



**IMPORTANT DISCLAIMER:
READ NOW**

Thank you for purchasing the R5/EMX 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 assure compatibility and safe operation with BMW Mini's built up to 2003. As with any software-based device, there is a risk that a small number of unique Engine ECU variants may not be compatible with this device. Peake Research Corporation (also referred to as Peake Research) may not be held liable for any problems resulting from incompatibilities. Additionally, the code definitions contained in this manual should be regarded as a starting point for diagnosing a problem - the codes your Mini generates can often be misleading, and there may be errors in our code definitions. Before spending your money on a repair, 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... **Peake Research Corporation may not be held liable for any expenses you incur in response to the codes or instructions contained in this manual.**



R5/EMX

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

Instruction Manual & Code Tables

Copyright © Peake Research Corporation

Table of Contents

General Information

Disclaimer	2
Locating Diagnostic Connector	3
Tool face panel description	4

Directions

Using the R5/EMX	5
Function Reference	5
Reading DTCs (diagnostic trouble codes)	5
Resetting Check-Engine and Service Engine Soon	5
Clearing DTC's (diagnostic trouble codes)	5
Resetting Service Lights	5
How to read the codes and use the code tables	6
Code Table for Mini Cooper	7
Code Table for Mini Cooper S	10

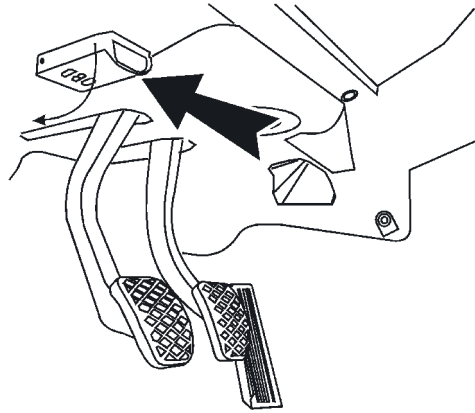
Appendix

Troubleshooting information	13
Glossary (terms and abbreviations)	15
Tech support	16
Warranty	16

WHERE TO PLUG IT IN

The Diagnostic Connector Location

To use the R5/EMX 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.

R5/EMX FACE PANEL

The R5/EMX 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.



DIRECTIONS

- 1.) Turn on key (DO NOT START ENGINE)
- 2.) Plug tool into diagnostic connector (see page 3 for description) Tool is ready to use when it displays "Fc".
- 3.) Use the "Select" button to select one of the functions shown below
- 4.) 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 "Fc". This clears all faults and extinguishes the MIL. To verify the reset, UNPLUG 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)

Making sense of the codes

IMPORTANT: Please read the following before using the R5/EMX

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

The Mini stores and reports codes in a five digit format. The R5/EMX 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"



Then back to " P"

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 R5/EMX has reached the end of the 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 R5/EMX, locate the correct code table for your Mini Cooper or Mini Cooper S (pages 7 through 13). Look up the code definition in the code table by locating the code (left column), and the definition (right column.)

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

(See page 10 for Mini Cooper S table)

P0030	HO2S Heater Control Circuit (Bank 1 Sensor 1)	P0125	Insufficient Coolant Temperature for Closed Loop Fuel Control
P0031	HO2S Heater Control Circuit Low (Bank 1 Sensor 1)	P0128	Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature)
P0032	HO2S Heater Control Circuit High (Bank 1 Sensor 1)	P0130	O2 Sensor Circuit (Bank 1 Sensor 1)
P0036	HO2S Heater Control Circuit (Bank 1 Sensor 2)	P0131	O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1)
P0037	HO2S Heater Control Circuit Low (Bank 1 Sensor 2)	P0132	O2 Sensor Circuit High Voltage (Bank 1 Sensor 1)
P0038	HO2S Heater Control Circuit High (Bank 1 Sensor 2)	P0133	O2 Sensor Circuit Slow Response (Bank 1 Sensor 1)
P0053	HO2S Heater Resistance (Bank 1 Sensor 1)	P0135	O2 Sensor Heater Circuit (Bank 1 Sensor 1)
P0054	HO2S Heater Resistance (Bank 1 Sensor 2)	P0136	O2 Sensor Circuit (Bank 1 Sensor 2)
P0107	Manifold Absolute Pressure/Barometric Pressure Circuit Low Input	P0137	O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2)
P0108	Manifold Absolute Pressure/Barometric Pressure Circuit High Input	P0138	O2 Sensor Circuit High Voltage (Bank 1 Sensor 2)
P0112	Intake Air Temperature Sensor 1 Circuit Low	P0141	O2 Sensor Heater Circuit (Bank 1 Sensor 2)
P0113	Intake Air Temperature Sensor 1 Circuit High	P0171	System Too Lean (Bank 1)
P0114	Intake Air Temperature Sensor 1 Circuit Intermittent	P0172	System Too Rich (Bank 1)
P0116	Engine Coolant Temperature Circuit Range/Performance	P0201	Injector Circuit/Open - Cylinder 1
P0117	Engine Coolant Temperature Circuit Low	P0202	Injector Circuit/Open - Cylinder 2
P0118	Engine Coolant Temperature Circuit High	P0203	Injector Circuit/Open - Cylinder 3
P0119	Engine Coolant Temperature Circuit Intermittent	P0204	Injector Circuit/Open - Cylinder 4
P0122	Throttle/Pedal Position Sensor/Switch 'A' Circuit Low	P0222	Throttle/Pedal Position Sensor/Switch 'B' Circuit Low
P0123	Throttle/Pedal Position Sensor/Switch 'A' Circuit High	P0223	Throttle/Pedal Position Sensor/Switch 'B' Circuit High
		P0261	Cylinder 1 Injector Circuit Low
		P0262	Cylinder 1 Injector Circuit High
		P0264	Cylinder 2 Injector Circuit Low
		P0265	Cylinder 2 Injector Circuit High
		P0267	Cylinder 3 Injector Circuit Low
		P0268	Cylinder 3 Injector Circuit High
		P0270	Cylinder 4 Injector Circuit Low
		P0271	Cylinder 4 Injector Circuit High
		P0300	Random/Multiple Cylinder Misfire Detected
		P0301	Cylinder 1 Misfire Detected
		P0302	Cylinder 2 Misfire Detected
		P0303	Cylinder 3 Misfire Detected

P0304	Cylinder 4 Misfire Detected		Circuit Malfunction (PRNDL Input)	P1572	Electronic Control Module Sensor Supply A Noisy Signal		Level 2/3 Motorised Throttle Control and Fuel Injection Switch Off 'B'
P0304	Cylinder 4 Misfire Detected	P0815	Upshift Switch Circuit	P1573	Electronic Control Module Sensor Supply B Low Output	P1698	Transmission Control Module Control Error
P0304	Cylinder 4 Misfire Detected	P0816	Downshift Switch Circuit	P1574	Electronic Control Module Sensor Supply B High Output	P1699	Transmission Control Module Checksum Error
P0313	Misfire Detected with Low Fuel	P1106	Manifold Air Pressure Sensor Too Low at Engine Stop	P1575	Electronic Control Module Sensor Supply B Noisy Signal	P1705	Transmission Control Module LED Output Open Circuit
P0324	Knock Control System Error			P1600	External Control Module Random Access Memory (RAM) Error	P1706	Transmission Control Module LED Output Short Circuit
P0326	Knock Sensor Circuit Range/Performance	P1107	Manifold Air Pressure Sensor Too Low at Idle Engine Running	P1607	CAN-Version	P1739	Clutch Solenoid Communication Error
P0335	Crankshaft Position Sensor 'A' Circuit	P1108	Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed	P1611	Serial Communication Link Transmission Control Module	P1741	Clutch Solenoid Open Circuit
P0336	Crankshaft Position Sensor 'A' Circuit Range/Performance	P1109	Manifold Air Pressure Too High in Deceleration	P1612	Serial Communication Link Instrument Pack	P1742	Clutch Solenoid Short Circuit
P0340	Camshaft Position Sensor 'A' Circuit	P1122	Pedal Position Sensor 1 Low Input	P1613	Serial Communication Link ASC (Automatic Stability Control)	P1749	Secondary Pressure Solenoid Communication Error
P0341	Camshaft Position Sensor 'A' Circuit Range/Performance	P1123	Pedal Position Sensor 1 High Input	P1615	Electronic Control Module Processor SPI-Bus Failure	P1751	Secondary Pressure Solenoid Open Circuit
P0351	Ignition Coil 'A' Primary/Secondary Circuit	P1125	Throttle Position Sensor A and B Range/Performance Small Error	P1617	Electronic Control Module H Bridge Controller	P1752	Secondary Pressure Solenoid Short Circuit
P0352	Ignition Coil 'B' Primary/Secondary Circuit	P1126	Throttle Position Sensor A and B Range/Performance Large Error	P1679	Electronic Throttle Control Monitor Level 2/3 Torque Loss Calculation	P1785	Transmission Ratio Control Actuator Circuit Malfunction
P0420	Catalyst System Efficiency Below Threshold (Bank 1)	P1143	O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2)	P1680	Electronic Throttle Control Monitor Level 2/3 ADC Processor Fault	P1786	Transmission Ratio Control Actuator Circuit Range/Performance
P0441	Evaporative Emission System Incorrect Purge Flow	P1144	O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2)	P1681	Electronic Throttle Control Monitor Level 2/3 Engine Speed Calculation Error	P1787	Transmission Ratio Control Actuator Open Circuit
P0442	Evaporative Emission System Leak Detected (small leak)	P1222	Pedal Position Sensor 2 Low Input	P1682	Electronic Throttle Control Monitor Level 2/3 Idle Speed 'A' Calculation Fault	P1788	Transmission Ratio Control Actuator Short Circuit
P0443	Evaporative Emission System Purge Control Valve Circuit	P1223	Pedal Position Sensor 2 High Input	P1683	Electronic Throttle Control Monitor Level 2/3 Idle Speed 'B' Calculation Fault	P1789	Transmission Ratio Control Actuator Communication Error
P0444	Evaporative Emission System Purge Control Valve Circuit Open	P1224	Pedal Position Sensor 1 and 2 Range/Performance Error	P1684	Electronic Throttle Control Monitor Level 2/3 Clutch Torque Min Error	P1815	Wheel Plus Switch Error Low Input
P0445	Evaporative Emission System Purge Control Valve Circuit Shorted	P1226	Throttle Malfunction (Flap Malfunction)	P1685	Electronic Throttle Control Monitor Level 2/3 Clutch Torque Max Error	P1816	Wheel Minus Switch Error Low Input
P0455	Evaporative Emission System Leak Detected (large leak)	P1229	Throttle Sensor Adaptation Failure	P1686	Electronic Throttle Control Monitor Level 2/3 Pedal Position Sensor Diagnostic Error	P2096	Post Catalyst Fuel Trim System Too Lean (Bank 1)
P0456	Evaporative Emission System Leak Detected (very small leak)	P1320	Flywheel Adaptation for Misfire Detection Range	P1687	Electronic Throttle Control Monitor Level 2/3 Throttle Position Sensor Diagnostic Error	P2097	Post Catalyst Fuel Trim System Too Rich (Bank 1)
P0500	Vehicle Speed Sensor 'A'	P1321	Flywheel Adaptation for Misfire Detection Performance	P1688	Electronic Throttle Control Monitor Level 2/3 Mass Air Flow Calculation	P2122	Throttle/Pedal Position Sensor/Switch 'D' Circuit Low Input
P0506	Idle Air Control System RPM Lower Than Expected	P1366	Ignition Coil 'A' Primary/Secondary Circuit Low	P1689	Electronic Throttle Control Monitor Level 2/3 Torque Calculation Error	P2123	Throttle/Pedal Position Sensor/Switch 'D' Circuit High Input
P0507	Idle Air Control System RPM Higher Than Expected	P1367	Ignition Coil 'B' Primary/Secondary Circuit Low	P1691	Electronic Throttle Control Monitor Level 2/3 Motorised Throttle Control Engine Speed Limitation Error	P2127	Throttle/Pedal Position Sensor/Switch 'E' Circuit Low Input
P0601	Internal Control Module Memory Check Sum Error	P1436	Leakage Diagnostic Pump Open Circuit	P1692	Electronic Throttle Control Monitor Level 2/3 Motorised Throttle Control and Fuel Injection Switch Off 'A'	P2128	Throttle/Pedal Position Sensor/Switch 'E' Circuit High Input
P0603	Internal Control Module Keep Alive Memory (KAM) Error	P1437	Leakage Diagnostic Pump Range/Performance	P1693	Electronic Throttle Control Monitor	P2138	Throttle/Pedal Position Sensor/Switch 'D' / 'E' Voltage Correlation
P0604	Internal Control Module Random Access Memory (RAM) Error	P1442	Leakage Diagnostic Pump Control Circuit Signal Low			P2270	O2 Sensor Signal Stuck Lean (Bank 1 Sensor 2)
P0638	Throttle Actuator Control Range/Performance (Bank 1)	P1443	Leakage Diagnostic Pump Control Circuit Signal High			P2271	O2 Sensor Signal Stuck Rich (Bank 1 Sensor 2)
P0642	Sensor Reference Voltage 'A' Circuit Low	P1475	Leakage Diagnostic Pump Reed Switch Did not Close			P2300	Ignition Coil 'A' Primary Control Circuit Low
P0643	Sensor Reference Voltage 'A' Circuit High	P1476	Leakage Diagnostic Pump Clamped Tube			P2301	Ignition Coil 'A' Primary Control Circuit High
P0652	Sensor Reference Voltage 'B' Circuit Low	P1477	Leakage Diagnostic Pump Reed Switch Did Not Open				
P0653	Sensor Reference Voltage 'B' Circuit High	P1570	Electronic Control Module Sensor Supply A Low Output				
P0705	Transmission Range Sensor 'A'	P1571	Electronic Control Module Sensor Supply A High Output				

P2303	Ignition Coil 'B' Primary Control Circuit Low		Intermittent	P0336	Crankshaft Position Sensor 'A' Circuit Range/Performance	P1109	Manifold Air Pressure Too High in Deceleration
P2304	Ignition Coil 'B' Primary Control Circuit High	P0122	Throttle/Pedal Position Sensor/Switch 'A' Circuit Low	P0340	Camshaft Position Sensor 'A' Circuit	P1122	Pedal Position Sensor 1 Low Input
P2400	Evaporative Emission System Leak Detection Pump Control Circuit/Open	P0123	Throttle/Pedal Position Sensor/Switch 'A' Circuit High	P0341	Camshaft Position Sensor 'A' Circuit Range/Performance	P1123	Pedal Position Sensor 1 High Input
P2401	Evaporative Emission System Leak Detection Pump Control Circuit Low	P0125	Insufficient Coolant Temperature for Closed Loop Fuel Control	P0351	Ignition Coil 'A' Primary/Secondary Circuit	P1125	Throttle Position Sensor A and B Range/Performance Small Error
P2402	Evaporative Emission System Leak Detection Pump Control Circuit High	P0128	Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature)	P0352	Ignition Coil 'B' Primary/Secondary Circuit	P1126	Throttle Position Sensor A and B Range/Performance Large Error
P2404	Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance	P0130	O2 Sensor Circuit (Bank 1 Sensor 1)	P0420	Catalyst System Efficiency Below Threshold (Bank 1)	P1143	O2 Sensor Activity Check Signal Too High (Bank 1 Sensor 2)
		P0131	O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1)	P0441	Evaporative Emission System Incorrect Purge Flow	P1144	O2 Sensor Activity Check Signal Too Low (Bank 1 Sensor 2)
		P0132	O2 Sensor Circuit High Voltage (Bank 1 Sensor 1)	P0442	Evaporative Emission System Leak Detected (small leak)	P1222	Pedal Position Sensor 2 Low Input
		P0133	O2 Sensor Circuit Slow Response (Bank 1 Sensor 1)	P0443	Evaporative Emission System Purge Control Valve Circuit	P1223	Pedal Position Sensor 2 High Input
		P0135	O2 Sensor Heater Circuit (Bank 1 Sensor 1)	P0444	Evaporative Emission System Purge Control Valve Circuit Open	P1224	Pedal Position Sensor 1 and 2 Range/Performance Error
		P0136	O2 Sensor Circuit (Bank 1 Sensor 2)	P0445	Evaporative Emission System Purge Control Valve Circuit Shorted	P1226	Throttle Malfunction (Flap Malfunction)
		P0137	O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2)	P0455	Evaporative Emission System Leak Detected (large leak)	P1229	Throttle Sensor Adaptation Failure
		P0138	O2 Sensor Circuit High Voltage (Bank 1 Sensor 2)	P0456	Evaporative Emission System Leak Detected (very small leak)	P1237	Secondary Upstream Manifold Air Pressure Sensor Low Input
		P0141	O2 Sensor Heater Circuit (Bank 1 Sensor 2)	P0500	Vehicle Speed Sensor 'A'	P1238	Secondary Upstream Manifold Air Pressure Sensor High Input
		P0171	System Too Lean (Bank 1)	P0506	Idle Air Control System RPM Lower Than Expected	P1239	Secondary Upstream Manifold Air Pressure Sensor Too Low at Engine stop
		P0172	System Too Rich (Bank 1)	P0507	Idle Air Control System RPM Higher Than Expected	P1240	Secondary Upstream Manifold Air Pressure Sensor Too Low at Idle Engine Running
		P0201	Injector Circuit/Open - Cylinder 1	P0601	Internal Control Module Memory Check Sum Error	P1241	Secondary Upstream Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed
		P0202	Injector Circuit/Open - Cylinder 2	P0603	Internal Control Module Keep Alive Memory (KAM) Error	P1242	Secondary Upstream Manifold Air Pressure Sensor Too High in Deceleration
		P0203	Injector Circuit/Open - Cylinder 3	P0604	Internal Control Module Random Access Memory (RAM) Error	P1320	Flywheel Adaptation for Misfire Detection Range
		P0204	Injector Circuit/Open - Cylinder 4	P0638	Throttle Actuator Control Range/Performance (Bank 1)	P1321	Flywheel Adaptation for Misfire Detection Performance
		P0222	Throttle/Pedal Position Sensor/Switch 'B' Circuit Low	P0642	Sensor Reference Voltage 'A' Circuit Low	P1366	Ignition Coil 'A' Primary/Secondary Circuit Low
		P0223	Throttle/Pedal Position Sensor/Switch 'B' Circuit High	P0643	Sensor Reference Voltage 'A' Circuit High	P1367	Ignition Coil 'B' Primary/Secondary Circuit Low
		P0261	Cylinder 1 Injector Circuit Low	P0652	Sensor Reference Voltage 'B' Circuit Low	P1436	Leakage Diagnostic Pump Open Circuit
		P0262	Cylinder 1 Injector Circuit High	P0653	Sensor Reference Voltage 'B' Circuit High	P1437	Leakage Diagnostic Pump Range/Performance
		P0264	Cylinder 2 Injector Circuit Low	P0705	Transmission Range Sensor 'A' Circuit Malfunction (PRNDL Input)		
		P0265	Cylinder 2 Injector Circuit High	P0815	Upshift Switch Circuit		
		P0267	Cylinder 3 Injector Circuit Low	P0816	Downshift Switch Circuit		
		P0268	Cylinder 3 Injector Circuit High	P1106	Manifold Air Pressure Sensor Too Low at Engine Stop		
		P0270	Cylinder 4 Injector Circuit Low	P1107	Manifold Air Pressure Sensor Too Low at Idle Engine Running		
		P0271	Cylinder 4 Injector Circuit High	P1108	Manifold Air Pressure Sensor Too Low at Full Load for Low Engine Speed		
		P0300	Random/Multiple Cylinder Misfire Detected				
		P0301	Cylinder 1 Misfire Detected				
		P0302	Cylinder 2 Misfire Detected				
		P0303	Cylinder 3 Misfire Detected				
		P0304	Cylinder 4 Misfire Detected				
		P0313	Misfire Detected with Low Fuel				
		P0324	Knock Control System Error				
		P0326	Knock Sensor Circuit Range/Performance				
		P0335	Crankshaft Position Sensor 'A' Circuit				

Mini Cooper S

P0030	HO2S Heater Control Circuit (Bank 1 Sensor 1)						
P0031	HO2S Heater Control Circuit Low (Bank 1 Sensor 1)						
P0032	HO2S Heater Control Circuit High (Bank 1 Sensor 1)						
P0036	HO2S Heater Control Circuit (Bank 1 Sensor 2)						
P0037	HO2S Heater Control Circuit Low (Bank 1 Sensor 2)						
P0038	HO2S Heater Control Circuit High (Bank 1 Sensor 2)						
P0053	HO2S Heater Resistance (Bank 1 Sensor 1)						
P0054	HO2S Heater Resistance (Bank 1 Sensor 2)						
P0107	Manifold Absolute Pressure/Barometric Pressure Circuit Low Input						
P0108	Manifold Absolute Pressure/Barometric Pressure Circuit High Input						
P0112	Intake Air Temperature Sensor 1 Circuit Low						
P0113	Intake Air Temperature Sensor 1 Circuit High						
P0114	Intake Air Temperature Sensor 1 Circuit Intermittent						
P0116	Engine Coolant Temperature Circuit Range/Performance						
P0117	Engine Coolant Temperature Circuit Low						
P0118	Engine Coolant Temperature Circuit High						
P0119	Engine Coolant Temperature Circuit						

P1442	Leakage Diagnostic Pump Control Circuit Signal Low		Diagnostic Error				
P1443	Leakage Diagnostic Pump Control Circuit Signal High	P1687	Electronic Throttle Control Monitor Level 2/3 Throttle Position Sensor Diagnostic Error	P2127	Sensor/Switch 'D' Circuit High Input Throttle/Pedal Position Sensor/Switch 'E' Circuit Low Input	P2303	Ignition Coil 'B' Primary Control Circuit Low
P1475	Leakage Diagnostic Pump Reed Switch Did not Close	P1688	Electronic Throttle Control Monitor Level 2/3 Mass Air Flow Calculation	P2128	Throttle/Pedal Position Sensor/Switch 'E' Circuit High Input	P2304	Ignition Coil 'B' Primary Control Circuit High
P1476	Leakage Diagnostic Pump Clamped Tube	P1689	Electronic Throttle Control Monitor Level 2/3 Torque Calculation Error	P2138	Throttle/Pedal Position Sensor/Switch 'D' / 'E' Voltage Correlation	P2400	Evaporative Emission System Leak Detection Pump Control Circuit/Open
P1477	Leakage Diagnostic Pump Reed Switch Did Not Open	P1691	Electronic Throttle Control Monitor Level 2/3 Motorised Throttle Control Engine Speed Limitation Error	P2270	O2 Sensor Signal Stuck Lean (Bank 1 Sensor 2)	P2401	Evaporative Emission System Leak Detection Pump Control Circuit Low
P1570	Electronic Control Module Sensor Supply A Low Output	P1692	Electronic Throttle Control Monitor Level 2/3 Motorised Throttle Control and Fuel Injection Switch Off 'A'	P2271	O2 Sensor Signal Stuck Rich (Bank 1 Sensor 2)	P2402	Evaporative Emission System Leak Detection Pump Control Circuit High
P1571	Electronic Control Module Sensor Supply A High Output	P1693	Electronic Throttle Control Monitor Level 2/3 Motorised Throttle Control and Fuel Injection Switch Off 'B'	P2300	Ignition Coil 'A' Primary Control Circuit Low	P2404	Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance
P1572	Electronic Control Module Sensor Supply A Noisy Signal	P1698	Transmission Control Module Control Error	P2301	Ignition Coil 'A' Primary Control Circuit High		
P1573	Electronic Control Module Sensor Supply B Low Output	P1699	Transmission Control Module Checksum Error				
P1574	Electronic Control Module Sensor Supply B High Output	P1705	Transmission Control Module LED Output Open Circuit				
P1575	Electronic Control Module Sensor Supply B Noisy Signal	P1706	Transmission Control Module LED Output Short Circuit				
P1600	External Control Module Random Access Memory (RAM) Error	P1739	Clutch Solenoid Communication Error				
P1607	CAN-Version	P1741	Clutch Solenoid Open Circuit				
P1611	Serial Communication Link Transmission Control Module	P1742	Clutch Solenoid Short Circuit				
P1612	Serial Communication Link Instrument Pack	P1749	Secondary Pressure Solenoid Communication Error				
P1613	Serial Communication Link ASC (Automatic Stability Control)	P1751	Secondary Pressure Solenoid Open Circuit				
P1615	Electronic Control Module Processor SPI-Bus Failure	P1752	Secondary Pressure Solenoid Short Circuit				
P1617	Electronic Control Module H Bridge Controller	P1785	Transmission Ratio Control Actuator Circuit Malfunction				
P1679	Electronic Throttle Control Monitor Level 2/3 Torque Loss Calculation	P1786	Transmission Ratio Control Actuator Circuit Range/Performance				
P1680	Electronic Throttle Control Monitor Level 2/3 ADC Processor Fault	P1787	Transmission Ratio Control Actuator Open Circuit				
P1681	Electronic Throttle Control Monitor Level 2/3 Engine Speed Calculation Error	P1788	Transmission Ratio Control Actuator Short Circuit				
P1682	Electronic Throttle Control Monitor Level 2/3 Idle Speed 'A' Calculation Fault	P1789	Transmission Ratio Control Actuator Communication Error				
P1683	Electronic Throttle Control Monitor Level 2/3 Idle Speed 'B' Calculation Fault	P1815	Wheel Plus Switch Error Low Input				
P1684	Electronic Throttle Control Monitor Level 2/3 Clutch Torque Min Error	P1816	Wheel Minus Switch Error Low Input				
P1685	Electronic Throttle Control Monitor Level 2/3 Clutch Torque Max Error	P2096	Post Catalyst Fuel Trim System Too Lean (Bank 1)				
P1686	Electronic Throttle Control Monitor Level 2/3 Pedal Position Sensor	P2097	Post Catalyst Fuel Trim System Too Rich (Bank 1)				
		P2122	Throttle/Pedal Position Sensor/Switch 'D' Circuit Low Input				
		P2123	Throttle/Pedal Position				

Appendix

Common Problems /Troubleshooting

Flashing E message on tool:

Occasionally the R5/EMX 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:

- 1.) **Insertion Depth:** Check the insertion of the R5/EMX into the diagnostic connector. If it is not fully inserted the unit will not work.
- 2.) **Reversing the power-up sequence:** Plug in the R5/EMX 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.
- 3.) **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. Often a malfunctioning module (i.e. DME, EGS/transmission, ABS traction control, etc...) can impair or "hang" the diagnostic bus.

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

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

- a.) Disconnect the main car battery.
- b.) 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 14) 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 R5/EMX will not serve its 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 R5/EMX would not reset the brake lining light, the SRS/airbag light, or the ABS brake light. • The R5/EMX 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
--	---

Recommended Reading: • Bosch Automotive Handbook, by Robert Bosch, ISBN: 0837606144 • Bosch Fuel Injection and Engine Management, by Charles O. Probst. ISBN: 0837603005.

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 R5-FCX 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 below"
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 R5-FCX display) communication problem in the vehicle, please visit www.r5tool.com/emxtech.shtml
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
QL = idle air mass adaption (see Fuel Trim)
R5/EMX: The scan/reset tool. Subject of this manual
RAM = DME random access memory
ROM = DME program memory
Scan Tool: Generic term for the R5/EMX
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.

Peake Research Corp, on the web:

Limited technical information for the R5/EMX is available online at:

www.r5tool.com/emxtech.shtml

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:

Peake Research Corporation of Campbell, CA., hereinafter called "Peake Research" warrants, to the original purchaser, that your model number R5/EMX, Mini reset/scan 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, Peake Research 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 Peake Research 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.

Copyright© Peake Research. Peake Research Corporation, R5, R5AS14, R5BM20, AB01, AB02, R5UNIV, R5/EMX, R5/FCX, R5/FCX-II, R5/FCXII-16, AB03 are registered ® trademarks/tradenames of Peake Research Corporation.

Copyright © 2003, Peake Research Corporation (Rev. 1.0)
0825-234

BMW and Mini, and Mini Cooper, and MiniCooper S are registered
trademarks of BMW N.A., all rights reserved.