

SMCS - 1900

i09725213

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"
29-2 Accelerator Pedal Position #2 : Erratic, Intermittent, or Incorrect	Troubleshooting, "Switch Circuits - Test (Multiposition Throttle Switch)"
29-3 Accelerator Pedal Position #3 : Voltage Above Normal	Troubleshooting, "Speed Control - Test (Analog)" or Troubleshooting, "Speed Control - Test (PWM)"
29-4 Accelerator Pedal Position #3 : Voltage Below Normal	Troubleshooting, "Speed Control - Test (Analog)" or Troubleshooting, "Speed Control - Test (PWM)"
29-8 Accelerator Pedal Position #2 : Abnormal Frequency, Pulse Width, or Period	Troubleshooting, "Speed Control - Test (PWM)"
51-3 Engine Throttle Position : Voltage Above Normal	Troubleshooting, "Valve Position - Test"
51-4 Engine Throttle	Troubleshooting, "Valve Position - Test"

Position : Voltage Below Normal	
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 - Test (Analog)" or Troubleshooting, "Speed Control - Test (PWM)"
91-4 Accelerator Pedal Position #1 : Voltage Below Normal	Troubleshooting, "Speed Control - Test (Analog)" or Troubleshooting, "Speed Control - Test (PWM)"
91-8 Accelerator Pedal Position #1 : Abnormal Frequency, Pulse Width, or Period	Troubleshooting, "Speed Control - Test (PWM)"
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 (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	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"

Pressure : Voltage Above Normal	
157-4	
Engine Injector Metering Rail #1	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"
Pressure : Voltage Below Normal	
157-12	
Engine Injector Metering Rail #1	Troubleshooting, "Sensor Signal (Analog, Active) - Test"
Pressure : Failure	
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, "Battery Problem"
172-3	
Engine Air Inlet Temperature : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
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 :	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"

Voltage Below Normal	
174-16	
Engine Fuel Temperature 1 : High - moderate severity (2)	Troubleshooting, "Fuel Temperature Is High"
177-0	
Transmission Oil Temperature : High - most severe (3)	Troubleshooting, "Transmission Oil Temperature Is High"
177-3	
Transmission Oil Temperature : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
177-4	
Transmission Oil Temperature : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
177-15	
Transmission Oil Temperature : High - least severe (1)	Troubleshooting, "Transmission Oil Temperature Is High"
177-16	
Transmission Oil Temperature : High - moderate severity (2)	Troubleshooting, "Transmission Oil 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
411-3	
EGR Differential Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure Sensor)"
411-4	
EGR Differential	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure

Sensor)"

Pressure : Voltage Below Normal	
411-13 EGR Differential Pressure : Out of Calibration	Troubleshooting, Sensor Calibration Required - Test
412-3 EGR Temperature : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
412-4 EGR Temperature : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
412-15 EGR Temperature : High - least severe (1)	Troubleshooting, "NRS Exhaust Gas Temperature Is High"
412-16 EGR Temperature : High - moderate severity (2)	Troubleshooting, "NRS Exhaust Gas Temperature Is High"
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 for the application.
441-3 Auxiliary Temperature #1 : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
441-4 Auxiliary Temperature #1 : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
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.
558-2 Accelerator Pedal #1 Low Idle Switch : Erratic, Intermittent, or Incorrect	Troubleshooting, "Idle Validation - Test"
593-31 Engine Idle Shutdown has Shutdown Engine	Troubleshooting, "Engine Shutdown While Idling"

594-0 Engine Idle Shutdown Driver Alert Mode : High - most severe (3)	Troubleshooting, "Engine Shutdown While Idling"
594-31 Engine Idle Shutdown Driver Alert Mode	Troubleshooting, "Engine Shutdown While Idling"
626-5 Engine Start Enable Device 1 : Current Below Normal	Troubleshooting, "Ether Starting Aid - Test"
626-6 Engine Start Enable Device 1 : Current Above Normal	Troubleshooting, "Ether Starting Aid - Test"
630-2 Calibration Memory : Erratic, Intermittent, or Incorrect	Troubleshooting, "Configuration Parameters"
631-2 Personality 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 : Current Below Normal	Troubleshooting, "Injector Solenoid - Test"
654-6 Engine Injector Cylinder #04 : Current Above 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	Troubleshooting, "Glow Plug Starting Aid - Test"

Relay : Current Above Normal	
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"
970-31 Engine Auxiliary Engine Shutdown Switch	This event code will be set when the remote emergency stop switch is activated. This event will prevent engine operation.
977-5 Fan Drive State : Current Below Normal	Troubleshooting, "Cooling Fan Control - Test"
977-6 Fan Drive State : Current Above 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 Pump for Engine Fuel Supply : Current Above Normal	Troubleshooting, "Fuel Transfer Pump - Test"
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"
1188-3 Engine Turbocharger #1 Wastegate	Troubleshooting, "Valve Position - Test"

Position : Voltage Above Normal	
1188-4 Engine Turbocharger #1 Wastegate Position : Voltage Below Normal	Troubleshooting, "Valve Position - Test"
1188-7 Engine Turbocharger #1 Wastegate Drive : Not Responding Properly	Troubleshooting, "Motorized Valve - Test"
1235-9 J1939 Network #3 : Abnormal Update Rate	Troubleshooting, "CAN Data Link - Test"
1235-14 J1939 Network #3 : Special Instruction	Troubleshooting, "Data Link Configuration Status - Test"
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.

1639–17 Fan Speed : Low - least severe (1)	Troubleshooting, "Cooling Fan Speed - Test"
1664–31 Engine Automatic Start Failed	Troubleshooting, "Engine Overcrank Occurrence"
1761–1 Aftertreatment #1 DEF Tank Volume #1 : Low - most severe (3)	Troubleshooting, "DEF Tank Level Is Low"
1761–2 Aftertreatment #1 DEF Tank Volume #1 : Erratic, Intermittent, or Incorrect	Troubleshooting, "DEF Tank Sensor - Test"
1761–12 Aftertreatment #1 DEF Tank Volume #1 : Failure	Troubleshooting, "DEF Tank Sensor - Test"
1761–17 Aftertreatment #1 DEF Tank Volume #1 : Low - least severe (1)	Troubleshooting, "DEF Tank Level Is Low"
1761–18 Aftertreatment #1 DEF Tank Volume #1 : Low - moderate severity (2)	Troubleshooting, "DEF Tank Level Is Low"
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"
2659–7 EGR Mass Flow Rate : Not Responding Properly	Troubleshooting, "NRS Mass Flow Rate Problem"
2791–5 EGR Valve Control : Current Below Normal	Troubleshooting, "Motorized Valve - 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"
3031-7 Aftertreatment #1 DEF Tank Temperature : Not Responding Properly	Troubleshooting, "DEF Tank Temperature Is Low"
3031-12 Aftertreatment #1 DEF Tank Temperature : Failure	Troubleshooting, "DEF Tank Sensor - Test"
3031-16 Aftertreatment #1 DEF Tank Temperature : High - moderate severity (2)	Troubleshooting, "DEF Tank Temperature Is High"
3031-18 Aftertreatment #1 DEF Tank Temperature : Low - moderate severity (2)	Troubleshooting, "DEF Tank Temperature Is Low"
3064-13 Aftertreatment Diesel Particulate Filter 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.
3216-12 Aftertreatment #1 Intake NOx : Failure	Troubleshooting, "Sensor (Data Link Type) - Test"

3217-16 Aftertreatment #1 Intake O2 : High - moderate severity (2)	Troubleshooting, "Clean Emissions Module Has High Oxygen Level"
3226-12 Aftertreatment #1 Outlet NOx : Failure	Troubleshooting, "Sensor (Data Link Type) - Test"
3227-16 Aftertreatment #1 Outlet O2 : High - moderate severity (2)	Troubleshooting, "Clean Emissions Module Has High Oxygen Level"
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"

3358-3 EGR Inlet Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure Sensor)"
3358-4 EGR Inlet Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test (DPF Differential/Inlet Pressure Sensor and NRS Differential/Inlet Pressure Sensor)"
3358-13 EGR Inlet Pressure : Out of Calibration	Troubleshooting, "Sensor Calibration Required - Test"
3361-5 Aftertreatment #1 DEF Dosing Unit : Current Below Normal	Troubleshooting, "DEF Injector - Test"
3361-6 Aftertreatment #1 DEF Dosing Unit : Current Above Normal	Troubleshooting, "DEF Injector - Test"
3361-7 Aftertreatment #1 DEF Dosing Unit : Not Responding Properly	Troubleshooting, "DEF Module Does Not Respond"
3362-14 Aftertreatment #1 DEF Dosing Unit Input Lines : Special Instruction	Troubleshooting, "DEF Does Not Purge"
3363-5 Aftertreatment #1 DEF Tank Heater : Current Below Normal	Troubleshooting, "Coolant Diverter - Test"
3363-6 Aftertreatment #1 DEF Tank Heater : Current Above Normal	Troubleshooting, "Coolant Diverter - Test"
3369-9 Network Service Status 1: Abnormal Update Rate	Troubleshooting, "CAN Data Link - Test"
3464-5 Engine Throttle Actuator 1 Control Command : Current Below Normal	Troubleshooting, "Motorized Valve - Test"

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"
3516-2 Aftertreatment #1 DEF Concentration : Erratic, Intermittent, or Incorrect	Troubleshooting, "DEF Tank Sensor - Test"
3516-11 Aftertreatment #1 DEF Concentration : Other Failure Mode	Troubleshooting, "NOx Conversion Is Low"
3516-12 Aftertreatment #1 DEF Concentration : Failure	Troubleshooting, "DEF Tank Sensor - Test"
3516-15 Aftertreatment #1 DEF Concentration : High - least severe (1)	Troubleshooting, "NOx Conversion Is Low"
3516-18 Aftertreatment #1 DEF Concentration : Low - moderate severity (2)	Troubleshooting, "NOx Conversion Is Low"
3563-3 Engine Intake	Troubleshooting, "Sensor Signal (Analog, Active) - Test (Fuel Rail Pressure Sensor and Intake Manifold Air Pressure Sensor)"

Manifold #1 Absolute
Pressure : Voltage
Above Normal

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"

3714-31

Diesel Particulate
Filter Active
Regeneration
Inhibited Due to
Temporary System
Lockout

Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"

3715-31

Diesel Particulate
Filter 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

TSC1 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).

Troubleshooting, "Cooling Fan - Calibrate"

Troubleshooting, "DEF Pump Pressure Sensor - Test"

Troubleshooting, "DEF Pump Pressure Sensor - Test"

Troubleshooting, "DEF Pressure Is Low"

moderate severity (2)	
4337-5	
Aftertreatment #1 DEF Doser #1 Temperature : Current Below Normal	Troubleshooting, "DEF Pump Motor - Test"
4337-6	
Aftertreatment #1 DEF Doser #1 Temperature : Current Above Normal	Troubleshooting, "DEF Pump Motor - Test"
4337-8	
Aftertreatment #1 DEF Doser #1 Temperature : Abnormal Frequency, Pulse Width, or Period	Troubleshooting, "DEF Pump - Replace"
4354-5	
Aftertreatment #1 DEF Line Heater #1 : Current Below Normal	Troubleshooting, "DEF Line Heater - Test"
4354-6	
Aftertreatment #1 DEF Line Heater #1 : Current Above Normal	Troubleshooting, "DEF Line Heater - Test"
4355-5	
Aftertreatment #1 DEF Line Heater #2 : Current Below Normal	Troubleshooting, "DEF Line Heater - Test"
4355-6	
Aftertreatment #1 DEF Line Heater #2 : Current Above Normal	Troubleshooting, "DEF Line Heater - Test"
4356-5	
Aftertreatment #1 DEF Line Heater #3 : Current Below Normal	Troubleshooting, "DEF Line Heater - Test"
4356-6	
Aftertreatment #1 DEF Line Heater #3 : Current Above Normal	Troubleshooting, "DEF Line Heater - Test"

DP1-0006DFFB
2023/03/04
10:49:01+01:00
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4360-10 Aftertreatment #1 SCR Catalyst Intake Gas Temperature : Abnormal Rate of Change	Troubleshooting, "SCR Catalyst Has Incorrect Inlet Temperature"
4360-16 Aftertreatment #1 SCR Catalyst Intake Gas Temperature : High - moderate severity (2)	Troubleshooting, "SCR Catalyst Has Incorrect Inlet Temperature"
4360-17 Aftertreatment #1 SCR Catalyst Intake Gas Temperature : Low - least severe (1)	Troubleshooting, "SCR Catalyst Has Incorrect Inlet Temperature"
4360-18 Aftertreatment #1 SCR Catalyst Intake Gas Temperature : Low - moderate severity (2)	Troubleshooting, "SCR Catalyst Has Incorrect Inlet Temperature"
4364-2 Aftertreatment #1 SCR Catalyst Conversion Efficiency : Erratic, Intermittent, or Incorrect	Troubleshooting, "NOx Conversion Is Low"
4364-18 Aftertreatment #1 SCR Catalyst Conversion Efficiency : Low - moderate severity (2)	Troubleshooting, "NOx Conversion Is Low"
4374-3 Aftertreatment #1 DEF Pump #1 Motor Speed : Voltage Above Normal	Troubleshooting, "DEF Pump Motor - Test"
4374-4 Aftertreatment #1 DEF Pump #1 Motor Speed : Voltage Below Normal	Troubleshooting, "DEF Pump Motor - Test"
4374-5 Aftertreatment #1 DEF Pump #1 Motor Speed : Current Below Normal	Troubleshooting, "DEF Pump Motor - Test"

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4374-6 Aftertreatment #1 DEF Pump #1 Motor Speed : Current Above Normal	Troubleshooting, "DEF Pump Motor - Test"
4374-8 Aftertreatment #1 DEF Pump #1 Motor Speed : Abnormal Frequency, Pulse Width, or Period	Troubleshooting, "DEF Pump - Replace"
4376-5 Aftertreatment #1 DEF Return Valve : Current Below Normal	Troubleshooting, "DEF Return Valve - Test"
4376-6 Aftertreatment #1 DEF Return Valve : Current Above Normal	Troubleshooting, "DEF Return Valve - Test"
4376-7 Aftertreatment #1 DEF Return Valve : Not Responding Properly	Troubleshooting, "DEF Return Valve - Test"
4376-14 Aftertreatment #1 DEF Return Valve : Special Instruction	Troubleshooting, "DEF Return Valve - Test"
4750-3 EGR Cooler Inlet Temperature : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
4750-4 EGR Cooler Inlet Temperature : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Passive) - Test"
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"

5298–17
Aftertreatment 1
Diesel Oxidation
Catalyst Conversion
Efficiency : Low -
least severe (1)

Troubleshooting, "Diesel Oxidation Catalyst Has Low Conversion
Efficiency"

5392–31
Aftertreatment #1
DEF Dosing Unit #1
Loss of Prime

Troubleshooting, "DEF Pressure Is Low"

5421–5
Engine Turbocharger
Wastegate Actuator
#1 : Current Below
Normal

Troubleshooting, "Motorized Valve - Test"

5421–6
Engine Turbocharger
Wastegate Actuator
#1 : Current Above
Normal

Troubleshooting, "Motorized Valve - Test"

5571–0
High Pressure
Common Rail Fuel
Pressure Relief Valve
: High - most severe
(3)

Troubleshooting, "Fuel Rail Pressure Problem"

5742–12
Aftertreatment Diesel
Particulate Filter
Temperature Sensor
Module : Failure

Troubleshooting, "Sensor (Data Link Type) - Test"

5743–12
Aftertreatment 1 SCR
Temperature Sensor
Module : Failure

Troubleshooting, "Sensor (Data Link Type) - Test"

5758–11
Aftertreatment #1
Intake Gas Sensor
Power Supply : Other
Failure Mode

Troubleshooting, "NOx Sensor Supply - Test"

5826-0 Emission Control System Operator Inducement Severity (3)	Troubleshooting, "Aftertreatment Warning System Problem"
5826-15 Emission Control System Operator Inducement Severity (1)	Troubleshooting, "Aftertreatment Warning System Problem"
5826-16 Emission Control System Operator Inducement Severity (2)	Troubleshooting, "Aftertreatment Warning System Problem"
5759-11 Aftertreatment #1 Outlet Gas Sensor Power Supply : Other Failure Mode	Troubleshooting, "NOx Sensor Supply - Test"
5798-7 Aftertreatment #1 DEF Dosing Unit Heater Temperature : Not Responding Properly	Troubleshooting, "DEF Tank Temperature Is Low"
5965-5 Aftertreatment #1 DEF Control Module Relay Control : Current Below Normal	Troubleshooting, "Relay - Test (SCR Main Relay)"
5965-6 Aftertreatment #1 DEF Control Module Relay Control : Current Above Normal	Troubleshooting, "Relay - Test (SCR Main Relay)"
7032-31 Aftertreatment System Has Shutdown Engine	Troubleshooting, "Diesel Particulate Filter Collects Excessive Soot"
7105-31 Aftertreatment #1 Inconsistent Configuration Detected	Troubleshooting, "NOx Conversion Is Low"
7343-31 SCR Operator Inducement Override Renewal Required	Troubleshooting, "SCR Inducement Emergency Override"

8631–17 Engine Turbocharger #1 Efficiency: Low – Least Severe	Troubleshooting, Turbocharger - Clean
8631–18 Engine Turbocharger #1 Efficiency: Low – Moderate Severity	Troubleshooting, Turbocharger - Clean
12853–0 Engine Start Enable Device 1 : High - most severe	Troubleshooting, Ether Actuation Occurrence Is Excessive

Particulate Control Diagnostics

EU Stage V regulations mandate that a Particulate Control Diagnostic (PCD) fault must be raised if the system detects complete removal of the aftertreatment system, or loss of the particulate aftertreatment function. PCD's behave as regular Diagnostic Trouble Codes and standard troubleshooting procedures should be followed. Table 2 is for reference only.

Table 2

Diagnostic Trouble Codes for Particulate Control Diagnostics	
J1939 Code and Description	Troubleshooting Procedure
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"
3251–3 Aftertreatment #1 DPF Differential Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test"
3251–4 Aftertreatment #1 DPF Differential Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test"
3251–13 Aftertreatment #1 DPF Differential Pressure : Out of Calibration	Troubleshooting, "Sensor Calibration Required - Test"
3251–18 Aftertreatment #1 DPF Differential Pressure : Low - moderate severity (2)	Troubleshooting, "Diesel Particulate Filter Has Low Inlet Pressure"
3563–3 Engine Intake Manifold #1 Absolute Pressure : Voltage Above Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test"
3563–4 Engine Intake Manifold #1 Absolute Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test"

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"
3609-4 DPF #1 Intake Pressure : Voltage Below Normal	Troubleshooting, "Sensor Signal (Analog, Active) - Test"
3609-13 DPF #1 Intake Pressure : Out of Calibration	Troubleshooting, "Sensor Calibration Required - Test"

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