

Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

18k

CEN-TECH®

OBD II & CAN CODE READER

64981



Visit our website at: <http://www.harborfreight.com>
Email our technical support at: productsupport@harborfreight.com

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

⚠WARNING

Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

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CEN-TECH.

WARNING SYMBOLS AND DEFINITIONS

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Addresses practices not related to personal injury.

Important Safety Information

Work Area Safety

1. Keep your work area clean and well lit. Cluttered benches and dark areas may cause accidents.
2. Do not connect or disconnect the Code Reader while the ignition is on or the engine is running.
3. **DO NOT attempt to operate the Code Reader while driving the vehicle. Have a passenger operate the Code Reader.**
4. Before testing a vehicle, engage the parking brake and chock the tires.
5. NEVER smoke or allow a spark or flame in vicinity of battery or engine.
6. **Carbon Monoxide is produced while the vehicle's engine is operating and is deadly in a closed environment.** Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs, the work area may not be vented properly. Get fresh air immediately. Operate the vehicle in a well-ventilated work area.
7. Do not operate the Code Reader in explosive atmospheres, such as in the presence of flammable liquids, gases, or heavy dust.
8. Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
9. Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
10. Keep bystanders, children and visitors away while operating the Code Reader.
11. This product is not a toy. Do not allow children to play with or near this item.
12. Use as intended only.
13. Inspect before every use; do not use if parts are loose or damaged.
14. Do not place the Code Reader on any unstable surface.
15. Handle the Code Reader with care. If the Code Reader is dropped, check for breakage and any other conditions that may affect its operation.
16. Keep the Scan Tool dry, clean, free from oil, water or grease. Use a mild detergent on a clean cloth to clean the outside of the Scan Tool, when necessary.
17. Store the Code Reader and accessories in a locked area out of the reach of children.
18. Maintain product labels and nameplates. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.

Electrical Safety

1. Do not use the Code Reader while standing in water.
2. Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.
3. Do not expose the Code Reader to rain or wet conditions.
Water entering the Code Reader increases the risk of electric shock.

4. Make sure your hands are dry before operating the Code Reader.

Personal Safety

1. Wear ANSI-approved safety goggles during use.
2. Do not wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
3. Do not use the Code Reader while tired or under the influence of drugs, alcohol, or medications. A moment of interruption can result in serious personal injury.
4. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.
5. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Service

There are no user serviceable parts. Code Reader service must be performed only by qualified repair personnel.

Specifications

Display Screen	Backlit LCD
Operating Temperature	32°F to 122°F
Storage Temperature	-4°F to 158°F
Power	9 to 16 VDC provided by vehicle battery

Overview

OBD II On-Board Diagnostics

It is required by the EPA that all 1996 and newer vehicles sold in the United States be equipped with an OBD II computer system.

OBD II is an early warning system designed to monitor engine, transmission, and emissions control components by performing specific diagnostic tests.

When a fault condition is detected, the system captures important data and activates the “Check Engine” light.

If the light comes on, the vehicle might have a condition that wastes fuel, shortens engine life, or causes excessive air pollution. If the problem that caused the light to come on is addressed, for instance a loose gas cap is tightened, the light will go out.

If the light comes on and stays on, a minor engine fault condition is occurring and should be addressed as soon as possible.

If the light is blinking, a severe engine fault condition is occurring and should be addressed immediately.

The Code Reader connects to the vehicle’s computer system and captures information that can help identify the fault condition.

Vehicle Coverage

This Code Reader is designed to work with all OBD II compliant vehicles, including those equipped with a CAN bus.

OBD II was installed in some 1994 and 1995 model year gasoline vehicles.

To verify if a 1994 or 1995 vehicle is OBD II compliant, check the Vehicle Emissions Control Information label, which is located in the engine compartment.

Definitions

- **DLC: Data Link Connector**
The 16-pin connector on the vehicle that allows communication between the computer system and the Code Reader.
- **Drive Cycle**
A set of driving procedures that, when met, provide the Enabling Criteria for the I/M Monitors to run and complete their diagnostic tests.
- **Control Modules**
Individual computers that operate and monitor different systems in the vehicle. Control Modules vary depending on manufacturer.
- **MIL: Malfunction Indicator Lamp**
The vehicle's "Check Engine" warning light that activates when a DTC is stored.
- **DTC: Diagnostic Trouble Code**
A code stored in the computer system's memory, which helps to identify the fault condition that is causing the MIL to activate.
- **Freeze Frame Data**
Operating conditions that are stored when a DTC is stored.
- **PID: Parameter Identification Data**
Data returned by the vehicle's Control Modules to the Code Reader.

I/M Monitors

Inspection and Maintenance diagnostic tests that the Control Modules perform on specific sub-systems of the vehicle.

There are two types of Monitors:

- **Continuous:** Monitors that perform tests all the time while the engine is running.
- **Non-Continuous:** Monitors that require specific operating conditions to be met during a Drive Cycle in order for the Monitors to run their testing sequences.

Note: Not all Monitors are supported by all vehicles.

Gasoline Engine Monitors

- **Continuous**
MIS - Misfire
FUEL - Fuel System
CCM - Comprehensive Components
- **Non-Continuous**
CAT - Catalyst
HCAT - Heated Catalyst
EVAP - Evaporative System
AIR - Secondary Air System
O2S - Oxygen Sensors
HTR - Oxygen Sensor Heater
EGR - EGR System

Diesel Engine Monitors

- **Continuous**
MIS - Misfire
FUEL - Fuel System
CCM - Comprehensive Components
- **Non-Continuous**
HCCAT - NMHC Catalyst
NCAT - NOx Aftertreatment
BP - Boost Pressure System
EGS - Exhaust Gas Sensor
PM - PM Filter
EGR - EGR System

Diagnostic Trouble Code

A DTC is a five digit alphanumeric identifier for a fault condition identified by the OBD II system. There are three types of DTCs:

1. **Pending** - When a fault condition is identified during a Drive Cycle, but does not meet enough criteria to activate the MIL.
If the fault condition occurs during two consecutive Drive Cycles, it will turn into a Stored DTC and the MIL will activate.
2. **Stored** - A DTC is stored when a fault condition has occurred that meets enough criteria to activate the MIL.
3. **Permanent** - A stored DTC that can only be cleared by the OBD II system, after repairs are made, and a set number of Driving Cycles have been completed.

Example: P0303 - Cylinder 3 Misfire

Systems

B - Body
C - Chassis
P - Powertrain
U - Network

Code Types*

0 - Generic
1 - Manufacturer Specific
2 - Generic Powertrain/Manufacturer Specific
3 - Generic Powertrain/Manufacturer Specific

Sub-Systems

1 - Fuel and Air Metering
2 - Fuel and Air Metering
(injector circuit malfunction only)
3 - Ignition Malfunction or Engine Misfire
4 - Auxiliary Emission Controls
5 - Vehicle Speed or Idle Controls
6 - Computer Output Circuits
7 - Transmission Controls
8 - Transmission Controls

03 - Cylinder 3

P 0 3 0 3

***The Code Reader supports the following Code Types:**

Generic (SAE):
P0, P2, P3, U0

Manufacturer Specific:
P1, P3, U0

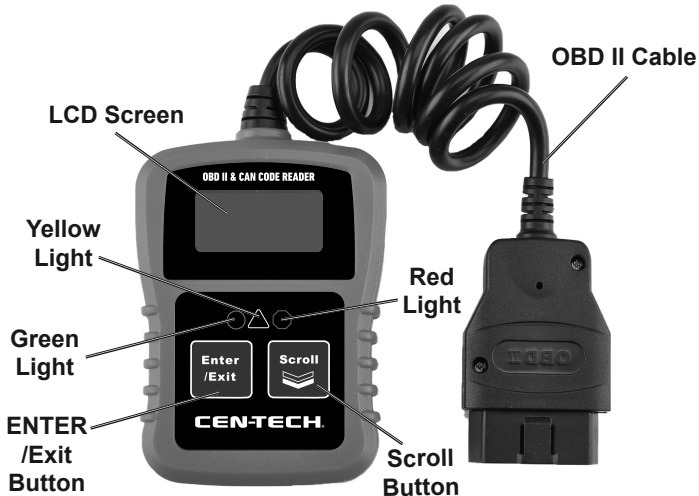
Figure A

Setup - Before Use:



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this document including all text under subheadings therein before set up or use.

Functions



LCD Screen

Displays test results, Code Reader functions, and Monitor status information.

Green Light

When lit, indicates all engine system are running normally and no DTCs are present.

Yellow Light

When lit, indicates there are pending DTCs and/or Monitor analysis is not finished running.

Red Light

When lit, indicates there is a fault condition in one or more of the vehicle's systems and stored DTCs are present.

ENTER/Exit Button

Confirms a menu selection or returns to Main Menu.

SCROLL Button

Scrolls through menu items or view DTCs when more than one is present.

OBD II Cable

This 16-pin cable connects the Code Reader to the vehicle's DLC and battery (which powers the Code Reader). At the end of the cable is a 16-pin connector (not shown).

Operating Instructions



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this document including all text under subheadings therein before set up or use.

WARNING

TO PREVENT SERIOUS INJURY AND DEATH:

Carbon Monoxide is produced while the vehicle's engine is operating and is deadly in a closed environment. Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs, the work area may not be vented properly. Get fresh air immediately.

Operate the vehicle in a well ventilated work area.

Connect Code Reader

CAUTION! Do not connect or disconnect the Code Reader while the ignition is on or the engine is running.

Note: The Code Reader is powered by the vehicle's battery.

1. Turn the engine and ignition **OFF**.
2. Connect the OBD II Cable to the vehicle's 16-pin DLC connector.
 - a. The DLC connector is normally located under the dashboard on the driver's side. (Refer to vehicle's owner's manual for location of DLC).
 - b. The cable connector will only fit one way.

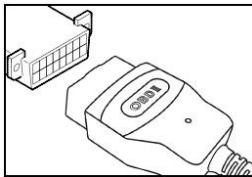
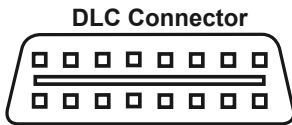


Figure B: Connecting Code Reader to Vehicle

3. Turn the vehicle's ignition ON with the engine OFF (commonly called the **ACC** or accessory position).
4. The Screen should display the below indicating the Code Reader is ready to make a reading:

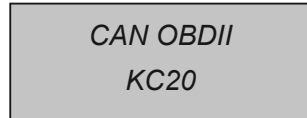


Figure C: Ready Screen

Note: If the **Link Error!** message displays:

- Verify the ignition is in the ACC position.
 - Verify the vehicle is OBD II compliant.
 - If the error message does not go away, have the Code Reader inspected by a qualified technician.
5. After the ready screen, the Code Reader's Main Menu should be available. Press SCROLL to move through each selection:
 1. DTC
 2. ERASE
 3. I/M
 4. VIN
 5. RESCAN

Taking a Reading

Note: Do not replace a part based solely on the DTC definition. Each DTC has a set of test procedures, instructions, and flow charts that must be followed to confirm the cause of the problem. Refer to the vehicle's service manual for detailed testing instructions.

Notice: Observe all safety precautions before working on a vehicle.

1. Turn off the vehicle's ignition and connect the Code Reader's 16-pin OBD II Cable to the vehicle's DLC connector.
2. The display will indicate when the Code Reader is ready:

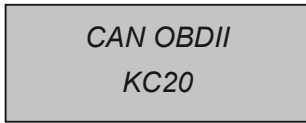


Figure D: Ready Screen

3. Press ENTER/Exit and a sequence of messages showing the OBD II protocols will step through until the vehicle's protocol is detected:

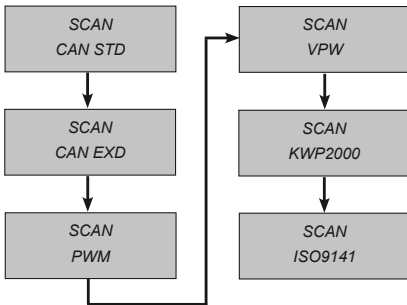


Figure E: Protocol Detection Sequence

4. The messages will end at the vehicle's detected protocol:

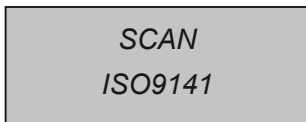


Figure F: Example of Vehicle's Detected Protocol

5. If the **Link Error!** message displays:
 - a. Turn off the ignition for 10 seconds and check that the Code Reader's OBD II Cable is well seated into the vehicle's DLC connector.
 - b. Turn ignition to ACC and repeat protocol detection.
 - c. If the error does not clear then there is a communication problem between the Code Reader and vehicle.
6. After the detected protocol is displayed, the scanning results will appear. The total number of DTCs and overall I/M Monitor Status will be shown:

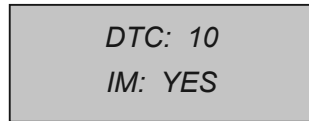


Figure G: Example of Scan Results

7. Next, the screen will display the Main Menu's first selection:

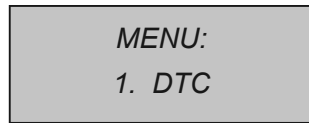


Figure H: DTC Screen

8. Press ENTER/Exit to select "DTC."
9. If no Diagnostic Trouble Codes were detected the **green light** will illuminate and the display will indicate:

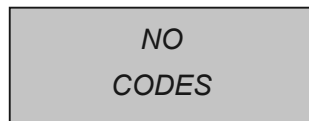
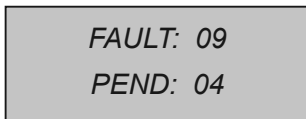


Figure I: No DTCs detected

10. If any DTCs were detected then the **red light** will illuminate and total number of Fault Codes followed by the Pending Codes will be displayed:

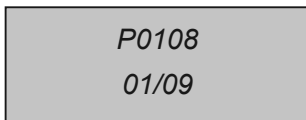


FAULT: 09
PEND: 04

Figure J: Example of detected DTCs

Note: If the **yellow light** illuminates wait for the Code Reader to finish its analysis.

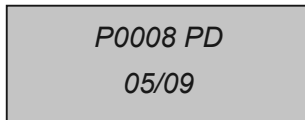
11. View each DTC by pressing SCROLL.
 - a. The first DTC will appear on the top line and the bottom line will show the numerical sequence of the DTC and the total number of DTCs stored.
 - b. The example below indicates "P0108" is first DTC in a sequence of nine stored DTCs.



P0108
01/09

Figure K: Example of a stored DTC

12. Press SCROLL to move through the other stored DTCs.
13. A **pending code** will be shown ending in "PD."



P0008 PD
05/09

Figure L: Example of a pending code

14. To view previous DTCs, press SCROLL to move forward through the list. After the last DTC is displayed, the list will restart from the beginning at the next press.
15. See "DTC Definitions" starting on page 165 to interpret data.

Erasing DTCs

NOTICE: *Choosing to erase DTCs with the Code Reader will delete codes from the vehicle's on-board computer, Freeze Frame Data, and manufacturer specific enhanced data. It will also reset the I/M Readiness Monitor status to Not ready or Not Complete.*

Do not erase any DTCs before the vehicle has been repaired and the system has been checked completely by a qualified technician.

As long as there is a fault condition, the DTCs will continue to set and turn on the MIL.

1. From the Main Menu, press SCROLL until "2. ERASE" is displayed. Select it by pressing ENTER/Exit.

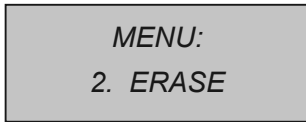


Figure M: Erase Screen

2. After entering the Erase function, a message will display asking for confirmation:

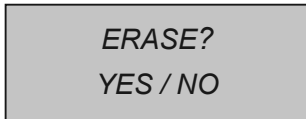


Figure N: Selection Message

3. Choose whether or not to erase DTCs.
 - a. If yes, press ENTER/Exit.
 - b. If no, press SCROLL to exit.
4. When the DTCs are successfully erased the message below will appear:

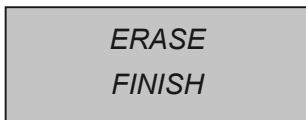


Figure O: Erase Complete

5. If the DTCs were not erased the message below will appear:

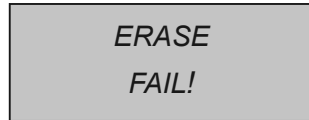


Figure P: Erase Failure

6. The **Hot Key** may be used to erase DTCs quickly. Press and hold SCROLL for 3 seconds and "MENU 2: ERASE" will display.

Note: Erasing codes will reset the Monitors to incomplete status. A Drive Cycle will need to be completed before performing an I/M Readiness test.

Clearing the error code will not repair the vehicle.

Repair the vehicle, then clear the error code.

I/M Readiness

I/M Readiness is used to check the operations of Emissions System in OBD II compliant vehicles. Check I/M Readiness prior to having a vehicle inspected for a State Emissions Test.

I/M Readiness status with the result of “No” does not necessarily indicate that the vehicle has failed the emissions test. See the State’s Emission Test regulations for details.

1. From the Main Menu, scroll until “3. I/M” is displayed. Select it by pressing ENTER/Exit.
3. Press SCROLL to view the status of the MIL light (if its on or off) and the other indicators listed below:

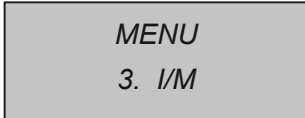


Figure Q: I/M Readiness Status Screen

2. Interpreting data:

YES	All monitors supported on the vehicle have completed their diagnostic testing and the MIL light is not on.
NO	At least one monitor supported on the vehicle has not completed its diagnostic testing and/or the “Check Engine” (MIL) light is on.
READY	Indicates a monitor being checked has completed its diagnostic testing.
NOT RDY	Not Ready indicates a monitor being checked has not completed its diagnostic testing.
N/A	The Monitor is not supported on the vehicle.
→	A flashing right arrow indicates additional information is available on the next screen.
←	A flashing left arrow indicates additional information is available on the previous screen.

MISFIRE	Misfire Monitor
CCM	Comprehensive Components Monitor
HCAT	Heated Catalyst Monitor
AIR	Secondary Air Monitor
O2S	Oxygen Sensors Monitor
EGR	EGR System Monitor
NCAT	NOx After Treatment Monitor
PM	PM Filter Monitor
FUEL	Fuel System Monitor
CAT	Catalyst Monitor
EVAP	Evaporative System Monitor
A/C	A/C System Monitor
HTR	Oxygen Sensor Heater Monitor
HCCAT	NMHC Monitor
EGS	Exhaust Gas Sensor Monitor

Note: A Drive Cycle will need to be completed before performing an **I/M Readiness** test if the battery has been disconnected or DTCs have been erased.

Viewing VIN Number

The view VIN function retrieves the Vehicle Identification Number on 2002 and newer vehicles that support Mode 9.

1. From the Main Menu, scroll until "4. VIN" is displayed. Select it by pressing ENTER/Exit.

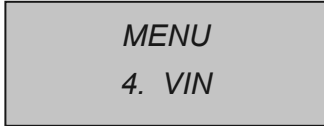


Figure R: VIN Screen

2. Press SCROLL to view the vehicle's 17-digit VIN.

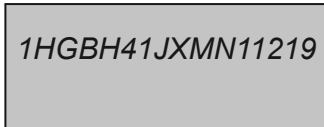


Figure S: VIN example

- a. A flashing right arrow indicates additional digits of the VIN string are available on the next screen.

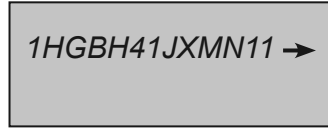


Figure T: More digits next screen

- b. A flashing left arrow indicates additional digits of the VIN string are available on the previous screen.



Figure U: More digits previous screen

Rescanning Data

The Rescan function:

- Retrieves the most current data stored in the EMC (Engine Control Module).
- Or, is used to relink the the Code Reader to the vehicle if the communication is disrupted/disconnected.

1. From the Main Menu, scroll until "5. RESCAN" is displayed. Select it by pressing ENTER/Exit.

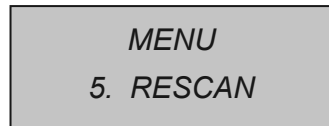


Figure V: Rescan

2. Press ENTER/Exit to perform a Rescan/relink or SCROLL to abort and return to the Main Menu.

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DTC Definition List

P00## DTC Definitions

DTC	DTC Definition
P0001	Fuel Volume Regulator Control Circuit/Open
P0002	Fuel Volume Regulator Control Circuit Range/Performance
P0003	Fuel Volume Regulator Control Circuit Low
P0004	Fuel Volume Regulator Control Circuit High
P0005	Fuel Shutoff Valve A Control Circuit/Open
P0006	Fuel Shutoff Valve A Control Circuit Low
P0007	Fuel Shutoff Valve A Control Circuit High
P0008	Engine Position System Performance Bank 1
P0009	Engine Position System Performance Bank 2
P000A	A Camshaft Position Slow Response Bank 1
P000B	B Camshaft Position Slow Response Bank 1
P000C	A Camshaft Position Slow Response Bank 2
P000D	B Camshaft Position Slow Response Bank 2
P0010	A Camshaft Position Actuator Circuit / Open Bank 1
P0011	A Camshaft Position Timing Over-Advanced or System Performance Bank 1
P0012	A Camshaft Position Timing Over-Retarded Bank 1
P0013	B Camshaft Position Actuator Circuit / Open Bank 1
P0014	B Camshaft Position Timing Over-Advanced or System Performance Bank 1
P0015	B Camshaft Position Timing Over-Retarded Bank 1
P0016	Crankshaft Position Camshaft Position Correlation Bank 1 Sensor A
P0017	Crankshaft Position Camshaft Position Correlation Bank 1 Sensor B
P0018	Crankshaft Position Camshaft Position Correlation Bank 2 Sensor A
P0019	Crankshaft Position Camshaft Position Correlation Bank 2 Sensor B
P0020	A Camshaft Position Actuator Circuit / Open Bank 2
P0021	A Camshaft Position Timing Over-Advanced or System Performance Bank 2
P0022	A Camshaft Position Timing Over-Retarded Bank 2
P0023	B Camshaft Position Actuator Circuit / Open Bank 2
P0024	B Camshaft Position Timing Over-Advanced or System Performance Bank 2
P0025	B Camshaft Position Timing Over-Retarded Bank 2
P0026	Intake Valve Control Solenoid Circuit Range/Performance Bank 1
P0027	Exhaust Valve Control Solenoid Circuit Range/Performance Bank 1
P0028	Intake Valve Control Solenoid Circuit Range/Performance Bank 2
P0029	Exhaust Valve Control Solenoid Circuit Range/Performance Bank 2
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
P0033	Turbocharger/Supercharger Bypass Valve Control Circuit
P0034	Turbocharger/Supercharger Bypass Valve Control Circuit Low
P0035	Turbocharger/Supercharger Bypass Valve Control Circuit High
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
P0039	Turbocharger/Supercharger Bypass Valve Control Circuit Range/Performance
P0040	O2 Sensor Signals Swapped Bank 1 Sensor 1/Bank 2 Sensor 1
P0041	O2 Sensor Signals Swapped Bank 1 Sensor 2/Bank 2 Sensor 2
P0042	HO2S Heater Control Circuit Bank 1 Sensor 3
P0043	HO2S Heater Control Circuit Low Bank 1 Sensor 3
P0044	HO2S Heater Control Circuit High Bank 1 Sensor 3
P0045	Turbocharger/Supercharger Boost Control Solenoid A Circuit/Open
P0046	Turbocharger/Supercharger Boost Control Solenoid A Circuit
P0047	Turbocharger/Supercharger Boost Control Solenoid A Circuit Low
P0048	Turbocharger/Supercharger Boost Control Solenoid A Circuit High
P0049	Turbocharger/Supercharger Turbine Overspeed

DTC	DTC Definition
P004A	Turbocharger/Supercharger Boost Control Solenoid B Circuit / Open
P004B	Turbocharger/Supercharger Boost Control Solenoid B Circuit
P004C	Turbocharger/Supercharger Boost Control Solenoid B Circuit Low
P004D	Turbocharger/Supercharger Boost Control Solenoid B Circuit High
P004E	Turbocharger/Supercharger Boost Control Solenoid A Circuit Intermittent/Erratic
P004F	Turbocharger/Supercharger Boost Control Solenoid B Circuit Intermittent/Erratic
P0050	HO2S Heater Control Circuit Bank 2 Sensor 1
P0051	HO2S Heater Control Circuit Low Bank 2 Sensor 1
P0052	HO2S Heater Control Circuit High Bank 2 Sensor 1
P0053	HO2S Heater Resistance Bank 1 Sensor 1
P0054	HO2S Heater Resistance Bank 1 Sensor 2
P0055	HO2S Heater Resistance Bank 1 Sensor 3
P0056	HO2S Heater Control Circuit Bank 2 Sensor 2
P0057	HO2S Heater Control Circuit Low Bank 2 Sensor 2
P0058	HO2S Heater Control Circuit High Bank 2 Sensor 2
P0059	HO2S Heater Resistance Bank 2 Sensor 1
P0060	HO2S Heater Resistance Bank 2 Sensor 2
P0061	HO2S Heater Resistance Bank 2 Sensor 3
P0062	HO2S Heater Control Circuit Bank 2 Sensor 3
P0063	HO2S Heater Control Circuit Low Bank 2 Sensor 3
P0064	HO2S Heater Control Circuit High Bank 2 Sensor 3
P0065	Air Assisted Injector Control Range/Performance
P0066	Air Assisted Injector Control Circuit or Circuit Low
P0067	Air Assisted Injector Control Circuit High
P0068	MAP/MAF Throttle Position Correlation
P0069	Manifold Absolute Pressure Barometric Pressure Correlation
P006A	MAP Mass or Volume Air Flow Correlation
P006B	MAP Exhaust Pressure Correlation
P006C	MAP Turbocharger/Supercharger Inlet Pressure Correlation
P006D	Barometric Pressure Turbocharger/Supercharger Inlet Pressure Correlation
P0070	Ambient Air Temperature Sensor Circuit
P0071	Ambient Air Temperature Sensor Range/Performance
P0072	Ambient Air Temperature Sensor Circuit Low
P0073	Ambient Air Temperature Sensor Circuit High
P0074	Ambient Air Temperature Sensor Circuit Intermittent
P0075	Intake Valve Control Solenoid Circuit Bank 1
P0076	Intake Valve Control Solenoid Circuit Low Bank 1
P0077	Intake Valve Control Solenoid Circuit High Bank 1
P0078	Exhaust Valve Control Solenoid Circuit Bank 1
P0079	Exhaust Valve Control Solenoid Circuit Low Bank 1
P0080	Exhaust Valve Control Solenoid Circuit High Bank 1
P0081	Intake Valve Control Solenoid Circuit Bank 2
P0082	Intake Valve Control Solenoid Circuit Low Bank 2
P0083	Intake Valve Control Solenoid Circuit High Bank 2
P0084	Exhaust Valve Control Solenoid Circuit Bank 2
P0085	Exhaust Valve Control Solenoid Circuit Low Bank 2
P0086	Exhaust Valve Control Solenoid Circuit High Bank 2
P0087	Fuel Rail/System Pressure Too Low
P0088	Fuel Rail/System Pressure Too High
P0089	Fuel Pressure Regulator 1 Performance
P0090	Fuel Pressure Regulator 1 Control Circuit
P0091	Fuel Pressure Regulator 1 Control Circuit Low
P0092	Fuel Pressure Regulator 1 Control Circuit High
P0093	Fuel System Leak Detected Large Leak
P0094	Fuel System Leak Detected Small Leak
P0095	Intake Air Temperature Sensor 2 Circuit
P0096	Intake Air Temperature Sensor 2 Circuit Range/Performance
P0097	Intake Air Temperature Sensor 2 Circuit Low
P0098	Intake Air Temperature Sensor 2 Circuit High
P0099	Intake Air Temperature Sensor 2 Circuit Intermittent/Erratic
P009A	Intake Air Temperature / Ambient Air Temperature Correlation

P01## DTC Definitions

DTC	DTC Definition
P0100	Mass or Volume Air Flow A Circuit
P0101	Mass or Volume Air Flow A Circuit Range/Performance
P0102	Mass or Volume Air Flow A Circuit Low
P0103	Mass or Volume Air Flow A Circuit High
P0104	Mass or Volume Air Flow A Circuit Intermittent
P0105	Manifold Absolute Pressure/Barometric Pressure Circuit
P0106	Manifold Absolute Pressure/Barometric Pressure Circuit Range/Performance
P0107	Manifold Absolute Pressure/Barometric Pressure Circuit Low
P0108	Manifold Absolute Pressure/Barometric Pressure Circuit High
P0109	Manifold Absolute Pressure/Barometric Pressure Circuit Intermittent
P010A	Mass or Volume Air Flow B Circuit
P010B	Mass or Volume Air Flow B Circuit Range/Performance
P010C	Mass or Volume Air Flow B Circuit Low
P010D	Mass or Volume Air Flow B Circuit High
P010E	Mass or Volume Air Flow B Circuit Intermittent/Erratic
P010F	Mass or Volume Air Flow Sensor A/B Correlation
P0110	Intake Air Temperature Sensor 1 Circuit
P0111	Intake Air Temperature Sensor 1 Circuit Range/Performance
P0112	Intake Air Temperature Sensor 1 Circuit Low
P0113	Intake Air Temperature Sensor 1 Circuit High
P0114	Intake Air Temperature Sensor 1 Circuit Intermittent
P0115	Engine Coolant Temperature Sensor 1 Circuit
P0116	Engine Coolant Temperature Sensor 1 Circuit Range/Performance
P0117	Engine Coolant Temperature Sensor 1 Circuit Low
P0118	Engine Coolant Temperature Sensor 1 Circuit High
P0119	Engine Coolant Temperature Sensor 1 Circuit Intermittent
P011A	Engine Coolant Temperature Sensor 1/2 Correlation
P0120	Throttle/Pedal Position Sensor/Switch A Circuit
P0121	Throttle/Pedal Position Sensor/Switch A Circuit Range/Performance
P0122	Throttle/Pedal Position Sensor/Switch A Circuit Low
P0123	Throttle/Pedal Position Sensor/Switch A Circuit High
P0124	Throttle/Pedal Position Sensor/Switch A Circuit Intermittent
P0125	Insufficient Coolant Temperature for Closed Loop Fuel Control
P0126	Insufficient Coolant Temperature for Stable Operation
P0127	Intake Air Temperature Too High
P0128	Coolant Thermostat (Coolant Temperature Below Thermostat Regulating Temperature)
P0129	Barometric Pressure Too Low
P012A	Turbocharger/Supercharger Inlet Pressure Sensor Circuit
P012B	Turbocharger/Supercharger Inlet Pressure Sensor Circuit Range/Performance
P012C	Turbocharger/Supercharger Inlet Pressure Sensor Circuit Low
P012D	Turbocharger/Supercharger Inlet Pressure Sensor Circuit High
P012E	Turbocharger/Supercharger Inlet Pressure Sensor Circuit Intermittent/Erratic
P0130	O2 Sensor Circuit Bank 1 Sensor 1
P0131	O2 Sensor Circuit Low Voltage Bank 1 Sensor 1
P0132	O2 Sensor Circuit High Voltage Bank 1 Sensor 1
P0133	O2 Sensor Circuit Slow Response Bank 1 Sensor 1
P0134	O2 Sensor Circuit No Activity Detected Bank 1 Sensor 1
P0135	O2 Sensor Heater Circuit Bank 1 Sensor 1
P0136	O2 Sensor Circuit Bank 1 Sensor 2
P0137	O2 Sensor Circuit Low Voltage Bank 1 Sensor 2
P0138	O2 Sensor Circuit High Voltage Bank 1 Sensor 2
P0139	O2 Sensor Circuit Slow Response Bank 1 Sensor 2
P0140	O2 Sensor Circuit No Activity Detected Bank 1 Sensor 2
P0141	O2 Sensor Heater Circuit Bank 1 Sensor 2
P0142	O2 Sensor Circuit Bank 1 Sensor 3
P0143	O2 Sensor Circuit Low Voltage Bank 1 Sensor 3
P0144	O2 Sensor Circuit High Voltage Bank 1 Sensor 3
P0145	O2 Sensor Circuit Slow Response Bank 1 Sensor 3

DTC	DTC Definition
P0146	O2 Sensor Circuit No Activity Detected Bank 1 Sensor 3
P0147	O2 Sensor Heater Circuit Bank 1 Sensor 3
P0148	Fuel Delivery Error
P0149	Fuel Timing Error
P0150	O2 Sensor Circuit Bank 2 Sensor 1
P0151	O2 Sensor Circuit Low Voltage Bank 2 Sensor 1
P0152	O2 Sensor Circuit High Voltage Bank 2 Sensor 1
P0153	O2 Sensor Circuit Slow Response Bank 2 Sensor 1
P0154	O2 Sensor Circuit No Activity Detected Bank 2 Sensor 1
P0155	O2 Sensor Heater Circuit Bank 2 Sensor 1
P0156	O2 Sensor Circuit Bank 2 Sensor 2
P0157	O2 Sensor Circuit Low Voltage Bank 2 Sensor 2
P0158	O2 Sensor Circuit High Voltage Bank 2 Sensor 2
P0159	O2 Sensor Circuit Slow Response Bank 2 Sensor 2
P0160	O2 Sensor Circuit No Activity Detected Bank 2 Sensor 2
P0161	O2 Sensor Heater Circuit Bank 2 Sensor 2
P0162	O2 Sensor Circuit Bank 2 Sensor 3
P0163	O2 Sensor Circuit Low Voltage Bank 2 Sensor 3
P0164	O2 Sensor Circuit High Voltage Bank 2 Sensor 3
P0165	O2 Sensor Circuit Slow Response Bank 2 Sensor 3
P0166	O2 Sensor Circuit No Activity Detected Bank 2 Sensor 3
P0167	O2 Sensor Heater Circuit Bank 2 Sensor 3
P0168	Fuel Temperature Too High
P0169	Incorrect Fuel Composition
P0170	Fuel Trim Bank 1
P0171	System Too Lean Bank 1
P0172	System Too Rich Bank 1
P0173	Fuel Trim Bank 2
P0174	System Too Lean Bank 2
P0175	System Too Rich Bank 2
P0176	Fuel Composition Sensor Circuit
P0177	Fuel Composition Sensor Circuit Range/Performance
P0178	Fuel Composition Sensor Circuit Low
P0179	Fuel Composition Sensor Circuit High
P0180	Fuel Temperature Sensor A Circuit
P0181	Fuel Temperature Sensor A Circuit Range/Performance
P0182	Fuel Temperature Sensor A Circuit Low
P0183	Fuel Temperature Sensor A Circuit High
P0184	Fuel Temperature Sensor A Circuit Intermittent
P0185	Fuel Temperature Sensor B Circuit
P0186	Fuel Temperature Sensor B Circuit Range/Performance
P0187	Fuel Temperature Sensor B Circuit Low
P0188	Fuel Temperature Sensor B Circuit High
P0189	Fuel Temperature Sensor B Circuit Intermittent
P018A	Fuel Pressure Sensor B Circuit
P018B	Fuel Pressure Sensor B Circuit Range/Performance
P018C	Fuel Pressure Sensor B Circuit Low
P018D	Fuel Pressure Sensor B Circuit High
P018E	Fuel Pressure Sensor B Circuit Intermittent/Erratic
P0190	Fuel Rail Pressure Sensor A Circuit
P0191	Fuel Rail Pressure Sensor A Circuit Range/Performance
P0192	Fuel Rail Pressure Sensor A Circuit Low
P0193	Fuel Rail Pressure Sensor A Circuit High
P0194	Fuel Rail Pressure Sensor A Circuit Intermittent/Erratic
P0195	Engine Oil Temperature Sensor
P0196	Engine Oil Temperature Sensor Range/Performance
P0197	Engine Oil Temperature Sensor Low
P0198	Engine Oil Temperature Sensor High
P0199	Engine Oil Temperature Sensor Intermittent

P02## DTC Definitions

DTC	DTC Definition
P0200	Injector Circuit/Open
P0201	Injector Circuit/Open Cylinder 1
P0202	Injector Circuit/Open Cylinder 2
P0203	Injector Circuit/Open Cylinder 3
P0204	Injector Circuit/Open Cylinder 4
P0205	Injector Circuit/Open Cylinder 5
P0206	Injector Circuit/Open Cylinder 6
P0207	Injector Circuit/Open Cylinder 7
P0208	Injector Circuit/Open Cylinder 8
P0209	Injector Circuit/Open Cylinder 9
P020A	Cylinder 1 Injection Timing
P020B	Cylinder 2 Injection Timing
P020C	Cylinder 3 Injection Timing
P020D	Cylinder 4 Injection Timing
P020E	Cylinder 5 Injection Timing
P020F	Cylinder 6 Injection Timing
P0210	Injector Circuit/Open Cylinder 10
P0211	Injector Circuit/Open Cylinder 11
P0212	Injector Circuit/Open Cylinder 12
P0213	Cold Start Injector 1
P0214	Cold Start Injector 2
P0215	Engine Shutoff Solenoid
P0216	Injector/Injection Timing Control Circuit
P0217	Engine Coolant Over Temperature Condition
P0218	Transmission Fluid Over Temperature Condition
P0219	Engine Overspeed Condition
P021A	Cylinder 7 Injection Timing
P021B	Cylinder 8 Injection Timing
P021C	Cylinder 9 Injection Timing
P021D	Cylinder 10 Injection Timing
P021E	Cylinder 11 Injection Timing
P021F	Cylinder 12 Injection Timing
P0220	Throttle/Pedal Position Sensor/Switch B Circuit
P0221	Throttle/Pedal Position Sensor/Switch B Circuit Range/Performance
P0222	Throttle/Pedal Position Sensor/Switch B Circuit Low
P0223	Throttle/Pedal Position Sensor/Switch B Circuit High
P0224	Throttle/Pedal Position Sensor/Switch B Circuit Intermittent
P0225	Throttle/Pedal Position Sensor/Switch C Circuit
P0226	Throttle/Pedal Position Sensor/Switch C Circuit Range/Performance
P0227	Throttle/Pedal Position Sensor/Switch C Circuit Low
P0228	Throttle/Pedal Position Sensor/Switch C Circuit High
P0229	Throttle/Pedal Position Sensor/Switch C Circuit Intermittent
P022A	Charge Air Cooler Bypass Control A Circuit /Open
P022B	Charge Air Cooler Bypass Control A Circuit Low
P022C	Charge Air Cooler Bypass Control A Circuit High
P022D	Charge Air Cooler Bypass Control B Circuit /Open
P022E	Charge Air Cooler Bypass Control B Circuit Low
P022F	Charge Air Cooler Bypass Control B Circuit High
P0230	Fuel Pump Primary Circuit
P0231	Fuel Pump Secondary Circuit Low
P0232	Fuel Pump Secondary Circuit High
P0233	Fuel Pump Secondary Circuit Intermittent
P0234	Turbocharger/Supercharger Overboost Condition
P0235	Turbocharger/Supercharger Boost Sensor A Circuit
P0236	Turbocharger/Supercharger Boost Sensor A Circuit Range/Performance
P0237	Turbocharger/Supercharger Boost Sensor A Circuit Low
P0238	Turbocharger/Supercharger Boost Sensor A Circuit High
P0239	Turbocharger/Supercharger Boost Sensor B Circuit

DTC	DTC Definition
P023A	Charge Air Cooler Coolant Pump Control Circuit/Open
P023B	Charge Air Cooler Coolant Pump Control Circuit Low
P023C	Charge Air Cooler Coolant Pump Control Circuit High
P023D	Manifold Absolute Pressure Turbocharger/Supercharger Boost Sensor A Correlation
P023E	Manifold Absolute Pressure Turbocharger/Supercharger Boost Sensor B Correlation
P0240	Turbocharger/Supercharger Boost Sensor B Circuit Range/Performance
P0241	Turbocharger/Supercharger Boost Sensor B Circuit Low
P0242	Turbocharger/Supercharger Boost Sensor B Circuit High
P0243	Turbocharger/Supercharger Wastegate Solenoid A
P0244	Turbocharger/Supercharger Wastegate Solenoid A Range/Performance
P0245	Turbocharger/Supercharger Wastegate Solenoid A Low
P0246	Turbocharger/Supercharger Wastegate Solenoid A High
P0247	Turbocharger/Supercharger Wastegate Solenoid B
P0248	Turbocharger/Supercharger Wastegate Solenoid B Range/Performance
P0249	Turbocharger/Supercharger Wastegate Solenoid B Low
P024A	Charge Air Cooler Bypass Control A Range/Performance
P024B	Charge Air Cooler Bypass Control A Stuck
P024C	Charge Air Cooler Bypass Position Sensor A Circuit
P024D	Charge Air Cooler Bypass Position Sensor A Circuit Range/Performance
P024E	Charge Air Cooler Bypass Position Sensor A Circuit Low
P024F	Charge Air Cooler Bypass Position Sensor A Circuit High
P0250	Turbocharger/Supercharger Wastegate Solenoid B High
P0251	Injection Pump Fuel Metering Control A (Cam/Rotor/Injector)
P0252	Injection Pump Fuel Metering Control A Range/Performance (Cam/Rotor/Injector)
P0253	Injection Pump Fuel Metering Control A Low (Cam/Rotor/Injector)
P0254	Injection Pump Fuel Metering Control A High (Cam/Rotor/Injector)
P0255	Injection Pump Fuel Metering Control A Intermittent (Cam/Rotor/Injector)
P0256	Injection Pump Fuel Metering Control B (Cam/Rotor/Injector)
P0257	Injection Pump Fuel Metering Control B Range/Performance (Cam/Rotor/Injector)
P0258	Injection Pump Fuel Metering Control B Low (Cam/Rotor/Injector)
P0259	Injection Pump Fuel Metering Control B High (Cam/Rotor/Injector)
P025A	Fuel Pump Module Control Circuit/Open
P025B	Fuel Pump Module Control Circuit Range/Performance
P025C	Fuel Pump Module Control Circuit Low
P025D	Fuel Pump Module Control Circuit High
P0260	Injection Pump Fuel Metering Control B Intermittent (Cam/Rotor/Injector)
P0261	Cylinder 1 Injector Circuit Low
P0262	Cylinder 1 Injector Circuit High
P0263	Cylinder 1 Contribution/Balance
P0264	Cylinder 2 Injector Circuit Low
P0265	Cylinder 2 Injector Circuit High
P0266	Cylinder 2 Contribution/Balance
P0267	Cylinder 3 Injector Circuit Low
P0268	Cylinder 3 Injector Circuit High
P0269	Cylinder 3 Contribution/Balance
P0270	Cylinder 4 Injector Circuit Low
P0271	Cylinder 4 Injector Circuit High
P0272	Cylinder 4 Contribution/Balance
P0273	Cylinder 5 Injector Circuit Low
P0274	Cylinder 5 Injector Circuit High
P0275	Cylinder 5 Contribution/Balance
P0276	Cylinder 6 Injector Circuit Low
P0277	Cylinder 6 Injector Circuit High
P0278	Cylinder 6 Contribution/Balance
P0279	Cylinder 7 Injector Circuit Low
P0280	Cylinder 7 Injector Circuit High
P0281	Cylinder 7 Contribution/Balance
P0282	Cylinder 8 Injector Circuit Low
P0283	Cylinder 8 Injector Circuit High
P0284	Cylinder 8 Contribution/Balance

DTC	DTC Definition
P0285	Cylinder 9 Injector Circuit Low
P0286	Cylinder 9 Injector Circuit High
P0287	Cylinder 9 Contribution/Balance
P0288	Cylinder 10 Injector Circuit Low
P0289	Cylinder 10 Injector Circuit High
P0290	Cylinder 10 Contribution/Balance
P0291	Cylinder 11 Injector Circuit Low
P0292	Cylinder 11 Injector Circuit High
P0293	Cylinder 11 Contribution/Balance
P0294	Cylinder 12 Injector Circuit Low
P0295	Cylinder 12 Injector Circuit High
P0296	Cylinder 12 Contribution/Balance
P0297	Vehicle Over Speed Condition
P0298	Engine Oil Over Temperature
P0299	Turbocharger/Supercharger Underboost

P03## DTC Definitions

DTC	DTC Definition
P0300	Random/Multiple Cylinder Misfire Detected
P0301	Cylinder 1 Misfire Detected
P0302	Cylinder 2 Misfire Detected
P0303	Cylinder 3 Misfire Detected
P0304	Cylinder 4 Misfire Detected
P0305	Cylinder 5 Misfire Detected
P0306	Cylinder 6 Misfire Detected
P0307	Cylinder 7 Misfire Detected
P0308	Cylinder 8 Misfire Detected
P0309	Cylinder 9 Misfire Detected
P0310	Cylinder 10 Misfire Detected
P0311	Cylinder 11 Misfire Detected
P0312	Cylinder 12 Misfire Detected
P0313	Misfire Detected With Low Fuel
P0314	Single Cylinder Misfire (Cylinder not Specified)
P0315	Crankshaft Position System Variation Not Learned
P0316	Engine Misfire Detected on Startup (First 1000 Revolutions)
P0317	Rough Road Hardware Not Present
P0318	Rough Road Sensor A Signal Circuit
P0319	Rough Road Sensor B Signal Circuit
P0320	Ignition/Distributor Engine Speed Input Circuit
P0321	Ignition/Distributor Engine Speed Input Circuit Range/Performance
P0322	Ignition/Distributor Engine Speed Input Circuit No Signal
P0323	Ignition/Distributor Engine Speed Input Circuit Intermittent
P0324	Knock Control System Error
P0325	Knock Sensor 1 Circuit Bank 1 or Single Sensor
P0326	Knock Sensor 1 Circuit Range/Performance Bank 1 or Single Sensor
P0327	Knock Sensor 1 Circuit Low Bank 1 or Single Sensor
P0328	Knock Sensor 1 Circuit High Bank 1 or Single Sensor
P0329	Knock Sensor 1 Circuit Intermittent Bank 1 or Single Sensor
P0330	Knock Sensor 2 Circuit Bank 2
P0331	Knock Sensor 2 Circuit Range/Performance Bank 2
P0332	Knock Sensor 2 Circuit Low Bank 2
P0333	Knock Sensor 2 Circuit High Bank 2
P0334	Knock Sensor 2 Circuit Intermittent Bank 2
P0335	Crankshaft Position Sensor A Circuit
P0336	Crankshaft Position Sensor A Circuit Range/Performance
P0337	Crankshaft Position Sensor A Circuit Low
P0338	Crankshaft Position Sensor A Circuit High
P0339	Crankshaft Position Sensor A Circuit Intermittent
P0340	Camshaft Position Sensor A Circuit Bank 1 or Single Sensor
P0341	Camshaft Position Sensor A Circuit Range/Performance Bank 1 or Single Sensor
P0342	Camshaft Position Sensor A Circuit Low Bank 1 or Single Sensor
P0343	Camshaft Position Sensor A Circuit High Bank 1 or Single Sensor
P0344	Camshaft Position Sensor A Circuit Intermittent Bank 1 or Single Sensor
P0345	Camshaft Position Sensor A Circuit Bank 2
P0346	Camshaft Position Sensor A Circuit Range/Performance Bank 2
P0347	Camshaft Position Sensor A Circuit Low Bank 2
P0348	Camshaft Position Sensor A Circuit High Bank 2
P0349	Camshaft Position Sensor A Circuit Intermittent Bank 2
P0350	Ignition Coil Primary/Secondary Circuit
P0351	Ignition Coil A Primary/Secondary Circuit
P0352	Ignition Coil B Primary/Secondary Circuit
P0353	Ignition Coil C Primary/Secondary Circuit
P0354	Ignition Coil D Primary/Secondary Circuit
P0355	Ignition Coil E Primary/Secondary Circuit
P0356	Ignition Coil F Primary/Secondary Circuit
P0357	Ignition Coil G Primary/Secondary Circuit
P0358	Ignition Coil H Primary/Secondary Circuit
P0359	Ignition Coil I Primary/Secondary Circuit

DTC	DTC Definition
P0360	Ignition Coil J Primary/Secondary Circuit
P0361	Ignition Coil K Primary/Secondary Circuit
P0362	Ignition Coil L Primary/Secondary Circuit
P0363	Misfire Detected Fueling Disabled
P0365	Camshaft Position Sensor B Circuit Bank 1
P0366	Camshaft Position Sensor B Circuit Range/Performance Bank 1
P0367	Camshaft Position Sensor B Circuit Low Bank 1
P0368	Camshaft Position Sensor B Circuit High Bank 1
P0369	Camshaft Position Sensor B Circuit Intermittent Bank 1
P0370	Timing Reference High Resolution Signal A
P0371	Timing Reference High Resolution Signal A Too Many Pulses
P0372	Timing Reference High Resolution Signal A Too Few Pulses
P0373	Timing Reference High Resolution Signal A Intermittent/Erratic Pulses
P0374	Timing Reference High Resolution Signal A No Pulse
P0375	Timing Reference High Resolution Signal B
P0376	Timing Reference High Resolution Signal B Too Many Pulses
P0377	Timing Reference High Resolution Signal B Too Few Pulses
P0378	Timing Reference High Resolution Signal B Intermittent/Erratic Pulses
P0379	Timing Reference High Resolution Signal B No Pulses
P0380	Glow Plug/Heater Circuit A
P0381	Glow Plug/Heater Indicator Circuit
P0382	Glow Plug/Heater Circuit B
P0383	Glow Plug Control Module Control Circuit Low
P0384	Glow Plug Control Module Control Circuit High
P0385	Crankshaft Position Sensor B Circuit
P0386	Crankshaft Position Sensor B Circuit Range/Performance
P0387	Crankshaft Position Sensor B Circuit Low
P0388	Crankshaft Position Sensor B Circuit High
P0389	Crankshaft Position Sensor B Circuit Intermittent
P0390	Camshaft Position Sensor B Circuit Bank 2
P0391	Camshaft Position Sensor B Circuit Range/Performance Bank 2
P0392	Camshaft Position Sensor B Circuit Low Bank 2
P0393	Camshaft Position Sensor B Circuit High Bank 2
P0394	Camshaft Position Sensor B Circuit Intermittent Bank 2

P04### DTC Definitions

DTC	DTC Definition
P0400	Exhaust Gas Recirculation Flow
P0401	Exhaust Gas Recirculation Flow Insufficient Detected
P0402	Exhaust Gas Recirculation Flow Excessive Detected
P0403	Exhaust Gas Recirculation Control Circuit
P0404	Exhaust Gas Recirculation Control Circuit Range/Performance
P0405	Exhaust Gas Recirculation Sensor A Circuit Low
P0406	Exhaust Gas Recirculation Sensor A Circuit High
P0407	Exhaust Gas Recirculation Sensor B Circuit Low
P0408	Exhaust Gas Recirculation Sensor B Circuit High
P0409	Exhaust Gas Recirculation Sensor A Circuit
P040A	Exhaust Gas Recirculation Temperature Sensor A Circuit
P040B	Exhaust Gas Recirculation Temperature Sensor A Circuit Range/Performance
P040C	Exhaust Gas Recirculation Temperature Sensor A Circuit Low
P040D	Exhaust Gas Recirculation Temperature Sensor A Circuit High
P040E	Exhaust Gas Recirculation Temperature Sensor A Circuit Intermittent/Erratic
P040F	Exhaust Gas Recirculation Temperature Sensor A/B Correlation
P0410	Secondary Air Injection System
P0411	Secondary Air Injection System Incorrect Flow Detected
P0412	Secondary Air Injection System Switching Valve A Circuit
P0413	Secondary Air Injection System Switching Valve A Circuit Open
P0414	Secondary Air Injection System Switching Valve A Circuit Shorted
P0415	Secondary Air Injection System Switching Valve B Circuit
P0416	Secondary Air Injection System Switching Valve B Circuit Open
P0417	Secondary Air Injection System Switching Valve B Circuit Shorted
P0418	Secondary Air Injection System Control A Circuit
P0419	Secondary Air Injection System Control B Circuit
P041A	Exhaust Gas Recirculation Temperature Sensor B Circuit
P041B	Exhaust Gas Recirculation Temperature Sensor B Circuit Range/Performance
P041C	Exhaust Gas Recirculation Temperature Sensor B Circuit Low
P041D	Exhaust Gas Recirculation Temperature Sensor B Circuit High
P041E	Exhaust Gas Recirculation Temperature Sensor B Circuit Intermittent/Erratic
P0420	Catalyst System Efficiency Below Threshold Bank 1
P0421	Warm Up Catalyst Efficiency Below Threshold Bank 1
P0422	Main Catalyst Efficiency Below Threshold Bank 1
P0423	Heated Catalyst Efficiency Below Threshold Bank 1
P0424	Heated Catalyst Temperature Below Threshold Bank 1
P0425	Catalyst Temperature Sensor Circuit Bank 1 Sensor 1
P0426	Catalyst Temperature Sensor Circuit Range/Performance Bank 1 Sensor 1
P0427	Catalyst Temperature Sensor Circuit Low Bank 1 Sensor 1
P0428	Catalyst Temperature Sensor Circuit High Bank 1 Sensor 1
P0429	Catalyst Heater Control Circuit Bank 1
P042A	Catalyst Temperature Sensor Circuit Bank 1 Sensor 2
P042B	Catalyst Temperature Sensor Circuit Range/Performance Bank 1 Sensor 2
P042C	Catalyst Temperature Sensor Circuit Low Bank 1 Sensor 2
P042D	Catalyst Temperature Sensor Circuit High Bank 1 Sensor 2
P0430	Catalyst System Efficiency Below Threshold Bank 2
P0431	Warm Up Catalyst Efficiency Below Threshold Bank 2
P0432	Main Catalyst Efficiency Below Threshold Bank 2
P0433	Heated Catalyst Efficiency Below Threshold Bank 2
P0434	Heated Catalyst Temperature Below Threshold Bank 2
P0435	Catalyst Temperature Sensor Circuit Bank 2 Sensor 1
P0436	Catalyst Temperature Sensor Circuit Range/Performance Bank 2 Sensor 1
P0437	Catalyst Temperature Sensor Circuit Low Bank 2 Sensor 1
P0438	Catalyst Temperature Sensor Circuit High Bank 2 Sensor 1
P0439	Catalyst Heater Control Circuit Bank 2
P043A	Catalyst Temperature Sensor Circuit Bank 2 Sensor 2
P043B	Catalyst Temperature Sensor Circuit Range/Performance Bank 2 Sensor 2
P043C	Catalyst Temperature Sensor Circuit Low Bank 2 Sensor 2
P043D	Catalyst Temperature Sensor Circuit High Bank 2 Sensor 2
P043E	Evaporative Emission System Leak Detection Reference Orifice Low Flow
P043F	Evaporative Emission System Leak Detection Reference Orifice High Flow
P0440	Evaporative Emission System

DTC	DTC Definition
P0441	Evaporative Emission System Incorrect Purge Flow
P0442	Evaporative Emission System Leak Detected (small leak)
P0443	Evaporative Emission System Purge Control Valve Circuit
P0444	Evaporative Emission System Purge Control Valve Circuit Open
P0445	Evaporative Emission System Purge Control Valve Circuit Shorted
P0446	Evaporative Emission System Vent Control Circuit
P0447	Evaporative Emission System Vent Control Circuit Open
P0448	Evaporative Emission System Vent Control Circuit Shorted
P0449	Evaporative Emission System Vent Valve/Solenoid Circuit
P0450	Evaporative Emission System Pressure Sensor/Switch
P0451	Evaporative Emission System Pressure Sensor/Switch Range/Performance
P0452	Evaporative Emission System Pressure Sensor/Switch Low
P0453	Evaporative Emission System Pressure Sensor/Switch High
P0454	Evaporative Emission System Pressure Sensor/Switch Intermittent
P0455	Evaporative Emission System Leak Detected (large leak)
P0456	Evaporative Emission System Leak Detected (very small leak)
P0457	Evaporative Emission System Leak Detected (fuel cap loose/off)
P0458	Evaporative Emission System Purge Control Valve Circuit Low
P0459	Evaporative Emission System Purge Control Valve Circuit High
P0460	Fuel Level Sensor A Circuit
P0461	Fuel Level Sensor A Circuit Range/Performance
P0462	Fuel Level Sensor A Circuit Low
P0463	Fuel Level Sensor A Circuit High
P0464	Fuel Level Sensor A Circuit Intermittent
P0465	EVAP Purge Flow Sensor Circuit
P0466	EVAP Purge Flow Sensor Circuit Range/Performance
P0467	EVAP Purge Flow Sensor Circuit Low
P0468	EVAP Purge Flow Sensor Circuit High
P0469	EVAP Purge Flow Sensor Circuit Intermittent
P0470	Exhaust Pressure Sensor A Circuit
P0471	Exhaust Pressure Sensor A Circuit Range/Performance
P0472	Exhaust Pressure Sensor A Circuit Low
P0473	Exhaust Pressure Sensor A Circuit High
P0474	Exhaust Pressure Sensor A Circuit Intermittent/Erratic
P0475	Exhaust Pressure Control Valve
P0476	Exhaust Pressure Control Valve Range/Performance
P0477	Exhaust Pressure Control Valve Low
P0478	Exhaust Pressure Control Valve High
P0479	Exhaust Pressure Control Valve Intermittent
P047A	Exhaust Pressure Sensor B Circuit
P047B	Exhaust Pressure Sensor B Circuit Range/Performance
P047C	Exhaust Pressure Sensor B Circuit Low
P047D	Exhaust Pressure Sensor B Circuit High
P047E	Exhaust Pressure Sensor B Circuit Intermittent/Erratic
P0480	Fan 1 Control Circuit
P0481	Fan 2 Control Circuit
P0482	Fan 3 Control Circuit
P0483	Fan Rationality Check
P0484	Fan Circuit Over Current
P0485	Fan Power/Ground Circuit
P0486	Exhaust Gas Recirculation Sensor B Circuit
P0487	Exhaust Gas Recirculation Throttle Control Circuit A /Open
P0488	Exhaust Gas Recirculation Throttle Control Circuit A Range/Performance
P0489	Exhaust Gas Recirculation Control Circuit A Low
P0490	Exhaust Gas Recirculation Control Circuit A High
P0491	Secondary Air Injection System Insufficient Flow Bank 1
P0492	Secondary Air Injection System Insufficient Flow Bank 2
P0493	Fan Over Speed
P0494	Fan Speed Low
P0495	Fan Speed High
P0496	Evaporative Emission System High Purge Flow
P0497	Evaporative Emission System Low Purge Flow
P0498	Evaporative Emission System Vent Valve Control Circuit Low
P0499	Evaporative Emission System Vent Valve Control Circuit High

P05## DTC Definitions

DTC	DTC Definition
P0500	Vehicle Speed Sensor A
P0501	Vehicle Speed Sensor A Range/Performance
P0502	Vehicle Speed Sensor A Circuit Low
P0503	Vehicle Speed Sensor A Intermittent/Erratic/High
P0504	Brake Switch A/B Correlation
P0505	Idle Air Control System
P0506	Idle Air Control System RPM Lower Than Expected
P0507	Idle Air Control System RPM Higher Than Expected
P0508	Idle Air Control System Circuit Low
P0509	Idle Air Control System Circuit High
P050A	Cold Start Idle Air Control System Performance
P050B	Cold Start Ignition Timing Performance
P050C	Cold Start Engine Coolant Temperature Performance
P050D	Cold Start Rough Idle
P0510	Closed Throttle Position Switch
P0511	Idle Air Control Circuit
P0512	Starter Request Circuit
P0513	Incorrect Immobilizer Key
P0514	Battery Temperature Sensor Circuit Range/Performance
P0515	Battery Temperature Sensor Circuit
P0516	Battery Temperature Sensor Circuit Low
P0517	Battery Temperature Sensor Circuit High
P0518	Idle Air Control Circuit Intermittent
P0519	Idle Air Control System Performance
P0520	Engine Oil Pressure Sensor/Switch Circuit
P0521	Engine Oil Pressure Sensor/Switch Range/Performance
P0522	Engine Oil Pressure Sensor/Switch Low
P0523	Engine Oil Pressure Sensor/Switch High
P0524	Engine Oil Pressure Too Low
P0525	Cruise Control Servo Control Circuit Range/Performance
P0526	Fan Speed Sensor Circuit
P0527	Fan Speed Sensor Circuit Range/Performance
P0528	Fan Speed Sensor Circuit No Signal
P0529	Fan Speed Sensor Circuit Intermittent
P0530	A/C Refrigerant Pressure Sensor A Circuit
P0531	A/C Refrigerant Pressure Sensor A Circuit Range/Performance
P0532	A/C Refrigerant Pressure Sensor A Circuit Low
P0533	A/C Refrigerant Pressure Sensor A Circuit High
P0534	A/C Refrigerant Charge Loss
P0535	A/C Evaporator Temperature Sensor Circuit
P0536	A/C Evaporator Temperature Sensor Circuit Range/Performance
P0537	A/C Evaporator Temperature Sensor Circuit Low
P0538	A/C Evaporator Temperature Sensor Circuit High
P0539	A/C Evaporator Temperature Sensor Circuit Intermittent
P053A	Positive Crankcase Ventilation Heater Control Circuit /Open
P053B	Positive Crankcase Ventilation Heater Control Circuit Low
P053C	Positive Crankcase Ventilation Heater Control Circuit High
P0540	Intake Air Heater A Circuit
P0541	Intake Air Heater A Circuit Low
P0542	Intake Air Heater A Circuit High
P0543	Intake Air Heater A Circuit Open
P0544	Exhaust Gas Temperature Sensor Circuit Bank 1 Sensor 1
P0545	Exhaust Gas Temperature Sensor Circuit Low Bank 1 Sensor 1
P0546	Exhaust Gas Temperature Sensor Circuit High Bank 1 Sensor 1
P0547	Exhaust Gas Temperature Sensor Circuit Bank 2 Sensor 1
P0548	Exhaust Gas Temperature Sensor Circuit Low Bank 2 Sensor 1
P0549	Exhaust Gas Temperature Sensor Circuit High Bank 2 Sensor 1
P0550	Power Steering Pressure Sensor/Switch Circuit
P0551	Power Steering Pressure Sensor/Switch Circuit Range/Performance
P0552	Power Steering Pressure Sensor/Switch Circuit Low
P0553	Power Steering Pressure Sensor/Switch Circuit High
P0554	Power Steering Pressure Sensor/Switch Circuit Intermittent

DTC	DTC Definition
P0555	Brake Booster Pressure Sensor Circuit
P0556	Brake Booster Pressure Sensor Circuit Range/Performance
P0557	Brake Booster Pressure Sensor Circuit Low
P0558	Brake Booster Pressure Sensor Circuit High
P0559	Brake Booster Pressure Sensor Circuit Intermittent
P0560	System Voltage
P0561	System Voltage Unstable
P0562	System Voltage Low
P0563	System Voltage High
P0564	Cruise Control Multi-Function Input A Circuit
P0565	Cruise Control On Signal
P0566	Cruise Control Off Signal
P0567	Cruise Control Resume Signal
P0568	Cruise Control Set Signal
P0569	Cruise Control Coast Signal
P056A	Cruise Control Increase Distance Signal
P056B	Cruise Control Decrease Distance Signal
P0570	Cruise Control Accelerate Signal
P0571	Brake Switch A Circuit
P0572	Brake Switch A Circuit Low
P0573	Brake Switch A Circuit High
P0574	Cruise Control System Vehicle Speed Too High
P0575	Cruise Control Input Circuit
P0576	Cruise Control Input Circuit Low
P0577	Cruise Control Input Circuit High
P0578	Cruise Control Multi-Function Input A Circuit Stuck
P0579	Cruise Control Multi-Function Input A Circuit Range/Performance
P0580	Cruise Control Multi-Function Input A Circuit Low
P0581	Cruise Control Multi-Function Input A Circuit High
P0582	Cruise Control Vacuum Control Circuit/Open
P0583	Cruise Control Vacuum Control Circuit Low
P0584	Cruise Control Vacuum Control Circuit High
P0585	Cruise Control Multi-Function Input A/B Correlation
P0586	Cruise Control Vent Control Circuit/Open
P0587	Cruise Control Vent Control Circuit Low
P0588	Cruise Control Vent Control Circuit High
P0589	Cruise Control Multi-Function Input B Circuit
P0590	Cruise Control Multi-Function Input B Circuit Stuck
P0591	Cruise Control Multi-Function Input B Circuit Range/Performance
P0592	Cruise Control Multi-Function Input B Circuit Low
P0593	Cruise Control Multi-Function Input B Circuit High
P0594	Cruise Control Servo Control Circuit/Open
P0595	Cruise Control Servo Control Circuit Low
P0596	Cruise Control Servo Control Circuit High
P0597	Thermostat Heater Control Circuit/Open
P0598	Thermostat Heater Control Circuit Low
P0599	Thermostat Heater Control Circuit High

P06## DTC Definitions

DTC	DTC Definition
P0600	Serial Communication Link
P0601	Internal Control Module Memory Check Sum Error
P0602	Control Module Programming Error
P0603	Internal Control Module Keep Alive Memory (KAM) Error
P0604	Internal Control Module Random Access Memory (RAM) Error
P0605	Internal Control Module Read Only Memory (ROM) Error
P0606	ECM/PCM Processor
P0607	Control Module Performance
P0608	Control Module VSS Output A
P0609	Control Module VSS Output B
P060A	Internal Control Module Monitoring Processor Performance
P060B	Internal Control Module A/D Processing Performance
P060C	Internal Control Module Main Processor Performance
P060D	Internal Control Module Accelerator Pedal Position Performance
P060E	Internal Control Module Throttle Position Performance
P060F	Internal Control Module Coolant Temperature Performance
P0610	Control Module Vehicle Options Error
P0611	Fuel Injector Control Module Performance
P0612	Fuel Injector Control Module Relay Control
P0613	TCM Processor
P0614	ECM / TCM Incompatible
P0615	Starter Relay Circuit
P0616	Starter Relay Circuit Low
P0617	Starter Relay Circuit High
P0618	Alternative Fuel Control Module KAM Error
P0619	Alternative Fuel Control Module RAM/ROM Error
P061A	Internal Control Module Torque Performance
P061B	Internal Control Module Torque Calculation Performance
P061C	Internal Control Module Engine RPM Performance
P061D	Internal Control Module Engine Air Mass Performance
P061E	Internal Control Module Brake Signal Performance
P061F	Internal Control Module Throttle Actuator Controller Performance
P0620	Generator Control Circuit
P0621	Generator Lamp/L Terminal Circuit
P0622	Generator Field/F Terminal Circuit
P0623	Generator Lamp Control Circuit
P0624	Fuel Cap Lamp Control Circuit
P0625	Generator Field/F Terminal Circuit Low
P0626	Generator Field/F Terminal Circuit High
P0627	Fuel Pump A Control Circuit/Open
P0628	Fuel Pump A Control Circuit Low
P0629	Fuel Pump A Control Circuit High
P062A	Fuel Pump A Control Circuit Range/Performance
P062B	Internal Control Module Fuel Injector Control Performance
P062C	Internal Control Module Vehicle Speed Performance
P062D	Fuel Injector Driver Circuit Performance Bank 1
P062E	Fuel Injector Driver Circuit Performance Bank 2
P062F	Internal Control Module EEPROM Error
P0630	VIN Not Programmed or Incompatible ECM/PCM
P0631	VIN Not Programmed or Incompatible TCM
P0632	Odometer Not Programmed ECM/PCM
P0633	Immobilizer Key Not Programmed ECM/PCM
P0634	PCM/ECM/TCM Internal Temperature Too High
P0635	Power Steering Control Circuit
P0636	Power Steering Control Circuit Low
P0637	Power Steering Control Circuit High
P0638	Throttle Actuator Control Range/Performance Bank 1
P0639	Throttle Actuator Control Range/Performance Bank 2

DTC	DTC Definition
P063A	Generator Voltage Sense Circuit
P063B	Generator Voltage Sense Circuit Range/Performance
P063C	Generator Voltage Sense Circuit Low
P063D	Generator Voltage Sense Circuit High
P063E	Auto Configuration Throttle Input Not Present
P063F	Auto Configuration Engine Coolant Temperature Input Not Present
P0640	Intake Air Heater Control Circuit
P0641	Sensor Reference Voltage A Circuit/Open
P0642	Sensor Reference Voltage A Circuit Low
P0643	Sensor Reference Voltage A Circuit High
P0644	Driver Display Serial Communication Circuit
P0645	A/C Clutch Relay Control Circuit
P0646	A/C Clutch Relay Control Circuit Low
P0647	A/C Clutch Relay Control Circuit High
P0648	Immobilizer Lamp Control Circuit
P0649	Speed Control Lamp Control Circuit
P0650	Malfunction Indicator Lamp (MIL) Control Circuit
P0651	Sensor Reference Voltage B Circuit/Open
P0652	Sensor Reference Voltage B Circuit Low
P0653	Sensor Reference Voltage B Circuit High
P0654	Engine RPM Output Circuit
P0655	Engine Hot Lamp Output Control Circuit
P0656	Fuel Level Output Circuit
P0657	Actuator Supply Voltage A Circuit/Open
P0658	Actuator Supply Voltage A Circuit Low
P0659	Actuator Supply Voltage A Circuit High
P065A	Generator System Performance
P065B	Generator Control Circuit Range/Performance
P0660	Intake Manifold Tuning Valve Control Circuit/Open Bank 1a
P0661	Intake Manifold Tuning Valve Control Circuit Low Bank 1a
P0662	Intake Manifold Tuning Valve Control Circuit High Bank 1a
P0663	Intake Manifold Tuning Valve Control Circuit/Open Bank 2a
P0664	Intake Manifold Tuning Valve Control Circuit Low Bank 2a
P0665	Intake Manifold Tuning Valve Control Circuit High Bank 2a
P0666	PCM/ECM/TCM Internal Temperature Sensor Circuit
P0667	PCM/ECM/TCM Internal Temperature Sensor Range/Performance
P0668	PCM/ECM/TCM Internal Temperature Sensor Circuit Low
P0669	PCM/ECM/TCM Internal Temperature Sensor Circuit High
P066A	Glow Plug 1 Control Circuit Low
P066B	Glow Plug 1 Control Circuit High
P066C	Glow Plug 2 Control Circuit Low
P066D	Glow Plug 2 Control Circuit High
P066E	Glow Plug 3 Control Circuit Low
P066F	Glow Plug 3 Control Circuit High
P0670	Glow Plug Control Module Control Circuit/Open
P0671	Cylinder 1 Glow Plug Circuit/Open
P0672	Cylinder 2 Glow Plug Circuit/Open
P0673	Cylinder 3 Glow Plug Circuit/Open
P0674	Cylinder 4 Glow Plug Circuit/Open
P0675	Cylinder 5 Glow Plug Circuit/Open
P0676	Cylinder 6 Glow Plug Circuit/Open
P0677	Cylinder 7 Glow Plug Circuit/Open
P0678	Cylinder 8 Glow Plug Circuit/Open
P0679	Cylinder 9 Glow Plug Circuit/Open
P067A	Glow Plug 4 Control Circuit Low
P067B	Glow Plug 4 Control Circuit High
P067C	Glow Plug 5 Control Circuit Low
P067D	Glow Plug 5 Control Circuit High
P067E	Glow Plug 6 Control Circuit Low
P067F	Glow Plug 6 Control Circuit High

DTC	DTC Definition
P0680	Cylinder 10 Glow Plug Circuit/Open
P0681	Cylinder 11 Glow Plug Circuit/Open
P0682	Cylinder 12 Glow Plug Circuit/Open
P0683	Glow Plug Control Module to PCM Communication Circuit
P0684	Glow Plug Control Module to PCM Communication Circuit Range/Performance
P0685	ECM/PCM Power Relay Control Circuit/Open
P0686	ECM/PCM Power Relay Control Circuit Low
P0687	ECM/PCM Power Relay Control Circuit High
P0688	ECM/PCM Power Relay Sense Circuit/Open
P0689	ECM/PCM Power Relay Sense Circuit Low
P068A	ECM/PCM Power Relay De-Energized Performance Too Early
P068B	ECM/PCM Power Relay De-Energized Performance Too Late
P068C	Glow Plug 7 Control Circuit Low
P068D	Glow Plug 7 Control Circuit High
P068E	Glow Plug 8 Control Circuit Low
P068F	Glow Plug 8 Control Circuit High
P0690	ECM/PCM Power Relay Sense Circuit High
P0691	Fan 1 Control Circuit Low
P0692	Fan 1 Control Circuit High
P0693	Fan 2 Control Circuit Low
P0694	Fan 2 Control Circuit High
P0695	Fan 3 Control Circuit Low
P0696	Fan 3 Control Circuit High
P0697	Sensor Reference Voltage C Circuit/Open
P0698	Sensor Reference Voltage C Circuit Low
P0699	Sensor Reference Voltage C Circuit High
P069A	Glow Plug 9 Control Circuit Low
P069B	Glow Plug 9 Control Circuit High
P069C	Glow Plug 10 Control Circuit Low
P069D	Glow Plug 10 Control Circuit High

P07## DTC Definitions

DTC	DTC Definition
P0700	Transmission Control System (MIL Request)
P0701	Transmission Control System Range/Performance
P0702	Transmission Control System Electrical
P0703	Brake Switch B Circuit
P0704	Clutch Switch Input Circuit
P0705	Transmission Range Sensor A Circuit (PRNDL Input)
P0706	Transmission Range Sensor A Circuit Range/Performance
P0707	Transmission Range Sensor A Circuit Low
P0708	Transmission Range Sensor A Circuit High
P0709	Transmission Range Sensor A Circuit Intermittent
P070A	Transmission Fluid Level Sensor Circuit
P070B	Transmission Fluid Level Sensor Circuit Range/Performance
P070C	Transmission Fluid Level Sensor Circuit Low
P070D	Transmission Fluid Level Sensor Circuit High
P070E	Transmission Fluid Level Sensor Circuit intermittent/Erratic
P070F	Transmission Fluid Level Too Low
P0710	Transmission Fluid Temperature Sensor A Circuit
P0711	Transmission Fluid Temperature Sensor A Circuit Range/Performance
P0712	Transmission Fluid Temperature Sensor A Circuit Low
P0713	Transmission Fluid Temperature Sensor A Circuit High
P0714	Transmission Fluid Temperature Sensor A Circuit Intermittent
P0715	Input/Turbine Speed Sensor A Circuit
P0716	Input/Turbine Speed Sensor A Circuit Range/Performance
P0717	Input/Turbine Speed Sensor A Circuit No Signal
P0718	Input/Turbine Speed Sensor A Circuit Intermittent
P0719	Brake Switch B Circuit Low
P071A	Transmission Mode Switch A Circuit
P071B	Transmission Mode Switch A Circuit Low
P071C	Transmission Mode Switch A Circuit High
P071D	Transmission Mode Switch B Circuit
P071E	Transmission Mode Switch B Circuit Low
P071F	Transmission Mode Switch B Circuit High
P0720	Output Speed Sensor Circuit
P0721	Output Speed Sensor Circuit Range/Performance
P0722	Output Speed Sensor Circuit No Signal
P0723	Output Speed Sensor Circuit Intermittent
P0724	Brake Switch B Circuit High
P0725	Engine Speed Input Circuit
P0726	Engine Speed Input Circuit Range/Performance
P0727	Engine Speed Input Circuit No Signal
P0728	Engine Speed Input Circuit Intermittent
P0729	Gear 6 Incorrect Ratio
P0730	Incorrect Gear Ratio
P0731	Gear 1 Incorrect Ratio
P0732	Gear 2 Incorrect Ratio
P0733	Gear 3 Incorrect Ratio
P0734	Gear 4 Incorrect Ratio
P0735	Gear 5 Incorrect Ratio
P0736	Reverse Incorrect Ratio
P0737	TCM Engine Speed Output Circuit
P0738	TCM Engine Speed Output Circuit Low
P0739	TCM Engine Speed Output Circuit High
P0740	Torque Converter Clutch Circuit/Open
P0741	Torque Converter Clutch Circuit Performance/Stuck Off
P0742	Torque Converter Clutch Circuit Stuck On
P0743	Torque Converter Clutch Circuit Electrical
P0744	Torque Converter Clutch Circuit Intermittent
P0745	Pressure Control Solenoid A
P0746	Pressure Control Solenoid A Performance/Stuck Off
P0747	Pressure Control Solenoid A Stuck On
P0748	Pressure Control Solenoid A Electrical
P0749	Pressure Control Solenoid A Intermittent

DTC	DTC Definition
P0750	Shift Solenoid A
P0751	Shift Solenoid A Performance/Stuck Off
P0752	Shift Solenoid A Stuck On
P0753	Shift Solenoid A Electrical
P0754	Shift Solenoid A Intermittent
P0755	Shift Solenoid B
P0756	Shift Solenoid B Performance/Stuck Off
P0757	Shift Solenoid B Stuck On
P0758	Shift Solenoid B Electrical
P0759	Shift Solenoid B Intermittent
P075A	Shift Solenoid G
P075B	Shift Solenoid G Performance/Stuck Off
P075C	Shift Solenoid G Stuck On
P075D	Shift Solenoid G Electrical
P075E	Shift Solenoid G Intermittent
P0760	Shift Solenoid C
P0761	Shift Solenoid C Performance/Stuck Off
P0762	Shift Solenoid C Stuck On
P0763	Shift Solenoid C Electrical
P0764	Shift Solenoid C Intermittent
P0765	Shift Solenoid D
P0766	Shift Solenoid D Performance/Stuck Off
P0767	Shift Solenoid D Stuck On
P0768	Shift Solenoid D Electrical
P0769	Shift Solenoid D Intermittent
P076A	Shift Solenoid H
P076B	Shift Solenoid H Performance/Stuck Off
P076C	Shift Solenoid H Stuck On
P076D	Shift Solenoid H Electrical
P076E	Shift Solenoid H Intermittent
P076F	Gear 7 Incorrect Ratio
P0770	Shift Solenoid E
P0771	Shift Solenoid E Performance/Stuck Off
P0772	Shift Solenoid E Stuck On
P0773	Shift Solenoid E Electrical
P0774	Shift Solenoid E Intermittent
P0775	Pressure Control Solenoid B
P0776	Pressure Control Solenoid B Performance/Stuck Off
P0777	Pressure Control Solenoid B Stuck On
P0778	Pressure Control Solenoid B Electrical
P0779	Pressure Control Solenoid B Intermittent
P0780	Shift Error
P0781	1-2 Shift
P0782	2-3 Shift
P0783	3-4 Shift
P0784	4-5 Shift
P0785	Shift/Timing Solenoid
P0786	Shift/Timing Solenoid Range/Performance
P0787	Shift/Timing Solenoid Low
P0788	Shift/Timing Solenoid High
P0789	Shift/Timing Solenoid Intermittent
P0790	Normal/Performance Switch Circuit
P0791	Intermediate Shaft Speed Sensor A Circuit
P0792	Intermediate Shaft Speed Sensor A Circuit Range/Performance
P0793	Intermediate Shaft Speed Sensor A Circuit No Signal
P0794	Intermediate Shaft Speed Sensor A Circuit Intermittent
P0795	Pressure Control Solenoid C
P0796	Pressure Control Solenoid C Performance/Stuck Off
P0797	Pressure Control Solenoid C Stuck On
P0798	Pressure Control Solenoid C Electrical
P0799	Pressure Control Solenoid C Intermittent

P08## DTC Definitions

DTC	DTC Definition
P0800	Transfer Case Control System (MIL Request)
P0801	Reverse Inhibit Control Circuit
P0802	Transmission Control System MIL Request Circuit/Open
P0803	Upshift/Skip Shift Solenoid Control Circuit
P0804	Upshift/Skip Shift Lamp Control Circuit
P0805	Clutch Position Sensor Circuit
P0806	Clutch Position Sensor Circuit Range/Performance
P0807	Clutch Position Sensor Circuit Low
P0808	Clutch Position Sensor Circuit High
P0809	Clutch Position Sensor Circuit Intermittent
P080A	Clutch Position Not Learned
P080B	Upshift/Skip Shift Solenoid Control Circuit Range/Performance
P080C	Upshift/Skip Shift Solenoid Control Circuit Low
P080D	Upshift/Skip Shift Solenoid Control Circuit High
P0810	Clutch Position Control Error
P0811	Excessive Clutch A Slippage
P0812	Reverse Input Circuit
P0813	Reverse Output Circuit
P0814	Transmission Range Display Circuit
P0815	Upshift Switch Circuit
P0816	Downshift Switch Circuit
P0817	Starter Disable Circuit/Open
P0818	Driveline Disconnect Switch Input Circuit
P0819	Up and Down Shift Switch to Transmission Range Correlation
P081A	Starter Disable Circuit Low
P081B	Starter Disable Circuit High
P081C	Park Input Circuit
P081D	Neutral Input Circuit
P081E	Excessive Clutch B Slippage
P0820	Gear Lever X-Y Position Sensor Circuit
P0821	Gear Lever X Position Circuit
P0822	Gear Lever Y Position Circuit
P0823	Gear Lever X Position Circuit Intermittent
P0824	Gear Lever Y Position Circuit Intermittent
P0825	Gear Lever Push-Pull Switch (Shift Anticipate)
P0826	Up and Down Shift Switch Circuit
P0827	Up and Down Shift Switch Circuit Low
P0828	Up and Down Shift Switch Circuit High
P0829	5-6 Shift
P0830	Clutch Pedal Switch A Circuit
P0831	Clutch Pedal Switch A Circuit Low
P0832	Clutch Pedal Switch A Circuit High
P0833	Clutch Pedal Switch B Circuit
P0834	Clutch Pedal Switch B Circuit Low
P0835	Clutch Pedal Switch B Circuit High
P0836	Four Wheel Drive (4WD) Switch Circuit
P0837	Four Wheel Drive (4WD) Switch Circuit Range/Performance
P0838	Four Wheel Drive (4WD) Switch Circuit Low
P0839	Four Wheel Drive (4WD) Switch Circuit High
P083A	Transmission Fluid Pressure Sensor/Switch G Circuit
P083B	Transmission Fluid Pressure Sensor/Switch G Circuit Range/Performance
P083C	Transmission Fluid Pressure Sensor/Switch G Circuit Low
P083D	Transmission Fluid Pressure Sensor/Switch G Circuit High
P083E	Transmission Fluid Pressure Sensor/Switch G Circuit Intermittent
P083F	Clutch Pedal Switch A/B Correlation
P0840	Transmission Fluid Pressure Sensor/Switch A Circuit
P0841	Transmission Fluid Pressure Sensor/Switch A Circuit Range/Performance
P0842	Transmission Fluid Pressure Sensor/Switch A Circuit Low
P0843	Transmission Fluid Pressure Sensor/Switch A Circuit High
P0844	Transmission Fluid Pressure Sensor/Switch A Circuit Intermittent
P0845	Transmission Fluid Pressure Sensor/Switch B Circuit

DTC	DTC Definition
P0846	Transmission Fluid Pressure Sensor/Switch B Circuit Range/Performance
P0847	Transmission Fluid Pressure Sensor/Switch B Circuit Low
P0848	Transmission Fluid Pressure Sensor/Switch B Circuit High
P0849	Transmission Fluid Pressure Sensor/Switch B Circuit Intermittent
P084A	Transmission Fluid Pressure Sensor/Switch H Circuit
P084B	Transmission Fluid Pressure Sensor/Switch H Circuit Range/Performance
P084C	Transmission Fluid Pressure Sensor/Switch H Circuit Low
P084D	Transmission Fluid Pressure Sensor/Switch H Circuit High
P084E	Transmission Fluid Pressure Sensor/Switch H Circuit Intermittent
P0850	Park/Neutral Switch Input Circuit
P0851	Park/Neutral Switch Input Circuit Low
P0852	Park/Neutral Switch Input Circuit High
P0853	Drive Switch Input Circuit
P0854	Drive Switch Input Circuit Low
P0855	Drive Switch Input Circuit High
P0856	Traction Control Input Signal
P0857	Traction Control Input Signal Range/Performance
P0858	Traction Control Input Signal Low
P0859	Traction Control Input Signal High
P085A	Gear Shift Module B Communication Circuit
P085B	Gear Shift Module B Communication Circuit Low
P085C	Gear Shift Module B Communication Circuit High
P0860	Gear Shift Module A Communication Circuit
P0861	Gear Shift Module A Communication Circuit Low
P0862	Gear Shift Module A Communication Circuit High
P0863	TCM Communication Circuit
P0864	TCM Communication Circuit Range/Performance
P0865	TCM Communication Circuit Low
P0866	TCM Communication Circuit High
P0867	Transmission Fluid Pressure
P0868	Transmission Fluid Pressure Low
P0869	Transmission Fluid Pressure High
P0870	Transmission Fluid Pressure Sensor/Switch C Circuit
P0871	Transmission Fluid Pressure Sensor/Switch C Circuit Range/Performance
P0872	Transmission Fluid Pressure Sensor/Switch C Circuit Low
P0873	Transmission Fluid Pressure Sensor/Switch C Circuit High
P0874	Transmission Fluid Pressure Sensor/Switch C Circuit Intermittent
P0875	Transmission Fluid Pressure Sensor/Switch D Circuit
P0876	Transmission Fluid Pressure Sensor/Switch D Circuit Range/Performance
P0877	Transmission Fluid Pressure Sensor/Switch D Circuit Low
P0878	Transmission Fluid Pressure Sensor/Switch D Circuit High
P0879	Transmission Fluid Pressure Sensor/Switch D Circuit Intermittent
P0880	TCM Power Input Signal
P0881	TCM Power Input Signal Range/Performance
P0882	TCM Power Input Signal Low
P0883	TCM Power Input Signal High
P0884	TCM Power Input Signal Intermittent
P0885	TCM Power Relay Control Circuit/Open
P0886	TCM Power Relay Control Circuit Low
P0887	TCM Power Relay Control Circuit High
P0888	TCM Power Relay Sense Circuit
P0889	TCM Power Relay Sense Circuit Range/Performance
P0890	TCM Power Relay Sense Circuit Low
P0891	TCM Power Relay Sense Circuit High
P0892	TCM Power Relay Sense Circuit Intermittent
P0893	Multiple Gears Engaged
P0894	Transmission Component Slipping
P0895	Shift Time Too Short
P0896	Shift Time Too Long
P0897	Transmission Fluid Deteriorated
P0898	Transmission Control System MIL Request Circuit Low
P0899	Transmission Control System MIL Request Circuit High

P09## DTC Definitions

DTC	DTC Definition
P0900	Clutch Actuator Circuit/Open
P0901	Clutch Actuator Circuit Range/Performance
P0902	Clutch Actuator Circuit Low
P0903	Clutch Actuator Circuit High
P0904	Gate Select Position Circuit
P0905	Gate Select Position Circuit Range/Performance
P0906	Gate Select Position Circuit Low
P0907	Gate Select Position Circuit High
P0908	Gate Select Position Circuit Intermittent
P0909	Gate Select Control Error
P0910	Gate Select Actuator Circuit/Open
P0911	Gate Select Actuator Circuit Range/Performance
P0912	Gate Select Actuator Circuit Low
P0913	Gate Select Actuator Circuit High
P0914	Gear Shift Position Circuit
P0915	Gear Shift Position Circuit Range/Performance
P0916	Gear Shift Position Circuit Low
P0917	Gear Shift Position Circuit High
P0918	Gear Shift Position Circuit Intermittent
P0919	Gear Shift Position Control Error
P0920	Gear Shift Forward Actuator Circuit/Open
P0921	Gear Shift Forward Actuator Circuit Range/Performance
P0922	Gear Shift Forward Actuator Circuit Low
P0923	Gear Shift Forward Actuator Circuit High
P0924	Gear Shift Reverse Actuator Circuit/Open
P0925	Gear Shift Reverse Actuator Circuit Range/Performance
P0926	Gear Shift Reverse Actuator Circuit Low
P0927	Gear Shift Reverse Actuator Circuit High
P0928	Gear Shift Lock Solenoid Control Circuit/Open
P0929	Gear Shift Lock Solenoid Control Circuit Range/Performance
P0930	Gear Shift Lock Solenoid Control Circuit Low
P0931	Gear Shift Lock Solenoid Control Circuit High
P0932	Hydraulic Pressure Sensor Circuit
P0933	Hydraulic Pressure Sensor Range/Performance
P0934	Hydraulic Pressure Sensor Circuit Low
P0935	Hydraulic Pressure Sensor Circuit High
P0936	Hydraulic Pressure Sensor Circuit Intermittent
P0937	Hydraulic Oil Temperature Sensor Circuit
P0938	Hydraulic Oil Temperature Sensor Range/Performance
P0939	Hydraulic Oil Temperature Sensor Circuit Low
P0940	Hydraulic Oil Temperature Sensor Circuit High
P0941	Hydraulic Oil Temperature Sensor Circuit Intermittent
P0942	Hydraulic Pressure Unit
P0943	Hydraulic Pressure Unit Cycling Period Too Short
P0944	Hydraulic Pressure Unit Loss of Pressure
P0945	Hydraulic Pump Relay Circuit/Open
P0946	Hydraulic Pump Relay Circuit Range/Performance
P0947	Hydraulic Pump Relay Circuit Low
P0948	Hydraulic Pump Relay Circuit High
P0949	Auto Shift Manual Adaptive Learning Not Complete
P0950	Auto Shift Manual Control Circuit
P0951	Auto Shift Manual Control Circuit Range/Performance
P0952	Auto Shift Manual Control Circuit Low
P0953	Auto Shift Manual Control Circuit High
P0954	Auto Shift Manual Control Circuit Intermittent
P0955	Auto Shift Manual Mode Circuit
P0956	Auto Shift Manual Mode Circuit Range/Performance
P0957	Auto Shift Manual Mode Circuit Low
P0958	Auto Shift Manual Mode Circuit High
P0959	Auto Shift Manual Mode Circuit Intermittent

DTC	DTC Definition
P0960	Pressure Control Solenoid A Control Circuit/Open
P0961	Pressure Control Solenoid A Control Circuit Range/Performance
P0962	Pressure Control Solenoid A Control Circuit Low
P0963	Pressure Control Solenoid A Control Circuit High
P0964	Pressure Control Solenoid B Control Circuit/Open
P0965	Pressure Control Solenoid B Control Circuit Range/Performance
P0966	Pressure Control Solenoid B Control Circuit Low
P0967	Pressure Control Solenoid B Control Circuit High
P0968	Pressure Control Solenoid C Control Circuit/Open
P0969	Pressure Control Solenoid C Control Circuit Range/Performance
P0970	Pressure Control Solenoid C Control Circuit Low
P0971	Pressure Control Solenoid C Control Circuit High
P0972	Shift Solenoid A Control Circuit Range/Performance
P0973	Shift Solenoid A Control Circuit Low
P0974	Shift Solenoid A Control Circuit High
P0975	Shift Solenoid B Control Circuit Range/Performance
P0976	Shift Solenoid B Control Circuit Low
P0977	Shift Solenoid B Control Circuit High
P0978	Shift Solenoid C Control Circuit Range/Performance
P0979	Shift Solenoid C Control Circuit Low
P0980	Shift Solenoid C Control Circuit High
P0981	Shift Solenoid D Control Circuit Range/Performance
P0982	Shift Solenoid D Control Circuit Low
P0983	Shift Solenoid D Control Circuit High
P0984	Shift Solenoid E Control Circuit Range/Performance
P0985	Shift Solenoid E Control Circuit Low
P0986	Shift Solenoid E Control Circuit High
P0987	Transmission Fluid Pressure Sensor/Switch E Circuit
P0988	Transmission Fluid Pressure Sensor/Switch E Circuit Range/Performance
P0989	Transmission Fluid Pressure Sensor/Switch E Circuit Low
P0990	Transmission Fluid Pressure Sensor/Switch E Circuit High
P0991	Transmission Fluid Pressure Sensor/Switch E Circuit Intermittent
P0992	Transmission Fluid Pressure Sensor/Switch F Circuit
P0993	Transmission Fluid Pressure Sensor/Switch F Circuit Range/Performance
P0994	Transmission Fluid Pressure Sensor/Switch F Circuit Low
P0995	Transmission Fluid Pressure Sensor/Switch F Circuit High
P0996	Transmission Fluid Pressure Sensor/Switch F Circuit Intermittent
P0997	Shift Solenoid F Control Circuit Range/Performance
P0998	Shift Solenoid F Control Circuit Low
P0999	Shift Solenoid F Control Circuit High

Inspection and Maintenance



Procedures not specifically explained in this manual must be performed only by a qualified technician.

!WARNING

TO PREVENT SERIOUS INJURY FROM ELECTRICAL SHOCK:

Unplug the Code Reader from the vehicle before performing any procedure in this section.

Inspection

BEFORE EACH USE, inspect the general condition of the Code Reader. Check for:

- cracked or damaged Cable,
- cracked or broken parts, and
- any other condition that may affect its safe operation.

Cleaning and Storage

1. **AFTER USE**, use a mild detergent on a clean cloth to remove any oil, grease or dirt from the Code Reader, especially on the buttons, being careful to not put excessive pressure on the LCD Screen.
2. Store the Code Reader, and accessories away from sunlight in a dry, locked area, out of the reach of children.

Troubleshooting

Problem	Possible Causes	Likely Solutions
Code Reader doesn't power up	<ol style="list-style-type: none">1. OBD II Cable connector not connected securely.2. Cable's or vehicle's DLC connector pins are bent or broken.3. Vehicle's battery is bad.	<ol style="list-style-type: none">1. Verify that Cable connector is securely connected to the vehicle's DLC.2. Check if the DLC pins are bent or broken. If bent or broken, have a certified technician repair the DLC.3. Make sure vehicle's battery is providing at least 8 VDC.
Vehicle Linking Error	<ol style="list-style-type: none">1. Vehicle is not OBD II compliant.2. Ignition is off.3. Bad connection.	<ol style="list-style-type: none">1. Verify that the vehicle is OBD II compliant.2. Verify that the ignition is ON.3. Try Rescan function or reset Code Reader by turning off ignition, wait 10 seconds, and turn ignition to ACC.



Follow all safety precautions whenever diagnosing or servicing the tool. Disconnect power supply before service.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Record Serial Number Here:

Note: If product has no serial number, record month and year of purchase instead.

Note: Replacement parts are not available for this item.

Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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