition Coli 'A' Primary Control Circuit High Ignition Coli 'B' Primary Control Circuit Low	P0117 P0118 P0119	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent		P0302 P0303 P0304 P0313	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel	P0816 P1106	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop
P2300 P2301	Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control	P0117 P0118	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position		P0302 P0303 P0304 P0313 P0324	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A'	P0816 P1106 P1107	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine
P2300 P2301 P2303	1 Sensor 2) Ignition Coli 'A' Primary Control Circuit Low Ignition Coli 'A' Primary Control Circuit High Ignition Coli 'B' Primary Control Circuit Low	P0117 P0118 P0119	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent	1	P0302 P0303 P0304 P0313 P0324 P0326	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit	P0816 P1106 P1107 P1108	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed
P2300 P2301 P2303 P2304	Sensor 2) Ingrition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control	P0117 P0118 P0119 P0122 P0123	Range/Performance Ingine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High		P0302 P0303 P0304 P0313 P0324 P0326 P0335	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance	P0816 P1106 P1107 P1108 P1109	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration
P2300 P2301 P2303 P2304 P2400	Sensor 2) Ignition Coll 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open	P0117 P0118 P0119 P0122	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for	1	P0302 P0303 P0304 P0313 P0324 P0326 P0335 P0336	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit	P0816 P1106 P1107 P1108 P1109 P1122	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input
P2300 P2301 P2303 P2304	Sensor 2) Ingrition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control	P0117 P0118 P0119 P0122 P0123	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant	1	P0302 P0303 P0304 P0313 P0324 P0326 P0335	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit	P0816 P1106 P1107 P1108 P1109 P1122 P1123	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input
P2300 P2301 P2303 P2304 P2400	Sensor 2) Ignition Coll 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control System Syste	P0117 P0118 P0119 P0122 P0123 P0125	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat	1	P0302 P0303 P0304 P0313 P0324 P0326 P0335 P0336	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coll 'A' Primary/Secondary	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error
P2300 P2301 P2303 P2304 P2400 P2401 P2402	Sensor 2) Ingrition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Detection Pump Control Circuit High	P0117 P0118 P0119 P0122 P0123 P0125 P0128	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature)	1	P0302 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0351	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Lamshaft Position Sensor 'A' Circuit Range/Performance Lamshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit	P0816 P1106 P1107 P1108 P1109 P1122 P1123	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B
P2300 P2301 P2303 P2304 P2400 P2401	Sensor 2) Ignition Coll 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit	P0117 P0118 P0119 P0122 P0123 P0125 P0128	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttie/Pedal Position Sensor/Switch 'A' Circuit Low Throttie/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1)	1	P0302 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coll 'A' Primary/Secondary	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Prottile Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal
P2300 P2301 P2303 P2304 P2400 P2401 P2402	1 Sensor 2) Ignition Coll 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak	P0117 P0118 P0119 P0122 P0123 P0125 P0128	Range/Performance Ingine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage	1	P0302 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0351	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Lamshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Lipsh Input Throttle Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error Q2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2)
P2300 P2301 P2303 P2304 P2400 P2401 P2402	Sensor 2) Ignition Coll 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit	P0117 P0118 P0119 P0122 P0123 P0125 P0128	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) 02 Sensor Circuit Low Voltage (Bank 1 Sensor 1) 02 Sensor Circuit Ligh Voltage (Deserved Coolant Coolant) Coolant	1	P0302 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0351 P0352	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Circuit Circuit Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Catalyst System Efficiency Below Threshold (Bank 1)	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Prottile Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal
P2300 P2301 P2303 P2304 P2400 P2401 P2402	Sensor 2) Ignition Coll 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131	Range/Performance Ingine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1)		P0302 P0303 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0351 P0352 P0420	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Centrol System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Prottle Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error Q2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) Q2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Q2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Q2 Pedal Position Sensor 2 Low Input
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404	1 Sensor 2) I Primary Control Circuit High I Ignition Coil 'A' Primary Control Circuit High I Ignition Coil 'B' Primary Control Circuit Low I Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response		P0302 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0351 P0352	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected Misfire Detected with Low Euel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Leak	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Lipy Input
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404	Sensor 2) Ignition Coll 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit Low Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Clout (Bank 1	1	P0302 P0303 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0351 P0352 P0420	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Centrol System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Prottle Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error Q2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) Q2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Q2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Q2 Pedal Position Sensor 2 Low Input
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404	1 Sensor 2) I Primary Control Circuit High I Ignition Coil 'A' Primary Control Circuit High I Ignition Coil 'B' Primary Control Circuit Low I Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Heater Circuit (Bank 1 Sensor 1)	1	P0302 P0303 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0352 P0420 P0441 P0442 P0443	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuits Evaporative Emission System Purge Control Valve Circuit	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 1 Ligh Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030	1 Sensor 2) I Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit (Bank 1 Sensor 1)	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135 P0136	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) 02 Sensor Circuit (Bank 1 Sensor 1) 02 Sensor Circuit High Voltage (Bank 1 Sensor 1) 02 Sensor Circuit Slow Response (Bank 1 Sensor 1) 02 Sensor Circuit (Bank 1 Sensor 1) 02 Sensor Heater Circuit (Bank 1 Sensor 1) 02 Sensor Heater Circuit (Bank 1 Sensor 1) 02 Sensor Circuit (Bank 1 Sensor 1) 02 Sensor Circuit (Bank 1 Sensor 1)	1	P0302 P0303 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0351 P0352 P0420 P0441	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Lative System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Leak Detected (small leak) Evaporative Emission System Purge Control Valve Circuit Evaporative Emission System Purge Control Valve Circuit	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error Q2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) Q2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 I and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction)
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404	1 Sensor 2) I Sensor 3) I Sensor 3) I Sensor 1) I Sensor 1 Sensor 1	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Heater Circuit (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 1)	1	P0302 P0303 P0303 P0304 P0313 P0324 P0326 P0335 P0336 P0340 P0341 P0352 P0420 P0441 P0442 P0443	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Lignition Coil 'A' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Evaporative Emission System Purge Control Valve Circuit Open Evaporative Emission System Purge	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1143 P1144 P1222 P1223 P1224	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Fallure Secondary Upstream Manifold Air
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030	1 Sensor 2) I Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit (Bank 1 Sensor 1) HO2S Heater Control Circuit Low (Bank 1 Sensor 1)	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135 P0136 P0137	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2)	1	P0302 P0303 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0444	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected Misfire Detected with Low Fuel Knock Centrol System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'A' Primary/Secondary Circuit Lignition Coil 'B' Primary/Secondary Lignition Coil 'B' P	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226 P1229 P1237	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error Q2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) Q2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Q2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2 Low Input Pedal Position Sensor 3 Low Input Pedal Position Sensor 3 Low Input Pedal Position Sensor 4 Low Input Pedal Position Sensor 5 Low Input Pedal Position Sensor 6 Low Input Pedal Position Sensor 1 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 1 Low Input Pedal Posit
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032	1 Sensor 2) I Sensor 3) I Sensor 1) I HO2S Heater Control Circuit Low (Bank 1 Sensor 1) I HO2S Heater Control Circuit High I Sensor 1) I HO2S Heater Control Circuit High I Sensor 1) I HO2S Heater Control Circuit High I HO2S Heater Control Circuit High I Gank 1 Sensor 1) I HO2S Heater Control Circuit High I Gank 1 Sensor 1) I HO2S Heater Control Circuit High I Gank 1 Sensor 1) I HO2S Heater Control Circuit High I Gank 1 Sensor 1) I HO2S Heater Control Circuit High I Gank 1 Sensor 1) I Sensor 1 Sensor	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2)		P0302 P0303 P0304 P0313 P0326 P0335 P0336 P0336 P0341 P0351 P0352 P0420 P0441 P0442 P0443	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Leak Detected (small leak) Evaporative Emission System Purge Control Valve Circuit Open Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226 P1229	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Fallure Secondary Upstream Manifold Air
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031	1 Sensor 2) I Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit (Bank 1 Sensor 1) HO2S Heater Control Circuit Low (Bank 1 Sensor 1)	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135 P0136 P0137	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1	1	P0302 P0303 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0444	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Euel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Open Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Leak	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226 P1229 P1237	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error OZ Sensor Activity Check Signal Too High (Bank 1 Sensor 2) OZ Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 1 and 2 Pedal Position Sensor 2 Low Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor High Input
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032	1 Sensor 2) I sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 1) HO2S Heater Control Circuit (Bank 1 Sensor 2) HO2S Heater Control Circuit (Bank	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2)		P0302 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0445 P0455	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Lagnition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Evaporative Emission System Purge Control Valve Circuit Open Control Valve Circuit Open Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Leak Detected (very small leak)	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226 P1229 P1237 P1238	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Input Pressure Sensor High Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037	1 Sensor 2) I Sensor 3) I Sensor 3) I Sensor 1) I HO2S Heater Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit (Bank 1 Sensor 2)	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135 P0136 P0137 P0138 P0141 P0171	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) 02 Sensor Circuit (Bank 1 Sensor 1) 02 Sensor Circuit Low Voltage (Bank 1 Sensor 1) 02 Sensor Circuit High Voltage (Bank 1 Sensor 1) 02 Sensor Circuit Slow Response (Bank 1 Sensor 1) 02 Sensor Circuit (Bank 1 Sensor 2) 02 Sensor Circuit Low Voltage (Bank 1 Sensor 1) 02 Sensor Circuit High Voltage (Bank 1 Sensor 2) 02 Sensor Circuit Low Voltage (Bank 1 Sensor 2) 02 Sensor Circuit Low Voltage (Bank 1 Sensor 2) 02 Sensor Circuit High Voltage (Bank 1 Sensor 2) 02 Sensor Circuit High Voltage (Bank 1 Sensor 2) 02 Sensor Circuit High Voltage (Bank 1 Sensor 2) 02 Sensor Circuit High Voltage (Bank 1 Sensor 2) 02 Sensor Circuit High Voltage (Bank 1 Sensor 2) 03 Sensor Circuit High Voltage (Bank 1 Sensor 2) 04 Sensor Circuit High Voltage (Bank 1 Sensor 2) 05 Sensor Circuit High Voltage (Bank 1 Sensor 2) 05 Sensor Circuit High Voltage (Bank 1 Sensor 2)	1	P0302 P0303 P0303 P0304 P0313 P0326 P0336 P0336 P0340 P0341 P0352 P0420 P0441 P0442 P0443 P0444 P0445	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance India Compart (A) Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance India Sensor 'A' Circuit Range/Performance India Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Camshaft Position Sensor 'A' Circuit Canshaft Position Sensor 'A' Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Leak Detected (small leak) Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Leak Detected (very small leak) Vehicle Speed Sensor 'A' User Control System RPM Lower	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226 P1229 P1237 P1238	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Pedal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Ligh Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038	1 Sensor 2) I HO2S Heater Control Circuit High (Bank 1 Sensor 1) I HO2S Heater Control Circuit High (Bank 1 Sensor 2) I HO2S Heater Control Circuit High I Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2) I HO2S Heater Control Circuit (Bank I Sensor 2) I HO2S Heater Control Circuit (Bank I Sensor 2) I HO2S Heater Control Circuit (Bank I Sensor 2) I HO2S Heater Control Circuit (Bank I Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2) I HO2S Heater Control Circuit Low (Bank 1 Sensor 2)	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0171 P0172 P0201	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2)	1	P0302 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0445 P0455 P0456 P0500 P0500	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'A' Primary/Secondary Circuit Lignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Evaporative Emission System Purge Control Valve Circuit Open Control Valve Circuit Cypen Control Valve Circuit Cypen Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Leak Detected (very small leak) Vehicle Speed Sensor 'A' Idle Air Control System RPM Lower Than Expected	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1222 P1223 P1224 P1226 P1229 P1237 P1238 P1238	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor High Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle
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2) HO2S Heater Resistance (Bank 1 Sensor 3) HO2S Heater Resistance (Bank 1	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0171 P0172 P0202 P0203 P0203	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 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Circuit High Voltage (Bank 1 Sensor 2) O5 Sensor Circuit High Voltage (Bank 1 Sensor 2) O6 Sensor Circuit High Voltage (Bank 1 Sensor 2) O7 Sensor Circuit High Voltage (Bank 1 Sensor 2) O8 Sensor Circuit High Voltage (Bank 1 Sensor 2) O9 Se		P0302 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0445 P0455 P0456 P0500 P0500 P0507	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected Misfire Detected With Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coll 'A' Primary/Secondary Circuit Ignition Coll 'A' Primary/Secondary Circuit Ignition Coll 'B' Primary/Secondary Circuit Ugnition Coll 'B' Primary/Secondary Circuit Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Copen Control Valve Circuit Copen Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (Iarge leak) Evaporative Emission System Leak Detected (Iarge leak) Evaporative Emission System Leak Detected (Iarge leak) Evaporative Emission System Rem Lower Than Expected Idle Air Control System RPM Higher Than Expected Idle Air Control System RPM Higher Than Expected Idle Air Control Module Memory	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226 P1237 P1238 P1239 P1239	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error 02 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) 02 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Fallure Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Full
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054	1 Sensor 2) I Sensor 3) I Sensor 1) I Cas Heater Control Circuit High (Bank 1 Sensor 1) I Sensor 3) I Sensor 3) I Sensor 4) I Sensor 5) I Sensor 6 I Sensor 6 I Sensor 7) I Sensor 8 I Sensor 9 I HO2S Heater Control Circuit Low (Bank 1 Sensor 1) I Sensor 1 I Sensor 2 I HO2S Heater Resistance (Bank 1 I Sensor 1) I HO2S Heater Resistance (Bank 1 I Sensor 2) I HO2S Heater Resistance (Bank 1 I Sensor 2)	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135 P0136 P0137 P0138 P0141 P0172 P0201 P0202 P0203 P0204 P0222 P0223	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Temperature for Closed Loop Fuel Control Coolant Temperature O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1 Sensor 2) System Too Lean (Bank 1) Injector Circuit/Open - Cylinder 1 Injector Circuit/Open - Cylinder 2 Injector Circuit/Open - Cylinder 3 Injector Circuit/Open - Cylinder 4 Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Throttle/Pedal Position Sensor/Switch 'B' Circuit High		P0302 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0444 P0445 P0455 P0456 P0500 P0500 P0507	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Identification Coil 'A' Primary/Secondary Circuit Range/Performance Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System RPM Lower Than Expected Internal Control Module Memory Check Sum Error Internal Control Module Random	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1144 P1222 P1223 P1224 P1223 P1224 P1229 P1237 P1240 P1241	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit (Bank 1 Sensor 2) HO2S Heater Control Circuit Low (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 2) Manifold Absolute Pressure/Barometric Pressure Circuit Low Input Manifold Absolute	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0171 P0172 P0202 P0203 P0204 P0222	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O3 Sensor Circuit High Voltage (Bank 1 Sensor 2) O3 Sensor Circuit High Voltage (Bank 1 Sensor 2) O4 Sensor Circuit High Voltage (Bank 1 Sensor 2) O5 Sensor Circuit High Voltage (Bank 1 Sensor 2) O6 Sensor Circuit High Voltage (Bank 1 Sensor 2) O7 Sensor Circuit High Voltage (Bank 1 Sensor 2) O8 Sensor Circuit High Voltage (Bank 1 Sensor 2) O9 Se		P0302 P0303 P0303 P0304 P0313 P0326 P0336 P0336 P0340 P0341 P0352 P0420 P0441 P0442 P0443 P0445 P0455 P0456 P0500 P0506 P0507 P0601 P0603 P0604	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'A' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Cypen Control Valve Circuit Cypen Control Valve Circuit Open Control Valve Circuit Open Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Spen Evaporative Emission System Purge Control Valve Circuit Spen Control Valve Circuit Spen Evaporative Emission System Purge Control Valve Circuit Spen Evaporative Emission System Ev	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1224 P1226 P1237 P1238 P1239 P1240	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054 P0107	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit Coil Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit Low (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit Low (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 2) Ho2S Heater Resistance	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0172 P0201 P0202 P0203 P0204 P0222 P0223 P0261 P0262 P0262	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Temperature for Closed Loop Fuel Control Coolant Temperature O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1 Sensor 2) System Too Lean (Bank 1) System Too Lean (Bank 1) Injector Circuit/Open - Cylinder 1 Injector Circuit/Open - Cylinder 3 Injector Circuit/Open - Cylinder 3 Injector Circuit/Open - Cylinder 4 Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Cylinder 1 Injector Circuit High Cylinder 1 Injector Circuit Low Cylinder 2 Injector Circuit Low		P0302 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0445 P0455 P0456 P0500 P0500 P0507 P0601 P0603 P0604 P0638	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Open Control Valve Circuit Open Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (very small leak) Vehicle Speed Sensor 'A' Idle Air Control System RPM Lower Than Expected Internal Control Module Memory Check Sum Error Internal Control Module Random Access Memory (RAM) Error Throttle Actuator Control Range/Performance (Bank 1)	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1144 P1222 P1223 P1224 P1223 P1224 P1229 P1237 P1240 P1241	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054 P0107	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit Company HO2S Heater Control Circuit High (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit Low (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 2) Manifold Absolute Pressure/Barometric Pressure Circuit Low Input Manifold Absolute Pressure/Barometric Pressure Circuit High Input Intake Air Temperature Sensor 1	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0171 P0172 P0201 P0202 P0203 P0204 P0222 P0261 P0262 P0265	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1) Injector Circuit/Open - Cylinder 1 Injector Circuit/Open - Cylinder 2 Injector Circuit/Open - Cylinder 4 Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Cylinder 1 Injector Circuit High Cylinder 2 Injector Circuit High Cylinder 2 Injector Circuit High Cylinder 2 Injector Circuit High		P0302 P0303 P0303 P0304 P0313 P0326 P0336 P0336 P0340 P0341 P0352 P0420 P0441 P0442 P0443 P0445 P0455 P0456 P0500 P0506 P0507 P0601 P0603 P0604	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance India Coli 'A' Primary/Secondary Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'B' Primary/Secondary Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Depen Evaporative Emission System Purge Control Valve Circuit Open Evaporative Emission System Purge Control Valve Circuit Open Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (Iarge leak) Evaporative Emission System Leak Detected (Iarge leak) Evaporative Emission System Leak Detected (Very small leak) Vehicle Speed Sensor 'A' Idle Air Control System RPM Lower Than Expected Internal Control Module Memory Check Sum Error Internal Control Module Keep Alive Memory (KAM) Error Internal Control Module Random Access Memory (RAM) Error Internal Control Module Random Access Merenory (RAM) Error Internal Control Module Random Access Memory (RAM) Error Internal Control Module Random Access Merenory (RAM) Error	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1222 P1223 P1224 P1226 P1229 P1237 P1238 P1240 P1240 P1241 P1242 P1242 P1242 P1241	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Ille Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Ille Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Ille Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054 P0107 P0108	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit Low (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 1) HO2S Heater Control Circuit (Bank 1 Sensor 2) HO2S Heater Control Circuit Low (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 2) Manifold Absolute Pressure/Barometric Pressure Circuit Low Input Manifold Absolute Pressure/Barometric Pressure Circuit High Input Intake Air Temperature Sensor 1 Circuit Low Input	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0171 P0202 P0203 P0204 P0222 P0223 P0261 P0262 P0265 P0267 P0268	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1 Injector Circuit/Open - Cylinder 1 Injector Circuit/Open - Cylinder 2 Injector Circuit/Open - Cylinder 3 Injector Circuit Low Cylinder 1 Injector Circuit Low Cylinder 1 Injector Circuit High Cylinder 2 Injector Circuit High Cylinder 3 Injector Circuit High		P0302 P0303 P0304 P0313 P0326 P0335 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0445 P0455 P0456 P0500 P0500 P0507 P0601 P0603 P0604 P0638	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Open Control Valve Circuit Open Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (very small leak) Vehicle Speed Sensor 'A' Idle Air Control System RPM Lower Than Expected Internal Control Module Memory Check Sum Error Internal Control Module Random Access Memory (RAM) Error Throttle Actuator Control Range/Performance (Bank 1)	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1224 P1223 P1224 P1226 P1237 P1238 P1239 P1239 P1240 P1241 P1242	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054 P0107 P0108 P0112 P0113	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit Low (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 2) Manifold Absolute Pressure/Barometric Pressure Circuit Low Input Manifold Absolute Pressure/Barometric Pressure Circuit High Input Intake Air Temperature Sensor 1 Circuit Low Intake Air Temperature Sensor 1	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0135 P0136 P0137 P0138 P0141 P0171 P0172 P0201 P0202 P0203 P0204 P0222 P0264 P0265 P0266 P0268 P0268 P0270	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage 1 Injector Circuit/Open - Cylinder 2 Injector Circuit/Open - Cylinder 4 Throttle/Pedal Position Sensor/Switch 'B' Circuit High Cylinder 2 Injector Circuit Low Cylinder 3 Injector Circuit High Cylinder 3 Injector Circuit High Cylinder 3 Injector Circuit Low Cylinder 4 Injector Circuit Low Cylinder 1 Injector Circuit High Cylinder 1 Injector Circuit Low Cylinder 1 Injector Circuit High Cylinder 3 Injector Circuit Low Cylinder 1 Injector Circuit High Cylinder 1 Injector Circuit High Cylinder 1 Injector Circuit High Cylinder 1 Injector Circuit Low Cylinder 1 Injector Circuit High Cylinder 1 Injector Circuit Low Cylinder 1 Injector Circuit High Cylinder 1 Injector Circuit Low Cylinder 1 Injector Circuit High		P0302 P0302 P0303 P0304 P0313 P0326 P0336 P0336 P0340 P0341 P0351 P0422 P0443 P0444 P0445 P0445 P0455 P0456 P0500 P0500 P0501 P0601 P0603 P0604 P0638 P0642 P0643	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance India Coli 'A' Primary/Secondary Circuit Carlsty Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System RPM Lower Than Expected Idle Air Control System RPM Higher Than Expected Idle Air Control System RPM Higher Than Expected Internal Control Module Memory Check Sum Error Internal Control Module Random Access Memory (RAM) Error Throttle Actuator Control Range/Performance (Bank 1) Sensor Reference Voltage 'A' Circuit Low Sensor Reference Voltage 'A' Circuit	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1222 P1223 P1224 P1226 P1229 P1237 P1238 P1240 P1240 P1241 P1242 P1242 P1242 P1241	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Ingine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Throttle Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error Oz Sensor Activity Check Signal Too High (Bank 1 Sensor 2) Oz Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Oz Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 High Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor Low Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at High Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Figh Deceleration Flywheel Adaptation for Misfire Detection Range
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054 P0107 P0108 P0112 P0113	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit (Bank 1 Sensor 1) HO2S Heater Control Circuit Low (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit Low (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 2) Manifold Absolute Pressure/Barometric Pressure Circuit Low Input Manifold Absolute Pressure/Barometric Pressure Circuit High Input Intake Air Temperature Sensor 1 Circuit High Input Intake Air Temperature Sensor 1	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0171 P0202 P0203 P0204 P0222 P0223 P0261 P0262 P0265 P0267 P0268	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature) O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1 System Too Lean (Bank 1) System Too Lean (Bank 1) Injector Circuit/Open - Cylinder 1 Injector Circuit/Open - Cylinder 1 Injector Circuit/Open - Cylinder 3 Injector Circuit Low Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Throttle/Pedal Position Sensor/Switch 'B' Circuit Low Cylinder 1 Injector Circuit High Cylinder 3 Injector Circuit Low Cylinder 4 Injector Circuit High Cylinder 5 (Injector Circuit High Cylinder 6 (Injector Circuit High Cylinder 8 (Injector Circuit High Cylinder 8 (Injector Circuit High Cylinder 9 (Injector Circuit High Cylinder 1 (Injector Circuit High Cylinder 8 (Injector Circuit High Cylinder 8 (Injector Circuit High Cylinder 9 (Injector Circuit High Cylinder 8 (Inje		P0302 P0302 P0303 P0304 P0313 P0326 P0336 P0336 P0340 P0341 P0351 P0420 P0441 P0442 P0443 P0444 P0445 P0455 P0500 P0500 P05007 P0601 P0603 P0604 P0638 P0642	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected Misfire Detected Misfire Detected With Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Ignition Coil 'A' Primary/Secondary Circuit Range/Performance Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Incorrect Purge Flow Evaporative Emission System Purge Control Valve Circuit Open Control Valve Circuit Open Control Valve Circuit Open Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Leak Detected (very small leak) Vehicle Speed Sensor 'A' Idle Air Control System RPM Lower Than Expected Internal Control Module Memory Check Sum Error Internal Control Module Reep Alive Memory (KAM) Error Internal Control Module Random Access Memory (RAM) Error Internal Control Module Random Access Memory	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1144 P1222 P1223 P1223 P1223 P1224 P1229 P1237 P1238 P1240 P1241 P1242 P1241 P1242 P1241 P1242 P1320 P1321 P1366	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Introttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Fallure Secondary Upstream Manifold Air Pressure Sensor Low Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too High in Deceleration Flywheel Adaptation for Misfire Detection Performance Ignition Coil "A' Primary/Secondary Circuit Low
P2300 P2301 P2303 P2304 P2400 P2401 P2402 P2404 Mini P0030 P0031 P0032 P0036 P0037 P0038 P0053 P0054 P0107 P0108 P0112 P0113	1 Sensor 2) Ignition Coil 'A' Primary Control Circuit Low Ignition Coil 'A' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Ignition Coil 'B' Primary Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit/Open Evaporative Emission System Leak Detection Pump Control Circuit Low Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Control Circuit High Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance Cooper S HO2S Heater Control Circuit Low (Bank 1 Sensor 1) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Control Circuit (Bank 1 Sensor 2) HO2S Heater Control Circuit High (Bank 1 Sensor 2) HO2S Heater Resistance (Bank 1 Sensor 1) HO2S Heater Resistance (Bank 1 Sensor 2) Manifold Absolute Pressure/Barometric Pressure Circuit Low Input Manifold Absolute Pressure/Barometric Pressure Circuit High Input Intake Air Temperature Sensor 1 Circuit Low Intake Air Temperature Sensor 1	P0117 P0118 P0119 P0122 P0123 P0125 P0128 P0130 P0131 P0132 P0133 P0136 P0137 P0138 P0141 P0172 P0201 P0202 P0203 P0261 P0262 P0223 P0264 P0265 P0268 P0270 P0268	Range/Performance Engine Coolant Temperature Circuit Low Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit High Engine Coolant Temperature Circuit Intermittent Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit Low Throttle/Pedal Position Sensor/Switch 'A' Circuit High Insufficient Coolant Temperature for Closed Loop Fuel Control Coolant Temperature for Closed Loop Fuel Control Coolant Temperature O2 Sensor Circuit (Bank 1 Sensor 1) O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) O2 Sensor Heater Circuit (Bank 1 Sensor 1) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) O2 Sensor Heater Circuit (Bank 1) Injector Circuit/Open - Cylinder 1 Injector Circuit/Open - Cylinder 3 Injector Circuit/Open - Cylinder 3 Injector Circuit/Open - Cylinder 4 Injector Circuit High Cylinder 1 Injector Circuit High Cylinder 2 Injector Circuit High Cylinder 3 Injector Circuit High Cylinder 4 Injector Circuit High Cylinder 6 Injector Circuit High Cylinder 7 Injector Circu		P0302 P0302 P0303 P0304 P0313 P0326 P0336 P0336 P0340 P0341 P0351 P0422 P0443 P0444 P0445 P0445 P0455 P0456 P0500 P0500 P0501 P0601 P0603 P0604 P0638 P0642 P0643	Cylinder 2 Misfire Detected Cylinder 3 Misfire Detected Cylinder 4 Misfire Detected Cylinder 4 Misfire Detected Misfire Detected with Low Fuel Knock Control System Error Knock Sensor Circuit Range/Performance Crankshaft Position Sensor 'A' Circuit Crankshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance India System Sensor 'A' Circuit Range/Performance Camshaft Position Sensor 'A' Circuit Range/Performance India System System System Circuit Ignition Coil 'B' Primary/Secondary Circuit Catalyst System Efficiency Below Threshold (Bank 1) Evaporative Emission System Leak Detected (small leak) Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Purge Control Valve Circuit Shorted Evaporative Emission System Leak Detected (large leak) Evaporative Emission System Leak Detected (very small leak) Vehicle Speed Sensor 'A' Idle Air Control System RPM Lower Than Expected Internal Control Module Memory Check Sum Error Internal Control Module Random Access Memory (RAM) Error Throttia Actuator Control Range/Performance (Bank 1) Sensor Reference Voltage 'A' Circuit Low Sensor Reference Voltage 'A' Circuit Low Sensor Reference Voltage 'B' Circuit	P0816 P1106 P1107 P1108 P1109 P1122 P1123 P1125 P1126 P1143 P1224 P1223 P1224 P1226 P1229 P1237 P1238 P1224 P1229 P1237 P1240 P1241 P1242 P1320 P1321 P1320 P1321 P1366 P1367 P1436	Upshift Switch Circuit Downshift Switch Circuit Manifold Air Pressure Sensor Too Low at Engine Stop Manifold Air Pressure Sensor Too Low at telle Engine Running Manifold Air Pressure Sensor Too Low at Idle Engine Running Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Manifold Air Pressure Too High in Deceleration Pedal Position Sensor 1 Low Input Pedal Position Sensor 1 High Input Protal Position Sensor 1 High Input Protal Position Sensor A and B Range/Performance Small Error Throttle Position Sensor A and B Range/Performance Large Error O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2) O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2) Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Low Input Pedal Position Sensor 2 Ligh Input Pedal Position Sensor 2 High Input Pedal Position Sensor 1 and 2 Range/Performance Error Throttle Malfunction (Flap Malfunction) Throttle Sensor Adaptation Failure Secondary Upstream Manifold Air Pressure Sensor High Input Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running Secondary Upstream Manifold Air Pressure Sensor Too Low at Hill Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Hill Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed
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P1442	Leakage Diagnostic Pump Control Circuit Signal Low	P1687	Electronic Throttle Control Monitor Level 2/3 Throttle Position Sensor
P1443	Leakage Diagnostic Pump Control		Diagnostic Error
	Circuit Signal High	P1688	Electronic Throttle Control Monitor
P1475	Leakage Diagnostic Pump Reed		Level 2/3 Mass Air Flow Calculation
	Switch Did not Close	P1689	Electronic Throttle Control Monitor
P1476	Leakage Diagnostic Pump Clamped		Level 2/3 Torque Calculation Error
	Tube	P1691	Electronic Throttle Control Monitor
P1477	Leakage Diagnostic Pump Reed Switch Did Not Open		Level 2/3 Motorised Throttle Control Engine Speed Limitation Error
P1570	Electronic Control Module Sensor	P1692	Electronic Throttle Control Monitor
	Supply A Low Output		Level 2/3 Motorised Throttle Control
P1571	Electronic Control Module Sensor		and Fuel Injection Switch Off 'A'
	Supply A High Output	P1693	Electronic Throttle Control Monitor
P1572	Electronic Control Module Sensor		Level 2/3 Motorised Throttle Control
	Supply A Noisy Signal		and Fuel Injection Switch Off 'B'
P1573	Electronic Control Module Sensor	P1698	Transmission Control Module
	Supply B Low Output		Control Error
P1574	Electronic Control Module Sensor	P1699	Transmission Control Module
	Supply B High Output		Checksum Error
P1575	Electronic Control Module Sensor	P1705	Transmission Control Module LED
	Supply B Noisy Signal		Output Open Circuit
P1600	External Control Module Random	P1706	Transmission Control Module LED
	Access Memory (RAM) Error		Output Short Circuit
P1607	CAN-Version	P1739	Clutch Solenoid Communication
P1611	Serial Communication Link		Error
	Transmission Control Module	P1741	Clutch Solenoid Open Circuit
P1612	Serial Communication Link	P1742	Clutch Solenoid Short Circuit
	Instrument Pack	P1749	Secondary Pressure Solenoid
P1613	Serial Communication Link ASC		Communication Error
	(Automatic Stability Control)	P1751	Secondary Pressure Solenoid Open
P1615	Electronic Control Module Processor	1000000	Circuit
	SPI-Bus Failure	P1752	Secondary Pressure Solenoid Short
P1617	Electronic Control Module H Bridge		Circuit
-250000	Controller	P1785	Transmission Ratio Control Actuator
P1679	Electronic Throttle Control Monitor		Circuit Malfunction
	Level 2/3 Torque Loss Calculation	P1786	Transmission Ratio Control Actuator
P1680	Electronic Throttle Control Monitor	201200	Circuit Range/Performance
	Level 2/3 ADC Processor Fault	P1787	Transmission Ratio Control Actuator
P1681	Electronic Throttle Control Monitor	and the same	Open Circuit
	Level 2/3 Engine Speed Calculation	P1788	Transmission Ratio Control Actuator
	Error	2000	Short Circuit
P1682	Electronic Throttle Control Monitor	P1789	Transmission Ratio Control Actuator
	Level 2/3 Idle Speed 'A' Calculation		Communication Error
E0000	Fault	P1815	Wheel Plus Switch Error Low Input
P1683	Electronic Throttle Control Monitor	P1816	Wheel Minus Switch Error Low Input
	Level 2/3 Idle Speed 'B' Calculation	P2096	Post Catalyst Fuel Trim System Too
11255500	Fault		Lean (Bank 1)
P1684	Electronic Throttle Control Monitor	P2097	Post Catalyst Fuel Trim System Too
	Level 2/3 Clutch Torque Min Error	00405	Rich (Bank 1)
P1685	Electronic Throttle Control Monitor	P2122	Throttle/Pedal Position
	Level 2/3 Clutch Torque Max Error	DOLOG	Sensor/Switch 'D' Circuit Low Input
P1686	Electronic Throttle Control Monitor	P2123	Throttle/Pedal Position
	Level 2/3 Pedal Position Sensor		Sensor/Switch 'D' Circuit High Input

Often a malfunctioning module (i.e. DME, EGS/transmission, ABS traction control, etc...) can impair or "hang" the diagnostic bus.

P2127 Throttle/Pedal Position

6.) Power resetting of all modules (entire car)

Diagnostic Error

Note: before doing this procedure, get your radio security code from the dealer.

- a.) Disconnect the main car battery.
- Activate the emergency flasher lights (this will fully drain all power from all ECUs) wait 5 minutes
- c.) Reconnect the main battery and try the tool again.

7.) Module Troubleshooting: If you suspect a particular module is malfunctioning or damaged, you may wish to consult repair documentation for the car (see page 1) and attempt to isolate the problem by removing the module from the diagnostic bus. WARNING: This procedure is for qualified mechanics only.

8.) The Dealer

Visit your local Mini dealership. The MSR will not serve it's intended purpose if the diagnostic bus is impaired by a malfunctioning control module. If one of the modules is inhibiting communications it is necessary to visit a Mini dealer or qualified repair facility to diagnose and fix/replace the bad module.

Tool will not reset other lights: The MSR would not reset the brake lining light, the SRS/airbag light, or the ABS brake light. • The MSR only resets the Check engine, Service Engine Soon, Oilservice and Inspection lights.

Service Light reset fails: Some Minis will not reset prior to the illumination of the service light ("Oilservice or Inspection"). In all cases we advise you to wait for the service light to come on before attempting a reset. In other words, if there is any "countdown" remaining, do not attempt a reset.

Sources of Technical Information:

BMW/Mini: Pay-by-use technical information can be obtained online directly from BMW at http://www.minitechinfo.com/ Fees start at \$20 per day.

Manual Publishers (All may not publish manuals for late model Mini Coopers.)

Robert Bentley Publishing: 1-800-423-4595 Alldata: 1-800-859-3282 Chiltons: 1-800-695-1214	Mitchells: 888-724-6742 Haynes: 1-800-442-9637
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Recommended Reading: • Bosch Automotive Handbook, by Robert Bosch, ISBN: 0837606144 • Bosch Fuel Injection and Engine Management, by Charles O. Probst. ISBN: 0837603005.

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	Sensor/Switch 'E' Circuit Low Input		Circuit Low
P2128	Throttle/Pedal Position	P2304	Ignition Coil 'B' Primary Control
	Sensor/Switch 'E' Circuit High Input		Circuit High
P2138	Throttle/Pedal Position	P2400	Evaporative Emission System Leak
	Sensor/Switch 'D' / 'E' Voltage		Detection Pump Control
	Correlation		Circuit/Open
P2270	O2 Sensor Signal Stuck Lean (Bank	P2401	Evaporative Emission System Leak
	1 Sensor 2)		Detection Pump Control Circuit Low
P2271	O2 Sensor Signal Stuck Rich (Bank	P2402	Evaporative Emission System Leak
	1 Sensor 2)		Detection Pump Control Circuit High
P2300	Ignition Coil 'A' Primary Control	P2404	Evaporative Emission System Leak
			Detection Pump Sense Circuit
P2301			Range/Performance
. 2001			ranger enemane
Poana			
	P2138	Sensor/Switch 'E' Circuit High Input P2138 Throttle/Pedal Position Sensor/Switch 'D' /E' Voltage Correlation P2270 O2 Sensor Signal Stuck Lean (Bank 1 Sensor 2) P2271 O2 Sensor Signal Stuck Rich (Bank 1 Sensor 2) P2300 Ignition Coil 'A' Primary Control Circuit Low P2301 Ignition Coil 'A' Primary Control Circuit High	P2128 Throttle/Pedal Position P2304 Sensor/Switch 'E' Circuit High Input P2400 P2138 Throttle/Pedal Position P2400 Sensor/Switch 'D' / 'E' Voltage Correlation P2401 P2270 O2 Sensor Signal Stuck Lean (Bank 1 Sensor 2) P2401 P2271 O2 Sensor Signal Stuck Rich (Bank 1 Sensor 2) P2402 P2301 Ignition Coil 'A' Primary Control Circuit Low P2404 P2301 Ignition Coil 'A' Primary Control Circuit High P2404

Appendix

Common Problems /Troubleshooting

Flashing E message on tool:

Occasionally the MSR will flash "E" when an attempt is made to read codes or reset the MIL light (Check Engine or Service Engine Soon). "E" means the car is not responding to the tool: This happens when the data line (also called "diagnostic bus") inside the car is "hung" or disabled.

Things to try to resolve the "E" error message:

- Insertion Depth: Check the insertion of the MSR into the diagnostic connector.
 If it is not fully inserted the unit will not work.
- 2.) Reversing the power-up sequence: Plug in the MSR first, THEN turn on the ignition key. This is the opposite of the routine specified by the manual and the tool label. This procedure has proven very effective on some cars.
- Cycle power: Plug in tool, cycle the ignition key on and off two or three times (do not start engine)
- 4.) Other warning lights: Observe that no other malfunction indicator lights are on.

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Glossary:

A/C = Air conditioner ABS = Anti-lock Brake System ASC = Skid control (see "Intervention") ADS = Aux Throttle Position Motor AHK = Active Rear Axle Kinematics BLS = Brake Light Switch Check Engine Light: on the dashboard, indicates the DME has detected a problem CC = Check control CO = Carbon Monoxide DDE = ECU for Diesel Engine Diagnostic Connector: Where the MSR plugs into the car. See page 3. DISA =intake runner length tuning mechanism DME = Engine ECU (Gasoline engine): monitors and controls all engine sensors and functions DSC = Dynamic Stability Control DWA = Alarm system E = Communications error: See "Flashing E EGS = Electronic Automatic Transmission EKAT = Electrically heated catalytic convertor EKM = electronic Body Module EML = Electronic Throttle Control EVAP = relates to fuel vapor recovery often this code indicates a loose gas cap EWS = Drive away protection (alarm system) Fault Code: a "code" stored in the DME memory-indicates a past or present problem. Fuel Trim = adjustments to maintain proper air fuel ratio (see Lambda Control)

Flashing E: (in MSR display) communication problem in the vehicle, please see page 13 GM = General Module Intervention, MSR, ASC = intervention is when another control unit (i.e. skid control) requests a power/torque change from the DME. Code indicates DME assessed the request as being incorrect or too long. Lambda Control = Code means DME is unable to maintain requisite air/fuel ratio due to external factor (air leak, bad injector,

sensor, etc...). (also see fuel trim) LDP = Loss Diagnosis Pump Load Calculation Cross Check (HFM vs TPS)= when actual air flow exceeds +/- 25% of calculated air flow. MDK = Motorized Throttle Valve MIL = Malfunction Indicator Lamp, also called the "Check Engine" or "Service Engine Soon" MLF = Multi function Steering Wheel MSR = Drag Torque Intervention (torque reduction for anti skid) see "Intervention" NTC = coolant temperature sensor Oilservice & Inspection: Also called Si (abbrev. for service interval) maintenance reminder lights PWG = Pedal Sensor Potentiometer

PWG = Pedal Sensor Potentiometer

QL = idle air mass adaption (see Fuel Trim)

MSR: The scan/reset tool. Subject of this
manual

RAM = DME random access memory ROM = DME program memory Scan Tool: Generic term for the MSR Service Engine Soon: on the dashboard, indicates the DME has detected a problem. SI = Service Interval

SMG = BMW Motorsport Sequential Gearbox SRS = Airbag

TD = Tachometer Signal

TEV = Evap, fuel tank vent / purge valve
Ti Additive: idle fuel adaption (see fuel trim)
Ti multiplicative: adaption a percentage +/of injector time (see Fuel Trim)

TR signal = from DME, RPM and valve position

VANOS = Adjustable Valve Train
ZAB = see ASC

ZKE = Central Body Electronics
For further definitions, please consult documentation for the vehicle.