BRITISH STANDARD

BS ISO
15031-6:2005

Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics —

Part 6: Diagnostic trouble code definitions

ICS 13.040.50; 43.040.10

BSI
British Standards

National foreword

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The UK participation in its preparation was entrusted to Technical Committee AUE/16, Electrical and electronic equipment, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Summary of pages

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INTERNATIONAL STANDARD

ISO 15031-6

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2005-12-01

Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics —

Part 6: Diagnostic trouble code definitions

Véhicules routiers — Communications entre un véhicule et un équipement externe pour le diagnostic relatif aux émissions —

Partie 6: Définition des codes d'anomalie de diagnostic

Reference number
ISO 15031-6:2005(E)

=:

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15031-6 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 15031 consists of the following parts, under the general title *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics*:

— *Part 1: General information*

— *Part 2: Terms, definitions, abbreviations and acronyms*

— *Part 3: Diagnostic connector and related electrical circuits, specification and use*

— *Part 4: External test equipment*

— *Part 5: Emissions-related diagnostic services*

— *Part 6: Diagnostic trouble code definitions*

— *Part 7: Data link security*

Introduction

ISO 15031 consists of a number of parts which taken together provide a coherent self-consistent set of specifications to facilitate emissions-related diagnostics. Parts 2 through 7 are based on SAE-recommended practices.

This part of ISO 15031 is based on SAE J2012: MAR99 (Recommended Practice for Diagnostic Trouble Code Definitions).

ISO 15031-1 provides an introduction to the series of International Standards.

Most automobile manufacturers equip at least a portion of their product line with some on-board diagnostic (OBD) capability. These systems provide an indication as to the general location of the diagnosed malfunction. This information is provided through an alphanumeric code.

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Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics —

Part 6:
Diagnostic trouble code definitions

1 Scope

This part of ISO 15031 provides recommended uniformity for alphanumeric trouble codes. It further provides guidance for uniform messages associated with these codes.

It specifies several sections addressing format, structure, messages and a few examples, and is applicable to electrical/electronic systems diagnostics of motor vehicles.

Annex A specifies the diagnostic trouble code naming guidelines for signals from components, signals to components, system based diagnostics, and signals using a subfault strategy.

Annex B specifies the actual code assignments and description for powertrain system diagnostic trouble codes.

Annex C specifies the actual code assignments and description for network communication system diagnostic trouble codes, body system diagnostic trouble codes, and chassis system diagnostic trouble codes.

Annex D specifies the DTC failure category and Subtype definition of the DTC failure type byte which is an extension of a base DTC to more precisely describe the fault symptom of the DTC.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TR 15031-2, *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 2: Terms, definitions, abbreviations and acronyms*

ISO 14229-1, *Road vehicles — Unified diagnostic services (UDS) — Part 1: Specification and requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15031-2 and the following apply.

3.1
circuit/open
fixed value or no response from the system where specific high or low detection is not feasible or can be used in conjunction with circuit low and high codes where all three circuit conditions can be detected

NOTE The term “malfunction” has, in most cases, been deleted from the DTC description.

3.2
range/performance
circuit in the normal operating range, but not correct for current operating conditions

NOTE This may be used to indicate stuck or skewed values indicating poor performance of a circuit, component or system.

3.3
low input
circuit voltage, frequency, or other characteristic measured at the control module input terminal or pin that is below the normal operating range

3.4
high input
circuit voltage, frequency, or other characteristic measured at the control module input terminal or pin that is above the normal operating range

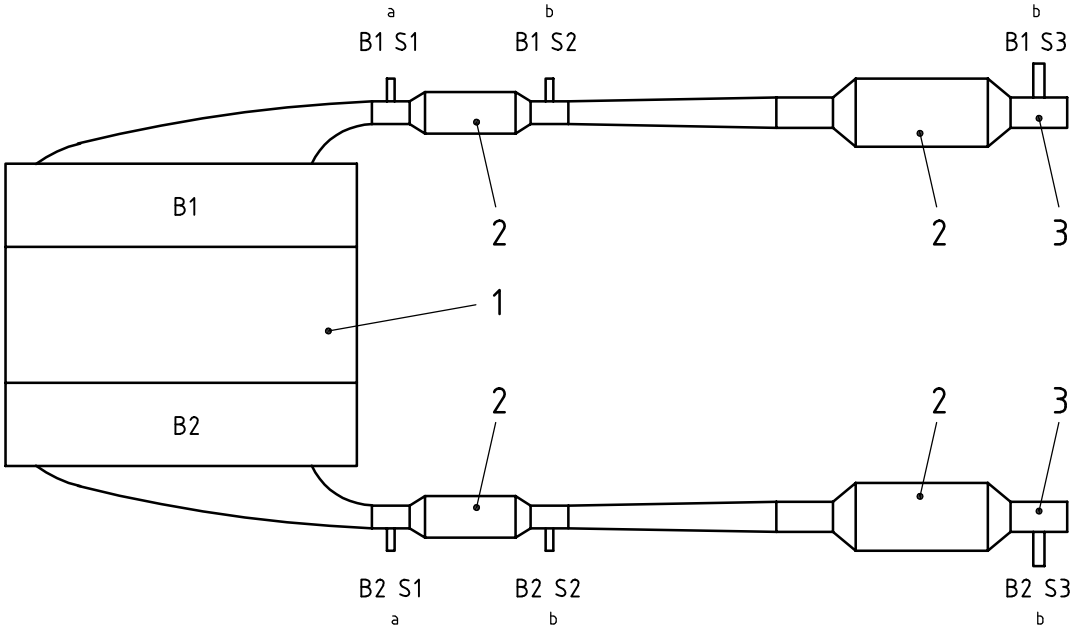
3.5
bank
specific group of cylinders sharing a common control sensor

NOTE 1 Bank 1 always contains cylinder number 1; bank 2 is the opposite bank.

NOTE 2 If there is only one bank, bank 1 DTCs are used, and the word “bank” may be omitted. With a single bank system using multiple sensors, bank 1 is used.

3.6
sensor location
location of a sensor in relation to the engine air flow, starting from the fresh air intake through to the vehicle tailpipe or fuel flow from the fuel tank to the engine, numbered in order 1, 2, 3 and so on

NOTE See Figure 1 through Figure 7.

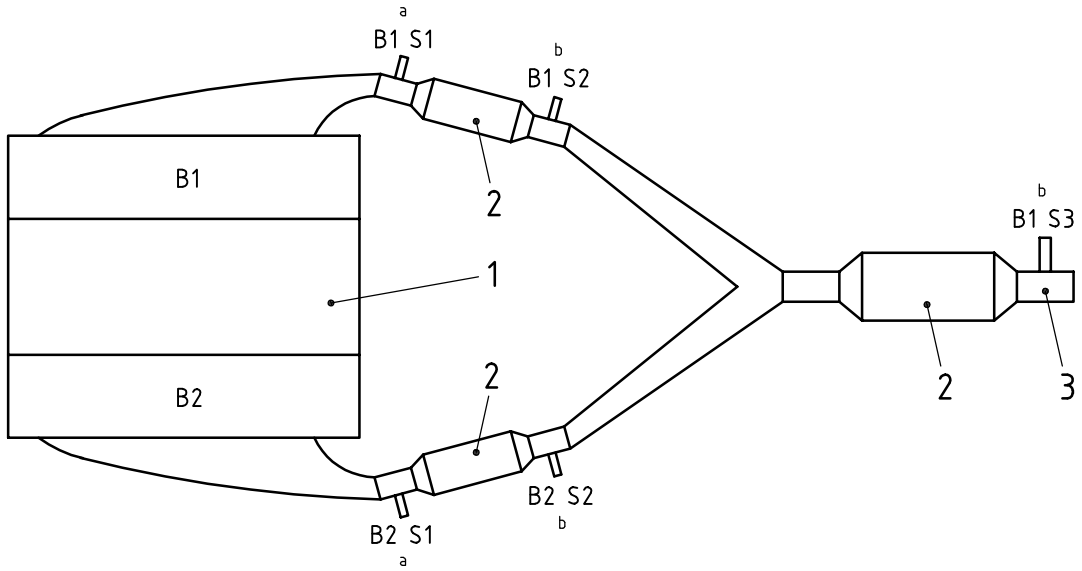


Key

B1	cylinder Bank 1	S1	sensor 1	1	V6/V8/V12 cylinder engine with exhaust banks
B2	cylinder Bank 2	S2	sensor 2	2	catalyst
		S3	sensor 3	3	tail pipe

a wide range
b heated

Figure 1 — Example of V6/V8/V12 cylinder engine with two exhaust banks and four catalysts

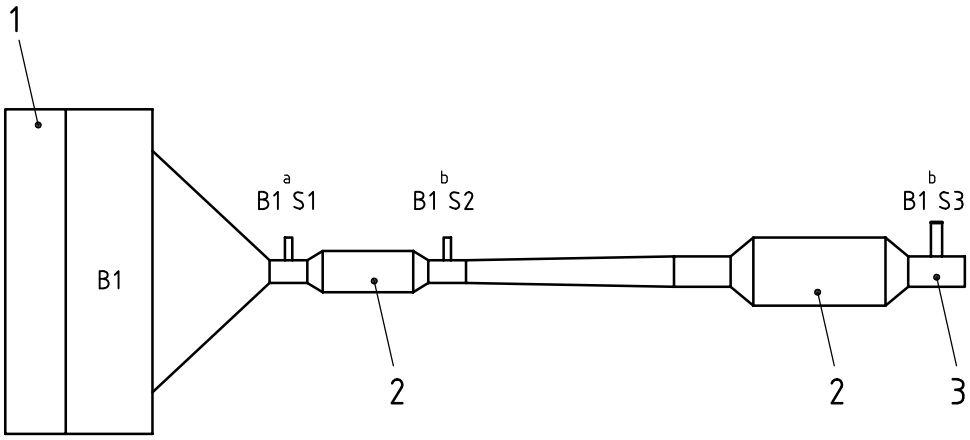


Key

B1	cylinder Bank 1	S1	sensor 1	1	V6/V8/V12 cylinder engine with exhaust banks
B2	cylinder Bank 2	S2	sensor 2	2	catalyst
		S3	sensor 3	3	tail pipe

[a] wide range
[b] heated

Figure 2 — Example of V6/V8/V12 cylinder engine with two exhaust banks and three catalysts

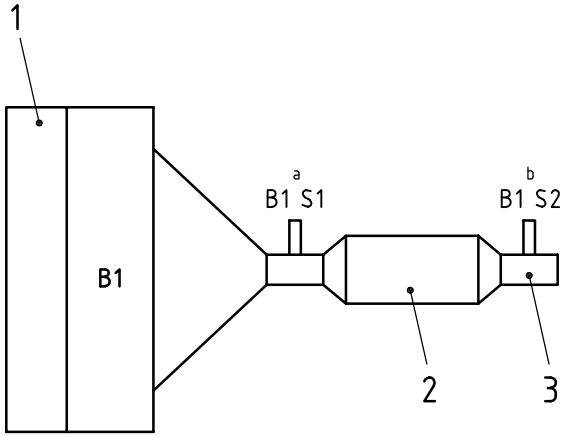


Key

B1	cylinder Bank 1	S1	sensor 1	1	4-cylinder engine with exhaust banks
		S2	sensor 2	2	catalyst
		S3	sensor 3	3	tail pipe

[a] wide range
[b] heated

Figure 3 — Example of L4/L5/L6 cylinder engine with one exhaust bank and two catalysts



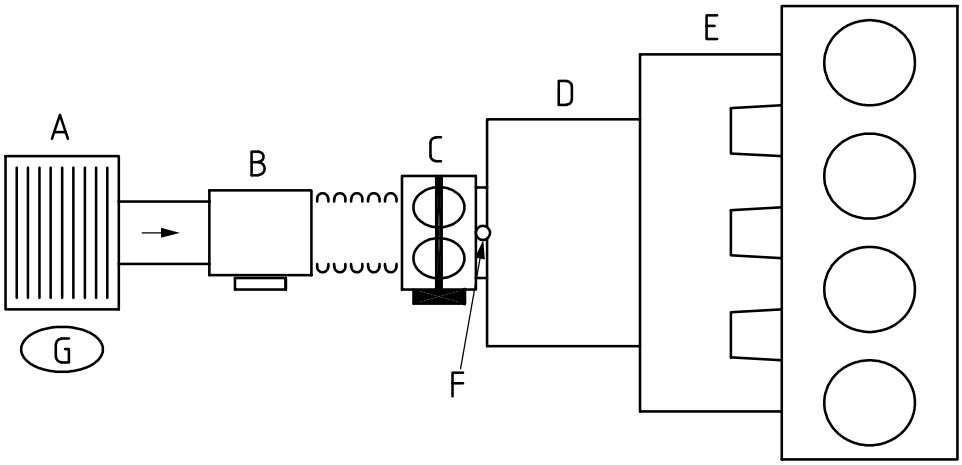
Key

B1	cylinder Bank 1	S1	sensor 1	1	4-cylinder engine with exhaust banks
		S2	sensor 2	2	catalyst
				3	tail pipe

[a] wide range
[b] heated

Figure 4 — Example of L4/L5/L6 cylinder engine with one exhaust bank and one catalyst

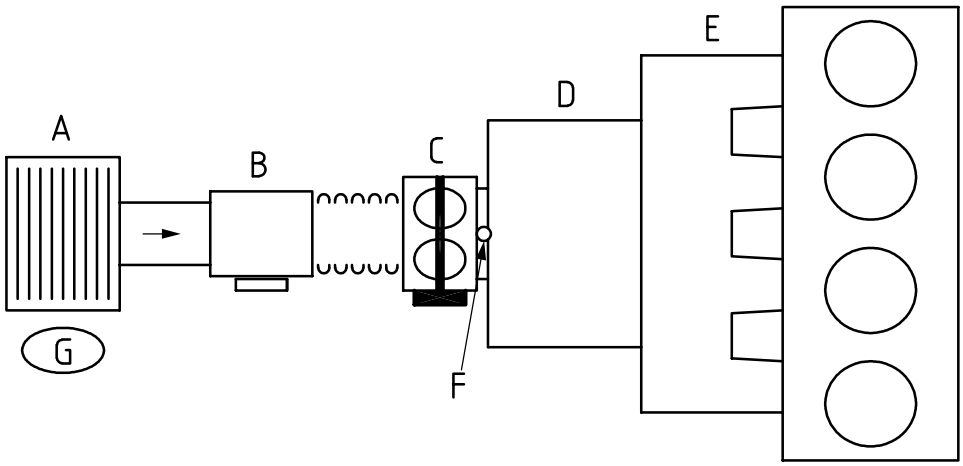
Intake air system pressure sensor location for boosted applications in relation to the engine air flow, including the fresh air inlet, boost device and engine manifold.



Components

A air cleaner
B MAF
C throttle body
D turbocharger/supercharger
E MAP (manifold pressure closest to the intake valves)
F inlet (pressure after the throttle body, but before the pressurizing device)
G BARO (atmospheric pressure)

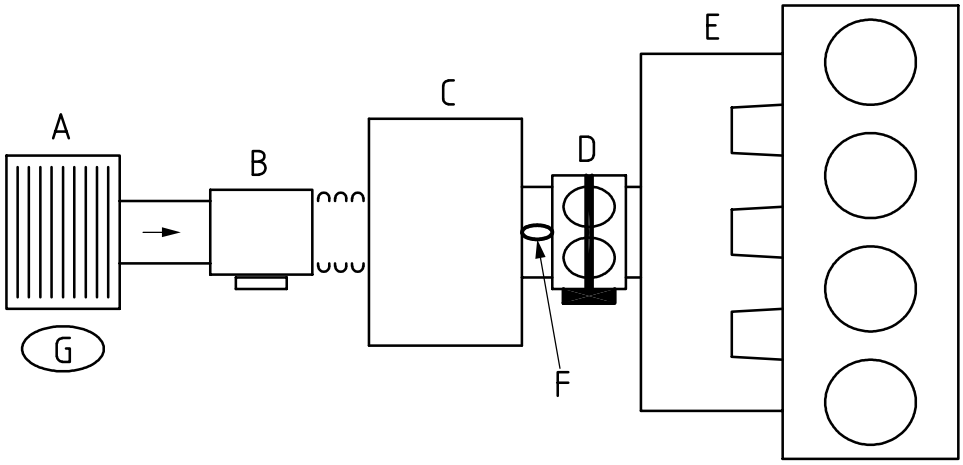
Figure 5 — Turbocharger/supercharger pressure sensor location draw-thru system



Components

A air cleaner
B MAF
C throttle body
D turbocharger/supercharger
E MAP (manifold pressure closest to the intake valves)
F boost (pressure after the pressurizing device, but before the throttle body)
G BARO (atmospheric pressure)

Figure 6 — Turbocharger/supercharger pressure sensor location blow-thru system



Components

A air cleaner
B MAF
D Turbocharger/supercharger
E MAP (manifold pressure closest to the intake valves)
G BARO (atmospheric pressure)

Figure 7 — Turbocharger/supercharger pressure sensor location no throttle body (diesel)

3.7
left/right and front/rear
component identified by its position as if it can be viewed from the drivers seating position

3.8
"A" "B"
manufacturer defined when components indicated by a letter

3.9
intermittent/erratic
temporarily discontinuous signal where the duration of the fault is not sufficient to be considered open or short, or the rate of change is excessive

4 General specifications

Table 1 specifies systems, code categories, hexadecimal values and particular sections of electrical/electronic systems diagnostic.

Table 1 — General code specifications

System	Code categories	Hex value	Appendix
Body	B0*xxx* – B3*xxx*	8*xxx* – B*xxx*	B
Chassis	C0*xxx* – C3*xxx*	4*xxx* – 7*xxx*	C
Powertrain	P0*xxx* – P3*xxx*	0*xxx* – 3*xxx*	P
Network	U0*xxx* – U3*xxx*	C*xxx* – F*xxx*	U

The recommended DTCs consist of a three-digit numeric code preceded by an alphanumeric designator. The alphanumeric designators are "B0", "B1", "B2", "B3", "C0", "C1", "C2", "C3", "P0", "P1", "P2", "P3", "U0", "U1", "U2", "U3", corresponding to four sets of body, four sets of chassis, four sets of powertrain and four sets of network trouble codes. The code structure itself is partially open-ended. A portion of the available numeric sequences (portions of "B0", "C0", "P0", "P2", "P3", "U0" and "U3") is reserved for uniform codes assigned by this or future updates. Detailed specifications of the DTC format structure are specified in Clause 5. Most circuit, component, or system diagnostic trouble codes that do not support a subfault strategy are specified by four basic categories:

— Circuit/open,

— Range/performance,

— Circuit low, and

— Circuit high.

Circuit low is measured with the external circuit, component, or system connected. The signal type (voltage, frequency, etc.) shall be included in the message after circuit low or circuit high.

Circuit high is measured with the external circuit, component, or system connected. The signal type (voltage, frequency, etc.) may be included in the message after circuit low or circuit high.

5 Format structure

5.1 Description

The diagnostic trouble code consists of an alphanumeric designator, B0-B3 for body, C0-C3 for chassis, P0-P3 for powertrain, and U0-U3 for network communication, followed by three characters. The assignment of the proper alpha designator should be determined by the area most appropriate for that function. In most cases, the alpha designator will be implied since diagnostic information will be requested from a particular controller. However, this does not imply that all codes supported by a particular controller shall have the same alphanumeric designator. The codes are structured as in Figure 8.

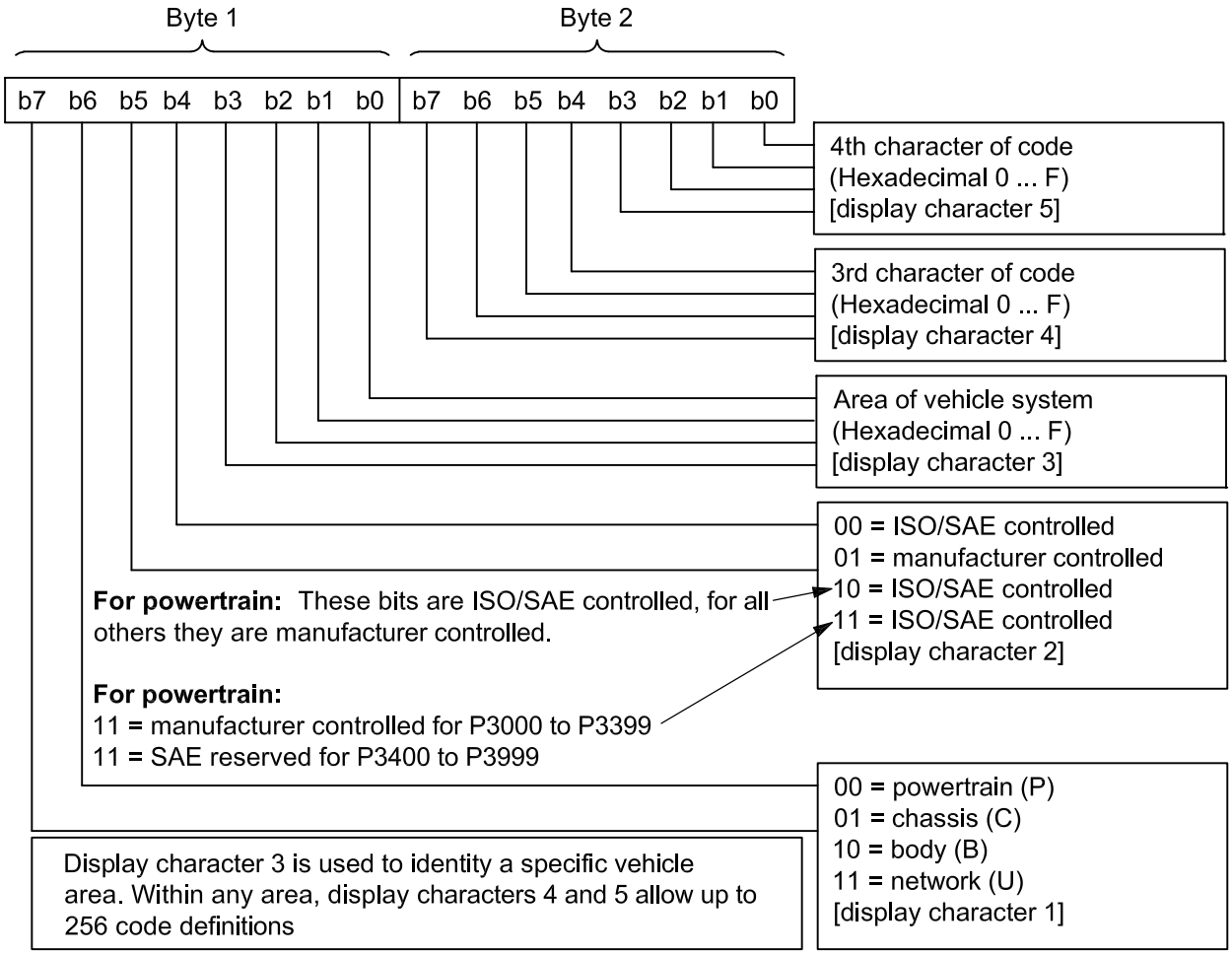


Figure 8 — Structure of diagnostic trouble codes

EXAMPLE 1 The 2-byte DTC as a data bus value $9234 would be displayed to technicians as the manufacturer controlled body code B1234 (see Figure 9).

DTC High Byte									DTC Low Byte							
$9				$2					$3				$4			
1	0	0	1	0	0	1	0		0	0	1	1	0	1	0	0
B		1		2					3				4			

Figure 9 — Example of 2-byte diagnostic trouble code structure

EXAMPLE 2 The 3-byte DTC as a data bus value $923400 would be displayed to technicians as the manufacturer controlled body code B1234-00 (see Figure 10). See Annex D for DTC Low Byte (Failure Type Byte) definitions. The low byte shall be displayed in hexadecimal format, e.g. $1A shall be displayed as 1A.

DTC High Byte									DTC Middle Byte									DTC Low Byte								
$9				$2					$3				$4					$0				$0				
1	0	0	1	0	0	1	0		0	0	1	1	0	1	0	0		0	0	0	0	0	0	0	0	
B		1		2					3				4					0				0				

Figure 10 — Example of 3-byte diagnostic trouble code structure

Codes have been specified to indicate a suspected trouble or problem areas, and are intended to be used as a directive to the proper service procedure. To minimize service confusion, fault codes should not be used to indicate the absence of problems or the status of parts of the system (e.g. powertrain system O.K., or MIL activated), but should be confined to indicate areas in need of service attention.

Ranges have been expanded beyond 100 numbers by using the hexadecimal base 16 number system.

5.2 ISO/SAE controlled codes (core DTCs)

ISO/SAE-controlled diagnostic trouble codes are those codes where industry uniformity has been achieved. These codes were felt to be common enough across most manufacturers' applications that a common number and fault message could be assigned. All unspecified numbers in each grouping are ISO/SAE reserved for future growth. Although service procedures may differ widely amongst manufacturers, the fault being indicated is common enough to be assigned a particular fault code. Codes in this area are not to be used by manufacturers until they have been approved by ISO/SAE.

5.3 Manufacturer controlled codes (non-uniform DTCs)

Areas within each alpha designator have been made available for manufacturer-controlled DTCs. These are fault codes that will not generally be used by a majority of the manufacturers due to basic system differences, implementation differences, or diagnostic strategy differences. Each vehicle manufacturer or supplier who designs and specifies diagnostic algorithms, software and diagnostic trouble codes are strongly encouraged to remain consistent across their product line when assigning codes in the manufacturer-controlled area. For powertrain codes, where possible, the same groupings should be used as in the ISO/SAE controlled area, i.e. 100's and 200's for fuel and air metering, 300's for ignition system or misfire, etc.

While each manufacturer has the ability to define the controlled DTCs to meet its specific controller algorithms, all DTC words shall meet ISO 15031-2.

5.4 Body system groupings (DTC numbers and descriptions are given in Annex C)

5.4.1 B0XXX ISO/SAE controlled

5.4.2 B1XXX manufacturer controlled

5.4.3 B2XXX manufacturer controlled

5.4.4 B3XXX reserved by document

5.5 Chassis system groupings (DTC numbers and descriptions are given in Annex C)

5.5.1 C0XXX ISO/SAE controlled

5.5.2 C1XXX manufacturer controlled

5.5.3 C2XXX manufacturer controlled

5.5.4 C3XXX reserved by document

5.6 Powertrain system groupings (DTC numbers and descriptions are given in Annex B)

5.6.1 P0XXX ISO/SAE controlled

5.6.2 P1XXX manufacturer control

5.6.3 P2XXX ISO/SAE controlled

5.6.4 P3XXX manufacturer controlled and ISO/SAE reserved

5.7 Network groupings (DTC numbers and descriptions are given in Annex C)

5.7.1 U0XXX ISO/SAE controlled

5.7.2 U1XXX manufacturer controlled

5.7.3 U2XXX manufacturer controlled

5.7.4 U3XXX manufacturer controlled and ISO/SAE reserved

6 Diagnostic trouble code descriptions

6.1 Diagnostic trouble code application

Recent developments have expanded the scope of this documentation to include additional DTCs and descriptions for network systems, body systems and chassis systems. Two different DTC application methods are required depending on the system. Powertrain DTCs require the assignment of a unique DTC number and description for each failure mode (e.g. circuit low, circuit high, rationality, etc.). Body and chassis systems descriptions are more general and require the assignment of a single DTC number and description for each component, not failure mode. Unique body and chassis failure mode identification is still possible, but is dependent upon using diagnostic protocols that support a subfault failure strategy. One example is ISO 14229-1, which uses a “Failure Type Byte” associated with each DTC to describe the failure mode (e.g. circuit low, circuit high, rationality, etc.). However, any protocol supporting a subfault strategy will work with these DTCs. Manufacturers shall select the appropriate failure mode to apply to the base DTC description.

6.2 Powertrain systems

The powertrain systems category covers functions that include engine, transmission and associated drivetrain accessories. For powertrain systems, each specified fault code has been assigned a description to indicate the circuit, component or system area that was determined to be at fault. The descriptions are organized such that different descriptions related to a particular sensor or system are grouped together. In cases where there are various fault descriptions for different types of faults, the group also has a “generic” description as the first code/message of the group. A manufacturer has a choice when implementing diagnostics, based on the specific strategy and complexity of the diagnostic.

Where more specific fault descriptions for a circuit, component or system exist, manufacturers should choose the code most applicable to their diagnosable fault. The descriptions are intended to be somewhat general to allow manufacturers to use them as often as possible yet still not conflict with their specific repair procedures.

The terms “low” and “high” when used in a description, especially those related to input signals, refer to the voltage, frequency, etc. at the pin of the controller. The specific level of “low” and “high” shall be specified by each manufacturer to best meet their needs.

For example, in diagnosing a 5 V reference Throttle Position Sensor (TP Sensor), if the input signal at the Powertrain Control Module (PCM) is stuck near 0 V, a manufacturer has the flexibility to select from either of two codes — P0120 (Throttle/Pedal Position Sensor/Switch A Circuit) or P0122 (Throttle/Pedal Position Sensor/Switch A Circuit Low), depending on the manufacturer’s diagnostic procedures. If the input signal at the PCM is stuck near 5 V, a manufacturer has the flexibility to select from either of two codes — P0120 (Throttle/Pedal Position Sensor/Switch A Circuit) or P0123 (Throttle/Pedal Position Sensor/Switch A Circuit High), depending on the manufacturer’s diagnostic procedures. If the input signal at the PCM is stuck at 1,5 V at idle instead of the expected 1,0 V, the manufacturer has the flexibility to select from either of two codes — P0120 (Throttle/Pedal Position Sensor/Switch A Circuit) or P0121 (Throttle/Pedal Position Sensor/Switch A Circuit Range/Performance), depending on the manufacturer’s diagnostic procedures. The root cause of the higher than expected TP Sensor voltage may be either a faulty TP Sensor, corrosion in the TP Sensor connections or an improperly adjusted throttle plate. Identification of the root cause is done using the diagnostic procedures, and is not implied by the DTC message, thus allowing the manufacturer flexibility in assigning DTCs.

6.3 Body systems

The body systems category covers functions that are, generally, inside of the passenger compartment. These functions provide the vehicle occupants with assistance, comfort, convenience and safety. Each specified trouble code has been assigned a description to indicate the component or system area that was determined to be at fault. Unlike powertrain systems, the body system trouble code descriptions are intended to be general. Powertrain DTCs typically include separate DTCs for each failure mode (e.g. circuit low, circuit high, rationality, etc.) within each DTC description. Body system DTCs are designed to only support the base component in the description, which makes these DTCs dependent upon diagnostic protocols that support a subfault failure strategy. Manufacturers must select the appropriate failure mode (e.g. circuit short to ground, circuit short to battery, signal plausibility failure, etc.) to apply to the general DTC description. The supported body subsection included in this group is Restraints.

6.4 Chassis systems

The chassis systems category covers functions that are, generally, outside of the passenger compartment. These functions typically include mechanical systems such as brakes, steering and suspension. Each specified trouble code has been assigned a description to indicate the component or system area that was determined to be at fault. Unlike powertrain systems, the chassis system trouble code descriptions are intended to be general. Powertrain DTCs typically include separate DTCs for each failure mode (e.g. circuit low, circuit high, rationality, etc.) within each DTC description. Chassis system DTCs are designed to only support the base component in the description, which makes these DTCs dependent upon diagnostic protocols that support a subfault failure strategy. Manufacturers must select the appropriate failure mode (e.g. circuit short to ground, circuit short to battery, signal plausibility failure, etc.) to apply to the general DTC description. The supported chassis subsections included in this group are Brakes and Traction Control.

6.5 Network and vehicle integration systems

The network communication and vehicle integration systems category covers functions that are shared among computers and/or systems on the vehicle. Each specified trouble code has been assigned a description to indicate the component or system area that was determined to be at fault. The descriptions of data links are intended to be general in order to allow manufacturers to use them for different communication protocols. The descriptions of control modules are intended to be general in order to allow manufacturers to reuse the DTC for new control modules as technologies evolve. Also, the descriptions may be supplemented with additional subfault information such as the “Failure Type Byte” data defined in Annex D. The subsections included in this group are Network Electrical, Network Communication, Network Software, Network Data and Control Module/Power Distribution.

7 Change requests

Use this form to pass your request:

Request Form for new ISO 15031-6/SAE J2012 controlled DTC

What is the purpose of the component, circuit, or system?

Example: Exhaust Gas Recirculation.

What is the purpose of the diagnostic?

Example: Detect low EGR flow.

*Requested Group Number*_____

Requested DTC Number _____

Requested DTC Nomenclature _____

Example: EGR Low Flow Detected.

Requested by: _____

Phone/Fax _____
Email_____
Address_____

Date:

Please send completed form(s) to both addresses:

FAKRA
Normenausschuß Kraftfahrzeuge
Postfach 17 05 63
D-60079 Frankfurt/Main
Germany
ATTN: ISO/TC22/SC3/WG1
Fax: +49-69-97507-209
e-mail: fritzsche@vda.de

SAE Headquarters
755 West Big Beaver Road
Suite 1600
Troy, MI 48084
USA
ATTN: J2012 Committee Chairman

Annex A
(normative)

Diagnostic trouble code naming guidelines

A.1 Discussion

Table A.1 is a guideline used to help in determining DTC descriptions. Annex B shows applications for recommended industry-common trouble codes for the powertrain control system while Annex C shows applications for recommended industry common trouble codes for the body, chassis and network control systems. The DTCs in Annex B include systems that might be integrated into an electronic control module that would be used for controlling engine functions, such as fuel, spark, idle speed and vehicle speed (cruise control), as well as those for transmission control. The fact that a code is recommended as a common industry code does not imply that it is a required code (legislated), an emission-related code, nor that it indicates a fault that will cause the malfunction indicator to be illuminated.

Table A.1 — DTC naming guidelines for signals from components

Component/System ISO 15031-2/ SAE J1930[a]	Acronym ISO 15031-2/ SAE J1930[a]	Modifier (if used)[a]	Noun Name[a]	Circuit[a]	Intermittent (if used)[a]	State (if used)[a]	Parameter (if used)[a]	Location (if used)[a]
Throttle Position	TP		Sensor	Circuit		Low	Voltage	
Throttle Position	TP		Sensor	Circuit		Performance		
Manifold Absolute Pressure	MAP		Sensor	Circuit		High	Voltage	
Engine Coolant Temperature	ECT		Sensor	Circuit		Low	Voltage	
Intake Air Temperature	IAT		Sensor	Circuit		High	Voltage	
Vehicle Speed Sensor	VSS		included in acronym	Circuit		High	Voltage	
Vehicle Speed Sensor	VSS		included in acronym	Circuit	Intermittent			
Heated Oxygen Sensor	HO2S		included in acronym	Circuit				
Heated Oxygen Sensor	HO2S		included in acronym	Circuit		Low	Voltage	Bank (B1) Sensor 1 (S1)
Idle Air Control	IAC		Valve	Circuit		Low	Voltage	
Mass Air Flow	MAF		Sensor	Circuit		High	Frequency	
Mass Air Flow	MAF		Sensor	Circuit		Performance		
Knock Sensor	KS		included in acronym	Circuit				Bank 1
Knock Sensor	KS		included in acronym	Circuit		Performance		
Crankshaft Position	CKP		Sensor	Circuit				
Evaporative Emissions	EVAP	Canister Purge	Valve	Circuit				
Engine Speed	RPM		Input	Circuit				
Air Conditioning	A/C	Clutch Status	N/A	Circuit		Low	Voltage	
Heated Oxygen Sensor	HO2S		included in acronym	Circuit		Transition Time Ratio		Bank 1 (B1) Sensor (S1)
Heated Oxygen Sensor	HO2S		included in acronym	Circuit		Insufficient Switching		Bank 1 (B1) Sensor 1 (S1)
Distributor Ignition	DI	Low Resolution		Circuit	Intermittent			
Distributor Ignition	DI	High Resolution		Circuit				

[a] The Service Information uses Component/System from ISO 15031-2/SAE J1930 or Acronym from ISO 15031-2/SAE J1930, Modifier, Noun Name, Circuit, Intermittent, State, Parameter and Location.

Table A.2 — DTC naming guidelines for signals to components

Component/System ISO 15031-2/ SAE J1930[a]	Acronym ISO 15031-2/ SAE J1930[a]	Modifier (if used) [a]	Noun Name[a]	Control[a]	Circuit[a]	Intermittent (if used)[a]	State (if used) [a]	Parameter (if used) [a]	Location (if used)[a]
Malfunction Indicator Lamp	MIL		included in acronym	Control	Circuit				
Injector	N/A		N/A	Control	Circuit				
Fan Control	FC	1		Control	Circuit				
Fan Control	FC	2		Control	Circuit		Low		
Exhaust Gas Recirculation	EGR		Solenoid	Control	Circuit		High		
Secondary Air Injection	AIR		Solenoid	Control	Circuit		High		
Evaporative Emissions	EVAP	Purge	Solenoid	Control	Circuit				
Air Conditioning	A/C	Clutch	Relay	Control	Circuit				
Idle Air Control	IAC		Valve	Control	Circuit		Low		
Ignition Control	IC		N/A	included in acronym	Circuit		Low	Voltage	
Ignition Control	IC		N/A	included in acronym	Circuit		High	Voltage	
Torque Converter Clutch	TCC		Solenoid	Control	Circuit		Stuck on		

[a] The Service Information uses Component/System from ISO 15031-2/SAE J1930 or Acronym from ISO 15031-2/SAE J1930, Modifier, Noun Name, Circuit, Intermittent, State, Parameter and Location.

Table A.3 — DTC naming guidelines involving several components or systems

Component/System ISO 15031-2/SAE J1930[a]	Acronym ISO 15031-2/ SAE J1930[a]	Modifier[a]	System[a]	Intermittent[a]	State[a]	Parameter[a]	Location[a]
Exhaust Gas Recirculation	EGR		System				
Fuel Trim	FT		System		Lean		Bank 1
Secondary Air Injection	AIR		System				Bank 1

[a] The Service Information uses Component/System from ISO 15031-2/SAE J1930 or Acronym from ISO 15031-2/SAE J1930, Modifier, Noun Name, Circuit, Intermittent, State, Parameter and Location.

Table A.4 — DTC naming guidelines for signals using a subfault strategy

Location	Component/System ISO 15031-2/ SAE J1930[a]	Acronym ISO 15031-2/ SAE J1930[a]	Modifier (if used)[a]	Noun Name[a]	Subfault Failure Type[b]
Left Front	Wheel		Speed	Sensor	signal amplitude < minimum
Passenger	Seat		Occupant Classification	Sensor	circuit open
Second Row Left	Seatbelt			Sensor	no Subtype information
Driver	Frontal		Stage 1	Deployment Control	circuit resistance out of range

[a] The Service Information uses Location, Component/System from ISO 15031-2/SAE J1930 or Acronym from ISO 15031-2/SAE J1930, Modifier, Noun Name and Subfault Failure Type.

[b] These DTCs require the addition of a failure mode supported via a diagnostic protocol (e.g. ISO 14229-1), which supports DTC subfaults. These are not intended to be used with protocols that do not support a subfault strategy. Reference Annex D for recommended Failure Type Byte assignments.

Annex B
(normative)

Powertrain system diagnostic trouble codes

B.1 P00XX Fuel and air metering and auxiliary emission controls

Table B.1 — P00XX Fuel and air metering and auxiliary emission controls

DTC number	DTC naming	Location
P0000	ISO/SAE reserved	
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
P000E	ISO/SAE reserved	
P000F	ISO/SAE reserved	
P0010[a]	“A” Camshaft Position Actuator Circuit / Open	Bank 1
P0011[a]	“A” Camshaft Position – Timing Over-Advanced or System Performance	Bank 1
P0012[a]	“A” Camshaft Position – Timing Over-Retarded	Bank 1
P0013[b]	“B” Camshaft Position – Actuator Circuit / Open	Bank 1
P0014[b]	“B” Camshaft Position – Timing Over-Advanced or System Performance	Bank 1
P0015[b]	“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]	“A” Camshaft Position Actuator Circuit / Open	Bank 2
P0021[a]	“A” Camshaft Position – Timing Over-Advanced or System Performance	Bank 2
P0022[a]	“A” Camshaft Position – Timing Over-Retarded	Bank 2

Table B.1 (*continued*)

DTC number	DTC naming	Location
P0023[b]	"B" Camshaft Position – Actuator Circuit / Open	Bank 2
P0024[b]	"B" Camshaft Position – Timing Over-Advanced or System Performance	Bank 2
P0025[b]	"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 Range/Performance	
P0047	Turbocharger/Supercharger Boost Control Solenoid "A" Circuit Low	
P0048	Turbocharger/Supercharger Boost Control Solenoid "A" Circuit High	
P0049	Turbocharger/Supercharger Turbine Overspeed	
P004A	Turbocharger/Supercharger Boost Control Solenoid "B" Circuit / Open	
P004B	Turbocharger/Supercharger Boost Control Solenoid "B" Circuit Range/Performance	
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

Table B.1 (*continued*)

DTC number	DTC naming	Location
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	
P006E	ISO/SAE reserved	
P006F	ISO/SAE reserved	
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

Table B.1 (*continued*)

DTC number	DTC naming	Location
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	

[a] The “A” camshaft shall be either the “intake”, “left”, or “front” camshaft. Left/Right and Front/Rear are determined as if viewed from the driver’s seating position. Bank 1 contains cylinder number one, Bank 2 is the opposite bank.

[b] The “B” camshaft shall be either the “exhaust”, “right”, or “rear” camshaft. Left/Right and Front/Rear are determined as if viewed from the driver’s seating position. Bank 1 contains cylinder number one, Bank 2 is the opposite bank.

B.2 P01XX Fuel and air metering

Table B.2 — P01XX Fuel and air metering

DTC number	DTC naming	Location
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	

Table B.2 (*continued*)

DTC number	DTC naming	Location
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	
P012F	ISO/SAE reserved	
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

Table B.2 (*continued*)

DTC number	DTC naming	Location
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
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

Table B.2 (*continued*)

DTC number	DTC naming	Location
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	
P018F	ISO/SAE reserved	
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	

B.3 P02XX Fuel and air metering

Table B.3 — P02XX Fuel and air metering

DTC number	DTC naming	Location
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	

Table B.3 (*continued*)

DTC number	DTC naming	Location
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	
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	
P023F	ISO/SAE reserved	
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”	

Table B.3 (*continued*)

DTC number	DTC naming	Location
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	

Table B.3 (*continued*)

DTC number	DTC naming	Location
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	
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 Overspeed Condition	
P0298	Engine Oil Over Temperature	
P0299	Turbocharger/Supercharger Underboost	

B.4 P03XX Ignition system or misfire

Table B.4 — P03XX Ignition system or misfire

DTC number	DTC naming	Location
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

Table B.4 (*continued*)

DTC number	DTC naming	Location
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	
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	
P0364	ISO/SAE reserved	
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

Table B.4 (*continued*)

DTC number	DTC naming	Location
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

B.5 P04XX Auxiliary emission controls

Table B.5 — P04XX Auxiliary emission controls

DTC number	DTC naming	Location
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	
P041F	ISO/SAE reserved	
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

Table B.5 (*continued*)

DTC number	DTC naming	Location
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
P042E	ISO/SAE reserved	
P042F	ISO/SAE reserved	
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	
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	

Table B.5 (*continued*)

DTC number	DTC naming	Location
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	
P047F	ISO/SAE reserved	
P0480	Fan 1 Control Circuit	
P0481	Fan 2 Control Circuit	

Table B.5 (*continued*)

DTC number	DTC naming	Location
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 Overspeed	
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	

B.6 P05XX Vehicle speed, idle control, and auxiliary inputs

Table B.6 — P05XX Vehicle speed, idle control and auxiliary inputs

DTC number	DTC naming	Location
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	

Table B.6 (*continued*)

DTC number	DTC naming	Location
P050D	Cold Start Rough Idle	
P050E	ISO/SAE reserved	
P050F	ISO/SAE reserved	
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[a]	Intake Air Heater “A” Circuit	
P0541[a]	Intake Air Heater “A” Circuit Low	

Table B.6 (*continued*)

DTC number	DTC naming	Location
P0542[a]	Intake Air Heater “A” Circuit High	
P0543[a]	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	
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	

Table B.6 (*continued*)

DTC number	DTC naming	Location
P0578[b]	Cruise Control Multi-Function Input “A” Circuit Stuck	
P0579[b]	Cruise Control Multi-Function Input “A” Circuit Range/Performance	
P0580[b]	Cruise Control Multi-Function Input “A” Circuit Low	
P0581[b]	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	

[a] For DTCs, P0540-P0543, see also P2604-P2609.

[b] For DTCs, P0578-P0581, see also P0564.

B.7 P06XX Computer and auxiliary outputs

Table B.7 — P06XX Computer and auxiliary outputs

DTC number	DTC naming	Location
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	

Table B.7 (*continued*)

DTC number	DTC naming	Location
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	

Table B.7 (*continued*)

DTC number	DTC naming	Location
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
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	

Table B.7 (*continued*)

DTC number	DTC naming	Location
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 1[a]
P0661	Intake Manifold Tuning Valve Control Circuit Low	Bank 1[a]
P0662	Intake Manifold Tuning Valve Control Circuit High	Bank 1[a]
P0663	Intake Manifold Tuning Valve Control Circuit/Open	Bank 2[a]
P0664	Intake Manifold Tuning Valve Control Circuit Low	Bank 2[a]
P0665	Intake Manifold Tuning Valve Control Circuit High	Bank 2[a]
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	
P0680	Cylinder 10 Glow Plug Circuit/Open	
P0681	Cylinder 11 Glow Plug Circuit/Open	
P0682	Cylinder 12 Glow Plug Circuit/Open	

Table B.7 (*continued*)

DTC number	DTC naming	Location
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	
P069E	ISO/SAE reserved	
P069F	ISO/SAE reserved	

[a] DTC Application note for Intake Manifold Tuning Valves and Intake Manifold Runner controls:

— Active controls are used to modify or control airflow within the engine air intake system. These controls may be used to enhance or modify in-cylinder airflow motion (charge motion), modify the airflow dynamics (manifold tuning) within the intake manifold or both.

— Devices that control charge motion are commonly called Intake Manifold Runner Control, Swirl Control Valve and Charge Motion Control Valve. The ISO/SAE recommended term for any device that controls charge motion is Intake Manifold Runner Control (IMRC).

— Devices that control manifold dynamics or manifold tuning are commonly called Intake Manifold Tuning Valve, Long/Short Runner Control and Intake Manifold Communication Control. The SAE recommended term for any device that controls manifold tuning is Intake Manifold Tuning (IMT) Valve.

B.8 P07XX Transmission

Table B.8 — P07XX Transmission

DTC number	DTC naming	Location
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	

Table B.8 (*continued*)

DTC number	DTC naming	Location
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	
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	

Table B.8 (*continued*)

DTC number	DTC naming	Location
P075C	Shift Solenoid “G” Stuck On	
P075D	Shift Solenoid “G” Electrical	
P075E	Shift Solenoid “G” Intermittent	
P075F	ISO/SAE reserved	
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	

Table B.8 (*continued*)

DTC number	DTC naming	Location
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	

B.9 P08XX Transmission

Table B.9 — P08XX Transmission

DTC number	DTC naming	Location
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	
P080E	ISO/SAE reserved	
P080F	ISO/SAE reserved	
P0810	Clutch Position Control Error	
P0811	Excessive Clutch “A” Slippage	
P0812	Reverse Input Circuit	
P0813	Reverse Output Circuit	

Table B.9 (*continued*)

DTC number	DTC naming	Location
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	

Table B.9 (*continued*)

DTC number	DTC naming	Location
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	
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	
P084F	ISO/SAE reserved	
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	

Table B.9 (*continued*)

DTC number	DTC naming	Location
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	

B.10 P09XX Transmission

Table B.10 — P09XX Transmission

DTC number	DTC naming	Location
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	

Table B.10 (*continued*)

DTC number	DTC naming	Location
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	
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	

Table B.10 (*continued*)

DTC number	DTC naming	Location
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	
P099A	Shift Solenoid “G” Control Circuit Range/Performance	
P099B	Shift Solenoid “G” Control Circuit Low	
P099C	Shift Solenoid “G” Control Circuit High	
P099D	Shift Solenoid “H” Control Circuit Range/Performance	
P099E	Shift Solenoid “H” Control Circuit Low	
P099F	Shift Solenoid “H” Control Circuit High	

B.11 P0AXX Hybrid Propulsion

Table B.11 — P0AXX Hybrid Propulsion

DTC number	DTC naming	Location
P0A00	Motor Electronics Coolant Temperature Sensor Circuit	
P0A01	Motor Electronics Coolant Temperature Sensor Circuit Range/Performance	
P0A02	Motor Electronics Coolant Temperature Sensor Circuit Low	
P0A03	Motor Electronics Coolant Temperature Sensor Circuit High	
P0A04	Motor Electronics Coolant Temperature Sensor Circuit Intermittent	
P0A05	Motor Electronics Coolant Pump Control Circuit/Open	
P0A06	Motor Electronics Coolant Pump Control Circuit Low	
P0A07	Motor Electronics Coolant Pump Control Circuit High	
P0A08	DC/DC Converter Status Circuit	
P0A09	DC/DC Converter Status Circuit Low	
P0A0A	High Voltage System Inter-Lock Circuit	
P0A0B	High Voltage System Inter-Lock Circuit Performance	
P0A0C	High Voltage System Inter-Lock Circuit Low	
P0A0D	High Voltage System Inter-Lock Circuit High	
P0A0E	High Voltage System Inter-Lock Circuit Intermittent	
P0A0F	Engine Failed to Start	
P0A10	DC/DC Converter Status Circuit High	
P0A11	DC/DC Converter Enable Circuit/Open	
P0A12	DC/DC Converter Enable Circuit Low	
P0A13	DC/DC Converter Enable Circuit High	
P0A14	Engine Mount “A” Control Circuit/Open	
P0A15	Engine Mount “A” Control Circuit Low	
P0A16	Engine Mount “A” Control Circuit High	
P0A17	Motor Torque Sensor Circuit	
P0A18	Motor Torque Sensor Circuit Range/Performance	
P0A19	Motor Torque Sensor Circuit Low	
P0A1A	Generator Control Module	
P0A1B	Drive Motor “A” Control Module	
P0A1C	Drive Motor “B” Control Module	
P0A1D	Hybrid Powertrain Control Module	
P0A1E	Starter/Generator Control Module	
P0A1F	Battery Energy Control Module	
P0A20	Motor Torque Sensor Circuit High	
P0A21	Motor Torque Sensor Circuit Intermittent	
P0A22	Generator Torque Sensor Circuit	
P0A23	Generator Torque Sensor Circuit Range/Performance	

Table B.11 (*continued*)

DTC number	DTC naming	Location
P0A24	Generator Torque Sensor Circuit Low	
P0A25	Generator Torque Sensor Circuit High	
P0A26	Generator Torque Sensor Circuit Intermittent	
P0A27	Hybrid Battery Power Off Circuit	
P0A28	Hybrid Battery Power Off Circuit Low	
P0A29	Hybrid Battery Power Off Circuit High	
P0A2A	Drive Motor “A” Temperature Sensor Circuit	
P0A2B	Drive Motor “A” Temperature Sensor Circuit Range/Performance	
P0A2C	Drive Motor “A” Temperature Sensor Circuit Low	
P0A2D	Drive Motor “A” Temperature Sensor Circuit High	
P0A2E	Drive Motor “A” Temperature Sensor Circuit Intermittent	
P0A2F	Drive Motor “A” Over Temperature	
P0A30	Drive Motor “B” Temperature Sensor Circuit	
P0A31	Drive Motor “B” Temperature Sensor Circuit Range/Performance	
P0A32	Drive Motor “B” Temperature Sensor Circuit Low	
P0A33	Drive Motor “B” Temperature Sensor Circuit High	
P0A34	Drive Motor “B” Temperature Sensor Circuit Intermittent	
P0A35	Drive Motor “B” Over Temperature	
P0A36	Generator Temperature Sensor Circuit	
P0A37	Generator Temperature Sensor Circuit Range/Performance	
P0A38	Generator Temperature Sensor Circuit Low	
P0A39	Generator Temperature Sensor Circuit High	
P0A3A	Generator Temperature Sensor Circuit Intermittent	
P0A3B	Generator Over Temperature	
P0A3C	Drive Motor “A” Inverter Over Temperature	
P0A3D	Drive Motor “B” Inverter Over Temperature	
P0A3E	Generator Inverter Over Temperature	
P0A3F	Drive Motor “A” Position Sensor Circuit	
P0A40	Drive Motor “A” Position Sensor Circuit Range/Performance	
P0A41	Drive Motor “A” Position Sensor Circuit Low	
P0A42	Drive Motor “A” Position Sensor Circuit High	
P0A43	Drive Motor “A” Position Sensor Circuit Intermittent	
P0A44	Drive Motor “A” Position Sensor Circuit Overspeed	
P0A45	Drive Motor “B” Position Sensor Circuit	
P0A46	Drive Motor “B” Position Sensor Circuit Range/Performance	
P0A47	Drive Motor “B” Position Sensor Circuit Low	
P0A48	Drive Motor “B” Position Sensor Circuit High	
P0A49	Drive Motor “B” Position Sensor Circuit Intermittent	

Table B.11 (*continued*)

DTC number	DTC naming	Location
P0A4A	Drive Motor “B” Position Sensor Circuit Overspeed	
P0A4B	Generator Position Sensor Circuit	
P0A4C	Generator Position Sensor Circuit Range/Performance	
P0A4D	Generator Position Sensor Circuit Low	
P0A4E	Generator Position Sensor Circuit High	
P0A4F	Generator Position Sensor Circuit Intermittent	
P0A50	Generator Position Sensor Circuit Overspeed	
P0A51	Drive Motor “A” Current Sensor Circuit	
P0A52	Drive Motor “A” Current Sensor Circuit Range/Performance	
P0A53	Drive Motor “A” Current Sensor Circuit Low	
P0A54	Drive Motor “A” Current Sensor Circuit High	
P0A55	Drive Motor “B” Current Sensor Circuit	
P0A56	Drive Motor “B” Current Sensor Circuit Range/Performance	
P0A57	Drive Motor “B” Current Sensor Circuit Low	
P0A58	Drive Motor “B” Current Sensor Circuit High	
P0A59	Generator Current Sensor Circuit	
P0A5A	Generator Current Sensor Circuit Range/Performance	
P0A5B	Generator Current Sensor Circuit Low	
P0A5C	Generator Current Sensor Circuit High	
P0A5D	Drive Motor “A” Phase U Current	
P0A5E	Drive Motor “A” Phase U Current Low	
P0A5F	Drive Motor “A” Phase U Current High	
P0A60	Drive Motor “A” Phase V Current	
P0A61	Drive Motor “A” Phase V Current Low	
P0A62	Drive Motor “A” Phase V Current High	
P0A63	Drive Motor “A” Phase W Current	
P0A64	Drive Motor “A” Phase W Current Low	
P0A65	Drive Motor “A” Phase W Current High	
P0A66	Drive Motor “B” Phase U Current	
P0A67	Drive Motor “B” Phase U Current Low	
P0A68	Drive Motor “B” Phase U Current High	
P0A69	Drive Motor “B” Phase V Current	
P0A6A	Drive Motor “B” Phase V Current Low	
P0A6B	Drive Motor “B” Phase V Current High	
P0A6C	Drive Motor “B” Phase W Current	
P0A6D	Drive Motor “B” Phase W Current Low	
P0A6E	Drive Motor “B” Phase W Current High	
P0A6F	Generator Phase U Current	

Table B.11 (*continued*)

DTC number	DTC naming	Location
P0A70	Generator Phase U Current Low	
P0A71	Generator Phase U Current High	
P0A72	Generator Phase V Current	
P0A73	Generator Phase V Current Low	
P0A74	Generator Phase V Current High	
P0A75	Generator Phase W Current	
P0A76	Generator Phase W Current Low	
P0A77	Generator Phase W Current High	
P0A78	Drive Motor “A” Inverter Performance	
P0A79	Drive Motor “B” Inverter Performance	
P0A7A	Generator Inverter Performance	
P0A7B	Battery Energy Control Module Requested MIL Illumination	
P0A7C	Motor Electronics Over Temperature	
P0A7D	Hybrid Battery Pack State of Charge Low	
P0A7E	Hybrid Battery Pack Over Temperature	
P0A7F	Hybrid Battery Pack Deterioration	
P0A80	Replace Hybrid Battery Pack	
P0A81	Hybrid Battery Pack Cooling Fan 1 Control Circuit/Open	
P0A82	Hybrid Battery Pack Cooling Fan 1 Performance/Stuck Off	
P0A83	Hybrid Battery Pack Cooling Fan 1 Stuck On	
P0A84	Hybrid Battery Pack Cooling Fan 1 Control Circuit Low	
P0A85	Hybrid Battery Pack Cooling Fan 1 Control Circuit High	
P0A86	14 Volt Power Module Current Sensor Circuit	
P0A87	14 Volt Power Module Current Sensor Circuit Range/Performance	
P0A88	14 Volt Power Module Current Sensor Circuit Low	
P0A89	14 Volt Power Module Current Sensor Circuit High	
P0A8A	14 Volt Power Module Current Sensor Circuit Intermittent	
P0A8B	14 Volt Power Module System Voltage	
P0A8C	14 Volt Power Module System Voltage Unstable	
P0A8D	14 Volt Power Module System Voltage Low	
P0A8E	14 Volt Power Module System Voltage High	
P0A8F	14 Volt Power Module System Performance	
P0A90	Drive Motor “A” Performance	
P0A91	Drive Motor “B” Performance	
P0A92	Hybrid Generator Performance	
P0A93	Inverter Cooling System Performance	
P0A94	DC/DC Converter Performance	
P0A95	High Voltage Fuse	

Table B.11 (*continued*)

DTC number	DTC naming	Location
P0A96	Hybrid Battery Pack Cooling Fan 2 Control Circuit	
P0A97	Hybrid Battery Pack Cooling Fan 2 Performance/Stuck Off	
P0A98	Hybrid Battery Pack Cooling Fan 2 Stuck On	
P0A99	Hybrid Battery Pack Cooling Fan 2 Control Circuit Low	
P0A9A	Hybrid Battery Pack Cooling Fan 2 Control Circuit High	
P0A9B	Hybrid Battery Temperature Sensor “A” Circuit	
P0A9C	Hybrid Battery Temperature Sensor “A” Range/Performance	
P0A9D	Hybrid Battery Temperature Sensor “A” Circuit Low	
P0A9E	Hybrid Battery Temperature Sensor “A” Circuit High	
P0A9F	Hybrid Battery Temperature Sensor “A” Circuit Intermittent/Erratic	
P0AA0	Hybrid Battery Positive Contactor Circuit	
P0AA1	Hybrid Battery Positive Contactor Circuit Stuck Closed	
P0AA2	Hybrid Battery Positive Contactor Circuit Stuck Open	
P0AA3	Hybrid Battery Negative Contactor Circuit	
P0AA4	Hybrid Battery Negative Contactor Circuit Stuck Closed	
P0AA5	Hybrid Battery Negative Contactor Circuit Stuck Open	
P0AA6	Hybrid Battery Voltage System Isolation Fault	
P0AA7	Hybrid Battery Voltage Isolation Sensor Circuit	
P0AA8	Hybrid Battery Voltage Isolation Sensor Circuit Range/Performance	
P0AA9	Hybrid Battery Voltage Isolation Sensor Circuit Low	
P0AAA	Hybrid Battery Voltage Isolation Sensor Circuit High	
P0AAB	Hybrid Battery Voltage Isolation Sensor Circuit Intermittent/Erratic	
P0AAC	Hybrid Battery Pack Air Temperature Sensor “A” Circuit	
P0AAD	Hybrid Battery Pack Air Temperature Sensor “A” Circuit Range/Performance	
P0AAE	Hybrid Battery Pack Air Temperature Sensor “A” Circuit Low	
P0AAF	Hybrid Battery Pack Air Temperature Sensor “A” Circuit High	
P0AB0	Hybrid Battery Pack Air Temperature Sensor “A” Circuit Intermittent/Erratic	
P0AB1	Hybrid Battery Pack Air Temperature Sensor “B” Circuit	
P0AB2	Hybrid Battery Pack Air Temperature Sensor “B” Circuit Range/Performance	
P0AB3	Hybrid Battery Pack Air Temperature Sensor “B” Circuit Low	
P0AB4	Hybrid Battery Pack Air Temperature Sensor “B” Circuit High	
P0AB5	Hybrid Battery Pack Air Temperature Sensor “B” Circuit Intermittent/Erratic	
P0AB6	Engine Mount “B” Control Circuit/Open	
P0AB7	Engine Mount “B” Control Circuit Low	
P0AB8	Engine Mount “B” Control Circuit High	
P0AB9	Hybrid System Performance	
P0ABA	Hybrid Battery Pack Voltage Sense Circuit	
P0ABB	Hybrid Battery Pack Voltage Sense Circuit Range/Performance	

Table B.11 (*continued*)

DTC number	DTC naming	Location
P0ABC	Hybrid Battery Pack Voltage Sense Circuit Low	
P0ABD	Hybrid Battery Pack Voltage Sense Circuit High	
P0ABE	Hybrid Battery Pack Voltage Sense Circuit Intermittent/Erratic	
P0ABF	Hybrid Battery Pack Current Sensor Circuit	
P0AC0	Hybrid Battery Pack Current Sensor Circuit Range/Performance	
P0AC1	Hybrid Battery Pack Current Sensor Circuit Low	
P0AC2	Hybrid Battery Pack Current Sensor Circuit High	
P0AC3	Hybrid Battery Pack Current Sensor Circuit Intermittent/Erratic	
P0AC4	Hybrid Powertrain Control Module Requested MIL Illumination	
P0AC5	Hybrid Battery Temperature Sensor “B” Circuit	
P0AC6	Hybrid Battery Temperature Sensor “B” Range/Performance	
P0AC7	Hybrid Battery Temperature Sensor “B” Circuit Low	
P0AC8	Hybrid Battery Temperature Sensor “B” Circuit High	
P0AC9	Hybrid Battery Temperature Sensor “B” Circuit Intermittent/Erratic	
P0ACA	Hybrid Battery Temperature Sensor “C” Circuit	
P0ACB	Hybrid Battery Temperature Sensor “C” Range/Performance	
P0ACC	Hybrid Battery Temperature Sensor “C” Circuit Low	
P0ACD	Hybrid Battery Temperature Sensor “C” Circuit High	
P0ACE	Hybrid Battery Temperature Sensor “C” Circuit Intermittent/Erratic	
P0ACF	Hybrid Battery Pack Cooling Fan 3 Control Circuit	
P0AD0	Hybrid Battery Pack Cooling Fan 3 Performance/Stuck Off	
P0AD1	Hybrid Battery Pack Cooling Fan 3 Stuck On	
P0AD2	Hybrid Battery Pack Cooling Fan 3 Control Circuit Low	
P0AD3	Hybrid Battery Pack Cooling Fan 3 Control Circuit High	
P0AD4	Hybrid Battery Pack Air Flow System Insufficient Air Flow	
P0AD5	Hybrid Battery Pack Air Flow Valve “A” Control Circuit/Open	
P0AD6	Hybrid Battery Pack Air Flow Valve “A” Control Circuit Range/Performance	
P0AD7	Hybrid Battery Pack Air Flow Valve “A” Control Circuit Low	
P0AD8	Hybrid Battery Pack Air Flow Valve “A” Control Circuit High	
P0AD9	Hybrid Battery Positive Contactor Control Circuit/Open	
P0ADA	Hybrid Battery Positive Contactor Control Circuit Range/Performance	
P0ADB	Hybrid Battery Positive Contactor Control Circuit Low	
P0ADC	Hybrid Battery Positive Contactor Control Circuit High	
P0ADD	Hybrid Battery Negative Contactor Control Circuit/Open	
P0ADE	Hybrid Battery Negative Contactor Control Circuit Range/Performance	
P0ADF	Hybrid Battery Negative Contactor Control Circuit Low	
P0AE0	Hybrid Battery Negative Contactor Control Circuit High	
P0AE1	Hybrid Battery Precharge Contactor Circuit	

Table B.11 (*continued*)

DTC number	DTC naming	Location
P0AE2	Hybrid Battery Precharge Contactor Circuit Stuck Closed	
P0AE3	Hybrid Battery Precharge Contactor Circuit Stuck Open	
P0AE4	Hybrid Battery Precharge Contactor Control Circuit	
P0AE5	Hybrid Battery Precharge Contactor Control Circuit Range/Performance	
P0AE6	Hybrid Battery Precharge Contactor Control Circuit Low	
P0AE7	Hybrid Battery Precharge Contactor Control Circuit High	
P0AE8	Hybrid Battery Temperature Sensor “D” Circuit	
P0AE9	Hybrid Battery Temperature Sensor “D” Range/Performance	
P0AEA	Hybrid Battery Temperature Sensor “D” Circuit Low	
P0AEB	Hybrid Battery Temperature Sensor “D” Circuit High	
P0AEC	Hybrid Battery Temperature Sensor “D” Circuit Intermittent/Erratic	
P0AED	Drive Motor Inverter Temperature Sensor “A” Circuit	
P0AEE	Drive Motor Inverter Temperature Sensor “A” Circuit Range/Performance	
P0AEF	Drive Motor Inverter Temperature Sensor “A” Circuit Low	
P0AF0	Drive Motor Inverter Temperature Sensor “A” Circuit High	
P0AF1	Drive Motor Inverter Temperature Sensor “A” Circuit Intermittent/Erratic	
P0AF2	Drive Motor Inverter Temperature Sensor “B” Circuit	
P0AF3	Drive Motor Inverter Temperature Sensor “B” Circuit Range/Performance	
P0AF4	Drive Motor Inverter Temperature Sensor “B” Circuit Low	
P0AF5	Drive Motor Inverter Temperature Sensor “B” Circuit High	
P0AF6	Drive Motor Inverter Temperature Sensor “B” Circuit Intermittent/Erratic	
P0AF7	14 Volt Power Module Internal Temperature Too High	
P0AF8	Hybrid Battery System Voltage	
P0AF9	Hybrid Battery System Voltage Unstable	
P0AFA	Hybrid Battery System Voltage Low	
P0AFB	Hybrid Battery System Voltage High	

B.12 P0BXX Hybrid Propulsion

Table B.12 — P0BXX Hybrid Propulsion

DTC number	DTC naming	Location
P0B00	Auxiliary Transmission Fluid Pump Motor Phase U Current	
P0B01	Auxiliary Transmission Fluid Pump Motor Phase U Current Low	
P0B02	Auxiliary Transmission Fluid Pump Motor Phase U Current High	
P0B03	Auxiliary Transmission Fluid Pump Motor Phase V Current	
P0B04	Auxiliary Transmission Fluid Pump Motor Phase V Current Low	
P0B05	Auxiliary Transmission Fluid Pump Motor Phase V Current High	
P0B06	Auxiliary Transmission Fluid Pump Motor Phase W Current	
P0B07	Auxiliary Transmission Fluid Pump Motor Phase W Current Low	
P0B08	Auxiliary Transmission Fluid Pump Motor Phase W Current High	
P0B09	Auxiliary Transmission Fluid Pump Motor Supply Voltage Circuit/Open	
P0B0A	Auxiliary Transmission Fluid Pump Motor Supply Voltage Circuit Low	
P0B0B	Auxiliary Transmission Fluid Pump Motor Supply Voltage Circuit High	
P0B0C	Auxiliary Transmission Fluid Pump Hydraulic Leakage	
P0B0D	Auxiliary Transmission Fluid Pump Motor Control Module	
P0B0E	ISO/SAE reserved	
P0B0F	ISO/SAE reserved	

B.13 P0CXX ISO/SAE reserved

B.14 P0DXX ISO/SAE reserved

B.15 P0EXX ISO/SAE reserved

B.16 P0FXX ISO/SAE reserved

B.17 P10XX Manufacturer controlled

B.18 P11XX Manufacturer controlled

B.19 P12XX Manufacturer controlled

B.20 P13XX Manufacturer controlled

B.21 P14XX Manufacturer controlled

B.22 P15XX Manufacturer controlled

B.23 P16XX Manufacturer controlled

B.24 P17XX Manufacturer controlled

B.25 P18XX Manufacturer controlled

B.26 P19XX Manufacturer controlled

B.27 P1AXX Manufacturer controlled

B.28 P1BXX Manufacturer controlled

B.29 P1CXX Manufacturer controlled

B.30 P1DXX Manufacturer controlled

B.31 P1EXX Manufacturer controlled

B.32 P1FXX Manufacturer controlled

B.33 P20XX Fuel and air metering and auxiliary emission controls

Table B.13 — P20XX Fuel and air metering and auxiliary emission controls

DTC number	DTC naming	Location
P2000	NOx Trap Efficiency Below Threshold	Bank 1
P2001	NOx Trap Efficiency Below Threshold	Bank 2
P2002	Diesel Particulate Filter Efficiency Below Threshold	Bank 1
P2003	Diesel Particulate Filter Efficiency Below Threshold	Bank 2
P2004	Intake Manifold Runner Control Stuck Open	Bank 1[a]
P2005	Intake Manifold Runner Control Stuck Open	Bank 2[a]
P2006	Intake Manifold Runner Control Stuck Closed	Bank 1[a]
P2007	Intake Manifold Runner Control Stuck Closed	Bank 2[a]
P2008	Intake Manifold Runner Control Circuit/Open	Bank 1[a]
P2009	Intake Manifold Runner Control Circuit Low	Bank 1[a]
P2010	Intake Manifold Runner Control Circuit High	Bank 1[a]
P2011	Intake Manifold Runner Control Circuit/Open	Bank 2[a]
P2012	Intake Manifold Runner Control Circuit Low	Bank 2[a]
P2013	Intake Manifold Runner Control Circuit High	Bank 2[a]
P2014	Intake Manifold Runner Position Sensor/Switch Circuit	Bank 1[a]
P2015	Intake Manifold Runner Position Sensor/Switch Circuit Range/Performance	Bank 1[a]
P2016	Intake Manifold Runner Position Sensor/Switch Circuit Low	Bank 1[a]
P2017	Intake Manifold Runner Position Sensor/Switch Circuit High	Bank 1[a]
P2018	Intake Manifold Runner Position Sensor/Switch Circuit Intermittent	Bank 1[a]
P2019	Intake Manifold Runner Position Sensor/Switch Circuit	Bank 2[a]
P2020	Intake Manifold Runner Position Sensor/Switch Circuit Range/Performance	Bank 2[a]
P2021	Intake Manifold Runner Position Sensor/Switch Circuit Low	Bank 2[a]
P2022	Intake Manifold Runner Position Sensor/Switch Circuit High	Bank 2[a]
P2023	Intake Manifold Runner Position Sensor/Switch Circuit Intermittent	Bank 2[a]
P2024	Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor Circuit	
P2025	Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor Performance	
P2026	Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor Circuit Low Voltage	
P2027	Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor Circuit High Voltage	
P2028	Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor Circuit Intermittent	
P2029	Fuel Fired Heater Disabled	
P2030	Fuel Fired Heater Performance	
P2031	Exhaust Gas Temperature Sensor Circuit	Bank 1 Sensor 2
P2032	Exhaust Gas Temperature Sensor Circuit Low	Bank 1 Sensor 2

Table B.13 (*continued*)

DTC number	DTC naming	Location
P2033	Exhaust Gas Temperature Sensor Circuit High	Bank 1 Sensor 2
P2034	Exhaust Gas Temperature Sensor Circuit	Bank 2 Sensor 2
P2035	Exhaust Gas Temperature Sensor Circuit Low	Bank 2 Sensor 2
P2036	Exhaust Gas Temperature Sensor Circuit High	Bank 2 Sensor 2
P2037	Reductant Injection Air Pressure Sensor Circuit	
P2038	Reductant Injection Air Pressure Sensor Circuit Range/Performance	
P2039	Reductant Injection Air Pressure Sensor Circuit Low	
P203A	Reductant Level Sensor Circuit	
P203B	Reductant Level Sensor Circuit Range/Performance	
P203C	Reductant Level Sensor Circuit Low	
P203D	Reductant Level Sensor Circuit High	
P203E	Reductant Level Sensor Circuit Intermittent/Erratic	
P203F	Reductant Level Low	
P2040	Reductant Injection Air Pressure Sensor Circuit High	
P2041	Reductant Injection Air Pressure Sensor Circuit Intermittent	
P2042	Reductant Temperature Sensor Circuit	
P2043	Reductant Temperature Sensor Circuit Range/Performance	
P2044	Reductant Temperature Sensor Circuit Low	
P2045	Reductant Temperature Sensor Circuit High	
P2046	Reductant Temperature Sensor Circuit Intermittent	
P2047	Reductant Injector Circuit/Open	Bank 1 Unit 1
P2048	Reductant Injector Circuit Low	Bank 1 Unit 1
P2049	Reductant Injector Circuit High	Bank 1 Unit 1
P204A	Reductant Pressure Sensor Circuit	
P204B	Reductant Pressure Sensor Circuit Range/Performance	
P204C	Reductant Pressure Sensor Circuit Low	
P204D	Reductant Pressure Sensor Circuit High	
P204E	Reductant Pressure Sensor Circuit Intermittent/Erratic	
P204F	ISO/SAE reserved	
P2050	Reductant Injector Circuit/Open	Bank 2 Unit 1
P2051	Reductant Injector Circuit Low	Bank 2 Unit 1
P2052	Reductant Injector Circuit High	Bank 2 Unit 1
P2053	Reductant Injector Circuit/Open	Bank 1 Unit 2
P2054	Reductant Injector Circuit Low	Bank 1 Unit 2
P2055	Reductant Injector Circuit High	Bank 1 Unit 2
P2056	Reductant Injector Circuit/Open	Bank 2 Unit 2
P2057	Reductant Injector Circuit Low	Bank 2 Unit 2
P2058	Reductant Injector Circuit High	Bank 2 Unit 2

Table B.13 (*continued*)

DTC number	DTC naming	Location
P2059	Reductant Injection Air Pump Control Circuit/Open	
P205A	Reductant Tank Temperature Sensor Circuit	
P205B	Reductant Tank Temperature Sensor Circuit Range/Performance	
P205C	Reductant Tank Temperature Sensor Circuit Low	
P205D	Reductant Tank Temperature Sensor Circuit High	
P205E	Reductant Tank Temperature Sensor Circuit Intermittent/Erratic	
P205F	ISO/SAE reserved	
P2060	Reductant Injection Air Pump Control Circuit Low	
P2061	Reductant Injection Air Pump Control Circuit High	
P2062	Reductant/Regeneration Supply Control Circuit/Open	
P2063	Reductant Supply Control Circuit Low	
P2064	Reductant Supply Control Circuit High	
P2065	Fuel Level Sensor “B” Circuit	
P2066	Fuel Level Sensor “B” Performance	
P2067	Fuel Level Sensor “B” Circuit Low	
P2068	Fuel Level Sensor “B” Circuit High	
P2069	Fuel Level Sensor “B” Circuit Intermittent	
P206A	ISO/SAE reserved	
P206B	ISO/SAE reserved	
P206C	ISO/SAE reserved	
P206D	ISO/SAE reserved	
P206E	Intake Manifold Tuning (IMT) Valve Stuck Open	Bank 2[a]
P206F	Intake Manifold Tuning (IMT) Valve Stuck Closed	Bank 2[a]
P2070	Intake Manifold Tuning (IMT) Valve Stuck Open	Bank 1[a]
P2071	Intake Manifold Tuning (IMT) Valve Stuck Closed	Bank 1[a]
P2072	Throttle Actuator Control System – Ice Blockage	
P2073	Manifold Absolute Pressure/Mass Air Flow – Throttle Position Correlation at Idle	
P2074	Manifold Absolute Pressure/Mass Air Flow – Throttle Position Correlation at Higher Load	
P2075	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit	Bank 1[a]
P2076	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit Range/Performance	Bank 1[a]
P2077	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit Low	Bank 1[a]
P2078	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit High	Bank 1[a]
P2079	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit Intermittent	Bank 1[a]
P207A	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit	Bank 2[a]
P207B	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit Range/Performance	Bank 2[a]

Table B.13 (*continued*)

DTC number	DTC naming	Location
P207C	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit Low	Bank 2[a]
P207D	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit High	Bank 2[a]
P207E	Intake Manifold Tuning (IMT) Valve Position Sensor/Switch Circuit Intermittent	Bank 2[a]
P207F	ISO/SAE reserved	
P2080	Exhaust Gas Temperature Sensor Circuit Range/Performance	Bank 1 Sensor 1
P2081	Exhaust Gas Temperature Sensor Circuit Intermittent	Bank 1 Sensor 1
P2082	Exhaust Gas Temperature Sensor Circuit Range/Performance	Bank 2 Sensor 1
P2083	Exhaust Gas Temperature Sensor Circuit Intermittent	Bank 2 Sensor 1
P2084	Exhaust Gas Temperature Sensor Circuit Range/Performance	Bank 1 Sensor 2
P2085	Exhaust Gas Temperature Sensor Circuit Intermittent	Bank 1 Sensor 2
P2086	Exhaust Gas Temperature Sensor Circuit Range/Performance	Bank 2 Sensor 2
P2087	Exhaust Gas Temperature Sensor Circuit Intermittent	Bank 2 Sensor 2
P2088[a]	“A“ Camshaft Position Actuator Control Circuit Low	Bank 1[b]
P2089[a]	“A” Camshaft Position Actuator Control Circuit High	Bank 1[b]
P2090[a]	“B” Camshaft Position Actuator Control Circuit Low	Bank 1[c]
P2091[a]	“B” Camshaft Position Actuator Control Circuit High	Bank 1[c]
P2092[a]	“A” Camshaft Position Actuator Control Circuit Low	Bank 2[b]
P2093[a]	“A” Camshaft Position Actuator Control Circuit High	Bank 2[b]
P2094[a]	“B” Camshaft Position Actuator Control Circuit Low	Bank 2[c]
P2095[a]	“B” Camshaft Position Actuator Control Circuit High	Bank 2[c]
P2096	Post Catalyst Fuel Trim System Too Lean	Bank 1
P2097	Post Catalyst Fuel Trim System Too Rich	Bank 1
P2098	Post Catalyst Fuel Trim System Too Lean	Bank 2
P2099	Post Catalyst Fuel Trim System Too Rich	Bank 2

NOTE For DTCs P2088-P2095 see also P0010-P0023.

[a] DTC Application information for Intake Manifold Tuning Valves and Intake Manifold Runner controls:

— Active controls are used to modify or control airflow within the engine air intake system. These controls may be used to enhance or modify in-cylinder airflow motion (charge motion), modify the airflow dynamics (manifold tuning) within the intake manifold or both.

— Devices that control charge motion are commonly called Intake Manifold Runner Control, Swirl Control Valve, and Charge Motion Control Valve. The ISO/SAE recommended term for any device that controls charge motion is Intake Manifold Runner Control (IMRC).

— Devices that control manifold dynamics or manifold tuning are commonly called Intake Manifold Tuning Valve, Long/Short Runner Control and Intake Manifold Communication Control. The SAE recommended term for any device that controls manifold tuning is Intake Manifold Tuning (IMT) Valve.

[b] The “A” camshaft shall be either the “intake”, “left,” or “front” camshaft. Left/Right and Front/Rear are determined as viewed from the driver’s seating position. Bank 1 contains cylinder number one, Bank 2 is the opposite bank.

[c] The “B” camshaft shall be either the “exhaust”, “right”, or “rear” camshaft. Left/Right and Front/Rear are determined as viewed from the driver’s seating position. Bank 1 contains cylinder number one, Bank 2 is the opposite bank.

B.34 P21XX Fuel and air metering and auxiliary emission controls

Table B.14 — P21XX Fuel and air metering and auxiliary emission controls

DTC number	DTC naming	Location
P2100[a]	Throttle Actuator Control Motor Circuit/Open	
P2101[a]	Throttle Actuator Control Motor Circuit Range/Performance	
P2102[a]	Throttle Actuator Control Motor Circuit Low	
P2103[a]	Throttle Actuator Control Motor Circuit High	
P2104[a]	Throttle Actuator Control System – Forced Idle	
P2105[a]	Throttle Actuator Control System – Forced Engine Shutdown	
P2106[a]	Throttle Actuator Control System – Forced Limited Power	
P2107[a]	Throttle Actuator Control Module Processor	
P2108[a]	Throttle Actuator Control Module Performance	
P2109[a]	Throttle/Pedal Position Sensor “A” Minimum Stop Performance	
P2110[a]	Throttle Actuator Control System – Forced Limited RPM	
P2111[a]	Throttle Actuator Control System – Stuck Open	
P2112[a]	Throttle Actuator Control System – Stuck Closed	
P2113	Throttle/Pedal Position Sensor “B” Minimum Stop Performance	
P2114	Throttle/Pedal Position Sensor “C” Minimum Stop Performance	
P2115	Throttle/Pedal Position Sensor “D” Minimum Stop Performance	
P2116	Throttle/Pedal Position Sensor “E” Minimum Stop Performance	
P2117	Throttle/Pedal Position Sensor “F” Minimum Stop Performance	
P2118[a]	Throttle Actuator Control Motor Current Range/Performance	
P2119[a]	Throttle Actuator Control Throttle Body Range/Performance	
P2120	Throttle/Pedal Position Sensor/Switch “D” Circuit	
P2121	Throttle/Pedal Position Sensor/Switch “D” Circuit Range/Performance	
P2122	Throttle/Pedal Position Sensor/Switch “D” Circuit Low	
P2123	Throttle/Pedal Position Sensor/Switch “D” Circuit High	
P2124	Throttle/Pedal Position Sensor/Switch “D” Circuit Intermittent	
P2125	Throttle/Pedal Position Sensor/Switch “E” Circuit	
P2126	Throttle/Pedal Position Sensor/Switch “E” Circuit Range/Performance	
P2127	Throttle/Pedal Position Sensor/Switch “E” Circuit Low	
P2128	Throttle/Pedal Position Sensor/Switch “E” Circuit High	
P2129	Throttle/Pedal Position Sensor/Switch “E” Circuit Intermittent	
P2130	Throttle/Pedal Position Sensor/Switch “F” Circuit	
P2131	Throttle/Pedal Position Sensor/Switch “F” Circuit Range/Performance	
P2132	Throttle/Pedal Position Sensor/Switch “F” Circuit Low	
P2133	Throttle/Pedal Position Sensor/Switch “F” Circuit High	
P2134	Throttle/Pedal Position Sensor/Switch “F” Circuit Intermittent	

Table B.14 (*continued*)

DTC number	DTC naming	Location
P2135	Throttle/Pedal Position Sensor/Switch “A”/“B” Voltage Correlation	
P2136	Throttle/Pedal Position Sensor/Switch “A”/“C” Voltage Correlation	
P2137	Throttle/Pedal Position Sensor/Switch “B”/“C” Voltage Correlation	
P2138	Throttle/Pedal Position Sensor/Switch “D”/“E” Voltage Correlation	
P2139	Throttle/Pedal Position Sensor/Switch “D”/“F” Voltage Correlation	
P213A	Exhaust Gas Recirculation Throttle Control Circuit “B”/Open	
P213B	Exhaust Gas Recirculation Throttle Control Circuit “B” Range/Performance	
P213C[b]	Exhaust Gas Recirculation Throttle Control Circuit “B” Low	
P213D[b]	Exhaust Gas Recirculation Throttle Control Circuit “B” High	
P2140	Throttle/Pedal Position Sensor/Switch “E”/“F” Voltage Correlation	
P2141[b]	Exhaust Gas Recirculation Throttle Control Circuit “A” Low	
P2142[b]	Exhaust Gas Recirculation Throttle Control Circuit “A” High	
P2143	Exhaust Gas Recirculation Vent Control Circuit/Open	
P2144	Exhaust Gas Recirculation Vent Control Circuit Low	
P2145	Exhaust Gas Recirculation Vent Control Circuit High	
P2146	Fuel Injector Group “A” Supply Voltage Circuit/Open	
P2147	Fuel Injector Group “A” Supply Voltage Circuit Low	
P2148	Fuel Injector Group “A” Supply Voltage Circuit High	
P2149	Fuel Injector Group “B” Supply Voltage Circuit/Open	
P2150	Fuel Injector Group “B” Supply Voltage Circuit Low	
P2151	Fuel Injector Group “B” Supply Voltage Circuit High	
P2152	Fuel Injector Group “C” Supply Voltage Circuit/Open	
P2153	Fuel Injector Group “C” Supply Voltage Circuit Low	
P2154	Fuel Injector Group “C” Supply Voltage Circuit High	
P2155	Fuel Injector Group “D” Supply Voltage Circuit/Open	
P2156	Fuel Injector Group “D” Supply Voltage Circuit Low	
P2157	Fuel Injector Group “D” Supply Voltage Circuit High	
P2158	Vehicle Speed Sensor “B”	
P2159	Vehicle Speed Sensor “B” Range/Performance	
P215A	Vehicle Speed – Wheel Speed Correlation	
P215B	Vehicle Speed – Output Shaft Speed Correlation	
P2160	Vehicle Speed Sensor “B” Circuit Low	
P2161	Vehicle Speed Sensor “B” Intermittent/Erratic	
P2162	Vehicle Speed Sensor “A”/“B” Correlation	
P2163	Throttle/Pedal Position Sensor “A” Maximum Stop Performance	
P2164	Throttle/Pedal Position Sensor “B” Maximum Stop Performance	
P2165	Throttle/Pedal Position Sensor “C” Maximum Stop Performance	

Table B.14 (*continued*)

DTC number	DTC naming	Location
P2166	Throttle/Pedal Position Sensor “D” Maximum Stop Performance	
P2167	Throttle/Pedal Position Sensor “E” Maximum Stop Performance	
P2168	Throttle/Pedal Position Sensor “F” Maximum Stop Performance	
P2169	Exhaust Pressure Regulator Vent Solenoid Control Circuit/Open	
P2170	Exhaust Pressure Regulator Vent Solenoid Control Circuit Low	
P2171	Exhaust Pressure Regulator Vent Solenoid Control Circuit High	
P2172	Throttle Actuator Control System – Sudden High Airflow Detected	
P2173	Throttle Actuator Control System – High Airflow Detected	
P2174	Throttle Actuator Control System – Sudden Low Airflow Detected	
P2175	Throttle Actuator Control System – Low Airflow Detected	
P2176	Throttle Actuator Control System – Idle Position Not Learned	
P2177[c]	System Too Lean Off Idle	Bank 1
P2178[c]	System Too Rich Off Idle	Bank 1
P2179[c]	System Too Lean Off Idle	Bank 2
P2180[c]	System Too Rich Off Idle	Bank 2
P2181	Cooling System Performance	
P2182	Engine Coolant Temperature Sensor 2 Circuit	
P2183	Engine Coolant Temperature Sensor 2 Circuit Range/Performance	
P2184	Engine Coolant Temperature Sensor 2 Circuit Low	
P2185	Engine Coolant Temperature Sensor 2 Circuit High	
P2186	Engine Coolant Temperature Sensor 2 Circuit Intermittent/Erratic	
P2187	System Too Lean at Idle	Bank 1
P2188	System Too Rich at Idle	Bank 1
P2189	System Too Lean at Idle	Bank 2
P2190	System Too Rich at Idle	Bank 2
P2191	System Too Lean at Higher Load	Bank 1
P2192	System Too Rich at Higher Load	Bank 1
P2193	System Too Lean at Higher Load	Bank 2
P2194	System Too Rich at Higher Load	Bank 2
P2195	O2 Sensor Signal Biased/Stuck Lean	Bank 1 Sensor 1
P2196	O2 Sensor Signal Biased/Stuck Rich	Bank 1 Sensor 1
P2197	O2 Sensor Signal Biased/Stuck Lean	Bank 2 Sensor 1
P2198	O2 Sensor Signal Biased/Stuck Rich	Bank 2 Sensor 1
P2199	Intake Air Temperature Sensor 1/2 Correlation	

[a] For Throttle Actuator Control DTCs, see also P0638-P0639.

[b] DTCs P2141-P2142 should be used with P0487-P0488.

[c] Use P2177-P2180 for fuel systems with multiple load ranges.

B.35 P22XX Fuel and air metering and auxiliary emission controls

Table B.15 — P22XX Fuel and air metering and auxiliary emission controls

DTC number	DTC naming	Location
P2200	NOx Sensor Circuit	Bank 1
P2201	NOx Sensor Circuit Range/Performance	Bank 1
P2202	NOx Sensor Circuit Low	Bank 1
P2203	NOx Sensor Circuit High	Bank 1
P2204	NOx Sensor Circuit Intermittent	Bank 1
P2205	NOx Sensor Heater Control Circuit/Open	Bank 1
P2206	NOx Sensor Heater Control Circuit Low	Bank 1
P2207	NOx Sensor Heater Control Circuit High	Bank 1
P2208	NOx Sensor Heater Sense Circuit	Bank 1
P2209	NOx Sensor Heater Sense Circuit Range/Performance	Bank 1
P2210	NOx Sensor Heater Sense Circuit Low	Bank 1
P2211	NOx Sensor Heater Sense Circuit High	Bank 1
P2212	NOx Sensor Heater Sense Circuit Intermittent	Bank 1
P2213	NOx Sensor Circuit	Bank 2
P2214	NOx Sensor Circuit Range/Performance	Bank 2
P2215	NOx Sensor Circuit Low	Bank 2
P2216	NOx Sensor Circuit High	Bank 2
P2217	NOx Sensor Circuit Intermittent	Bank 2
P2218	NOx Sensor Heater Control Circuit/Open	Bank 2
P2219	NOx Sensor Heater Control Circuit Low	Bank 2
P2220	NOx Sensor Heater Control Circuit High	Bank 2
P2221	NOx Sensor Heater Sense Circuit	Bank 2
P2222	NOx Sensor Heater Sense Circuit Range/Performance	Bank 2
P2223	NOx Sensor Heater Sense Circuit Low	Bank 2
P2224	NOx Sensor Heater Sense Circuit High	Bank 2
P2225	NOx Sensor Heater Sense Circuit Intermittent	Bank 2
P2226	Barometric Pressure Circuit	
P2227	Barometric Pressure Circuit Range/Performance	
P2228	Barometric Pressure Circuit Low	
P2229	Barometric Pressure Circuit High	
P2230	Barometric Pressure Circuit Intermittent	
P2231[a]	O2 Sensor Signal Circuit Shorted to Heater Circuit	Bank 1 Sensor 1
P2232[a]	O2 Sensor Signal Circuit Shorted to Heater Circuit	Bank 1 Sensor 2
P2233[a]	O2 Sensor Signal Circuit Shorted to Heater Circuit	Bank 1 Sensor 3
P2234[a]	O2 Sensor Signal Circuit Shorted to Heater Circuit	Bank 2 Sensor 1
P2235[a]	O2 Sensor Signal Circuit Shorted to Heater Circuit	Bank 2 Sensor 2

Table B.15 (*continued*)

DTC number	DTC naming	Location
P2236[a]	O2 Sensor Signal Circuit Shorted to Heater Circuit	Bank 2 Sensor 3
P2237[b]	O2 Sensor Positive Current Control Circuit/Open	Bank 1 Sensor 1
P2238[b]	O2 Sensor Positive Current Control Circuit Low	Bank 1 Sensor 1
P2239[b]	O2 Sensor Positive Current Control Circuit High	Bank 1 Sensor 1
P2240[b]	O2 Sensor Positive Current Control Circuit/Open	Bank 2 Sensor 1
P2241[b]	O2 Sensor Positive Current Control Circuit Low	Bank 2 Sensor 1
P2242[b]	O2 Sensor Positive Current Control Circuit High	Bank 2 Sensor 1
P2243[b]	O2 Sensor Reference Voltage Circuit/Open	Bank 1 Sensor 1
P2244[b]	O2 Sensor Reference Voltage Performance	Bank 1 Sensor 1
P2245[b]	O2 Sensor Reference Voltage Circuit Low	Bank 1 Sensor 1
P2246[b]	O2 Sensor Reference Voltage Circuit High	Bank 1 Sensor 1
P2247[b]	O2 Sensor Reference Voltage Circuit/Open	Bank 2 Sensor 1
P2248[b]	O2 Sensor Reference Voltage Performance	Bank 2 Sensor 1
P2249[b]	O2 Sensor Reference Voltage Circuit Low	Bank 2 Sensor 1
P2250[b]	O2 Sensor Reference Voltage Circuit High	Bank 2 Sensor 1
P2251[b]	O2 Sensor Negative Current Control Circuit/Open	Bank 1 Sensor 1
P2252[b]	O2 Sensor Negative Current Control Circuit Low	Bank 1 Sensor 1
P2253[b]	O2 Sensor Negative Current Control Circuit High	Bank 1 Sensor 1
P2254[b]	O2 Sensor Negative Current Control Circuit/Open	Bank 2 Sensor 1
P2255[b]	O2 Sensor Negative Current Control Circuit Low	Bank 2 Sensor 1
P2256[b]	O2 Sensor Negative Current Control Circuit High	Bank 2 Sensor 1
P2257	Secondary Air Injection System Control “A” Circuit Low	
P2258	Secondary Air Injection System Control “A” Circuit High	
P2259	Secondary Air Injection System Control “B” Circuit Low	
P2260	Secondary Air Injection System Control “B” Circuit High	
P2261	Turbocharger/Supercharger Bypass Valve – Mechanical	
P2262	Turbocharger/Supercharger Boost Pressure Not Detected – Mechanical	
P2263	Turbocharger/Supercharger Boost System Performance	
P2264	Water in Fuel Sensor Circuit	
P2265	Water in Fuel Sensor Circuit Range/Performance	
P2266	Water in Fuel Sensor Circuit Low	
P2267	Water in Fuel Sensor Circuit High	
P2268	Water in Fuel Sensor Circuit Intermittent	
P2269	Water in Fuel Condition	
P2270	O2 Sensor Signal Stuck Lean	Bank 1 Sensor 2
P2271	O2 Sensor Signal Stuck Rich	Bank 1 Sensor 2

Table B.15 (*continued*)

DTC number	DTC naming	Location
P2272	O2 Sensor Signal Stuck Lean	Bank 2 Sensor 2
P2273	O2 Sensor Signal Stuck Rich	Bank 2 Sensor 2
P2274	O2 Sensor Signal Stuck Lean	Bank 1 Sensor 3
P2275	O2 Sensor Signal Stuck Rich	Bank 1 Sensor 3
P2276	O2 Sensor Signal Stuck Lean	Bank 2 Sensor 3
P2277	O2 Sensor Signal Stuck Rich	Bank 2 Sensor 3
P2278	O2 Sensor Signals Swapped Bank 1 Sensor 3/Bank 2 Sensor 3	
P2279	Intake Air System Leak	
P2280	Air Flow Restriction/Air Leak Between Air Filter and MAF	
P2281	Air Leak Between MAF and Throttle Body	
P2282	Air Leak Between Throttle Body and Intake Valves	
P2283	Injector Control Pressure Sensor Circuit	
P2284	Injector Control Pressure Sensor Circuit Range/Performance	
P2285	Injector Control Pressure Sensor Circuit Low	
P2286	Injector Control Pressure Sensor Circuit High	
P2287	Injector Control Pressure Sensor Circuit Intermittent	
P2288	Injector Control Pressure Too High	
P2289	Injector Control Pressure Too High – Engine Off	
P2290	Injector Control Pressure Too Low	
P2291	Injector Control Pressure Too Low – Engine Cranking	
P2292	Injector Control Pressure Erratic	
P2293	Fuel Pressure Regulator 2 Performance	
P2294	Fuel Pressure Regulator 2 Control Circuit	
P2295	Fuel Pressure Regulator 2 Control Circuit Low	
P2296	Fuel Pressure Regulator 2 Control Circuit High	
P2297	O2 Sensor Out of Range During Deceleration	Bank 1 Sensor 1
P2298	O2 Sensor Out of Range During Deceleration	Bank 2 Sensor 1
P2299	Brake Pedal Position/Accelerator Pedal Position Incompatible	

[a] For P2231-P2236, this diagnostic is for the sensors (both wide band and switching) that have a PWM controlled heater. If the heater shorts to the signal circuit, the control module can determine this since the signal circuit will be shorted high at the same frequency at which the heaters are operating.

[b] For P2237-P2256, these are the diagnostics for the primary circuits of the wide band oxygen sensors.

B.36 P23XX Ignition system or misfire

Table B.16 — P23XX Ignition system or misfire

DTC number	DTC naming	Location
P2300	Ignition Coil “A” Primary Control Circuit Low	
P2301	Ignition Coil “A” Primary Control Circuit High	
P2302	Ignition Coil “A” Secondary Circuit	
P2303	Ignition Coil “B” Primary Control Circuit Low	
P2304	Ignition Coil “B” Primary Control Circuit High	
P2305	Ignition Coil “B” Secondary Circuit	
P2306	Ignition Coil “C” Primary Control Circuit Low	
P2307	Ignition Coil “C” Primary Control Circuit High	
P2308	Ignition Coil “C” Secondary Circuit	
P2309	Ignition Coil “D” Primary Control Circuit Low	
P2310	Ignition Coil “D” Primary Control Circuit High	
P2311	Ignition Coil “D” Secondary Circuit	
P2312	Ignition Coil “E” Primary Control Circuit Low	
P2313	Ignition Coil “E” Primary Control Circuit High	
P2314	Ignition Coil “E” Secondary Circuit	
P2315	Ignition Coil “F” Primary Control Circuit Low	
P2316	Ignition Coil “F” Primary Control Circuit High	
P2317	Ignition Coil “F” Secondary Circuit	
P2318	Ignition Coil “G” Primary Control Circuit Low	
P2319	Ignition Coil “G” Primary Control Circuit High	
P2320	Ignition Coil “G” Secondary Circuit	
P2321	Ignition Coil “H” Primary Control Circuit Low	
P2322	Ignition Coil “H” Primary Control Circuit High	
P2323	Ignition Coil “H” Secondary Circuit	
P2324	Ignition Coil “I” Primary Control Circuit Low	
P2325	Ignition Coil “I” Primary Control Circuit High	
P2326	Ignition Coil “I” Secondary Circuit	
P2327	Ignition Coil “J” Primary Control Circuit Low	
P2328	Ignition Coil “J” Primary Control Circuit High	
P2329	Ignition Coil “J” Secondary Circuit	
P2330	Ignition Coil “K” Primary Control Circuit Low	
P2331	Ignition Coil “K” Primary Control Circuit High	
P2332	Ignition Coil “K” Secondary Circuit	
P2333	Ignition Coil “L” Primary Control Circuit Low	
P2334	Ignition Coil “L” Primary Control Circuit High	
P2335	Ignition Coil “L” Secondary Circuit	

Table B.16 (*continued*)

DTC number	DTC naming	Location
P2336	Cylinder 1 Above Knock Threshold	
P2337	Cylinder 2 Above Knock Threshold	
P2338	Cylinder 3 Above Knock Threshold	
P2339	Cylinder 4 Above Knock Threshold	
P2340	Cylinder 5 Above Knock Threshold	
P2341	Cylinder 6 Above Knock Threshold	
P2342	Cylinder 7 Above Knock Threshold	
P2343	Cylinder 8 Above Knock Threshold	
P2344	Cylinder 9 Above Knock Threshold	
P2345	Cylinder 10 Above Knock Threshold	
P2346	Cylinder 11 Above Knock Threshold	
P2347	Cylinder 12 Above Knock Threshold	

B.37 P24XX Auxiliary Emission Controls

Table B.17 — P24XX Auxiliary Emission Controls

DTC number	DTC naming	Location
P2400	Evaporative Emission System Leak Detection Pump Control Circuit/Open	
P2401	Evaporative Emission System Leak Detection Pump Control Circuit Low	
P2402	Evaporative Emission System Leak Detection Pump Control Circuit High	
P2403	Evaporative Emission System Leak Detection Pump Sense Circuit/Open	
P2404	Evaporative Emission System Leak Detection Pump Sense Circuit Range/Performance	
P2405	Evaporative Emission System Leak Detection Pump Sense Circuit Low	
P2406	Evaporative Emission System Leak Detection Pump Sense Circuit High	
P2407	Evaporative Emission System Leak Detection Pump Sense Circuit Intermittent/Erratic	
P2408	Fuel Cap Sensor/Switch Circuit	
P2409	Fuel Cap Sensor/Switch Circuit Range/Performance	
P240A	Evaporative Emission System Leak Detection Pump Heater Control Circuit/Open	
P240B	Evaporative Emission System Leak Detection Pump Heater Control Circuit Low	
P240C	Evaporative Emission System Leak Detection Pump Heater Control Circuit High	
P240D	ISO/SAE reserved	
P240E	ISO/SAE reserved	
P240F	ISO/SAE reserved	
P2410	Fuel Cap Sensor/Switch Circuit Low	
P2411	Fuel Cap Sensor/Switch Circuit High	

Table B.17 (*continued*)

DTC number	DTC naming	Location
P2412	Fuel Cap Sensor/Switch Circuit Intermittent/Erratic	
P2413	Exhaust Gas Recirculation System Performance	
P2414	O2 Sensor Exhaust Sample Error	Bank 1 Sensor 1
P2415	O2 Sensor Exhaust Sample Error	Bank 2 Sensor 1
P2416	O2 Sensor Signals Swapped Bank 1 Sensor 2/Bank 1 Sensor 3	
P2417	O2 Sensor Signals Swapped Bank 2 Sensor 2/Bank 2 Sensor 3	
P2418	Evaporative Emission System Switching Valve Control Circuit/Open	
P2419	Evaporative Emission System Switching Valve Control Circuit Low	
P2420	Evaporative Emission System Switching Valve Control Circuit High	
P2421	Evaporative Emission System Vent Valve Stuck Open	
P2422	Evaporative Emission System Vent Valve Stuck Closed	
P2423	HC Adsorption Catalyst Efficiency Below Threshold	Bank 1
P2424	HC Adsorption Catalyst Efficiency Below Threshold	Bank 2
P2425	Exhaust Gas Recirculation Cooling Valve Control Circuit/Open	
P2426	Exhaust Gas Recirculation Cooling Valve Control Circuit Low	
P2427	Exhaust Gas Recirculation Cooling Valve Control Circuit High	
P2428	Exhaust Gas Temperature Too High	Bank 1
P2429	Exhaust Gas Temperature Too High	Bank 2
P242A	Exhaust Gas Temperature Sensor Circuit	Bank 1 Sensor 3
P242B	Exhaust Gas Temperature Sensor Circuit Range/Performance	Bank 1 Sensor 3
P242C	Exhaust Gas Temperature Sensor Circuit Low	Bank 1 Sensor 3
P242D	Exhaust Gas Temperature Sensor Circuit High	Bank 1 Sensor 3
P242E	Exhaust Gas Temperature Sensor Circuit Intermittent/Erratic	Bank 1 Sensor 3
P242F	Diesel Particulate Filter Restriction – Ash Accumulation	
P2430	Secondary Air Injection System Air Flow/Pressure Sensor Circuit	Bank 1
P2431	Secondary Air Injection System Air Flow/Pressure Sensor Circuit Range/Performance	Bank 1
P2432	Secondary Air Injection System Air Flow/Pressure Sensor Circuit Low	Bank 1
P2433	Secondary Air Injection System Air Flow/Pressure Sensor Circuit High	Bank 1
P2434	Secondary Air Injection System Air Flow/Pressure Sensor Circuit Intermittent/Erratic	Bank 1
P2435	Secondary Air Injection System Air Flow/Pressure Sensor Circuit	Bank 2
P2436	Secondary Air Injection System Air Flow/Pressure Sensor Circuit Range/Performance	Bank 2
P2437	Secondary Air Injection System Air Flow/Pressure Sensor Circuit Low	Bank 2
P2438	Secondary Air Injection System Air Flow/Pressure Sensor Circuit High	Bank 2
P2439	Secondary Air Injection System Air Flow/Pressure Sensor Circuit Intermittent/Erratic	Bank 2
P2440	Secondary Air Injection System Switching Valve Stuck Open	Bank 1

Table B.17 (*continued*)

DTC number	DTC naming	Location
P2441	Secondary Air Injection System Switching Valve Stuck Closed	Bank 1
P2442	Secondary Air Injection System Switching Valve Stuck Open	Bank 2
P2443	Secondary Air Injection System Switching Valve Stuck Closed	Bank 2
P2444	Secondary Air Injection System Pump Stuck On	Bank 1
P2445	Secondary Air Injection System Pump Stuck Off	Bank 1
P2446	Secondary Air Injection System Pump Stuck On	Bank 2
P2447	Secondary Air Injection System Pump Stuck Off	Bank 2
P2448	Secondary Air Injection System High Air Flow	Bank 1
P2449	Secondary Air Injection System High Air Flow	Bank 2
P2450	Evaporative Emission System Switching Valve Performance/Stuck Open	
P2451	Evaporative Emission System Switching Valve Stuck Closed	
P2452	Diesel Particulate Filter Differential Pressure Sensor Circuit	
P2453	Diesel Particulate Filter Differential Pressure Sensor Circuit Range/Performance	
P2454	Diesel Particulate Filter Differential Pressure Sensor Circuit Low	
P2455	Diesel Particulate Filter Differential Pressure Sensor Circuit High	
P2456	Diesel Particulate Filter Differential Pressure Sensor Circuit Intermittent/Erratic	
P2457	Exhaust Gas Recirculation Cooling System Performance	
P2458	Diesel Particulate Filter Regeneration Duration	
P2459	Diesel Particulate Filter Regeneration Frequency	
P245A	Exhaust Gas Recirculation Cooler Bypass Control Circuit/Open	
P245B	Exhaust Gas Recirculation Cooler Bypass Control Circuit Range/Performance	
P245C	Exhaust Gas Recirculation Cooler Bypass Control Circuit Low	
P245D	Exhaust Gas Recirculation Cooler Bypass Control Circuit High	
P245E	ISO/SAE reserved	
P245F	ISO/SAE reserved	

B.38 P25XX Auxiliary Inputs

Table B.18 — P25XX Auxiliary Inputs

DTC number	DTC naming	Location
P2500	Generator Lamp/L–Terminal Circuit Low	
P2501	Generator Lamp/L–Terminal Circuit High	
P2502	Charging System Voltage	
P2503	Charging System Voltage Low	
P2504	Charging System Voltage High	
P2505[a]	ECM/PCM Power Input Signal	
P2506[a]	ECM/PCM Power Input Signal Range/Performance	
P2507[a]	ECM/PCM Power Input Signal Low	
P2508[a]	ECM/PCM Power Input Signal High	
P2509[a]	ECM/PCM Power Input Signal Intermittent	
P250A	Engine Oil Level Sensor Circuit	
P250B	Engine Oil Level Sensor Circuit Range/Performance	
P250C	Engine Oil Level Sensor Circuit Low	
P250D	Engine Oil Level Sensor Circuit High	
P250E	Engine Oil Level Sensor Circuit Intermittent/Erratic	
P250F	Engine Oil Level Too Low	
P2510	ECM/PCM Power Relay Sense Circuit Range/Performance	
P2511	ECM/PCM Power Relay Sense Circuit Intermittent	
P2512	Event Data Recorder Request Circuit/ Open	
P2513	Event Data Recorder Request Circuit Low	
P2514	Event Data Recorder Request Circuit High	
P2515	A/C Refrigerant Pressure Sensor “B” Circuit	
P2516	A/C Refrigerant Pressure Sensor “B” Circuit Range/Performance	
P2517	A/C Refrigerant Pressure Sensor “B” Circuit Low	
P2518	A/C Refrigerant Pressure Sensor “B” Circuit High	
P2519	A/C Request “A” Circuit	
P251A	PTO Enable Switch Circuit/Open	
P251B	PTO Enable Switch Circuit Low	
P251C	PTO Enable Switch Circuit High	
P251D	PTO Engine Shutdown Circuit/Open	
P251E	PTO Engine Shutdown Circuit Low	
P251F	PTO Engine Shutdown Circuit High	
P2520	A/C Request “A” Circuit Low	
P2521	A/C Request “A” Circuit High	
P2522	A/C Request “B” Circuit	
P2523	A/C Request “B” Circuit Low	

Table B.18 (*continued*)

DTC number	DTC naming	Location
P2524	A/C Request “B” Circuit High	
P2525	Vacuum Reservoir Pressure Sensor Circuit	
P2526	Vacuum Reservoir Pressure Sensor Circuit Range/Performance	
P2527	Vacuum Reservoir Pressure Sensor Circuit Low	
P2528	Vacuum Reservoir Pressure Sensor Circuit High	
P2529	Vacuum Reservoir Pressure Sensor Circuit Intermittent	
P252A	Engine Oil Quality Sensor Circuit	
P252B	Engine Oil Quality Sensor Circuit Range/Performance	
P252C	Engine Oil Quality Sensor Circuit Low	
P252D	Engine Oil Quality Sensor Circuit High	
P252E	Engine Oil Quality Circuit Intermittent/Erratic	
P252F	Engine Oil Level Too High	
P2530	Ignition Switch Run Position Circuit	
P2531	Ignition Switch Run Position Circuit Low	
P2532	Ignition Switch Run Position Circuit High	
P2533	Ignition Switch Run/Start Position Circuit	
P2534	Ignition Switch Run/Start Position Circuit Low	
P2535	Ignition Switch Run/Start Position Circuit High	
P2536	Ignition Switch Accessory Position Circuit	
P2537	Ignition Switch Accessory Position Circuit Low	
P2538	Ignition Switch Accessory Position Circuit High	
P2539	Low Pressure Fuel System Sensor Circuit	
P253A	PTO Sense Circuit/Open	
P253B	PTO Sense Circuit Range/Performance	
P253C	PTO Sense Circuit Low	
P253D	PTO Sense Circuit High	
P253E	PTO Sense Circuit Intermittent/Erratic	
P253F	Engine Oil Deteriorated	
P2540	Low Pressure Fuel System Sensor Circuit Range/Performance	
P2541	Low Pressure Fuel System Sensor Circuit Low	
P2542	Low Pressure Fuel System Sensor Circuit High	
P2543	Low Pressure Fuel System Sensor Circuit Intermittent	
P2544	Torque Management Request Input Signal “A”	
P2545	Torque Management Request Input Signal “A” Range/Performance	
P2546	Torque Management Request Input Signal “A” Low	
P2547	Torque Management Request Input Signal “A” High	
P2548	Torque Management Request Input Signal “B”	
P2549	Torque Management Request Input Signal “B” Range/Performance	

Table B.18 (*continued*)

DTC number	DTC naming	Location
P254A	PTO Speed Selector Sensor/Switch 1 Circuit/Open	
P254B	PTO Speed Selector Sensor/Switch 1 Range/Performance	
P254C	PTO Speed Selector Sensor/Switch 1 Circuit Low	
P254D	PTO Speed Selector Sensor/Switch 1 Circuit High	
P254E	PTO Speed Selector Sensor/Switch 1 Circuit Intermittent/Erratic	
P254F	Engine Hood Switch Circuit	
P2550	Torque Management Request Input Signal “B” Low	
P2551	Torque Management Request Input Signal “B” High	
P2552	Throttle/Fuel Inhibit Circuit	
P2553	Throttle/Fuel Inhibit Circuit Range/Performance	
P2554	Throttle/Fuel Inhibit Circuit Low	
P2555	Throttle/Fuel Inhibit Circuit High	
P2556	Engine Coolant Level Sensor/Switch Circuit	
P2557	Engine Coolant Level Sensor/Switch Circuit Range/Performance	
P2558	Engine Coolant Level Sensor/Switch Circuit Low	
P2559	Engine Coolant Level Sensor/Switch Circuit High	
P255A	PTO Speed Selector Sensor/Switch 2 Circuit/Open	
P255B	PTO Speed Selector Sensor/Switch 2 Range/Performance	
P255C	PTO Speed Selector Sensor/Switch 2 Circuit Low	
P255D	PTO Speed Selector Sensor/Switch 2 Circuit High	
P255E	PTO Speed Selector Sensor/Switch 2 Circuit Intermittent/Erratic	
P255F	ISO/SAE reserved	
P2560	Engine Coolant Level Low	
P2561	A/C Control Module Requested MIL Illumination	
P2562	Turbocharger Boost Control Position Sensor “A” Circuit	
P2563	Turbocharger Boost Control Position Sensor “A” Circuit Range/Performance	
P2564	Turbocharger Boost Control Position Sensor “A” Circuit Low	
P2565	Turbocharger Boost Control Position Sensor “A” Circuit High	
P2566	Turbocharger Boost Control Position Sensor “A” Circuit Intermittent	
P2567	Direct Ozone Reduction Catalyst Temperature Sensor Circuit	
P2568	Direct Ozone Reduction Catalyst Temperature Sensor Circuit Range/Performance	
P2569	Direct Ozone Reduction Catalyst Temperature Sensor Circuit Low	
P256A	Engine Idle Speed Selector Sensor/Switch Circuit/Open	
P256B	Engine Idle Speed Selector Sensor/Switch Range/Performance	
P256C	Engine Idle Speed Selector Sensor/Switch Circuit Low	
P256D	Engine Idle Speed Selector Sensor/Switch Circuit High	
P256E	Engine Idle Speed Selector Sensor/Switch Circuit Intermittent/Erratic	
P256F	ISO/SAE reserved	

Table B.18 (*continued*)

DTC number	DTC naming	Location
P2570	Direct Ozone Reduction Catalyst Temperature Sensor Circuit High	
P2571	Direct Ozone Reduction Catalyst Temperature Sensor Circuit Intermittent/Erratic	
P2572	Direct Ozone Reduction Catalyst Deterioration Sensor Circuit	
P2573	Direct Ozone Reduction Catalyst Deterioration Sensor Circuit Range/Performance	
P2574	Direct Ozone Reduction Catalyst Deterioration Sensor Circuit Low	
P2575	Direct Ozone Reduction Catalyst Deterioration Sensor Circuit High	
P2576	Direct Ozone Reduction Catalyst Deterioration Sensor Circuit Intermittent/Erratic	
P2577	Direct Ozone Reduction Catalyst Efficiency Below Threshold	
P2578	Turbocharger Speed Sensor Circuit	
P2579	Turbocharger Speed Sensor Circuit Range/Performance	
P257A	Vacuum Reservoir Control Circuit Open	
P257B	Vacuum Reservoir Control Circuit Low	
P257C	Vacuum Reservoir Control Circuit High	
P257D	Engine Hood Switch Circuit Range/Performance	
P257E	Engine Hood Switch Circuit Low	
P257F	Engine Hood Switch Circuit High	
P2580	Turbocharger Speed Sensor Circuit Low	
P2581	Turbocharger Speed Sensor Circuit High	
P2582	Turbocharger Speed Sensor Circuit Intermittent	
P2583	Cruise Control Front Distance Range Sensor	
P2584	Fuel Additive Control Module Requested MIL Illumination	
P2585	Fuel Additive Control Module Warning Lamp Request	
P2586	Turbocharger Boost Control Position Sensor “B” Circuit	
P2587	Turbocharger Boost Control Position Sensor “B” Circuit Range/Performance	
P2588	Turbocharger Boost Control Position Sensor “B” Circuit Low	
P2589	Turbocharger Boost Control Position Sensor “B” Circuit High	
P2590	Turbocharger Boost Control Position Sensor “B” Circuit Intermittent/Erratic	

[a] For DTCs P2505-P2509, see also P0685.

B.39 P26XX Computer & Auxiliary Outputs

Table B.19 — P26XX Computer & Auxiliary Outputs

DTC number	DTC naming	Location
P2600	Coolant Pump Control Circuit/Open	
P2601	Coolant Pump Control Circuit Range/Performance	
P2602	Coolant Pump Control Circuit Low	
P2603	Coolant Pump Control Circuit High	
P2604[a]	Intake Air Heater “A” Circuit Range/Performance	
P2605[a]	Intake Air Heater “A” Circuit/Open	
P2606[a]	Intake Air Heater “B” Circuit Range/Performance	
P2607[a]	Intake Air Heater “B” Circuit Low	
P2608[a]	Intake Air Heater “B” Circuit High	
P2609[a]	Intake Air Heater System Performance	
P260A	PTO Control Circuit/Open	
P260B	PTO Control Circuit Low	
P260C	PTO Control Circuit High	
P260D	PTO Engaged Lamp Control Circuit	
P260E	ISO/SAE reserved	
P260F	Evaporative System Monitoring Processor Performance	
P2610	ECM/PCM Internal Engine Off Timer Performance	
P2611	A/C Refrigerant Distribution Valve Control Circuit/Open	
P2612	A/C Refrigerant Distribution Valve Control Circuit Low	
P2613	A/C Refrigerant Distribution Valve Control Circuit High	
P2614	Camshaft Position Signal Output Circuit/Open	
P2615	Camshaft Position Signal Output Circuit Low	
P2616	Camshaft Position Signal Output Circuit High	
P2617	Crankshaft Position Signal Output Circuit/Open	
P2618	Crankshaft Position Signal Output Circuit Low	
P2619	Crankshaft Position Signal Output Circuit High	
P2620	Throttle Position Output Circuit/Open	
P2621	Throttle Position Output Circuit Low	
P2622	Throttle Position Output Circuit High	
P2623	Injector Control Pressure Regulator Circuit/Open	
P2624	Injector Control Pressure Regulator Circuit Low	
P2625	Injector Control Pressure Regulator Circuit High	
P2626	O2 Sensor Pumping Current Trim Circuit/Open	Bank 1 Sensor 1
P2627	O2 Sensor Pumping Current Trim Circuit Low	Bank 1 Sensor 1
P2628	O2 Sensor Pumping Current Trim Circuit High	Bank 1 Sensor 1

Table B.19 (*continued*)

DTC number	DTC naming	Location
P2629	O2 Sensor Pumping Current Trim Circuit/Open	Bank 2 Sensor 1
P2630	O2 Sensor Pumping Current Trim Circuit Low	Bank 2 Sensor 1
P2631	O2 Sensor Pumping Current Trim Circuit High	Bank 2 Sensor 1
P2632	Fuel Pump “B” Control Circuit /Open	
P2633	Fuel Pump “B” Control Circuit Low	
P2634	Fuel Pump “B” Control Circuit High	
P2635	Fuel Pump “A” Low Flow / Performance	
P2636	Fuel Pump “B” Low Flow / Performance	
P2637	Torque Management Feedback Signal “A”	
P2638	Torque Management Feedback Signal “A” Range/Performance	
P2639	Torque Management Feedback Signal “A” Low	
P2640	Torque Management Feedback Signal “A” High	
P2641	Torque Management Feedback Signal “B”	
P2642	Torque Management Feedback Signal “B” Range/Performance	
P2643	Torque Management Feedback Signal “B” Low	
P2644	Torque Management Feedback Signal “B” High	
P2645[a]	“A” Rocker Arm Actuator Control Circuit/Open	Bank 1
P2646[a]	“A” Rocker Arm Actuator System Performance or Stuck Off	Bank 1
P2647[a]	“A” Rocker Arm Actuator System Stuck On	Bank 1
P2648[a]	“A” Rocker Arm Actuator Control Circuit Low	Bank 1
P2649[a]	“A” Rocker Arm Actuator Control Circuit High	Bank 1
P264A[a]	“A” Rocker Arm Actuator Position Sensor Circuit	Bank 1
P264B[a]	“A” Rocker Arm Actuator Position Sensor Circuit Range/Performance	Bank 1
P264C[a]	“A” Rocker Arm Actuator Position Sensor Circuit Low	Bank 1
P264D[a]	“A” Rocker Arm Actuator Position Sensor Circuit High	Bank 1
P264E[a]	“A” Rocker Arm Actuator Position Sensor Circuit Intermittent/Erratic	Bank 1
P264F	ISO/SAE reserved	
P2650[b]	“B” Rocker Arm Actuator Control Circuit/Open	Bank 1
P2651[b]	“B” Rocker Arm Actuator System Performance/Stuck Off	Bank 1
P2652[b]	“B” Rocker Arm Actuator System Stuck On	Bank 1
P2653[b]	“B” Rocker Arm Actuator Control Circuit Low	Bank 1
P2654[b]	“B” Rocker Arm Actuator Control Circuit High	Bank 1
P2655[a]	“A” Rocker Arm Actuator Control Circuit/Open	Bank 2
P2656[a]	“A” Rocker Arm Actuator System Performance or Stuck Off	Bank 2
P2657[a]	“A” Rocker Arm Actuator System Stuck On	Bank 2
P2658[a]	“A” Rocker Arm Actuator Control Circuit Low	Bank 2

Table B.19 (*continued*)

DTC number	DTC naming	Location
P2659[a]	"A" Rocker Arm Actuator Control Circuit High	Bank 2
P265A[b]	"B" Rocker Arm Actuator Position Sensor Circuit	Bank 1
P265B[b]	"B" Rocker Arm Actuator Position Sensor Circuit Range/Performance	Bank 1
P265C[b]	"B" Rocker Arm Actuator Position Sensor Circuit Low	Bank 1
P265D[b]	"B" Rocker Arm Actuator Position Sensor Circuit High	Bank 1
P265E[b]	"B" Rocker Arm Actuator Position Sensor Circuit Intermittent/Erratic	Bank 1
P265F	ISO/SAE reserved	
P2660[b]	"B" Rocker Arm Actuator Control Circuit/Open	Bank 2
P2661[b]	"B" Rocker Arm Actuator System Performance/Stuck Off	Bank 2
P2662[b]	"B" Rocker Arm Actuator System Stuck On	Bank 2
P2663[b]	"B" Rocker Arm Actuator Control Circuit Low	Bank 2
P2664[b]	"B" Rocker Arm Actuator Control Circuit High	Bank 2
P2665	Fuel Shutoff Valve "B" Control Circuit/Open	
P2666	Fuel Shutoff Valve "B" Control Circuit Low	
P2667	Fuel Shutoff Valve "B" Control Circuit High	
P2668	Fuel Mode Indicator Lamp Control Circuit	
P2669	Actuator Supply Voltage "B" Circuit /Open	
P266A[a]	"A" Rocker Arm Actuator Position Sensor Circuit	Bank 2
P266B[a]	"A" Rocker Arm Actuator Position Sensor Circuit Range/Performance	Bank 2
P266C[a]	"A" Rocker Arm Actuator Position Sensor Circuit Low	Bank 2
P266D[a]	"A" Rocker Arm Actuator Position Sensor Circuit High	Bank 2
P266E[a]	"A" Rocker Arm Actuator Position Sensor Circuit Intermittent/Erratic	Bank 2
P266F	ISO/SAE reserved	
P2670	Actuator Supply Voltage "B" Circuit Low	
P2671	Actuator Supply Voltage "B" Circuit High	
P2672	Injection Pump Timing Offset	
P2673	Injection Pump Timing Calibration Not Learned	
P2674	Injection Pump Fuel Calibration Not Learned	
P2675	Air Cleaner Inlet Control Circuit/Open	
P2676	Air Cleaner Inlet Control Circuit Low	
P2677	Air Cleaner Inlet Control Circuit High	
P2678	Coolant Degassing Valve Control Circuit/Open	
P2679	Coolant Degassing Valve Control Circuit Low	
P267A[b]	"B" Rocker Arm Actuator Position Sensor Circuit	Bank 2
P267B[b]	"B" Rocker Arm Actuator Position Sensor Circuit Range/Performance	Bank 2
P267C[b]	"B" Rocker Arm Actuator Position Sensor Circuit Low	Bank 2

Table B.19 (*continued*)

DTC number	DTC naming	Location
P267D[b]	"B" Rocker Arm Actuator Position Sensor Circuit High	Bank 2
P267E[b]	"B" Rocker Arm Actuator Position Sensor Circuit Intermittent/Erratic	Bank 2
P267F	ISO/SAE reserved	
P2680	Coolant Degassing Valve Control Circuit High	
P2681	Engine Coolant Bypass Valve Control Circuit/Open	
P2682	Engine Coolant Bypass Valve Control Circuit Low	
P2683	Engine Coolant Bypass Valve Control Circuit High	
P2684	Actuator Supply Voltage "C" Circuit/Open	
P2685	Actuator Supply Voltage "C" Circuit Low	
P2686	Actuator Supply Voltage "C" Circuit High	
P2687	Fuel Supply Heater Control Circuit/Open	
P2688	Fuel Supply Heater Control Circuit Low	
P2689	Fuel Supply Heater Control Circuit High	
P268A	ISO/SAE reserved	
P268B	ISO/SAE reserved	
P268C	ISO/SAE reserved	
P268D	ISO/SAE reserved	
P268E	ISO/SAE reserved	
P268F	ISO/SAE reserved	

NOTE For DTCs P2604-P2609, see also P0540-P0543.

[a] The "A" rocker arm actuator shall be either the "intake", "left", or "front" rocker arm actuator. Left/Right and Front/Rear are determined as if viewed from the driver's seating position. Bank 1 contains cylinder number one, Bank 2 is the opposite bank. Where only one rocker arm actuator is used for both conditions "A" and "B", use the DTCs for "A".

[b] The "B" rocker arm actuator shall be either the "exhaust", "right," or "rear" rocker arm actuator. Left/Right and Front/Rear are determined as if viewed from the driver's seating position. Bank 1 contains cylinder number one, Bank 2 is the opposite bank. Where only one rocker arm actuator is used for both conditions "A" and "B", use the DTCs for "A".

B.40 P27XX Transmission

Table B.20 — P27XX Transmission

DTC number	DTC naming	Location
P2700	Transmission Friction Element "A" Apply Time Range/Performance	
P2701	Transmission Friction Element "B" Apply Time Range/Performance	
P2702	Transmission Friction Element "C" Apply Time Range/Performance	
P2703	Transmission Friction Element "D" Apply Time Range/Performance	
P2704	Transmission Friction Element "E" Apply Time Range/Performance	
P2705	Transmission Friction Element "F" Apply Time Range/Performance	
P2706	Shift Solenoid "F"	
P2707	Shift Solenoid "F" Performance/Stuck Off	

Table B.20 (*continued*)

DTC number	DTC naming	Location
P2708	Shift Solenoid “F” Stuck On	
P2709	Shift Solenoid “F” Electrical	
P2710	Shift Solenoid “F” Intermittent	
P2711	Unexpected Mechanical Gear Disengagement	
P2712	Hydraulic Power Unit Leakage	
P2713	Pressure Control Solenoid “D”	
P2714	Pressure Control Solenoid “D” Performance/Stuck Off	
P2715	Pressure Control Solenoid “D” Stuck On	
P2716	Pressure Control Solenoid “D” Electrical	
P2717	Pressure Control Solenoid “D” Intermittent	
P2718	Pressure Control Solenoid “D” Control Circuit/Open	
P2719	Pressure Control Solenoid “D” Control Circuit Range/Performance	
P2720	Pressure Control Solenoid “D” Control Circuit Low	
P2721	Pressure Control Solenoid “D” Control Circuit High	
P2722	Pressure Control Solenoid “E”	
P2723	Pressure Control Solenoid “E” Performance/Stuck Off	
P2724	Pressure Control Solenoid “E” Stuck On	
P2725	Pressure Control Solenoid “E” Electrical	
P2726	Pressure Control Solenoid “E” Intermittent	
P2727	Pressure Control Solenoid “E” Control Circuit/Open	
P2728	Pressure Control Solenoid “E” Control Circuit Range/Performance	
P2729	Pressure Control Solenoid “E” Control Circuit Low	
P2730	Pressure Control Solenoid “E” Control Circuit High	
P2731	Pressure Control Solenoid “F”	
P2732	Pressure Control Solenoid “F” Performance/Stuck Off	
P2733	Pressure Control Solenoid “F” Stuck On	
P2734	Pressure Control Solenoid “F” Electrical	
P2735	Pressure Control Solenoid “F” Intermittent	
P2736	Pressure Control Solenoid “F” Control Circuit/Open	
P2737	Pressure Control Solenoid “F” Control Circuit Range/Performance	
P2738	Pressure Control Solenoid “F” Control Circuit Low	
P2739	Pressure Control Solenoid “F” Control Circuit High	
P273A	Transmission Friction Element “G” Apply Time Range/Performance	
P273B	Transmission Friction Element “H” Apply Time Range/Performance	
P273C	ISO/SAE reserved	
P273D	ISO/SAE reserved	
P273E	ISO/SAE reserved	
P273F	ISO/SAE reserved	
P2740	Transmission Fluid Temperature Sensor “B” Circuit	
P2741	Transmission Fluid Temperature Sensor “B” Circuit Range/Performance	

Table B.20 (*continued*)

DTC number	DTC naming	Location
P2742	Transmission Fluid Temperature Sensor “B” Circuit Low	
P2743	Transmission Fluid Temperature Sensor “B” Circuit High	
P2744	Transmission Fluid Temperature Sensor “B” Circuit Intermittent	
P2745	Intermediate Shaft Speed Sensor “B” Circuit	
P2746	Intermediate Shaft Speed Sensor “B” Circuit Range/Performance	
P2747	Intermediate Shaft Speed Sensor “B” Circuit No Signal	
P2748	Intermediate Shaft Speed Sensor “B” Circuit Intermittent	
P2749	Intermediate Shaft Speed Sensor “C” Circuit	
P2750	Intermediate Shaft Speed Sensor “C” Circuit Range/Performance	
P2751	Intermediate Shaft Speed Sensor “C” Circuit No Signal	
P2752	Intermediate Shaft Speed Sensor “C” Circuit Intermittent	
P2753	Transmission Fluid Cooler Control Circuit/Open	
P2754	Transmission Fluid Cooler Control Circuit Low	
P2755	Transmission Fluid Cooler Control Circuit High	
P2756	Torque Converter Clutch Pressure Control Solenoid	
P2757	Torque Converter Clutch Pressure Control Solenoid Control Circuit Performance/Stuck Off	
P2758	Torque Converter Clutch Pressure Control Solenoid Control Circuit Stuck On	
P2759	Torque Converter Clutch Pressure Control Solenoid Control Circuit Electrical	
P2760	Torque Converter Clutch Pressure Control Solenoid Control Circuit Intermittent	
P2761	Torque Converter Clutch Pressure Control Solenoid Control Circuit/Open	
P2762	Torque Converter Clutch Pressure Control Solenoid Control Circuit Range/Performance	
P2763	Torque Converter Clutch Pressure Control Solenoid Control Circuit High	
P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	
P2765	Input/Turbine Speed Sensor “B” Circuit	
P2766	Input/Turbine Speed Sensor “B” Circuit Range/Performance	
P2767	Input/Turbine Speed Sensor “B” Circuit No Signal	
P2768	Input/Turbine Speed Sensor “B” Circuit Intermittent	
P2769	Torque Converter Clutch Circuit Low	
P2770	Torque Converter Clutch Circuit High	
P2771	Four Wheel Drive (4WD) Low Switch Circuit	
P2772	Four Wheel Drive (4WD) Low Switch Circuit Range/Performance	
P2773	Four Wheel Drive (4WD) Low Switch Circuit Low	
P2774	Four Wheel Drive (4WD) Low Switch Circuit High	
P2775	Upshift Switch Circuit Range/Performance	
P2776	Upshift Switch Circuit Low	
P2777	Upshift Switch Circuit High	

Table B.20 (*continued*)

DTC number	DTC naming	Location
P2778	Upshift Switch Circuit Intermittent/Erratic	
P2779	Downshift Switch Circuit Range/Performance	
P2780	Downshift Switch Circuit Low	
P2781	Downshift Switch Circuit High	
P2782	Downshift Switch Circuit Intermittent/Erratic	
P2783	Torque Converter Temperature Too High	
P2784	Input/Turbine Speed Sensor “A”/”B” Correlation	
P2785	Clutch Actuator Temperature Too High	
P2786	Gear Shift Actuator Temperature Too High	
P2787	Clutch Temperature Too High	
P2788	Auto Shift Manual Adaptive Learning at Limit	
P2789	Clutch Adaptive Learning at Limit	
P278A	Kick Down Switch Circuit	
P278B	Kick Down Switch Circuit Range/Performance	
P278C	Kick Down Switch Circuit Low	
P278D	Kick Down Switch Circuit High	
P278E	Kick Down Switch Circuit Intermittent/Erratic	
P278F	SAE/ISO reserved	
P2790	Gate Select Direction Circuit	
P2791	Gate Select Direction Circuit Low	
P2792	Gate Select Direction Circuit High	
P2793	Gear Shift Direction Circuit	
P2794	Gear Shift Direction Circuit Low	
P2795	Gear Shift Direction Circuit High	
P2796	Auxiliary Transmission Fluid Pump Control Circuit/Open	
P2797	Auxiliary Transmission Fluid Pump Performance	
P2798	Auxiliary Transmission Fluid Pump Control Circuit Low	
P2799	Auxiliary Transmission Fluid Pump Control Circuit High	
P279A	ISO/SAE reserved	
P279B	ISO/SAE reserved	
P279C	ISO/SAE reserved	
P279D	ISO/SAE reserved	
P279E	ISO/SAE reserved	
P279F	ISO/SAE reserved	

B.41 P28XX Transmission DTCs

Table B.21 — P28XX Transmission DTCs

DTC number	DTC naming	Location
P2800	Transmission Range Sensor “B” Circuit (PRNDL Input)	
P2801	Transmission Range Sensor “B” Circuit Range/Performance	
P2802	Transmission Range Sensor “B” Circuit Low	
P2803	Transmission Range Sensor “B” Circuit High	
P2804	Transmission Range Sensor “B” Intermittent	
P2805	Transmission Range Sensor “A”/“B” Correlation	
P2806	Transmission Range Sensor Alignment	
P2807	Pressure Control Solenoid “G”	
P2808	Pressure Control Solenoid “G” Performance/Stuck Off	
P2809	Pressure Control Solenoid “G” Stuck On	
P2810	Pressure Control Solenoid “G” Electrical	
P2811	Pressure Control Solenoid “G” Intermittent	
P2812	Pressure Control Solenoid “G” Control Circuit/Open	
P2813	Pressure Control Solenoid “G” Control Circuit Range/Performance	
P2814	Pressure Control Solenoid “G” Control Circuit Low	
P2815	Pressure Control Solenoid “G” Control Circuit High	
P2816	Pressure Control Solenoid “H”	
P2817	Pressure Control Solenoid “H” Performance/Stuck Off	
P2818	Pressure Control Solenoid “H” Stuck On	
P2819	Pressure Control Solenoid “H” Electrical	
P281A	Pressure Control Solenoid “H” Intermittent	
P281B	Pressure Control Solenoid “H” Control Circuit/Open	
P281C	Pressure Control Solenoid “H” Control Circuit Range/Performance	
P281D	Pressure Control Solenoid “H” Control Circuit Low	
P281E	Pressure Control Solenoid “H” Control Circuit High	
P281F	Pressure Control Solenoid “J”	
P2820	Pressure Control Solenoid “J” Performance/Stuck Off	
P2821	Pressure Control Solenoid “J” Stuck On	
P2822	Pressure Control Solenoid “J” Electrical	
P2823	Pressure Control Solenoid “J” Intermittent	
P2824	Pressure Control Solenoid “J” Control Circuit/Open	
P2825	Pressure Control Solenoid “J” Control Circuit Range/Performance	
P2826	Pressure Control Solenoid “J” Control Circuit Low	
P2827	Pressure Control Solenoid “J” Control Circuit High	
P2828	Pressure Control Solenoid “K”	
P2829	Pressure Control Solenoid “K” Performance/Stuck Off	

Table B.21 (*continued*)

DTC number	DTC naming	Location
P282A	Pressure Control Solenoid “K” Stuck On	
P282B	Pressure Control Solenoid “K” Electrical	
P282C	Pressure Control Solenoid “K” Intermittent	
P282D	Pressure Control Solenoid “K” Control Circuit/Open	
P282E	Pressure Control Solenoid “K” Control Circuit Range/Performance	
P282F	Pressure Control Solenoid “K” Control Circuit Low	
P2830	Pressure Control Solenoid “K” Control Circuit High	

B.42 P29XX Reserved for Transmission

B.43 P2AXX Fuel and air metering and auxiliary emission controls

Table B.22 — P2AXX Fuel and air metering and auxiliary emission controls

DTC number	DTC naming	Location
P2A00	O2 Sensor Circuit Range/Performance	Bank 1 Sensor 1
P2A01	O2 Sensor Circuit Range/Performance	Bank 1 Sensor 2
P2A02	O2 Sensor Circuit Range/Performance	Bank 1 Sensor 3
P2A03	O2 Sensor Circuit Range/Performance	Bank 2 Sensor 1
P2A04	O2 Sensor Circuit Range/Performance	Bank 2 Sensor 2
P2A05	O2 Sensor Circuit Range/Performance	Bank 2 Sensor 3
P2A06	O2 Sensor Negative Voltage	Bank 1 Sensor 1
P2A07	O2 Sensor Negative Voltage	Bank 1 Sensor 2
P2A08	O2 Sensor Negative Voltage	Bank 1 Sensor 3
P2A09	O2 Sensor Negative Voltage	Bank 2 Sensor 1
P2A10	O2 Sensor Negative Voltage	Bank 2 Sensor 2
P2A11	O2 Sensor Negative Voltage	Bank 2 Sensor 3

B.44 P30XX Fuel and air metering and auxiliary emission controls

B.45 P31XX Fuel and air metering and auxiliary emission controls

B.46 P32XX Fuel and air metering and auxiliary emission controls

B.47 P33XX Ignition system or misfire

B.48 P34XX Cylinder Deactivation

Table B.23 — P34XX Cylinder Deactivation

DTC number	DTC naming	Location
P3400	Cylinder Deactivation System	Bank 1
P3401	Cylinder 1 Deactivation/Intake Valve Control Circuit/Open	
P3402	Cylinder 1 Deactivation/Intake Valve Control Circuit Performance	
P3403	Cylinder 1 Deactivation/Intake Valve Control Circuit Low	
P3404	Cylinder 1 Deactivation/Intake Valve Control Circuit High	
P3405	Cylinder 1 Exhaust Valve Control Circuit/Open	
P3406	Cylinder 1 Exhaust Valve Control Circuit Performance	
P3407	Cylinder 1 Exhaust Valve Control Circuit Low	
P3408	Cylinder 1 Exhaust Valve Control Circuit High	
P3409	Cylinder 2 Deactivation/Intake Valve Control Circuit/Open	
P3410	Cylinder 2 Deactivation/Intake Valve Control Circuit Performance	
P3411	Cylinder 2 Deactivation/Intake Valve Control Circuit Low	
P3412	Cylinder 2 Deactivation/Intake Valve Control Circuit High	
P3413	Cylinder 2 Exhaust Valve Control Circuit/Open	
P3414	Cylinder 2 Exhaust Valve Control Circuit Performance	
P3415	Cylinder 2 Exhaust Valve Control Circuit Low	
P3416	Cylinder 2 Exhaust Valve Control Circuit High	
P3417	Cylinder 3 Deactivation/Intake Valve Control Circuit/Open	
P3418	Cylinder 3 Deactivation/Intake Valve Control Circuit Performance	
P3419	Cylinder 3 Deactivation/Intake Valve Control Circuit Low	
P3420	Cylinder 3 Deactivation/Intake Valve Control Circuit High	
P3421	Cylinder 3 Exhaust Valve Control Circuit/Open	
P3422	Cylinder 3 Exhaust Valve Control Circuit Performance	
P3423	Cylinder 3 Exhaust Valve Control Circuit Low	
P3424	Cylinder 3 Exhaust Valve Control Circuit High	
P3425	Cylinder 4 Deactivation/Intake Valve Control Circuit/Open	
P3426	Cylinder 4 Deactivation/Intake Valve Control Circuit Performance	
P3427	Cylinder 4 Deactivation/Intake Valve Control Circuit Low	
P3428	Cylinder 4 Deactivation/Intake Valve Control Circuit High	
P3429	Cylinder 4 Exhaust Valve Control Circuit/Open	
P3430	Cylinder 4 Exhaust Valve Control Circuit Performance	
P3431	Cylinder 4 Exhaust Valve Control Circuit Low	
P3432	Cylinder 4 Exhaust Valve Control Circuit High	
P3433	Cylinder 5 Deactivation/Intake Valve Control Circuit/Open	
P3434	Cylinder 5 Deactivation/Intake Valve Control Circuit Performance	
P3435	Cylinder 5 Deactivation/Intake Valve Control Circuit Low	

Table B.23 (*continued*)

DTC number	DTC naming	Location
P3436	Cylinder 5 Deactivation/Intake Valve Control Circuit High	
P3437	Cylinder 5 Exhaust Valve Control Circuit/Open	
P3438	Cylinder 5 Exhaust Valve Control Circuit Performance	
P3439	Cylinder 5 Exhaust Valve Control Circuit Low	
P3440	Cylinder 5 Exhaust Valve Control Circuit High	
P3441	Cylinder 6 Deactivation/Intake Valve Control Circuit/Open	
P3442	Cylinder 6 Deactivation/Intake Valve Control Circuit Performance	
P3443	Cylinder 6 Deactivation/Intake Valve Control Circuit Low	
P3444	Cylinder 6 Deactivation/Intake Valve Control Circuit High	
P3445	Cylinder 6 Exhaust Valve Control Circuit/Open	
P3446	Cylinder 6 Exhaust Valve Control Circuit Performance	
P3447	Cylinder 6 Exhaust Valve Control Circuit Low	
P3448	Cylinder 6 Exhaust Valve Control Circuit High	
P3449	Cylinder 7 Deactivation/Intake Valve Control Circuit/Open	
P3450	Cylinder 7 Deactivation/Intake Valve Control Circuit Performance	
P3451	Cylinder 7 Deactivation/Intake Valve Control Circuit Low	
P3452	Cylinder 7 Deactivation/Intake Valve Control Circuit High	
P3453	Cylinder 7 Exhaust Valve Control Circuit/Open	
P3454	Cylinder 7 Exhaust Valve Control Circuit Performance	
P3455	Cylinder 7 Exhaust Valve Control Circuit Low	
P3456	Cylinder 7 Exhaust Valve Control Circuit High	
P3457	Cylinder 8 Deactivation/Intake Valve Control Circuit/Open	
P3458	Cylinder 8 Deactivation/Intake Valve Control Circuit Performance	
P3459	Cylinder 8 Deactivation/Intake Valve Control Circuit Low	
P3460	Cylinder 8 Deactivation/Intake Valve Control Circuit High	
P3461	Cylinder 8 Exhaust Valve Control Circuit/Open	
P3462	Cylinder 8 Exhaust Valve Control Circuit Performance	
P3463	Cylinder 8 Exhaust Valve Control Circuit Low	
P3464	Cylinder 8 Exhaust Valve Control Circuit High	
P3465	Cylinder 9 Deactivation/Intake Valve Control Circuit/Open	
P3466	Cylinder 9 Deactivation/Intake Valve Control Circuit Performance	
P3467	Cylinder 9 Deactivation/Intake Valve Control Circuit Low	
P3468	Cylinder 9 Deactivation/Intake Valve Control Circuit High	
P3469	Cylinder 9 Exhaust Valve Control Circuit/Open	
P3470	Cylinder 9 Exhaust Valve Control Circuit Performance	
P3471	Cylinder 9 Exhaust Valve Control Circuit Low	
P3472	Cylinder 9 Exhaust Valve Control Circuit High	
P3473	Cylinder 10 Deactivation/Intake Valve Control Circuit/Open	

Table B.21 (*continued*)

DTC number	DTC naming	Location
P3474	Cylinder 10 Deactivation/Intake Valve Control Circuit Performance	
P3475	Cylinder 10 Deactivation/Intake Valve Control Circuit Low	
P3476	Cylinder 10 Deactivation/Intake Valve Control Circuit High	
P3477	Cylinder 10 Exhaust Valve Control Circuit/Open	
P3478	Cylinder 10 Exhaust Valve Control Circuit Performance	
P3479	Cylinder 10 Exhaust Valve Control Circuit Low	
P3480	Cylinder 10 Exhaust Valve Control Circuit High	
P3481	Cylinder 11 Deactivation/Intake Valve Control Circuit/Open	
P3482	Cylinder 11 Deactivation/Intake Valve Control Circuit Performance	
P3483	Cylinder 11 Deactivation/Intake Valve Control Circuit Low	
P3484	Cylinder 11 Deactivation/Intake Valve Control Circuit High	
P3485	Cylinder 11 Exhaust Valve Control Circuit/Open	
P3486	Cylinder 11 Exhaust Valve Control Circuit Performance	
P3487	Cylinder 11 Exhaust Valve Control Circuit Low	
P3488	Cylinder 11 Exhaust Valve Control Circuit High	
P3489	Cylinder 12 Deactivation/Intake Valve Control Circuit/Open	
P3490	Cylinder 12 Deactivation/Intake Valve Control Circuit Performance	
P3491	Cylinder 12 Deactivation/Intake Valve Control Circuit Low	
P3492	Cylinder 12 Deactivation/Intake Valve Control Circuit High	
P3493	Cylinder 12 Exhaust Valve Control Circuit/Open	
P3494	Cylinder 12 Exhaust Valve Control Circuit Performance	
P3495	Cylinder 12 Exhaust Valve Control Circuit Low	
P3496	Cylinder 12 Exhaust Valve Control Circuit High	
P3497	Cylinder Deactivation System	Bank 2

B.49 P35XX ISO/SAE reserved

B.50 P36XX ISO/SAE reserved

B.51 P37XX ISO/SAE reserved

B.52 P38XX ISO/SAE reserved

B.53 P39XX ISO/SAE reserved

B.54 P3AXX ISO/SAE reserved

B.55 P3BXX ISO/SAE reserved

B.56 P3CXX ISO/SAE reserved

B.57 P3DXX ISO/SAE reserved

B.58 P3EXX ISO/SAE reserved

B.59 P3FXX ISO/SAE reserved

Annex C
(normative)

Network communication system, body system, and chassis system groupings

C.1 U00XX Network Electrical

Table C.1 — U00XX Network Electrical

DTC number	DTC naming	Location
U0000	ISO/SAE reserved	
U0001	High Speed CAN Communication Bus	
U0002	High Speed CAN Communication Bus Performance	
U0003	High Speed CAN Communication Bus (+) Open	
U0004	High Speed CAN Communication Bus (+) Low	
U0005	High Speed CAN Communication Bus (+) High	
U0006	High Speed CAN Communication Bus (–) Open	
U0007	High Speed CAN Communication Bus (–) Low	
U0008	High Speed CAN Communication Bus (–) High	
U0009	High Speed CAN Communication Bus (–) shorted to Bus (+)	
U0010	Medium Speed CAN Communication Bus	
U0011	Medium Speed CAN Communication Bus Performance	
U0012	Medium Speed CAN Communication Bus (+) Open	
U0013	Medium Speed CAN Communication Bus (+) Low	
U0014	Medium Speed CAN Communication Bus (+) High	
U0015	Medium Speed CAN Communication Bus (–) Open	
U0016	Medium Speed CAN Communication Bus (–) Low	
U0017	Medium Speed CAN Communication Bus (–) High	
U0018	Medium Speed CAN Communication Bus (–) shorted to Bus (+)	
U0019	Low Speed CAN Communication Bus	
U0020	Low Speed CAN Communication Bus Performance	
U0021	Low Speed CAN Communication Bus (+) Open	
U0022	Low Speed CAN Communication Bus (+) Low	
U0023	Low Speed CAN Communication Bus (+) High	
U0024	Low Speed CAN Communication Bus (–) Open	
U0025	Low Speed CAN Communication Bus (–) Low	
U0026	Low Speed CAN Communication Bus (–) High	
U0027	Low Speed CAN Communication Bus (–) shorted to Bus (+)	

Table C.1 (*continued*)

DTC number	DTC naming	Location
U0028	Vehicle Communication Bus A	
U0029	Vehicle Communication Bus A Performance	
U0030	Vehicle Communication Bus A (+) Open	
U0031	Vehicle Communication Bus A (+) Low	
U0032	Vehicle Communication Bus A (+) High	
U0033	Vehicle Communication Bus A (–) Open	
U0034	Vehicle Communication Bus A (–) Low	
U0035	Vehicle Communication Bus A (–) High	
U0036	Vehicle Communication Bus A (–) shorted to Bus A (+)	
U0037	Vehicle Communication Bus B	
U0038	Vehicle Communication Bus B Performance	
U0039	Vehicle Communication Bus B (+) Open	
U0040	Vehicle Communication Bus B (+) Low	
U0041	Vehicle Communication Bus B (+) High	
U0042	Vehicle Communication Bus B (–) Open	
U0043	Vehicle Communication Bus B (–) Low	
U0044	Vehicle Communication Bus B (–) High	
U0045	Vehicle Communication Bus B (–) shorted to Bus B (+)	
U0046	Vehicle Communication Bus C	
U0047	Vehicle Communication Bus C Performance	
U0048	Vehicle Communication Bus C (+) Open	
U0049	Vehicle Communication Bus C (+) Low	
U0050	Vehicle Communication Bus C (+) High	
U0051	Vehicle Communication Bus C (–) Open	
U0052	Vehicle Communication Bus C (–) Low	
U0053	Vehicle Communication Bus C (–) High	
U0054	Vehicle Communication Bus C (–) shorted to Bus C (+)	
U0055	Vehicle Communication Bus D	
U0056	Vehicle Communication Bus D Performance	
U0057	Vehicle Communication Bus D (+) Open	
U0058	Vehicle Communication Bus D (+) Low	
U0059	Vehicle Communication Bus D (+) High	
U0060	Vehicle Communication Bus D (–) Open	
U0061	Vehicle Communication Bus D (–) Low	
U0062	Vehicle Communication Bus D (–) High	
U0063	Vehicle Communication Bus D (–) shorted to Bus D (+)	
U0064	Vehicle Communication Bus E	
U0065	Vehicle Communication Bus E Performance	

Table C.1 (*continued*)

DTC number	DTC naming	Location
U0066	Vehicle Communication Bus E (+) Open	
U0067	Vehicle Communication Bus E (+) Low	
U0068	Vehicle Communication Bus E (+) High	
U0069	Vehicle Communication Bus E (–) Open	
U0070	Vehicle Communication Bus E (–) Low	
U0071	Vehicle Communication Bus E (–) High	
U0072	Vehicle Communication Bus E (–) shorted to Bus E (+)	
U0073	Control Module Communication Bus Off	
U0074	ISO/SAE reserved	
U0075	ISO/SAE reserved	
U0076	ISO/SAE reserved	
U0077	ISO/SAE reserved	
U0078	ISO/SAE reserved	
U0079	ISO/SAE reserved	
U0080	ISO/SAE reserved	
U0081	ISO/SAE reserved	
U0082	ISO/SAE reserved	
U0083	ISO/SAE reserved	
U0084	ISO/SAE reserved	
U0085	ISO/SAE reserved	
U0086	ISO/SAE reserved	
U0087	ISO/SAE reserved	
U0088	ISO/SAE reserved	
U0089	ISO/SAE reserved	
U0090	ISO/SAE reserved	
U0091	ISO/SAE reserved	
U0092	ISO/SAE reserved	
U0093	ISO/SAE reserved	
U0094	ISO/SAE reserved	
U0095	ISO/SAE reserved	
U0096	ISO/SAE reserved	
U0097	ISO/SAE reserved	
U0098	ISO/SAE reserved	
U0099	ISO/SAE reserved	

C.2 U01XX Network Communication

Table C.2 — U01XX Network Communication

DTC number	DTC naming	Location
U0100	Lost Communication With ECM/PCM “A”	
U0101	Lost Communication with TCM	
U0102	Lost Communication with Transfer Case Control Module	
U0103	Lost Communication With Gear Shift Control Module “A”	
U0104	Lost Communication With Cruise Control Module	
U0105	Lost Communication With Fuel Injector Control Module	
U0106	Lost Communication With Glow Plug Control Module	
U0107	Lost Communication With Throttle Actuator Control Module	
U0108	Lost Communication With Alternative Fuel Control Module	
U0109	Lost Communication With Fuel Pump Control Module	
U0110	Lost Communication With Drive Motor Control Module “A”	
U0111	Lost Communication With Battery Energy Control Module “A”	
U0112	Lost Communication With Battery Energy Control Module “B”	
U0113	Lost Communication With Emissions Critical Control Information	
U0114	Lost Communication With Four–Wheel Drive Clutch Control Module	
U0115	Lost Communication With ECM/PCM “B”	
U0116	Lost Communication With Coolant Temperature Control Module	
U0117	Lost Communication With Electrical PTO Control Module	
U0118	Lost Communication With Fuel Additive Control Module	
U0119	Lost Communication With Fuel Cell Control Module	
U0120	Lost Communication With Starter/Generator Control Module	
U0121	Lost Communication With Anti-Lock Brake System (ABS) Control Module	
U0122	Lost Communication With Vehicle Dynamics Control Module	
U0123	Lost Communication With Yaw Rate Sensor Module	
U0124	Lost Communication With Lateral Acceleration Sensor Module	
U0125	Lost Communication With Multi-axis Acceleration Sensor Module	
U0126	Lost Communication With Steering Angle Sensor Module	
U0127	Lost Communication With Tire Pressure Monitor Module	
U0128	Lost Communication With Park Brake Control Module	
U0129	Lost Communication With Brake System Control Module	
U0130	Lost Communication With Steering Effort Control Module	
U0131	Lost Communication With Power Steering Control Module	
U0132	Lost Communication With Suspension Control Module	
U0133	Lost Communication With Active Roll Control Module	
U0134	Lost Communication With Power Steering Control Module	Rear
U0135	Lost Communication With Differential Control Module	Front

Table C.2 (*continued*)

DTC number	DTC naming	Location
U0136	Lost Communication With Differential Control Module	Rear
U0137	Lost Communication With Trailer Brake Control Module	
U0138	Lost Communication With All Terrain Control Module	
U0139	ISO/SAE reserved	
U0140	Lost Communication With Body Control Module	
U0141	Lost Communication With Body Control Module “A”	
U0142	Lost Communication With Body Control Module “B”	
U0143	Lost Communication With Body Control Module “C”	
U0144	Lost Communication With Body Control Module “D”	
U0145	Lost Communication With Body Control Module “E”	
U0146	Lost Communication With Gateway “A”	
U0147	Lost Communication With Gateway “B”	
U0148	Lost Communication With Gateway “C”	
U0149	Lost Communication With Gateway “D”	
U0150	Lost Communication With Gateway “E”	
U0151	Lost Communication With Restraints Control Module	
U0152	Lost Communication With Side Restraints Control Module	Left
U0153	Lost Communication With Side Restraints Control Module	Right
U0154	Lost Communication With Restraints Occupant Classification System Module	
U0155	Lost Communication With Instrument Panel Cluster (IPC) Control Module	
U0156	Lost Communication With Information Center “A”	
U0157	Lost Communication With Information Center “B”	
U0158	Lost Communication With Head Up Display	
U0159	Lost Communication With Parking Assist Control Module “A”	
U0160	Lost Communication With Audible Alert Control Module	
U0161	Lost Communication With Compass Module	
U0162	Lost Communication With Navigation Display Module	
U0163	Lost Communication With Navigation Control Module	
U0164	Lost Communication With HVAC Control Module	
U0165	Lost Communication With HVAC Control Module	Rear
U0166	Lost Communication With Auxiliary Heater Control Module	
U0167	Lost Communication With Vehicle Immobilizer Control Module	
U0168	Lost Communication With Vehicle Security Control Module	
U0169	Lost Communication With Sunroof Control Module	
U0170	Lost Communication With “Restraints System Sensor A”	
U0171	Lost Communication With “Restraints System Sensor B”	
U0172	Lost Communication With “Restraints System Sensor C”	
U0173	Lost Communication With “Restraints System Sensor D”	

Table C.2 (*continued*)

DTC number	DTC naming	Location
U0174	Lost Communication With “Restraints System Sensor E”	
U0175	Lost Communication With “Restraints System Sensor F”	
U0176	Lost Communication With “Restraints System Sensor G”	
U0177	Lost Communication With “Restraints System Sensor H”	
U0178	Lost Communication With “Restraints System Sensor I”	
U0179	Lost Communication With “Restraints System Sensor J”	
U017A	Lost Communication With “Restraints System Sensor K”	
U017B	Lost Communication With “Restraints System Sensor L”	
U017C	Lost Communication With “Restraints System Sensor M”	
U017D	Lost Communication With “Restraints System Sensor N”	
U0180	Lost Communication With Automatic Lighting Control Module	
U0181	Lost Communication With Headlamp Leveling Control Module	
U0182	Lost Communication With Lighting Control Module	Front
U0183	Lost Communication With Lighting Control Module	Rear “A”
U0184	Lost Communication With Radio	
U0185	Lost Communication With Antenna Control Module	
U0186	Lost Communication With Audio Amplifier	
U0187	Lost Communication With Digital Disc Player/Changer Module “A”	
U0188	Lost Communication With Digital Disc Player/Changer Module “B”	
U0189	Lost Communication With Digital Disc Player/Changer Module “C”	
U0190	Lost Communication With Digital Disc Player/Changer Module “D”	
U0191	Lost Communication With Television	
U0192	Lost Communication With Personal Computer	
U0193	Lost Communication With “Digital Audio Control Module A”	
U0194	Lost Communication With “Digital Audio Control Module B”	
U0195	Lost Communication With Subscription Entertainment Receiver Module	
U0196	Lost Communication With Entertainment Control Module	Rear “A”
U0197	Lost Communication With Telephone Control Module	
U0198	Lost Communication With Telematic Control Module	
U0199	Lost Communication With “Door Control Module A”	

C.3 U02XX Network Communication

Table C.3 — U02XX Network Communication

DTC number	DTC naming	Location
U0200	Lost Communication With “Door Control Module B”	
U0201	Lost Communication With “Door Control Module C”	
U0202	Lost Communication With “Door Control Module D”	
U0203	Lost Communication With “Door Control Module E”	
U0204	Lost Communication With “Door Control Module F”	
U0205	Lost Communication With “Door Control Module G”	
U0206	Lost Communication With Folding Top Control Module	
U0207	Lost Communication With Moveable Roof Control Module	
U0208	Lost Communication With “Seat Control Module A”	
U0209	Lost Communication With “Seat Control Module B”	
U0210	Lost Communication With “Seat Control Module C”	
U0211	Lost Communication With “Seat Control Module D”	
U0212	Lost Communication With Steering Column Control Module	
U0213	Lost Communication With Mirror Control Module “A”	
U0214	Lost Communication With Remote Function Actuation	
U0215	Lost Communication With “Door Switch A”	
U0216	Lost Communication With “Door Switch B”	
U0217	Lost Communication With “Door Switch C”	
U0218	Lost Communication With “Door Switch D”	
U0219	Lost Communication With “Door Switch E”	
U0220	Lost Communication With “Door Switch F”	
U0221	Lost Communication With “Door Switch G”	
U0222	Lost Communication With “Door Window Motor A”	
U0223	Lost Communication With “Door Window Motor B”	
U0224	Lost Communication With “Door Window Motor C”	
U0225	Lost Communication With “Door Window Motor D”	
U0226	Lost Communication With “Door Window Motor E”	
U0227	Lost Communication With “Door Window Motor F”	
U0228	Lost Communication With “Door Window Motor G”	
U0229	Lost Communication With Heated Steering Wheel Module	
U0230	Lost Communication With Rear Gate Module	
U0231	Lost Communication With Rain Sensing Module	
U0232	Lost Communication With Side Obstacle Detection Control Module	Left
U0233	Lost Communication With Side Obstacle Detection Control Module	Right
U0234	Lost Communication With Convenience Recall Module	
U0235	Lost Communication With Cruise Control Front Distance Range Sensor	

Table C.3 (*continued*)

DTC number	DTC naming	Location
U0236	Lost Communication With Column Lock Module	
U0237	Lost Communication With “Digital Audio Control Module C”	
U0238	Lost Communication With “Digital Audio Control Module D”	
U0239	Lost Communication With Entrapment Control Module “A”	
U0240	Lost Communication With Entrapment Control Module “B”	
U0241	Lost Communication With Headlamp Control Module “A”	
U0242	Lost Communication With Headlamp Control Module “B”	
U0243	Lost Communication With Parking Assist Control Module “B”	
U0244	Lost Communication With Running Board Control Module “A”	
U0245	Lost Communication With Entertainment Control Module	Front
U0246	Lost Communication With Seat Control Module “E”	
U0247	Lost Communication With Seat Control Module “F”	
U0248	Lost Communication With Remote Accessory Module	
U0249	Lost Communication With Entertainment Control Module	Rear “B”
U0250	Lost Communication With Impact Classification System Module	
U0251	Lost Communication With Running Board Control Module “B”	
U0252	Lost Communication With Lighting Control Module	Rear “B”
U0253	ISO/SAE reserved	
U0254	ISO/SAE reserved	
U0255	ISO/SAE reserved	
U0256	ISO/SAE reserved	
U0257	ISO/SAE reserved	
U0258	ISO/SAE reserved	
U0259	ISO/SAE reserved	
U0260	ISO/SAE reserved	
U0261	ISO/SAE reserved	
U0262	ISO/SAE reserved	
U0263	ISO/SAE reserved	
U0264	ISO/SAE reserved	
U0265	ISO/SAE reserved	
U0266	ISO/SAE reserved	
U0267	ISO/SAE reserved	
U0268	ISO/SAE reserved	
U0269	ISO/SAE reserved	
U0270	ISO/SAE reserved	
U0271	ISO/SAE reserved	
U0272	ISO/SAE reserved	
U0273	ISO/SAE reserved	

Table C.3 (*continued*)

DTC number	DTC naming	Location
U0274	ISO/SAE reserved	
U0275	ISO/SAE reserved	
U0276	ISO/SAE reserved	
U0277	ISO/SAE reserved	
U0278	ISO/SAE reserved	
U0279	ISO/SAE reserved	
U0280	ISO/SAE reserved	
U0281	ISO/SAE reserved	
U0282	ISO/SAE reserved	
U0283	ISO/SAE reserved	
U0284	ISO/SAE reserved	
U0285	ISO/SAE reserved	
U0286	ISO/SAE reserved	
U0287	ISO/SAE reserved	
U0288	ISO/SAE reserved	
U0289	ISO/SAE reserved	
U0290	ISO/SAE reserved	
U0291	Lost Communication With Gear Shift Control Module “B”	
U0292	Lost Communication With Drive Motor Control Module “B”	
U0293	Lost Communication With Hybrid Powertrain Control Module	
U0294	Lost Communication With Powertrain Control Monitor Module	
U0295	Lost Communication With AC to AC Converter Control Module	
U0296	Lost Communication With AC to DC Converter Control Module “A”	
U0297	Lost Communication With AC to DC Converter Control Module “B”	
U0298	Lost Communication With DC to DC Converter Control Module “A”	
U0299	Lost Communication With DC to DC Converter Control Module “B”	

C.4 U03XX Network Software

Table C.4 — U03XX Network Software

DTC number	DTC naming	Location
U0300	Internal Control Module Software Incompatibility	
U0301	Software Incompatibility With ECM/PCM	
U0302	Software Incompatibility With Transmission Control Module	
U0303	Software Incompatibility With Transfer Case Control Module	
U0304	Software Incompatibility With Gear Shift Control Module “A”	
U0305	Software Incompatibility With Cruise Control Module	
U0306	Software Incompatibility With Fuel Injector Control Module	
U0307	Software Incompatibility With Glow Plug Control Module	
U0308	Software Incompatibility With Throttle Actuator Control Module	
U0309	Software Incompatibility With Alternative Fuel Control Module	
U0310	Software Incompatibility With Fuel Pump Control Module	
U0311	Software Incompatibility With Drive Motor Control Module	
U0312	Software Incompatibility With Battery Energy Control Module A	
U0313	Software Incompatibility With Battery Energy Control Module B	
U0314	Software Incompatibility With Four-Wheel Drive Clutch Control Module	
U0315	Software Incompatibility With Anti-Lock Brake System Control Module	
U0316	Software Incompatibility With Vehicle Dynamics Control Module	
U0317	Software Incompatibility With Park Brake Control Module	
U0318	Software Incompatibility With Brake System Control Module	
U0319	Software Incompatibility With Steering Effort Control Module	
U0320	Software Incompatibility With Power Steering Control Module	
U0321	Software Incompatibility With Suspension Control Module	
U0322	Software Incompatibility With Body Control Module	
U0323	Software Incompatibility With Instrument Panel Control Module	
U0324	Software Incompatibility With HVAC Control Module	
U0325	Software Incompatibility With Auxiliary Heater Control Module	
U0326	Software Incompatibility With Vehicle Immobilizer Control Module	
U0327	Software Incompatibility With Vehicle Security Control Module	
U0328	Software Incompatibility With Steering Angle Sensor Module	
U0329	Software Incompatibility With Steering Column Control Module	
U0330	Software Incompatibility With Tire Pressure Monitor Module	
U0331	Software Incompatibility With Body Control Module “A”	
U0332	Software Incompatibility With Multi-axis Acceleration Sensor Module	
U0333	Software Incompatibility With Gear Shift Control Module “B”	
U0334	Software Incompatibility With Radio	

C.5 U04XX Network Data

Table C.5 — U04XX Network Data

DTC number	DTC naming	Location
U0400	Invalid Data Received	
U0401	Invalid Data Received From ECM/PCM “A”	
U0402	Invalid Data Received From TCM	
U0403	Invalid Data Received From Transfer Case Control Module	
U0404	Invalid Data Received From Gear Shift Control Module “A”	
U0405	Invalid Data Received From Cruise Control Module	
U0406	Invalid Data Received From Fuel Injector Control Module	
U0407	Invalid Data Received From Glow Plug Control Module	
U0408	Invalid Data Received From Throttle Actuator Control Module	
U0409	Invalid Data Received From Alternative Fuel Control Module	
U0410	Invalid Data Received From Fuel Pump Control Module	
U0411	Invalid Data Received From Drive Motor Control Module “A”	
U0412	Invalid Data Received From Battery Energy Control Module “A”	
U0413	Invalid Data Received From Battery Energy Control Module “B”	
U0414	Invalid Data Received From Four-Wheel Drive Clutch Control Module	
U0415	Invalid Data Received From Anti-Lock Brake System (ABS) Control Module	
U0416	Invalid Data Received From Vehicle Dynamics Control Module	
U0417	Invalid Data Received From Park Brake Control Module	
U0418	Invalid Data Received From Brake System Control Module	
U0419	Invalid Data Received From Steering Effort Control Module	
U0420	Invalid Data Received From Power Steering Control Module	
U0421	Invalid Data Received From Suspension Control Module	
U0422	Invalid Data Received From Body Control Module	
U0423	Invalid Data Received From Instrument Panel Cluster Control Module	
U0424	Invalid Data Received From HVAC Control Module	
U0425	Invalid Data Received From Auxiliary Heater Control Module	
U0426	Invalid Data Received From Vehicle Immobilizer Control Module	
U0427	Invalid Data Received From Vehicle Security Control Module	
U0428	Invalid Data Received From Steering Angle Sensor Module	
U0429	Invalid Data Received From Steering Column Control Module	
U0430	Invalid Data Received From Tire Pressure Monitor Module	
U0431	Invalid Data Received From Body Control Module “A”	
U0432	Invalid Data Received From Multi-axis Acceleration Sensor Module	
U0433	Invalid Data Received From Cruise Control Front Distance Range Sensor	
U0434	Invalid Data Received From Active Roll Control Module	
U0435	Invalid Data Received From Power Steering Control Module	Rear

Table C.5 (*continued*)

DTC number	DTC naming	Location
U0436	Invalid Data Received From Differential Control Module	Front
U0437	Invalid Data Received From Differential Control Module	Rear
U0438	Invalid Data Received From Trailer Brake Control Module	
U0439	Invalid Data Received From All Terrain Control Module	
U043A	ISO/SAE reserved	
U0441	Invalid Data Received From Emissions Critical Control Information	
U0442	Invalid Data Received From ECM/PCM “B”	
U0443	Invalid Data Received From Body Control Module “B”	
U0444	Invalid Data Received From Body Control Module “C”	
U0445	Invalid Data Received From Body Control Module “D”	
U0446	Invalid Data Received From Body Control Module “E”	
U0447	Invalid Data Received From Gateway “A”	
U0448	Invalid Data Received From Gateway “B”	
U0449	Invalid Data Received From Gateway “C”	
U044A	Invalid Data Received From Gateway “D”	
U0451	Invalid Data Received From Gateway “E”	
U0452	Invalid Data Received From Restraints Control Module	
U0453	Invalid Data Received From Side Restraints Control Module	Left
U0454	Invalid Data Received From Side Restraints Control Module	Right
U0455	Invalid Data Received From Restraints Occupant Classification System Module	
U0456	Invalid Data Received From Coolant Temperature Control Module	
U0457	Invalid Data Received From Information Center “A”	
U0458	Invalid Data Received From Information Center “B”	
U0459	Invalid Data Received From Head Up Display	
U045A	Invalid Data Received From Parking Assist Control Module “A”	
U0461	Invalid Data Received From Audible Alert Control Module	
U0462	Invalid Data Received From Compass Module	
U0463	Invalid Data Received From Navigation Display Module	
U0464	Invalid Data Received From Navigation Control Module	
U0465	Invalid Data Received From Electrical PTO Control Module	
U0466	Invalid Data Received From HVAC Control Module	Rear
U0467	Invalid Data Received From Fuel Additive Control Module	
U0468	Invalid Data Received From Fuel Cell Control Module	
U0469	Invalid Data Received From Starter / Generator Control Module	
U046A	Invalid Data Received From Sunroof Control Module	
U0471	Invalid Data Received From “Restraints System Sensor A”	
U0472	Invalid Data Received From “Restraints System Sensor B”	
U0473	Invalid Data Received From “Restraints System Sensor C”	

Table C.5 (*continued*)

DTC number	DTC naming	Location
U0474	Invalid Data Received From “Restraints System Sensor D”	
U0475	Invalid Data Received From “Restraints System Sensor E”	
U0476	Invalid Data Received From “Restraints System Sensor F”	
U0477	Invalid Data Received From “Restraints System Sensor G”	
U0478	Invalid Data Received From “Restraints System Sensor H”	
U0479	Invalid Data Received From “Restraints System Sensor I”	
U047A	Invalid Data Received From “Restraints System Sensor J”	
U047B	Invalid Data Received From “Restraints System Sensor K”	
U047C	Invalid Data Received From “Restraints System Sensor L”	
U047D	Invalid Data Received From “Restraints System Sensor M”	
U047E	Invalid Data Received From “Restraints System Sensor N”	
U0481	Invalid Data Received From Automatic Lighting Control Module	
U0482	Invalid Data Received From Headlamp Leveling Control Module	
U0483	Invalid Data Received From Lighting Control Module	Front
U0484	Invalid Data Received From Lighting Control Module	Rear “A”
U0485	Invalid Data Received From Radio	
U0486	Invalid Data Received From Antenna Control Module	
U0487	Invalid Data Received From Audio Amplifier	
U0488	Invalid Data Received From Digital Disc Player/Changer Module “A”	
U0489	Invalid Data Received From Digital Disc Player/Changer Module “B”	
U040A	Invalid Data Received From Digital Disc Player/Changer Module “C”	
U0491	Invalid Data Received From Digital Disc Player/Changer Module “D”	
U0492	Invalid Data Received From Television	
U0493	Invalid Data Received From Personal Computer	
U0494	Invalid Data Received From “Digital Audio Control Module A”	
U0495	Invalid Data Received From “Digital Audio Control Module B”	
U0496	Invalid Data Received From Subscription Entertainment Receiver Module	
U0497	Invalid Data Received From Entertainment Control Module	Rear “A”
U0498	Invalid Data Received From Telephone Control Module	
U0499	Invalid Data Received From Telematic Control Module	
U049A	Invalid Data Received From “Door Control Module A”	

C.6 U05XX Network Data

Table C.6 — U05XX Network Data

DTC number	DTC naming	Location
U0501	Invalid Data Received From “Door Control Module B”	
U0502	Invalid Data Received From “Door Control Module C”	
U0503	Invalid Data Received From “Door Control Module D”	
U0504	Invalid Data Received From “Door Control Module E”	
U0505	Invalid Data Received From “Door Control Module F”	
U0506	Invalid Data Received From “Door Control Module G”	
U0507	Invalid Data Received From Folding Top Control Module	
U0508	Invalid Data Received From Moveable Roof Control Module	
U0509	Invalid Data Received From “Seat Control Module A”	
U050A	Invalid Data Received From “Seat Control Module B”	
U0511	Invalid Data Received From “Seat Control Module C”	
U0512	Invalid Data Received From “Seat Control Module D”	
U0513	Invalid Data Received From Yaw Rate Sensor Module	
U0514	Invalid Data Received From Mirror Control Module “A”	
U0515	Invalid Data Received From Remote Function Actuation	
U0516	Invalid Data Received From “Door Switch A”	
U0517	Invalid Data Received From “Door Switch B"	
U0518	Invalid Data Received From “Door Switch C"	
U0519	Invalid Data Received From “Door Switch D"	
U051A	Invalid Data Received From “Door Switch E"	
U0521	Invalid Data Received From “Door Switch F"	
U0522	Invalid Data Received From “Door Switch G"	
U0523	Invalid Data Received From “Door Window Motor A”	
U0524	Invalid Data Received From “Door Window Motor B”	
U0525	Invalid Data Received From “Door Window Motor C”	
U0526	Invalid Data Received From “Door Window Motor D”	
U0527	Invalid Data Received From “Door Window Motor E”	
U0528	Invalid Data Received From “Door Window Motor F”	
U0529	Invalid Data Received From “Door Window Motor G”	
U052A	Invalid Data Received From Heated Steering Wheel Module	
U0531	Invalid Data Received From Rear Gate Module	
U0532	Invalid Data Received From Rain Sensing Module	
U0533	Invalid Data Received From Side Obstacle Detection Control Module	Left
U0534	Invalid Data Received From Side Obstacle Detection Control Module	Right
U0535	Invalid Data Received From Convenience Recall Module	
U0536	Invalid Data Received From Lateral Acceleration Sensor Module	

Table C.6 (*continued*)

DTC number	DTC naming	Location
U0537	Invalid Data Received From Column Lock Module	
U0538	Invalid Data Received From “Digital Audio Control Module C”	
U0539	Invalid Data Received From “Digital Audio Control Module D”	
U053A	Invalid Data Received From Entrapment Control Module “A”	
U0541	Invalid Data Received From Entrapment Control Module “B”	
U0542	Invalid Data Received From Headlamp Control Module “A”	
U0543	Invalid Data Received From Headlamp Control Module “B”	
U0544	Invalid Data Received From Parking Assist Control Module “B”	
U0545	Invalid Data Received From Running Board Control Module	
U0546	Invalid Data Received From Entertainment Control Module	Front
U0547	Invalid Data Received From Seat Control Module “E”	
U0548	Invalid Data Received From Seat Control Module “F”	
U0549	Invalid Data Received From Remote Accessory Module	
U054A	Invalid Data Received From Entertainment Control Module	Rear “B”
U0551	Invalid Data Received From Impact Classification System Module	
U0552	Invalid Data Received From Running Board Control Module “B”	
U0553	Invalid Data Received From Lighting Control Module	Rear “B”
U0554	ISO/SAE reserved	
U0555	ISO/SAE reserved	
U0556	ISO/SAE reserved	
U0557	ISO/SAE reserved	
U0558	ISO/SAE reserved	
U0559	ISO/SAE reserved	
U0560	ISO/SAE reserved	
U0561	ISO/SAE reserved	
U0562	ISO/SAE reserved	
U0563	ISO/SAE reserved	
U0564	ISO/SAE reserved	
U0565	ISO/SAE reserved	
U0566	ISO/SAE reserved	
U0567	ISO/SAE reserved	
U0568	ISO/SAE reserved	
U0569	ISO/SAE reserved	
U0570	ISO/SAE reserved	
U0571	ISO/SAE reserved	
U0572	ISO/SAE reserved	
U0573	ISO/SAE reserved	
U0574	ISO/SAE reserved	

Table C.6 (*continued*)

DTC number	DTC naming	Location
U0575	ISO/SAE reserved	
U0576	ISO/SAE reserved	
U0577	ISO/SAE reserved	
U0578	ISO/SAE reserved	
U0579	ISO/SAE reserved	
U0580	ISO/SAE reserved	
U0581	ISO/SAE reserved	
U0582	ISO/SAE reserved	
U0583	ISO/SAE reserved	
U0584	ISO/SAE reserved	
U0585	ISO/SAE reserved	
U0586	ISO/SAE reserved	
U0587	ISO/SAE reserved	
U0588	ISO/SAE reserved	
U0589	ISO/SAE reserved	
U0590	ISO/SAE reserved	
U0591	ISO/SAE reserved	
U0592	Invalid Data Received From Gear Shift Control Module “B”	
U0593	Invalid Data Received From Drive Motor Control Module “B”	
U0594	Invalid Data Received From Hybrid Powertrain Control Module	
U0595	Invalid Data Received From Powertrain Control Monitor Module	
U0596	Invalid Data Received From AC to AC Converter Control Module	
U0597	Invalid Data Received From AC to DC Converter Control Module “A”	
U0598	Invalid Data Received From AC to DC Converter Control Module “B”	
U0599	Invalid Data Received From DC to DC Converter Control Module “A”	
U059A	Invalid Data Received From DC to DC Converter Control Module “B”	

C.7 U3xxx Control Module/Power Distribution

Table C.7 — U30XX Control Module/Power Distribution

DTC number	DTC naming	Location
U3000	Control Module	
U3001	Control Module Improper Shutdown	
U3002	Vehicle Identification Number	
U3003	Battery Voltage	
U3004	Accessory Power Relay	
U3005	Retained Accessory Power	
U3006	Control Module Input Power “A”	
U3007	Control Module Input Power “B”	
U3008	Control Module Ground “A”	
U3009	Control Module Ground “B”	
U300A	Ignition Switch	
U300B	Ignition Input Accessory/On/Start	
U300C	Ignition Input Off/On/Start	
U300D	Ignition Input On/Start	
U300E	Ignition Input On	
U300F	Ignition Input Accessory	
U3010	Ignition Input Start	
U3011	Ignition Input Off	

C.8 B00XX Restraints

Table C.8 — B00XX Restraints

DTC number	DTC naming	Location
B0000	ISO/SAE reserved	
B0001	Driver Frontal Stage 1 Deployment Control (Subfault)	
B0002	Driver Frontal Stage 2 Deployment Control (Subfault)	
B0003	Driver Frontal Stage 3 Deployment Control (Subfault)	
B0004	Driver Knee Bolster Deployment Control (Subfault)	
B0005	Collapsible Steering Column Deployment Control (Subfault)	
B0006	ISO/SAE reserved	
B0007	ISO/SAE reserved	
B0008	ISO/SAE reserved	
B0009	ISO/SAE reserved	
B000A	ISO/SAE reserved	
B000B	ISO/SAE reserved	

Table C.8 (*continued*)

DTC number	DTC naming	Location
B000C	ISO/SAE reserved	
B000D	ISO/SAE reserved	
B000E	ISO/SAE reserved	
B000F	ISO/SAE reserved	
B0010	Passenger Frontal Stage 1 Deployment Control (Subfault)	
B0011	Passenger Frontal Stage 2 Deployment Control (Subfault)	
B0012	Passenger Frontal Stage 3 Deployment Control (Subfault)	
B0013	Passenger Knee Bolster Deployment Control (Subfault)	
B0014	ISO/SAE reserved	
B0015	ISO/SAE reserved	
B0016	ISO/SAE reserved	
B0017	ISO/SAE reserved	
B0018	ISO/SAE reserved	
B0019	ISO/SAE reserved	
B001A	ISO/SAE reserved	
B001B	ISO/SAE reserved	
B001C	ISO/SAE reserved	
B001D	ISO/SAE reserved	
B001E	ISO/SAE reserved	
B001F	ISO/SAE reserved	
B0020	Left Side Airbag Deployment Control (Subfault)	
B0021	Left Curtain Deployment Control 1 (Subfault)	
B0022	Left Curtain Deployment Control 2 (Subfault)	
B0023	ISO/SAE reserved	
B0024	ISO/SAE reserved	
B0025	ISO/SAE reserved	
B0026	ISO/SAE reserved	
B0027	ISO/SAE reserved	
B0028	Right Side Airbag Deployment Control (Subfault)	
B0029	Right Curtain Deployment Control 1 (Subfault)	
B002A	Right Curtain Deployment Control 2 (Subfault)	
B002B	ISO/SAE reserved	
B002C	ISO/SAE reserved	
B002D	ISO/SAE reserved	
B002E	ISO/SAE reserved	
B002F	ISO/SAE reserved	
B0030	Second Row Left Side Airbag Deployment Control (Subfault)	
B0031	Second Row Left Frontal Stage 1 Deployment Control (Subfault)	

Table C.8 (*continued*)

DTC number	DTC naming	Location
B0032	Second Row Left Frontal Stage 2 Deployment Control (Subfault)	
B0033	Second Row Left Frontal Stage 3 Deployment Control (Subfault)	
B0034	ISO/SAE reserved	
B0035	ISO/SAE reserved	
B0036	ISO/SAE reserved	
B0037	ISO/SAE reserved	
B0038	Second Row Right Side Airbag Deployment Control (Subfault)	
B0039	Second Row Right Frontal Stage 1 Deployment Control (Subfault)	
B003A	Second Row Right Frontal Stage 2 Deployment Control (Subfault)	
B003B	Second Row Right Frontal Stage 3 Deployment Control (Subfault)	
B003C	ISO/SAE reserved	
B003D	ISO/SAE reserved	
B003E	ISO/SAE reserved	
B003F	ISO/SAE reserved	
B0040	Third Row Left Side Airbag Deployment Control (Subfault)	
B0041	Third Row Left Frontal Stage 1 Deployment Control (Subfault)	
B0042	Third Row Left Frontal Stage 2 Deployment Control (Subfault)	
B0043	Third Row Left Frontal Stage 3 Deployment Control (Subfault)	
B0044	ISO/SAE reserved	
B0045	ISO/SAE reserved	
B0046	ISO/SAE reserved	
B0047	ISO/SAE reserved	
B0048	Third Row Right Side Airbag Deployment Control (Subfault)	
B0049	Third Row Right Frontal Stage 1 Deployment Control (Subfault)	
B004A	Third Row Right Frontal Stage 2 Deployment Control (Subfault)	
B004B	Third Row Right Frontal Stage 3 Deployment Control (Subfault)	
B004C	ISO/SAE reserved	
B004D	ISO/SAE reserved	
B004E	ISO/SAE reserved	
B004F	ISO/SAE reserved	
B0050	Driver Seatbelt Sensor (Subfault)	
B0051	First Row Center Seatbelt Sensor (Subfault)	
B0052	Passenger Seatbelt Sensor (Subfault)	
B0053	Second Row Left Seatbelt Sensor (Subfault)	
B0054	Second Row Center Seatbelt Sensor (Subfault)	
B0055	Second Row Right Seatbelt Sensor (Subfault)	
B0056	Third Row Left Seatbelt Sensor (Subfault)	
B0057	Third Row Center Seatbelt Sensor (Subfault)	

Table C.8 (*continued*)

DTC number	DTC naming	Location
B0058	Third Row Right Seatbelt Sensor (Subfault)	
B0059	ISO/SAE reserved	
B005A	ISO/SAE reserved	
B005B	ISO/SAE reserved	
B005C	ISO/SAE reserved	
B005D	ISO/SAE reserved	
B005E	ISO/SAE reserved	
B005F	ISO/SAE reserved	
B0060	Driver Seatbelt Tension Sensor (Subfault)	
B0061	Passenger Seatbelt Tension Sensor (Subfault)	
B0062	ISO/SAE reserved	
B0063	ISO/SAE reserved	
B0064	ISO/SAE reserved	
B0065	ISO/SAE reserved	
B0066	ISO/SAE reserved	
B0067	ISO/SAE reserved	
B0068	ISO/SAE reserved	
B0069	ISO/SAE reserved	
B006A	ISO/SAE reserved	
B006B	ISO/SAE reserved	
B006C	ISO/SAE reserved	
B006D	ISO/SAE reserved	
B006E	ISO/SAE reserved	
B006F	ISO/SAE reserved	
B0070	Driver Seatbelt Pretensioner Deployment Control (Subfault)	
B0071	First Row Center Seatbelt Pretensioner Deployment Control (Subfault)	
B0072	Passenger Seatbelt Pretensioner Deployment Control (Subfault)	
B0073	Second Row Left Seatbelt Pretensioner Deployment Control (Subfault)	
B0074	Second Row Center Seatbelt Pretensioner Deployment Control (Subfault)	
B0075	Second Row Right Seatbelt Pretensioner Deployment Control (Subfault)	
B0076	Third Row Left Seatbelt Pretensioner Deployment Control (Subfault)	
B0077	Third Row Center Seatbelt Pretensioner Deployment Control (Subfault)	
B0078	Third Row Right Seatbelt Pretensioner Deployment Control (Subfault)	
B0079	Driver Seatbelt Pretensioner “B” Deployment Control (Subfault)	
B007A	Passenger Seatbelt Pretensioner “B” Deployment Control (Subfault)	
B007B	ISO/SAE reserved	
B007C	ISO/SAE reserved	
B007D	ISO/SAE reserved	

Table C.8 (*continued*)

DTC number	DTC naming	Location
B007E	ISO/SAE reserved	
B007F	ISO/SAE reserved	
B0080	Driver Seatbelt Load Limiter Deployment Control (Subfault)	
B0081	First Row Center Seatbelt Load Limiter Deployment Control (Subfault)	
B0082	Passenger Seatbelt Load Limiter Deployment Control (Subfault)	
B0083	Second Row Left Seatbelt Load Limiter Deployment Control (Subfault)	
B0084	Second Row Center Seatbelt Load Limiter Deployment Control (Subfault)	
B0085	Second Row Right Seatbelt Load Limiter Deployment Control (Subfault)	
B0086	Third Row Left Seatbelt Load Limiter Deployment Control (Subfault)	
B0087	Third Row Center Seatbelt Load Limiter Deployment Control (Subfault)	
B0088	Third Row Right Seatbelt Load Limiter Deployment Control (Subfault)	
B0089	ISO/SAE reserved	
B008A	ISO/SAE reserved	
B008B	ISO/SAE reserved	
B008C	ISO/SAE reserved	
B008D	ISO/SAE reserved	
B008E	ISO/SAE reserved	
B008F	ISO/SAE reserved	
B0090	Left Frontal Restraints Sensor (Subfault)	
B0091	Left Side Restraints Sensor 1 (Subfault)	
B0092	Left Side Restraints Sensor 2 (Subfault)	
B0093	Left Side Restraints Sensor 3 (Subfault)	
B0094	Center Frontal Restraints Sensor (Subfault)	
B0095	Right Frontal Restraints Sensor (Subfault)	
B0096	Right Side Restraints Sensor 1 (Subfault)	
B0097	Right Side Restraints Sensor 2 (Subfault)	
B0098	Right Side Restraints Sensor 3 (Subfault)	
B0099	Roll Over Sensor (Subfault)	
B009A	ISO/SAE reserved	
B009B	ISO/SAE reserved	
B009C	ISO/SAE reserved	
B009D	ISO/SAE reserved	
B009E	ISO/SAE reserved	
B009F	ISO/SAE reserved	
B00A0	Occupant Classification System (Subfault)	
B00A1	Occupant Position System (Subfault)	
B00A2	ISO/SAE reserved	
B00A3	ISO/SAE reserved	

Table C.8 (*continued*)

DTC number	DTC naming	Location
B00A4	ISO/SAE reserved	
B00A5	ISO/SAE reserved	
B00A6	ISO/SAE reserved	
B00A7	ISO/SAE reserved	
B00A8	ISO/SAE reserved	
B00A9	ISO/SAE reserved	
B00AA	ISO/SAE reserved	
B00AB	ISO/SAE reserved	
B00AC	ISO/SAE reserved	
B00AD	ISO/SAE reserved	
B00AE	ISO/SAE reserved	
B00AF	ISO/SAE reserved	
B00B0	Driver Seat Occupant Classification Sensor “A” (Subfault)	
B00B1	Driver Seat Occupant Classification Sensor “B” (Subfault)	
B00B2	Driver Seat Occupant Classification Sensor “C” (Subfault)	
B00B3	Driver Seat Occupant Classification Sensor “D” (Subfault)	
B00B4	Driver Seat Occupant Classification Sensor “E” (Subfault)	
B00B5	Driver Seat Track Position Restraints Sensor (Subfault)	
B00B6	Driver Seat Recline Position Restraints Sensor (Subfault)	
B00B7	Driver Seat Occupant Position Sensor “A” (Subfault)	
B00B8	Driver Seat Occupant Position Sensor “B” (Subfault)	
B00B9	Driver Seat Occupant Position Sensor “C” (Subfault)	
B00BA	Driver Seat Occupant Position Sensor “D” (Subfault)	
B00BB	Driver Seat Occupant Position Sensor “E” (Subfault)	
B00BC	ISO/SAE reserved	
B00BD	ISO/SAE reserved	
B00BE	ISO/SAE reserved	
B00BF	ISO/SAE reserved	
B00C0	Passenger Seat Occupant Classification Sensor “A” (Subfault)	
B00C1	Passenger Seat Occupant Classification Sensor “B” (Subfault)	
B00C2	Passenger Seat Occupant Classification Sensor “C” (Subfault)	
B00C3	Passenger Seat Occupant Classification Sensor “D” (Subfault)	
B00C4	Passenger Seat Occupant Classification Sensor “E” (Subfault)	
B00C5	Passenger Seat Track Position Restraints Sensor (Subfault)	
B00C6	Passenger Seat Recline Position Restraints Sensor (Subfault)	
B00C7	Passenger Seat Occupant Position Sensor “A” (Subfault)	
B00C8	Passenger Seat Occupant Position Sensor “B” (Subfault)	
B00C9	Passenger Seat Occupant Position Sensor “C” (Subfault)	

Table C.8 (*continued*)

DTC number	DTC naming	Location
B00CA	Passenger Seat Occupant Position Sensor “D” (Subfault)	
B00CB	Passenger Seat Occupant Position Sensor “E” (Subfault)	
B00CC	ISO/SAE reserved	
B00CD	ISO/SAE reserved	
B00CE	ISO/SAE reserved	
B00CF	ISO/SAE reserved	
B00D0	Driver Seatbelt Indicator (Subfault)	
B00D1	Passenger Seatbelt Indicator (Subfault)	
B00D2	Restraint System Malfunction Indicator 1 (Subfault)	
B00D3	Restraint System Malfunction Indicator 2 (Subfault)	
B00D4	Restraint System Malfunction Audible Indicator (Subfault)	
B00D5	Restraint System Passenger Disable Indicator (Subfault)	
B00D6	ISO/SAE reserved	
B00D7	ISO/SAE reserved	
B00D8	ISO/SAE reserved	
B00D9	ISO/SAE reserved	
B00DA	ISO/SAE reserved	
B00DB	ISO/SAE reserved	
B00DC	ISO/SAE reserved	
B00DE	ISO/SAE reserved	
B00DF	Passenger Restraints Disable Switch (Subfault)	
B00E0	ISO/SAE reserved	
B00E1	ISO/SAE reserved	
B00E2	ISO/SAE reserved	
B00E3	ISO/SAE reserved	
B00E4	ISO/SAE reserved	
B00E5	ISO/SAE reserved	
B00E6	ISO/SAE reserved	
B00E7	ISO/SAE reserved	
B00E8	ISO/SAE reserved	
B00E9	ISO/SAE reserved	
B00EA	ISO/SAE reserved	
B00EB	ISO/SAE reserved	
B00EF	ISO/SAE reserved	
B00F0	ISO/SAE reserved	
B00F1	ISO/SAE reserved	
B00F2	ISO/SAE reserved	
B00F3	ISO/SAE reserved	

Table C.8 (*continued*)

DTC number	DTC naming	Location
B00F4	ISO/SAE reserved	
B00F5	ISO/SAE reserved	
B00F6	ISO/SAE reserved	
B00F7	ISO/SAE reserved	
B00F8	ISO/SAE reserved	
B00F9	ISO/SAE reserved	
B00FA	ISO/SAE reserved	
B00FB	ISO/SAE reserved	
B00FC	ISO/SAE reserved	
B00FD	ISO/SAE reserved	
B00FE	ISO/SAE reserved	
B00FF	ISO/SAE reserved	

C.9 C00XX Chassis Brakes and Traction Control

Table C.9 — C00XX Brakes and Traction Control

DTC number	DTC naming	Location
C0000	ISO/SAE reserved	
C0001	TCS Control Channel “A” Valve 1 (Subfault)	
C0002	TCS Control Channel “A” Valve 2 (Subfault)	
C0003	TCS Control Channel “B” Valve 1 (Subfault)	
C0004	TCS Control Channel “B” Valve 2 (Subfault)	
C0005	ISO/SAE reserved	
C0006	ISO/SAE reserved	
C0007	ISO/SAE reserved	
C0008	ISO/SAE reserved	
C0009	ISO/SAE reserved	
C000A	ISO/SAE reserved	
C000B	ISO/SAE reserved	
C000C	ISO/SAE reserved	
C000D	ISO/SAE reserved	
C000E	ISO/SAE reserved	
C000F	ISO/SAE reserved	
C0010	Left Front Inlet Control (Subfault)	
C0011	Left Front Outlet Control (Subfault)	
C0012	Left Front Hydraulic Release Too Long (Subfault)	
C0013	ISO/SAE reserved	

Table C.9 (*continued*)

DTC number	DTC naming	Location
C0014	Right Front Inlet Control (Subfault)	
C0015	Right Front Outlet Control (Subfault)	
C0016	Right Front Hydraulic Release Too Long (Subfault)	
C0017	ISO/SAE reserved	
C0018	Left Rear Inlet Control (Subfault)	
C0019	Left Rear Outlet Control (Subfault)	
C001A	Left Rear Hydraulic Release Too Long (Subfault)	
C001B	ISO/SAE reserved	
C001C	Right Rear Inlet Control (Subfault)	
C001D	Right Rear Outlet Control (Subfault)	
C001E	Right Rear Hydraulic Release Too Long (Subfault)	
C001F	ISO/SAE reserved	
C0020	ABS Pump Motor Control (Subfault)	
C0021	Brake Booster Performance (Subfault)	
C0022	Brake Booster Solenoid (Subfault)	
C0023	Stop Lamp Control (Subfault)	
C0024	ISO/SAE reserved	
C0025	ISO/SAE reserved	
C0026	ISO/SAE reserved	
C0027	ISO/SAE reserved	
C0028	ISO/SAE reserved	
C0029	ISO/SAE reserved	
C002A	ISO/SAE reserved	
C002B	ISO/SAE reserved	
C002C	ISO/SAE reserved	
C002D	ISO/SAE reserved	
C002E	ISO/SAE reserved	
C002F	ISO/SAE reserved	
C0030	Left Front Tone Wheel (Subfault)	
C0031	Left Front Wheel Speed Sensor (Subfault)	
C0032	Left Front Wheel Speed Sensor Supply (Subfault)	
C0033	Right Front Tone Wheel (Subfault)	
C0034	Right Front Wheel Speed Sensor (Subfault)	
C0035	Right Front Wheel Speed Sensor Supply (Subfault)	
C0036	Left Rear Tone Wheel (Subfault)	
C0037	Left Rear Wheel Speed Sensor (Subfault)	
C0038	Left Rear Wheel Speed Sensor Supply (Subfault)	
C0039	Right Rear Tone Wheel (Subfault)	

Table C.9 (*continued*)

DTC number	DTC naming	Location
C003A	Right Rear Wheel Speed Sensor (Subfault)	
C003B	Right Rear Wheel Speed Sensor Supply (Subfault)	
C003C	Rear Tone Wheel (Subfault)	
C003D	Rear Wheel Speed Sensor (Subfault)	
C003E	Rear Wheel Speed Sensor Supply (Subfault)	
C003F	ISO/SAE reserved	
C0040	Brake Pedal Switch “A” (Subfault)	
C0041	Brake Pedal Switch “B” (Subfault)	
C0042	Brake Pedal Position Sensor “Circuit A” (Subfault)	
C0043	Brake Pedal Position Sensor “Circuit B” (Subfault)	
C0044	Brake Pressure Sensor “A” (Subfault)	
C0045	Brake Pressure Sensor “B” (Subfault)	
C0046	Brake Pressure Sensor “A”/“B” (Subfault)	
C0047	Brake Booster Pressure Sensor (Subfault)	
C0048	Brake Booster Travel Sensor (Subfault)	
C0049	Brake Fluid (Subfault)	
C004A	Brake Lining Wear Sensor (Subfault)	
C004B	ISO/SAE reserved	
C004C	ISO/SAE reserved	
C004D	ISO/SAE reserved	
C004E	ISO/SAE reserved	
C004F	ISO/SAE reserved	
C0050	ISO/SAE reserved	
C0051	Steering Wheel Position Sensor (Subfault)	
C0052	Steering Wheel Position Sensor “Signal A” (Subfault)	
C0053	Steering Wheel Position Sensor “Signal B” (Subfault)	
C0054	Steering Wheel Position Sensor “Signal C” (Subfault)	
C0055	Steering Wheel Position Sensor “Signal D” (Subfault)	
C0056	ISO/SAE reserved	
C0057	ISO/SAE reserved	
C0058	ISO/SAE reserved	
C0059	ISO/SAE reserved	
C005A	ISO/SAE reserved	
C005B	ISO/SAE reserved	
C005C	ISO/SAE reserved	
C005D	ISO/SAE reserved	
C005E	ISO/SAE reserved	
C005F	ISO/SAE reserved	

Table C.9 (*continued*)

DTC number	DTC naming	Location
C0060	ISO/SAE reserved	
C0061	Lateral Acceleration Sensor (Subfault)	
C0062	Longitudinal Acceleration Sensor (Subfault)	
C0063	Yaw Rate Sensor (Subfault)	
C0064	Roll Rate Sensor	
C0065	ISO/SAE reserved	
C0066	ISO/SAE reserved	
C0067	ISO/SAE reserved	
C0068	ISO/SAE reserved	
C0069	Yaw Rate/Longitude Sensors (Subfault)	
C006A	Multi-axis Acceleration Sensor (Subfault)	
C006B	Stability System Active Too Long (Subfault)	
C006C	Stability System	
C006D	ISO/SAE reserved	
C006E	ISO/SAE reserved	
C006F	ISO/SAE reserved	
C0070	ISO/SAE reserved	
C0071	2/4 Wheel Drive Status Input (Subfault)	
C0072	Brake Temperature Too High (Subfault)	
C0073	Delivered Driving Torque (Subfault)	
C0074	Requested Driving Torque (Subfault)	
C0075	Extended Brake Pedal Travel, output to PCM (Subfault)	
C0076	PWM for Traction Control (Subfault)	
C0077	Low Tire Pressure (Subfault)	
C0078	Tire Diameter (Subfault)	
C0079	Variable Effort Steering (Subfault)	
C007A	ISO/SAE reserved	
C007B	ISO/SAE reserved	
C007C	ISO/SAE reserved	
C007D	ISO/SAE reserved	
C007E	ISO/SAE reserved	
C007F	ISO/SAE reserved	
C0080	ISO/SAE reserved	
C0081	ABS Malfunction Indicator (Subfault)	
C0082	Brake System Malfunction Indicator (Subfault)	
C0083	Tire Pressure Monitor Malfunction Indicator (Subfault)	
C0084	Traction Active Indicator (Subfault)	
C0085	Traction Disable Indicator (Subfault)	

Table C.9 (*continued*)

DTC number	DTC naming	Location
C0086	Vehicle Dynamics Indicator (Subfault)	
C0087	ISO/SAE reserved	
C0088	ISO/SAE reserved	
C0089	TCS Disable Switch (Subfault)	
C008A	TCS Mode Control (Subfault)	
C008B	ISO/SAE reserved	
C008C	ISO/SAE reserved	
C008D	ISO/SAE reserved	
C008E	ISO/SAE reserved	
C008F	ISO/SAE reserved	
C0090	ISO/SAE reserved	
C0091	ISO/SAE reserved	
C0092	ISO/SAE reserved	
C0093	ISO/SAE reserved	
C0094	ISO/SAE reserved	
C0095	ISO/SAE reserved	
C0096	ISO/SAE reserved	
C0097	ISO/SAE reserved	
C0098	ISO/SAE reserved	
C0099	ISO/SAE reserved	
C009A	ISO/SAE reserved	
C009B	ISO/SAE reserved	
C009C	ISO/SAE reserved	
C009D	ISO/SAE reserved	
C009D	ISO/SAE reserved	
C009E	ISO/SAE reserved	
C009F	ISO/SAE reserved	
C00A0	ISO/SAE reserved	

Annex D
(normative)

DTC Failure Category and Subtype definition

The DTC Failure Type Byte defines the DTC Failure Category and subtype of a base DTC. It represents the type of fault in the circuit or system (e.g. sensor open circuit, sensor shorted to ground, algorithm-based failure, etc). The following sections specify the DTC Failure Categories and DTC Failure Subtype definition of each category.

D.1 DTC Failure Type Byte parameter definition

The DTC Failure Type consists of sixteen (16) different Failure Categories, where each category is associated with sixteen (16) Subtype Failures (also known as symptoms). The Subtype Failures are logically grouped in a DTC Failure Type Category. This shall simplify the selection of the appropriate Subtype Failure (Symptom) for a DTC.

The DTC Failure Category is coded in the High Nibble of the “DTC Failure Type Byte” and the Failure Subtype is coded in the Low Nibble of the “DTC Failure Type Byte”.

Table D.1 — DTC Failure Type Byte definition

High Nibble (bit 7–4, 0x – Fx hex)	Low Nibble (bit 3–0, x0 – xF hex)
DTC Failure Category	DTC Failure Subtype

If a standard DTC is already defined for a component/system and that DTC description already comprehends the DTC Failure Type information, then the standard DTC number can be used and the DTC Failure Type Byte shall be set to a value of 00 hex. A DTC Failure Type Byte value of 00 hex indicates that no subtype information is contained in the DTC Failure Type Byte.

The following example shows the three (3) principle combinations of DTC and DTC Failure Type Byte.

— DTC which does not require any additional description included in the DTC Failure Type Byte (no DTC Failure Category name and no DTC Failure Subtype), e.g. emissions-related DTC (012700 hex): P0127 Intake Air Temperature Too High;

— DTC which requires additional description included in the DTC Failure Type Byte (DTC Failure Category name and no DTC Failure Subtype), e.g. DTC (803910): B0039-10 Second Row Right Frontal Stage 1 Deployment Control — General Electrical Failure;

— DTC which requires additional description included in the DTC Failure Type Byte (DTC Failure Category name and DTC Failure Subtype), e.g. DTC (403123): C0031-23 Left Front Wheel Speed Sensor — General Signal Failure — Signal Stuck Low.

D.2 DTC Failure Category definition

The table below specifies the “DTC Failure Categories”.

Table D.2 — DTC Failure Category definition

DTC Failure Type Byte Category Definitions		
High Nibble (0000b – 1111b)	**Category # (hex)**	**Category Description**
0000	0	**General Failure Information** — This category includes all other categories and is used when the fault within that failure category is unique (not amenable to standardization through assignment of a new subtype) or when the detected fault is best described by two or more subtypes within that Failure Category.
0001	1	**General Electrical Failures** — This category includes standard wiring failure modes (i.e. shorts and opens), and direct current (DC) quantities related by Ohm's Law.
0010	2	**General Signal Failures** — This category includes quantities related to amplitude, frequency or rate of change and wave shape.
0011	3	**FM (Frequency Modulated)/PWM (Pulse Width Modulated) Failures** — This category includes faults related to Frequency Modulated (FM) and Pulse Width Modulated (PWM) inputs and outputs of the control module. This category also includes faults where position is determined by counts.
0100	4	**System Internal Failures** — This category includes faults related to memory, software and internal electrical circuitry, requiring component (control module, sensor, etc.) replacement.
0101	5	**System Programming Failures** — This category includes faults related to operational software, calibrations and options, which are remedied by configuring/programming a part of the system (control module, sensor, etc.).
0110	6	**Algorithm-Based Failures** — This category includes faults based on comparing two or more input parameters for plausibility or comparing a single parameter to itself with respect to time.
0111	7	**Mechanical Failures** — This category includes faults detected by inappropriate motion in response to control module related input/controlled output.
1000	8	**Bus Signal/Message Failures** — This category includes faults related to bus hardware and signal integrity. This category is also used when the physical input for a signal is located in one control module and another control module diagnoses the circuit or inhibits operation due to a reported failure of that circuit.
1001	9	**Component Failures** — This category includes faults related to component failures (including parametric, performance assembly and operating environment failures).
1010 – 1110	A – E	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.
1111	F	**Vehicle Manufacturer/System Supplier specific** — This category is reserved for vehicle manufacturer/system supplier use.

The tables below specify the different “DTC Failure Subtypes”. All failure subtypes shall be assigned as mutually exclusive, i.e. a single point failure shall result in a single base DTC and failure type byte combination. When a detected fault can logically be assigned to two or more Failure Categories, the lowest number category that is applicable to the fault shall be used. The exception to this rule is the condition where the lowest number failure category requires a failure category of 0 (hex). In this case, the lowest number failure category with a non-zero value shall be used. Similarly, within the Failure Category, the lowest number subtype applicable to the fault shall be used. The Failure Category “General Failure Information”, should be used when the fault within that failure category is unique (not amenable to standardization through assignment of a new subtype) or when the detected fault is best described by two or more subtypes within that Failure Category.

D.2.1 DTC Failure Subtype definition of General Failure Information

This category includes all other categories and is used when the fault within that failure category is unique (not amenable to standardization through assignment of a new subtype) or when the detected fault is best described by two or more subtypes within that Failure Category.

Table D.3 — DTC Failure Subtype definition for failure category "0"

Failure Type Byte (hex)	Subtype Nibble (binary)	General Failure Information Subtype Description
00	0000	**No Subtype information** — This subtype is used for failures where the base DTC text string provides the complete description of the failure itself (no Category and no Subtype information used, e.g. emissions-related DTC (012700 hex): P0127 Intake Air Temperature Too High).
01	0001	**General Electrical Failure** — This subtype is used for General Electrical Failures that cannot be assigned to a specific subtype (Category information and no Subtype information, e.g. DTC (011501): P0115 Engine Coolant Temperature Sensor Circuit – General Electrical Failure).
02	0010	**General Signal Failure** — This subtype is used for General Signal Failures that cannot be assigned to a specific subtype (Category information and no Subtype information, e.g. DTC (014802): P0148 Fuel Delivery Error — General Signal Failure).
03	0011	**FM (Frequency Modulated)/PWM (Pulse Width Modulated) Failures** — This subtype is used for FM/PWM Failures that cannot be assigned to a specific subtype.
04	0100	**System Internal Failures** — This subtype is used for control module Internal Failures that cannot be assigned to a specific subtype.
05	0101	**System Programming Failures** — This subtype is used for System Programming Failures that cannot be assigned to a specific subtype.
06	0110	**Algorithm Based Failures** — This subtype is used for Algorithm Based Failures that cannot be assigned to a specific subtype.
07	0111	**Mechanical Failures** — This subtype is used for Mechanical Failures that cannot be assigned to a specific subtype.
08	1000	**Bus Signal/Message Failures** — This subtype is used for Bus Signal/Message Failures that cannot be assigned to a specific subtype.
09	1001	**Component Failures** — This subtype is used for Component Failures that cannot be assigned to a specific subtype.
0A – 0F	1010 – 1111	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.

D.2.2 DTC Failure Subtype definition of general electrical failures

The table below specifies the standard wiring failure modes (i.e. shorts and opens), and direct current (DC) quantities related by Ohm's Law.

Table D.4 — DTC Failure Subtype definition for failure category "1"

Failure Type Byte (hex)	Subtype Nibble (binary)	General Electrical Failures Subtype Description
10	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
11	0001	**Circuit short to ground —** This subtype is used for failures where the control module measures ground (battery negative) potential for greater than a specified time period or when some other value is expected.
12	0010	**Circuit short to battery** — This subtype is used for failures where the control module measures vehicle system (battery positive) potential for greater than a specified time period or when some other value is expected.
13	0011	**Circuit open** — This subtype is used for failures where the control module determines an open circuit via lack of bias voltage, low current flow, no change in the state of an input in response to an output, etc.
14	0100	**Circuit short to ground or open —** This subtype is used for failures where the condition detected by the control module is the same for either indicated failure mode.
15	0101	**Circuit short to battery or open** — This subtype is used for failures where the condition detected by the control module is the same for either indicated failure mode.
16	0110	**Circuit voltage below threshold** — This subtype is used for failures where the control module measures a voltage below a specified range, but not necessarily a short to ground.
17	0111	**Circuit voltage above threshold** — This subtype is used for failures where the control module measures a voltage above a specified range, but not necessarily a short to battery.
18	1000	**Circuit current below threshold** — This subtype is used for failures where the control module measures current flow below a specified range.
19	1001	**Circuit current above threshold** — This subtype is used for failures where the control module measures current flow above a specified range.
1A	1010	**Circuit resistance below threshold —** This subtype is used for failures where the control module infers a circuit resistance below a specified range.
1B	1011	**Circuit resistance above threshold** — This subtype is used for failures where the control module infers a circuit resistance above a specified range.
1C	1100	**Circuit voltage out of range** — This subtype is used for failures where the control module measures a voltage outside the expected range, but not identified as too high or too low.
1D	1101	**Circuit current out of range** — This subtype is used for failures where the control module measures a current outside the expected range, but not identified as too high or too low.
1E	1110	**Circuit resistance out of range** — This subtype is used for failures where the control module measures a resistance outside the expected range, but not identified as too high or too low.
1F	1111	**Circuit intermittent** — This subtype is used for failures where the control module momentarily detects one of the conditions defined above, but not long enough to set a specific subtype.

D.2.3 DTC Failure Subtype definition of general signal failures

The table below specifies quantities related to amplitude, frequency or rate of change, and wave shape.

Table D.5 — DTC Failure Subtype definition for failure category "2"

Failure Type Byte (hex)	Subtype Nibble (binary)	General Signal Failures Subtype Description
20	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
21	0001	**Signal amplitude < minimum** — This subtype is used for failures where the control module measures a signal voltage below a specified range, but not necessarily a short to ground (e.g. low gain).
22	0010	**Signal amplitude > maximum** — This subtype is used for failures where the control module measures a signal voltage above a specified range, but not necessarily a short to battery (e.g. gain too high).
23	0011	**Signal stuck low** — This subtype is used for failures where the control module measures a signal that remains low when transitions are expected.
24	0100	**Signal stuck high** — This subtype is used for failures where the control module measures a signal that remains high when transitions are expected.
25	0101	**Signal shape/waveform failure** — This subtype is used for failures where the shape of the signal (plot of the amplitude with respect to time) is not correct, e.g. improper circuit impedance.
26	0110	**Signal rate of change below threshold** — This subtype is used for failures where the signal transitions more slowly than is reasonably allowed.
27	0111	**Signal rate of change above threshold** — This subtype is used for failures where the signal transitions more quickly than is reasonably allowed.
28	1000	**Signal bias level out of range/zero adjustment failure —** This subtype is used for failures where the control module applies a bias voltage to a circuit upon which is superimposed a signal voltage (e.g. Oxygen Sensor circuit). This subtype is also used for failures where the control module applies a zero signal level to a circuit upon which is superimposed a signal voltage (e.g. bias voltage to an Oxygen Sensor circuit, or a filtered digital m/sec^2 signal while vehicle stands still for a lateral accelerator sensor module).
29	1010	**Signal invalid** — This subtype is used for failures where the value of the signal is not plausible given the operating conditions.
2A – 2E	1001	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.
2F	1111	**Signal erratic** — This subtype is used for failures where the signal is momentarily implausible (not long enough for "signal invalid") or discontinuous.

D.2.4 DTC Failure Subtype definition of FM (Frequency Modulation)/PWM (Pulse Width Modulation) failures

Table D.6 below specifies faults related to Frequency Modulated (FM) and Pulse Width Modulated (PWM) inputs and outputs of the control module. This category also includes faults where position is determined by counts.

Table D.6 — DTC Failure Subtype definition for failure category "3"

Failure Type Byte (hex)	Subtype Nibble (binary)	FM (Frequency Modulated) / PWM (Pulse Width Modulated) Failures Subtype Description
30	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
31	0001	**No signal** — This subtype is used for failures where the control module does not detect a signal which ought to be present (e.g. wheel speed signals present for three of the four wheels and brakes not applied).
32	0010	**Signal low time < minimum** — This subtype is used for failures where the control module detects the low pulse is too narrow with respect to time.
33	0011	**Signal low time > maximum** — This subtype is used for failures where the control module detects the low pulse is too wide with respect to time.
34	0100	**Signal high time < minimum** — This subtype is used for failures where the control module detects the high pulse is too narrow with respect to time.
35	0101	**Signal high time > maximum —** This subtype is used for failures where the control module detects the high pulse is too wide with respect to time.
36	0110	**Signal frequency too low** — This subtype is used for failures where the control module detects excessive duration for one cycle of the output across a specified sample size.
37	0111	**Signal frequency too high** — This subtype is used for failures where the control module detects insufficient duration for one cycle of the output across a specified sample size.
38	1000	**Signal frequency incorrect —** This subtype is used for failures where the control module measures an incorrect number of cycles in a given time period.
39	1001	**Signal has too few pulses** — This subtype is used for failures where the control module measures too few pulses (e.g. position is calibrated in counts from one extreme to the other).
3A	1010	**Signal has too many pulses** — This subtype is used for failures where the control module measures too many pulses (e.g. position is calibrated in counts from one extreme to the other).
3B – 3F	1011 – FFF	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.

D.2.5 DTC Failure Subtype definition of system internal failures

The table below specifies faults related to memory, software, and internal electrical circuitry; requiring component (control module, sensor, etc.) replacement.

Table D.7 — DTC Failure Subtype definition for failure category "4"

Failure Type Byte (hex)	Subtype Nibble (binary)	System Internal Failures Subtype Description
40	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
41	0001	**General checksum failure** — This subtype is used by the control module to indicate an incorrect checksum calculation where memory type is not specified.
42	0010	**General memory failure** — This subtype is used by the control module to indicate a memory failure where memory type is not specified.
43	0011	**Special memory failure** — This subtype is used by the control module to indicate a memory failure where the specific memory type is not defined in this category.
44	0100	**Data memory failure** — This subtype is used by the control module to indicate a data (or working) memory failure for embedded systems using FLASH memory. This is equivalent to RAM in RAM/ROM/EEPROM embedded systems.
45	0101	**Program memory failure** — This subtype is used by the control module to indicate a program memory failure for embedded systems using FLASH memory. This is equivalent to ROM in RAM/ROM/EEPROM embedded systems.
46	0110	**Calibration/parameter memory failure** — This subtype is used by the control module to indicate a calibration/parameter memory failure for embedded systems using FLASH memory. This is equivalent to EEPROM in RAM/ROM/EEPROM embedded systems.
47	0111	**Watchdog/safety µC failure** — This subtype is used by the control module to indicate a watchdog/safety µC failure.
48	1000	**Supervision software failure —** This subtype is used by the control module to indicate a supervision software failure.
49	1001	**Internal electronic failure** — This subtype is used by the control module to indicate the detection of an internal circuit failure.
4A	1010	**Incorrect component installed** — This subtype is used by the control module to indicate a mismatch between the hardware connected to the control module and the hardware expected by the control module.
4B	1011	**Over temperature —** This subtype is used by the control module to indicate the detection of an internal temperature above the expected range.
4C – 4F	1101 – 1111	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.

D.2.6 DTC Failure Subtype definition of system programming failures

The table below specifies faults related to operational software, calibrations and options; remedied by configuring/programming a part of the system (control module, sensor, etc.).

Table D.8 — DTC Failure Subtype definition for failure category "5"

Failure Type Byte (hex)	Subtype Nibble (binary)	System Programming Failures Subtype Description
50	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
51	0001	**Not programmed** — This subtype is used by the control module to indicate that programming is required.
52	0010	**Not activated** — This subtype is used by the control module to indicate that some portion of the program has not been enabled.
53	0011	**Deactivated** — This subtype is used by the control module to indicate that that some portion of the program has been disabled.
54	0100	**Missing calibration** — This subtype is used by the control module to indicate that an operational range, etc., for a sensor or actuator must be taught to the control module, e.g. by programming or learning.
55	0101	**Not configured —** This subtype is used by the control module to indicate the need to enter (program) the sub system option content or the vehicle option content.
56 – 5F	0101 – 1111	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.

D.2.7 DTC Failure Subtype definition of algorithm based failures

Table D.9 below specifies faults based on comparing two or more input parameters for plausibility, comparing a single parameter to itself with respect to time, or inhibits operation due to a reported failure of that circuit.

Table D.9 — DTC Failure Subtype definition for failure category "6"

Failure Type Byte (hex)	Subtype Nibble (binary)	Algorithm Based Failures Subtype Description
60	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
61	0001	**Signal calculation failure** — This subtype is used for algorithm based calculation failures.
62	0010	**Signal compare failure** — This subtype is used for failures where the control module compares two or more input parameters for plausibility.
63	0011	**Circuit/component protection time-out** — This subtype is used for failures where the control module detects a function is active for greater than a specified time period.
64	0100	**Signal plausibility failure** — This subtype is used for failures where the control module detects plausibility failures.
65	0101	**Signal has too few transitions/events** — This subtype is used for failures where the control module monitors a parameter over time within specified limits and detects fewer than the expected number of transitions.
66	0110	**Signal has too many transitions/events** — This subtype is used for failures where the control module monitors a parameter over time within specified limits and detects more than the expected number of transitions.
67	0111	**Signal incorrect after event** — This subtype is used for failures where the control module does not see the correct change of a parameter or group of parameters in response to a particular event.
68	1000	**Event information** — This subtype is used by the control module to indicate the detection of a system event that was not caused by the control module itself but forces the control module to store a DTC (e.g. missing functionality from another system/control module).
69 – 6F	1001 – 1111	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.

D.2.8 DTC Failure Subtype definition of mechanical failures

Table D.10 specifies faults detected by inappropriate motion in response to control module-related input/controlled output.

Table D.10 — DTC Failure Subtype definition for failure category "7"

Failure Type Byte (hex)	Subtype Nibble (binary)	Mechanical Failures Subtype Description
70	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
71	0001	**Actuator stuck** — This subtype is used for failures where the control module does not detect any motion in response to energizing a motor, solenoid, relay, etc.
72	0010	**Actuator stuck open** — This subtype is used for failures where the control module does not detect any motion upon commanding the operation of a motor, solenoid, relay, etc. to close some piece of equipment.
73	0011	**Actuator stuck closed** — This subtype is used for failures where the control module does not detect any motion upon commanding the operation of a motor, solenoid, relay, etc. to open some piece of equipment.
74	0100	**Actuator slipping** — This subtype is used for failures where the control module detects excessive duration to command a motor, solenoid, relay, etc. to move a piece of equipment to a desired position.
75	0101	**Emergency position not reachable** — This subtype is used for failures where the control module is unable to command a motor, solenoid, relay, etc. to move a piece of equipment to the emergency position.
76	0110	**Wrong mounting position** — This subtype is used for failures where the control module detects incorrectly mounted components, e.g., acceleration sensor showing a position error of 90°.
77	0111	**Commanded position not reachable** — This subtype is used for failures where the control module is unable to command a motor, solenoid, relay, etc. to move a piece of equipment to the commanded position either due to a failure in the actuator or its mechanical environment.
78	1000	**Alignment or adjustment incorrect** — This subtype is used for failures where the control module detects incorrectly adjusted or aligned components.
79	1001	**Mechanical linkage failure** — This subtype is used for failures where the control module detects that the actuator is operational but the driven device is not operating, e.g. drive cable for power sliding door broken.
7A	1010	**Fluid leak or seal failure** — This subtype is used for failures where the control module detects that a mechanical component has an unexpected gas or liquid flow in, out or through the component.
7B	1011	**Low fluid level —** This subtype is used for failures where the control module detects that a fluid level is too low for proper operation of the system.
7C – 7F	1100 – 1111	**ISO/SAE reserved —** This range of values is reserved by this part of ISO 15031 for future expansion.

D.2.9 DTC Failure Subtype definition of bus signal failures

Table D.11 specifies faults related to bus hardware and signal integrity. This category is also used when the physical input for a signal is located in one control module and another control module diagnoses the circuit.

Table D.11 — DTC Failure Subtype definition for failure category "8"

Failure Type Byte (hex)	Subtype Nibble (binary)	Bus Signal / Message Failures Subtype Description
80	0000	**ISO/SAE reserved —** This value is reserved by this part of ISO 15031 for future expansion.
81	0001	**Invalid serial data received —** This subtype is used by the control module to indicate a signal was received with the corresponding validity bit equal to "invalid" or post processing of the signal determines it is invalid.
82	0010	**Alive/sequence counter incorrect/not updated —** This subtype is used by the control module to indicate that a signal was received without the corresponding rolling count value being properly updated.
83	0011	**Value of signal protection calculation incorrect —** This subtype is used by the control module to indicate, that a message was processed with an incorrect protection (checksum) calculation.
84	0100	**Signal below allowable range** — This subtype is used for failures where some circuit quantity, reported via serial data, is below a specified range.
85	0101	**Signal above allowable range** — This subtype is used for failures where some circuit quantity, reported via serial data, is above a specified range.
86	0110	**Signal invalid** — This subtype is used for failures where some circuit quantity, reported via serial data, is not plausible given the operating conditions.
87	0111	**Missing message** — This subtype is used for failures where one (or more) expected message(s) is not received, e.g. periodic transmission where the repetition time is too high, or message not received as a result of unforeseen reset events of the concerning component (e.g. engine control unit communicating with ABS).
88	1000	**Bus off** — This subtype is used for failures where a data bus is not available.
89 – 8E	1001 – 1110	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.
8F	1111	**Erratic** — This subtype is used for failures where the signal, reported via serial data, is momentarily implausible or discontinuous.

D.2.10 DTC Failure Subtype definition of component failures

The table below specifies faults related to component failures.

Table D.12 — DTC Failure Subtype definition for failure category "9"

Failure Type Byte (hex)	Subtype Nibble (binary)	Component Failures Subtype Description
90	0000	**ISO/SAE reserved** — This value is reserved by this part of ISO 15031 for future expansion.
91	0001	**Parametric** — This subtype is used for failures where the control module has detected that a component parameter (e.g. capacitance or inductance) is outside its expected range.
92	0010	**Performance or incorrect operation** — This subtype is used for failures where the control module has detected that the component performance is outside its expected range or operating in an incorrect way.
93	0011	**No operation** — This subtype is used for failures where the control module has detected that the component is not operating.
94	0100	**Unexpected operation** — This subtype is used for failures where the control module has detected that the component is operating in a way or at a time that it has not been commanded to operate.
95	0101	**Incorrect assembly** — This subtype is used for failures where the control module has detected that the component has been incorrectly installed (e.g. hydraulic pipes crossed over, circuits cross wired) or polarity errors.
96	0110	**Component internal failure** — This subtype is used for failures where the control module has received an indication about the component that indicates a failure (e.g. an intelligent actuator or sensor) is indicating an internal fault.
97	0111	**Component or system operation obstructed or blocked** — This subtype is used for failures where the control module has detected that the operation of a component is prevented by an obstruction, e.g. advanced cruise system radar beam obstructed.
98	1000	**Component or system over temperature** — This subtype is used for failures where the control module has detected that the temperature is too high for the correct operation of the component or system.
99 – 9F	1001 – 1111	**ISO/SAE reserved** — This range of values is reserved by this part of ISO 15031 for future expansion.

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