

SMCS - 1900

i10234972

Diagnostic Trouble Codes in J1939 Order

Table 1 lists the diagnostic trouble codes that apply to the engines that are covered in this manual. The codes are listed in J1939 order. Use the electronic service tool to determine the codes that are active or logged. Then refer to the appropriate troubleshooting procedure for more information.

Table 1

List of Diagnostic Trouble Codes	
J1939 Code and Description	Troubleshooting Procedure
27-3 EGR #1 Valve Position : Voltage Above Normal	Troubleshooting, "Valve Position - Test"
27-4 EGR #1 Valve Position : Voltage Below Normal	Troubleshooting, "Valve Position - Test"
28-3 Accelerator Pedal Position #3: Voltage Above Normal	Troubleshooting, "Speed Control (Analog) - Test" or
28-4 Accelerator Pedal Position #3: Voltage Below Normal	Troubleshooting, "Speed Control (Analog) - Test" or
29-2 Accelerator Pedal Position #2 : Erratic, Intermittent, or Incorrect	Troubleshooting, "Switch Circuits - Test (Multiposition Throttle Switch)"
29-3 Accelerator Pedal Position #2: Voltage Above Normal	Troubleshooting, "Speed Control (Analog) - Test" or Troubleshooting, "Speed Control (PWM) - Test"
29-4 Accelerator Pedal Position #2: Voltage Below Normal	Troubleshooting, "Speed Control (Analog) - Test" or Troubleshooting, "Speed Control (PWM) - Test"
29-8 Accelerator Pedal Position #2 :	Troubleshooting, "Speed Control (PWM) - Test"

Abnormal Frequency, Pulse Width, or Period	
51-3 Engine Throttle Position : Voltage Above Normal	Troubleshooting, "Valve Position - Test"
51-4 Engine Throttle Position : Voltage Below Normal	Troubleshooting, "Valve Position - Test"
91-2 Accelerator Pedal Position #1 : Erratic, Intermittent, or Incorrect	Troubleshooting, "Switch Circuits - Test (Multiposition Throttle Switch)"
91-3 Accelerator Pedal Position #1 : Voltage Above Normal	Troubleshooting, "Speed Control (Analog) - Test" or Troubleshooting, "Speed Control (PWM) - Test"
91-4 Accelerator Pedal Position #1 : Voltage Below Normal	Troubleshooting, "Speed Control (Analog) - Test" or Troubleshooting, "Speed Control (PWM) - Test"
91-8 Accelerator Pedal Position #1 : Abnormal Frequency, Pulse Width, or Period	Troubleshooting, "Speed Control (PWM) - Test"
97-3 Water In Fuel Indicator : Voltage Above Normal	Troubleshooting, "Water in Fuel - Test"
97-15 Water In Fuel Indicator : High - least severe (1)	Troubleshooting, "Fuel Contains Water"
97-16 Water In Fuel Indicator : High - moderate severity (2)	Troubleshooting, "Fuel Contains Water"
98-1 Engine Oil Level : Low - most severe (3)	Troubleshooting, "Oil Level Is Low"
98-17 Engine Oil Level : Low - least severe (1)	Troubleshooting, "Oil Level Is Low"

98-18 Engine Oil Level : Low - moderate severity (2)	Troubleshooting, "Oil Level Is Low"
100-1 Engine Oil Pressure : Low - most severe (3)	Troubleshooting, "Oil Pressure Is Low"
100-2 Engine Oil Pressure : Erratic, Intermittent, or Incorrect	Troubleshooting, "Switch Circuits - Test (Engine Oil Pressure Switch)"
102-16 Engine Intake Manifold #1 Pressure : High - moderate severity (2)	Troubleshooting, "Intake Manifold Air Pressure Is High"
102-18 Engine Intake Manifold #1 Pressure : Low - moderate severity (2)	Troubleshooting, "Intake Manifold Air Pressure Is Low"
105-0 Engine Intake Manifold #1 Temperature : High - most severe (3)	Troubleshooting, "Intake Manifold Air Temperature Is High"
105-3 Engine Intake Manifold #1 Temperature : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
105-4 Engine Intake Manifold #1 Temperature : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
105-15 Engine Intake Manifold #1 Temperature : High - least severe (1)	Troubleshooting, "Intake Manifold Air Temperature Is High"
105-16 Engine Intake Manifold #1 Temperature : High - moderate severity (2)	Troubleshooting, "Intake Manifold Air Temperature Is High"

107-3 Engine Air Filter 1 Differential Pressure : Voltage Above Normal	Troubleshooting, "Switch Circuits - Test (Air Filter Restriction Switch)"
107-4 Engine Air Filter 1 Differential Pressure : Voltage Below Normal	Troubleshooting, "Switch Circuits - Test (Air Filter Restriction Switch)"
107-15 Engine Air Filter 1 Differential Pressure high - least severe (1)	Troubleshooting, "Inlet Air Is Restricted"
107-16 Engine Air Filter 1 Differential Pressure high - moderate severity (2)	Troubleshooting, "Inlet Air Is Restricted"
108-12 Barometric Pressure : Failure	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
110-0 Engine Coolant Temperature : High - most severe (3)	Troubleshooting, "Coolant Temperature Is High"
110-3 Engine Coolant Temperature : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
110-4 Engine Coolant Temperature : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
110-15 Engine Coolant Temperature : High - least severe (1)	Troubleshooting, "Coolant Temperature Is High"
110-16 Engine Coolant Temperature : High - moderate severity (2)	Troubleshooting, "Coolant Temperature Is High"
111-1 Engine Coolant Level : Low - most severe (3)	Troubleshooting, "Coolant Level Is Low"

111-17 Engine Coolant Level : Low - least severe (1)	Troubleshooting, "Coolant Level Is Low"
111-18 Engine Coolant Level : Low - moderate severity (2)	Troubleshooting, "Coolant Level Is Low"
157-3 Engine Injector Metering Rail #1 Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
157-4 Engine Injector Metering Rail #1 Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
157-12 Engine Injector Metering Rail #1 Pressure : Failure	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
157-16 Engine Injector Metering Rail #1 Pressure : High - moderate severity (2)	Troubleshooting, "Fuel Rail Pressure Problem"
157-18 Engine Injector Metering Rail #1 Pressure : Low - moderate severity (2)	Troubleshooting, "Fuel Rail Pressure Problem"
168-15 Battery Potential / Power Input #1 : High - least severe (1)	Troubleshooting, "Electrical Power Supply - Test"
168-17 Battery Potential / Power Input #1 : Low - least severe (1)	Troubleshooting, "Electrical Power Supply - Test"
168-31 Battery Potential / Power Input #1	Troubleshooting, "Configuration Parameters"
172-3 Engine Air Inlet Temperature :	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"

Voltage Above Normal	
172-4 Engine Air Inlet Temperature : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
174-3 Engine Fuel Temperature 1 : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
174-4 Engine Fuel Temperature 1 : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
174-16 Engine Fuel Temperature 1 : High - moderate severity (2)	Troubleshooting, "Fuel Temperature Is High"
190-0 Engine Speed : High - most severe (3)	Troubleshooting, "Engine Overspeeds"
190-8 Engine Speed : Abnormal Frequency, Pulse Width, or Period	Troubleshooting, "Speed/Timing - Test"
190-10 Engine Speed : Abnormal Rate of Change	Troubleshooting, "Engine Speed - Test"
190-15 Engine Speed : High - least severe (1)	Troubleshooting, "Engine Overspeeds"
441-0 Auxiliary Temperature #1 : High - most severe (3)	Troubleshooting depends on the function of the auxiliary temperature sensor which is defined by the OEM of the application.
441-3 Auxiliary Temperature #1 : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
441-4 Auxiliary Temperature #1 :	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"

Voltage Below Normal	
441-15 Auxiliary Temperature #1 : High - least severe (1)	Troubleshooting depends on the function of the auxiliary temperature sensor which is defined by the OEM for the application.
441-16 Auxiliary Temperature #1 : High - moderate severity (2)	Troubleshooting depends on the function of the auxiliary temperature sensor which is defined by the OEM for the application.
515-2 Engine's Desired Operating Speed : Erratic, Intermittent, or Incorrect	The ECM has detected a higher than expected speed request. The engine will be derated. Fully power-down the application. If the fault persists after the application has been restarted, contact the Dealer Solutions Network (DSN).
558-2 Accelerator Pedal #1 Low Idle Switch : Erratic, Intermittent, or Incorrect	Troubleshooting, "Idle Validation - Test"
630-2 Calibration Memory : Erratic, Intermittent, or Incorrect	Troubleshooting, "Configuration Parameters"
631-2 Calibration Module : Erratic, Intermittent, or Incorrect	Troubleshooting, "ECM Software - Install"
637-11 Engine Timing Sensor : Other Failure Mode	Troubleshooting, "Speed/Timing - Test"
639-9 J1939 Network #1 : Abnormal Update Rate	Troubleshooting, "CAN Data Link - Test"
639-14 J1939 Network #1 : Special Instruction	Troubleshooting, "Data Link Configuration Status - Test"
651-2 Engine Injector Cylinder #01 : Erratic, Intermittent, or Incorrect	Troubleshooting, "Injector Data Incorrect - Test"
651-5 Engine Injector Cylinder #01 : Current Below Normal	Troubleshooting, "Injector Solenoid - Test"

651-6 Engine Injector Cylinder #01 : Current Above Normal	Troubleshooting, "Injector Solenoid - Test"
652-2 Engine Injector Cylinder #02 : Erratic, Intermittent, or Incorrect	Troubleshooting, "Injector Data Incorrect - Test"
652-5 Engine Injector Cylinder #02 : Current Below Normal	Troubleshooting, "Injector Solenoid - Test"
652-6 Engine Injector Cylinder #02 : Current Above Normal	Troubleshooting, "Injector Solenoid - Test"
653-2 Engine Injector Cylinder #03 : Erratic, Intermittent, or Incorrect	Troubleshooting, "Injector Data Incorrect - Test"
653-5 Engine Injector Cylinder #03 : Current Below Normal	Troubleshooting, "Injector Solenoid - Test"
653-6 Engine Injector Cylinder #03 : Current Above Normal	Troubleshooting, "Injector Solenoid - Test"
654-2 Engine Injector Cylinder #04 : Erratic, Intermittent, or Incorrect	Troubleshooting, "Injector Data Incorrect - Test"
654-5 Engine Injector Cylinder #04 : Voltage Above Normal	Troubleshooting, "Injector Solenoid - Test"
654-6 Engine Injector Cylinder #04 : Voltage Below Normal	Troubleshooting, "Injector Solenoid - Test"

676-5 Engine Glow Plug Relay : Current Below Normal	Troubleshooting, "Glow Plug Starting Aid - Test"
676-6 Engine Glow Plug Relay : Current Above Normal	Troubleshooting, "Glow Plug Starting Aid - Test"
677-5 Engine Starter Motor Relay : Current Above Normal	Troubleshooting, "Relay - Test (Start Relay)"
677-6 Engine Starter Motor Relay : Current Below Normal	Troubleshooting, "Relay - Test (Start Relay)"
723-8 Engine Speed Sensor #2 : Abnormal Frequency, Pulse Width, or Period	Troubleshooting, "Speed/Timing - Test"
898-2 Engine Requested Speed/Speed Limit: Erratic, Intermittent, or Incorrect	The TSC1 speed request to the application is outside of the rated speed by 90 rpm (or low idle 900rpm). Check and if necessary, correct the speed that is being requested by the application controller. Refer to the OEM service information for the application controller.
970-31 Engine Auxiliary Engine Shutdown Switch: Not Available or Condition Exists	This code indicates that the emergency shutdown feature has been activated. This code is for information purposes only. No troubleshooting is required
971-31 Engine Derate Switch: Not Available or Condition Exists	This code indicates that the shutdown override derate feature is active. This code is for information purposes only. No troubleshooting is required
977-5 Fan Drive State: Current Above Normal	Troubleshooting, "Cooling Fan Control - Test"
977-6 Fan Drive State: Current Below Normal	Troubleshooting, "Cooling Fan Control - Test"
1075-5 Engine Electric Lift Pump for Engine Fuel Supply : Current Below Normal	Troubleshooting, "Fuel Transfer Pump - Test"
1075-6 Engine Electric Lift	Troubleshooting, "Fuel Transfer Pump - Test"

Pump for Engine Fuel Supply : Current Above Normal	
1076-5 Engine Fuel Injection Pump Fuel Control Valve : Current Below Normal	Troubleshooting, "Fuel Control - Test"
1076-6 Engine Fuel Injection Pump Fuel Control Valve : Current Above Normal	Troubleshooting, "Fuel Control - Test"
1231-9 J1939 Network #2 : Abnormal Update Rate	Troubleshooting, "CAN Data Link - Test"
1231-14 J1939 Network #2: Special Instruction	Troubleshooting, "Data Link Configuration Status - Test"
1235-9 J1939 Network #3: Abnormal Update Rate	Troubleshooting, "CAN Data Link - Test"
1237-31 Engine Shutdown Override Switch: Not Available or Condition Exists	This code indicates that the shutdown override shutdown feature is active. This code is for information purposes only. No troubleshooting is required
1387-0 Auxiliary Pressure #1 : High - most severe (3)	Troubleshooting depends on the function of the auxiliary pressure sensor which is defined by the OEM for the application.
1387-1 Auxiliary Pressure #1 : Low - most severe (3)	Troubleshooting depends on the function of the auxiliary pressure sensor which is defined by the OEM for the application.
1387-3 Auxiliary Pressure #1 : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
1387-4 Auxiliary Pressure #1 : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
1387-15 Auxiliary Pressure #1 : High - least severe (1)	Troubleshooting depends on the function of the auxiliary pressure sensor which is defined by the OEM for the application.

1387-16 Auxiliary Pressure #1 : High - moderate severity (2)	Troubleshooting depends on the function of the auxiliary pressure sensor which is defined by the OEM for the application.
1387-17 Auxiliary Pressure #1 : Low - least severe (1)	Troubleshooting depends on the function of the auxiliary pressure sensor which is defined by the OEM for the application.
1387-18 Auxiliary Pressure #1 : Low - moderate severity (2)	Troubleshooting depends on the function of the auxiliary pressure sensor which is defined by the OEM for the application.
1664-31 Engine Automatic Start Failed (Engine)	Troubleshooting, "Engine Overcrank Occurrence"
2630-3 Engine Charge Air Cooler Outlet Temperature : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
2630-4 Engine Charge Air Cooler Outlet Temperature : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
2791-6 EGR Valve Control : Current Above Normal	Troubleshooting, "Motorized Valve - Test"
2791-7 EGR Valve Control : Not Responding Properly	Troubleshooting, "Motorized Valve - Test"
2882-2 Engine Alternate Rating Select : Erratic, Intermittent, or Incorrect	Troubleshooting, "Mode Selection - Test"
2970-2 Accelerator Pedal #2 Low Idle Switch : Erratic, Intermittent, or Incorrect	Troubleshooting, "Idle Validation - Test"
3064-13 Aftertreatment DPF System Monitor - Out of Calibration	This diagnostic code indicates that an ECM has been replaced and the "Aftertreatment #1 DPF Life Remaining" has not been updated. Update via an ECM replacement file (If the ECM being replaced were able to still communicate with the electronic service tool). Refer to Troubleshooting, ECM - Replace. If the ECM being replaced were not able to communicate with the electronic service tool, run the "DPF Ash

	Load Calibration" procedure. Once the "Aftertreatment #1 DPF Life Remaining" value has been provided, or calculated via the calibration procedure, then this diagnostic code will be automatically cleared.
3242-18 Aftertreatment #1 DPF Intake Temperature : Low - moderate severity (2)	Troubleshooting, "Diesel Particulate Filter Temperature Is Low"
3251-1 Aftertreatment #1 DPF Differential Pressure : Low - Most Severe (3)	Troubleshooting, "Diesel Particulate Filter Has Low Inlet Pressure"
3251-3 Aftertreatment #1 DPF Differential Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure Sensor)"
3251-4 Aftertreatment #1 DPF Differential Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure Sensor)"
3251-13 Aftertreatment #1 DPF Differential Pressure : Out of Calibration	Troubleshooting, "Sensor Calibration Required - Test"
3251-16 Aftertreatment #1 DPF Differential Pressure : High - moderate severity (2)	Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"
3251-18 Aftertreatment #1 DPF Differential Pressure : Low - moderate severity (2)	Troubleshooting, "Diesel Particulate Filter Has Low Inlet Pressure"
3464-6 Engine Throttle Actuator 1 Control Command : Current Above Normal	Troubleshooting, "Motorized Valve - Test"
3464-7 Engine Throttle Actuator 1 Control Command : Not Responding Properly	Troubleshooting, "Motorized Valve - Test"

3509-3 Sensor Supply Voltage 1 : Voltage Above Normal	Troubleshooting, "Sensor Supply - Test"
3509-4 Sensor Supply Voltage 1 : Voltage Below Normal	Troubleshooting, "Sensor Supply - Test"
3510-3 Sensor Supply Voltage 2 : Voltage Above Normal	Troubleshooting, "Sensor Supply - Test"
3510-4 Sensor Supply Voltage 2 : Voltage Below Normal	Troubleshooting, "Sensor Supply - Test"
3563-3 Engine Intake Manifold #1 Absolute Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
3563-4 Engine Intake Manifold #1 Absolute Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
3563-13 Engine Intake Manifold #1 Absolute Pressure : Out of Calibration	Troubleshooting, "Sensor Calibration Required - Test"
3609-3 DPF #1 Intake Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure Sensor)"
3609-4 DPF #1 Intake Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure Sensor)"
3609-13 DPF #1 Intake Pressure : Out of Calibration	Troubleshooting, "Sensor Calibration Required - Test"
3719-0 DPF #1 Soot Loading Percent : High - most severe (3)	Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"
3714-31 DPF Active Regeneration	Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"

Inhibited Due to Temporary System Lockout	
3715-31 DPF Active Regeneration Inhibited Due to Permanent System Lockout	Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"
3719-0 DPF #1 Soot Loading Percent : High - most severe (3)	Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"
3719-16 DPF #1 Soot Loading Percent : High - moderate severity (2)	Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"
4206-9 Message Counter : Incorrect	The ECM has detected an incorrect counter value from the application over TSC1. The engine will be derated. Fully power-down the application. If the fault persists after the application has been restarted, contact the Dealer Solutions Network (DSN).
4207-9 Message Checksum : Incorrect	The ECM has detected an incorrect checksum value from the application over TSC1 The engine will be derated. Fully power-down the application. If the fault persists after the application has been restarted, contact the Dealer Solutions Network (DSN).
4765-17 Aftertreatment #1 Diesel Oxidation Catalyst Intake Gas Temperature : Low - least severe (1)	Troubleshooting, "Diesel Oxidation Catalyst Has Incorrect Inlet Temperature"
5246-0 Aftertreatment SCR Operator Inducement Severity : High - most severe (3)	Troubleshooting, "SCR Warning System Problem"
5246-15 Aftertreatment SCR Operator Inducement Severity : High - least severe (1)	Troubleshooting, "SCR Warning System Problem"
5246-16 Aftertreatment SCR Operator Inducement Severity : High - moderate severity (2)	Troubleshooting, "SCR Warning System Problem"

<p>5298-17 Aftertreatment 1 Diesel Oxidation Catalyst Conversion Efficiency : Low - least severe (1)</p>	<p>Troubleshooting, "Diesel Oxidation Catalyst Has Low Conversion Efficiency"</p>
<p>5571-0 High Pressure Common Rail Fuel Pressure Relief Valve : High - most severe (3)</p>	<p>Troubleshooting, "Fuel Rail Pressure Problem"</p>
<p>5742-12 Aftertreatment DPF Temperature Sensor Module : Failure</p>	<p>Troubleshooting, "Sensor (Data Link Type) - Test"</p>
<p>7032-31 Aftertreatment System has Shutdown Engine</p>	<p>Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"</p>

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