

COMMON FAULT CODES / TROUBLE SHOOTING		
PROBLEM	Specific Parameter Number (SPN) - Failure Mode Indicator(FMI)	Description
Fuel Related	520192-22	Fuel Sender: open circuit (Shutdown Engine) <ul style="list-style-type: none"> • Verify fuel sending unit. Check resistance value: Remove wires from sender: 240ohms empty / 33ohms full • Verify wiring and connections
	520192-23	Fuel Sender: Short to Ground (Shutdown Engine) <ul style="list-style-type: none"> • Verify wiring and connections
	520193-31	Low Fuel Shutdown condition exists (Shutdown Engine) <ul style="list-style-type: none"> • Add fuel to fuel tank if needed • Verify fuel sending unit is working
	157-17	Engine Injector metering rail Pressure -Low: least severe. <ul style="list-style-type: none"> • Check for plugged fuel filter(s) • Prime fuel system • Verify fuel is rated for ambient conditions
	157-18	Engine Injector metering rail Pressure -Low: moderate severity. <ul style="list-style-type: none"> • Check for plugged fuel filter(s) • Prime fuel system • Verify fuel is rated for ambient conditions
Heat Plate Related	520194-22	Plate Oil Temp Sensor: open circuit (Shutdown Engine) <ul style="list-style-type: none"> • Verify Oil temp sending unit. Check resistance value: Remove wires from sender 410hms @ 140F/ 63ohms @ 240F • Verify wiring and connections
	520194-23	Plate Oil Temp Sensor: Short to Ground (Shutdown Engine) <ul style="list-style-type: none"> • Verify wiring and connections
	520195-31	High Plate Temp shutdown (Shutdown Engine) <ul style="list-style-type: none"> • Verify outlet baffles are open • Look for restrictions in outlet air stream • Verify inlet dampers are open enough for ambient conditions. • Verify oil cooler is free of debris.
	520196-22	Plate Oil Pressure Sensor: open circuit (Shutdown Engine) <ul style="list-style-type: none"> • Verify Oil Pressure sending unit. Check resistance value: Remove wires from sender; 240ohms @ 0 PSI • Verify wiring and connections
	520196-23	Plate Oil Temp Sensor: Short to Ground (Shutdown Engine) <ul style="list-style-type: none"> • Verify wiring and connections

Engine Coolant Temperature- High	520250-31	<p>Engine coolant temp- High Warning</p> <ul style="list-style-type: none"> • Verify outlet baffles are open • Look for restrictions in outlet air stream • Verify inlet dampers are open enough for ambient conditions. • Verify inlet damper settings is in AUTO mode; open temperature set point not too high for ambient conditions. • Verify inlet damper settings if in MANUAL mode; % open set point is not too low for ambient conditions. • Check engine coolant level. • Check engine thermostat.
	520251-31	<p>Engine coolant temp- High (Engine Shutdown)</p> <ul style="list-style-type: none"> • Verify outlet baffles are open • Look for restrictions in outlet air stream • Verify inlet dampers are open enough for ambient conditions. • Verify inlet damper settings is in AUTO mode; open temperature set point not too high for ambient conditions. • Verify inlet damper settings if in MANUAL mode; % open set point is not too low for ambient conditions. • Check engine coolant level. • Check engine thermostat condition
Engine Oil Pressure Related	520254-31	<p>Engine oil pressure – Low (Engine Shutdown)</p> <ul style="list-style-type: none"> • Verify engine oil level • Verify engine oil condition • If equipped on engine; Verify engine oil pressure sensor.
	520255-31	<p>Engine Low crankcase pressure – (Engine Shutdown)</p> <ul style="list-style-type: none"> • Check wire harness to ensure pressures sender jumper wire is installed.
Engine Related Shutdown	250256-31	<p>Engine Shutdown DM1 DTC Active (Engine Shutdown)</p> <ul style="list-style-type: none"> • Check for active faults. • Check stored faults by typing 377368 on login screen. • Consult the fault code table located in the owner's manual for more detailed information on the fault code being broadcasted.
No Power		<p>No power to control screen</p> <ul style="list-style-type: none"> • Verify battery master disconnect switch is ON. • Verify Emergency Stop Button is pull out • Verify condition of battery • Check fuses in fuse block

- **If the fault code is not listed above, please review the fault code table below for additional engine specific fault codes. It is recommended to have this information available when reaching out for assistance. For additional assistance please contact Therm Dynamics @ info.thermdynamics.com or call 605-498-1050. If it is an engine related, you may also reach out to your local engine service center.**

Fault Code Table

ECU	SPN-FMI	Description
ECU1	520192-22	Fuel Sender: Open circuit (Shutdown Engine)
ECU1	520192-23	Fuel Sender: Short to ground (Shutdown Engine)
ECU1	520193-31	Low Fuel Shutdown: Condition Exists (Shutdown Engine)
ECU1	520194-22	Plate Oil Temp Sensor: Open circuit (Shutdown Engine)
ECU1	520194-23	Plate Oil Temp Sensor: Short to ground (Shutdown Engine)
ECU1	520195-31	High Plate Temp Shutdown: Condition Exists (Shutdown Engine)
ECU1	520196-22	Plate Oil Press Sensor: Open circuit (Shutdown Engine)
ECU1	520196-23	Plate Oil Press Sensor: Short to ground (Shutdown Engine)
ECU1	520197-31	Plate Press Shutdown: Condition Exists (Shutdown Engine)
ECU1	520198-22	Air Temp Sensor: Open circuit
ECU1	520198-23	Air Temp Sensor: Short to ground
ECU1	520250-31	Engine Coolant Temperature High Warning
ECU1	520251-31	Engine Coolant Temperature High (Shutdown Engine)
ECU1	520254-31	Engine Low Oil Pressure (Shutdown Engine)
ECU1	520255-31	Engine Low Crank Pressure (Shutdown Engine)
Engine	27-3	Engine Exhaust Gas Recirculation Valve Position : Voltage Above Normal
Engine	27-4	Engine Exhaust Gas Recirculation Valve Position : Voltage Below Normal
Engine	29-3	Accelerator Pedal Position 2 : Voltage Above Normal
Engine	29-4	Accelerator Pedal Position 2 : Voltage Below Normal
Engine	51-3	Engine Throttle Valve 1 Position : Voltage Above Normal
Engine	51-4	Engine Throttle Valve 1 Position : Voltage Below Normal
Engine	91-3	Accelerator Pedal Position 1 : Voltage Above Normal
Engine	91-4	Accelerator Pedal Position 1 : Voltage Below Normal
Engine	97-15	Water In Fuel Indicator : High - least severe
Engine	100-2	Engine Oil Pressure : Erratic, Intermittent, or Incorrect
Engine	100-17	Engine Oil Pressure : Low - least severe
Engine	102-3	Engine Intake Manifold #1 Pressure : Voltage Above Normal
Engine	102-4	Engine Intake Manifold #1 Pressure : Voltage Below Normal
Engine	102-20	Engine Intake Manifold #1 Pressure :

		Data Drifted High
Engine	102-21	Engine Intake Manifold #1 Pressure : Data Drifted Low
Engine	105-3	Engine Intake Manifold #1 Temperature : Voltage Above Normal
Engine	105-4	Engine Intake Manifold #1 Temperature : Voltage Below Normal
Engine	107-2	Engine Air Filter 1 Differential Pressure : Erratic, Intermittent, or Incorrect
Engine	107-15	Engine Air Filter 1 Differential Pressure : High - least severe (1)
Engine	107-16	Engine Air Filter 1 Differential Pressure : High - moderate severity (2)
Engine	108-3	Barometric Pressure : Voltage Above Normal
Engine	108-4	Barometric Pressure : Voltage Below Normal
Engine	110-3	Engine Coolant Temperature : Voltage Above Normal
Engine	110-4	Engine Coolant Temperature : Voltage Below Normal
Engine	110-15	Engine Coolant Temperature : High - least severe (1)
Engine	110-16	Engine Coolant Temperature : High - moderate severity (2)
Engine	152-2	Number Of ECU Resets : Erratic, Intermittent, or Incorrect
Engine	157-0	Engine Injector Metering Rail #1 Pressure : High - most severe (3)
Engine	157-2	Engine Injector Metering Rail #1 Pressure : Erratic, Intermittent, or Incorrect
Engine	157-3	Engine Injector Metering Rail #1 Pressure : Voltage Above Normal
Engine	157-4	Engine Injector Metering Rail #1 Pressure : Voltage Below Normal
Engine	157-10	Engine Injector Metering Rail #1 Pressure : Abnormal Rate of Change
Engine	157-16	Engine Injector Metering Rail #1 Pressure : High - moderate severity (2)
Engine	157-17	Engine Injector Metering Rail #1 Pressure : Low - least severe (1)
Engine	157-18	Engine Injector Metering Rail #1 Pressure : Low - moderate severity (2)

Engine	166-2	Engine Rated Power : Erratic, Intermittent, or Incorrect
Engine	166-14	Engine Rated Power : Special Instruction
Engine	168-3	Battery Potential / Power Input 1 : Voltage Above Normal
Engine	168-4	Battery Potential / Power Input 1 : Voltage Below Normal
Engine	172-3	Engine Air Inlet Temperature Sensor : Voltage Above Normal
Engine	172-4	Engine Air Inlet Temperature Sensor : Voltage Below Normal
Engine	173-3	Engine Exhaust Gas Temperature : Voltage Above Normal
Engine	173-4	Engine Exhaust Gas Temperature : Voltage Below Normal
Engine	174-3	Engine Fuel Temperature 1 : Voltage Above Normal
Engine	174-4	Engine Fuel Temperature 1 : Voltage Below Normal
Engine	190-8	Engine Speed : Abnormal Frequency, Pulse Width, or Period
Engine	190-15	Engine Speed : High - least severe (1)
Engine	558-2	Accelerator Pedal 1 Low Idle Switch : Erratic, Intermittent, or Incorrect
Engine	593-31	Engine Idle Shutdown has Shutdown Engine
Engine	594-31	Engine Idle Shutdown Driver Alert Mode
Engine	623-6	Red Stop Lamp : Current Above Normal
Engine	624-6	Amber Warning Lamp : Current Above Normal
Engine	630-2	Calibration Memory : Erratic, Intermittent, or Incorrect
Engine	637-11	Engine Timing Sensor : Other Failure Mode
Engine	639-9	J1939 Network #1 : Abnormal Update Rate
Engine	639-14	J1939 Network #1 : Special Instruction
Engine	651-5	Engine Injector Cylinder #01 : Current Below Normal
Engine	651-6	Engine Injector Cylinder #01 : Current Above Normal
Engine	651-20	Engine Injector Cylinder #01 : Data Drifted High
Engine	651-21	Engine Injector Cylinder #01 : Data Drifted Low

Engine	652-5	Engine Injector Cylinder #02 : Current Below Normal
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Engine	652-6	Engine Injector Cylinder #02 : Current Above Normal
Engine	652-20	Engine Injector Cylinder #02 : Data Drifted High
Engine	652-21	Engine Injector Cylinder #02 : Data Drifted Low
Engine	653-5	Engine Injector Cylinder #03 : Current Below Normal
Engine	653-6	Engine Injector Cylinder #03 : Current Above Normal
Engine	653-20	Engine Injector Cylinder #03 : Data Drifted High
Engine	653-21	Engine Injector Cylinder #03 : Data Drifted Low
Engine	654-5	Engine Injector Cylinder #04 : Current Below Normal
Engine	654-6	Engine Injector Cylinder #04 : Current Above Normal
Engine	654-20	Engine Injector Cylinder #04 : Data Drifted High
Engine	654-21	Engine Injector Cylinder #04 : Data Drifted Low
Engine	676-5	Engine Glow Plug Relay : Current Below Normal
Engine	676-6	Engine Glow Plug Relay : Current Above Normal
Engine	676-19	Engine Glow Plug Relay : Data Error
Engine	677-3	Engine Starter Motor Relay : Voltage Above Normal
Engine	677-5	Engine Starter Motor Relay : Current Below Normal
Engine	677-6	Engine Starter Motor Relay : Current Above Normal
Engine	723-8	Engine Speed Sensor #2 : Abnormal Frequency, Pulse Width, or Period
Engine	976-2	PTO Governor State : Erratic, Intermittent, or Incorrect
Engine	1041-2	Start Signal Indicator : Erratic, Intermittent, or Incorrect
Engine	1076-2	Engine Fuel Injection Pump Fuel Control Valve : Erratic, Intermittent, or Incorrect
Engine	1076-5	Engine Fuel Injection Pump Fuel Control Valve : Current Below Normal
Engine	1076-6	Engine Fuel Injection Pump Fuel Control Valve : Current Above Normal

Engine	1081-5	Engine Wait to Start Lamp : Current
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		Below Normal
Engine	1081-6	Engine Wait to Start Lamp : Current Above Normal
Engine	1127-16	Engine Turbocharger 1 Boost Pressure : High - moderate severity (2)
Engine	1127-18	Engine Turbocharger 1 Boost Pressure : Low - moderate severity (2)
Engine	1188-5	Engine Turbocharger Wastegate Actuator 1 Position : Current Below Normal
Engine	1188-6	Engine Turbocharger Wastegate Actuator 1 Position : Current Above Normal
Engine	1209-4	Engine Exhaust Gas Pressure : Voltage Below Normal
Engine	1221-2	Continuously Monitored Systems Support/Status ; Erratic, Intermittent, or Incorrect
Engine	1221-14	Continuously Monitored Systems Support/Status : Special Instruction
Engine	1239-0	Engine Fuel Leakage 1 : High - most severe (3)
Engine	1485-7	ECM Main Relay : Not Responding Properly
Engine	1485-14	ECM Main Relay : Special Instruction
Engine	2791-5	Engine Exhaust Gas Recirculation (EGR) Valve Control : Current Below Normal
Engine	2791-6	Engine Exhaust Gas Recirculation (EGR) Valve Control : Current Above Normal
Engine	2791-7	Engine Exhaust Gas Recirculation (EGR) Valve Control : Not Responding Properly
Engine	2797-6	Engine Injector Group 1 : Current Above Normal
Engine	2797-7	Engine Injector Group 1 : Not Responding Properly
Engine	2798-6	Engine Injector Group 2 : Current Above Normal
Engine	2840-12	ECU Instance : Failure
Engine	2840-14	ECU Instance : Special Instruction
Engine	2880-2	Engine Operator Primary Intermediate Speed Select : Erratic, Intermittent, or Incorrect
Engine	2880-3	Engine Operator Primary Intermediate Speed Select : Voltage Above Normal
Engine	2880-4	Engine Operator Primary Intermediate Speed Select : Voltage Below Normal

Engine	2970-2	Accelerator Pedal 2 Low Idle Switch : Erratic, Intermittent, or Incorrect
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Engine	3217-3	Aftertreatment #1 Intake O2 : Voltage Above Normal
Engine	3217-4	Aftertreatment #1 Intake O2 : Voltage Below Normal
Engine	3217-5	Aftertreatment #1 Intake O2 : Current Below Normal
Engine	3217-6	Aftertreatment #1 Intake O2 : Current Above Normal
Engine	3217-12	Aftertreatment #1 Intake O2 : Failure
Engine	3217-13	Aftertreatment #1 Intake O2 : Out of Calibration
Engine	3217-15	Aftertreatment #1 Intake O2 : High - least severe (1)
Engine	3219-15	Aftertreatment #1 Intake Gas Sensor at Temperature : High - least severe (1)
Engine	3219-17	Aftertreatment #1 Intake Gas Sensor at Temperature : Low - least severe (1)
Engine	3222-3	Aftertreatment #1 Intake Gas Sensor Heater : Voltage Above Normal
Engine	3222-4	Aftertreatment #1 Intake Gas Sensor Heater : Voltage Below Normal
Engine	3222-5	Aftertreatment #1 Intake Gas Sensor Heater : Current Below Normal
Engine	3242-3	Particulate Trap Intake Gas Temperature : Voltage Above Normal
Engine	3242-4	Particulate Trap Intake Gas Temperature : Voltage Below Normal
Engine	3251-0	Particulate Trap Differential Pressure : High - most severe (3)
Engine	3251-3	Particulate Trap Differential Pressure : Voltage Above Normal
Engine	3251-4	Particulate Trap Differential Pressure : Voltage Below Normal
Engine	3251-7	Particulate Trap Differential Pressure : Not Responding Properly
Engine	3251-10	Particulate Trap Differential Pressure : Abnormal Rate of Change
Engine	3251-16	Particulate Trap Differential Pressure : High - moderate severity (2)
Engine	3251-17	Particulate Trap Differential Pressure : Low - least severe (1)
Engine	3509-2	Sensor Supply Voltage 1 : Erratic, Intermittent, or Incorrect
Engine	3510-2	Sensor Supply Voltage 2 : Erratic, Intermittent, or Incorrect

Engine	3511-2	Sensor Supply Voltage 3 : Erratic,
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		Intermittent, or Incorrect
Engine	3697-6	Particulate Trap Lamp Command : Current Above Normal
Engine	3698-6	Exhaust System High Temperature Lamp Command : Current Below Normal
Engine	3702-6	Diesel Particulate Filter Active Regeneration Inhibited Status : Current Above Normal
Engine	4765-3	Aftertreatment #1 Diesel Oxidation Catalyst Intake Gas Temperature : Voltage Above Normal
Engine	4765-4	Aftertreatment #1 Diesel Oxidation Catalyst Intake Gas Temperature : Voltage Below Normal
Engine	5055-17	Engine Oil Viscosity : Low - least severe (1)
Engine	5055-18	Engine Oil Viscosity : Low - moderate severity (2)
Engine	5099-6	Engine Oil Pressure Low Lamp Data : Current Above Normal
Engine	5319-31	Aftertreatment 1 Diesel Particulate Filter Incomplete Regeneration
Engine	5324-7	Engine Glow Plug 1 : Not Responding Properly
Engine	5325-7	Engine Glow Plug 2 : Not Responding Properly
Engine	5326-7	Engine Glow Plug 3 : Not Responding Properly
Engine	5327-7	Engine Glow Plug 4 : Not Responding Properly
Engine	5419-5	Engine Throttle Actuator #1 : Current Below Normal
Engine	5419-6	Engine Throttle Actuator #1 : Current Above Normal
Engine	5419-7	Engine Throttle Actuator #1 : Not Responding Properly
Engine	5571-2	High Pressure Common Rail Fuel Pressure Relief Valve : Erratic, Intermittent, or Incorrect
Engine	5571-7	High Pressure Common Rail Fuel Pressure Relief Valve : Not Responding Properly
Engine	5571-10	High Pressure Common Rail Fuel Pressure Relief Valve : Abnormal Rate of Change

Engine	5571-14	High Pressure Common Rail Fuel
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		Pressure Relief Valve : Special Instruction
Engine	5571-16	High Pressure Common Rail Fuel Pressure Relief Valve : High - moderate severity (2)
Engine	5826-16	Emission Control System Operator Inducement Severity : High - moderate severity (2)
Engine	27-3	Engine Exhaust Gas Recirculation Valve Position : Voltage Above Normal
Engine	27-4	Engine Exhaust Gas Recirculation Valve Position : Voltage Below Normal
Engine	102-3	Engine Intake Manifold #1 Pressure : Voltage Above Normal
Engine	102-4	Engine Intake Manifold #1 Pressure : Voltage Below Normal
Engine	102-20	Engine Intake Manifold #1 Pressure : Data Drifted High
Engine	102-21	Engine Intake Manifold #1 Pressure : Data Drifted Low
Engine	105-3	Engine Intake Manifold #1 Temperature : Voltage Above Normal
Engine	105-4	Engine Intake Manifold #1 Temperature : Voltage Below Normal
Engine	108-3	Barometric Pressure : Voltage Above Normal
Engine	108-4	Barometric Pressure : Voltage Below Normal
Engine	157-0	Engine Injector Metering Rail #1 Pressure : High - most severe (3)
Engine	157-2	Engine Injector Metering Rail #1 Pressure : Erratic, Intermittent, or Incorrect
Engine	157-16	Engine Injector Metering Rail #1 Pressure : High - moderate severity (2)
Engine	157-18	Engine Injector Metering Rail #1 Pressure : Low - moderate severity (2)
Engine	173-3	Engine Exhaust Gas Temperature : Voltage Above Normal
Engine	173-4	Engine Exhaust Gas Temperature : Voltage Below Normal
Engine	1076-5	Engine Fuel Injection Pump Fuel Control Valve : Current Below Normal
Engine	1076-6	Engine Fuel Injection Pump Fuel Control Valve : Current Above Normal
Engine	1188-5	Engine Turbocharger Wastegate Actuator 1 Position : Current Below Normal

Engine	1209-3	Engine Exhaust Gas Pressure : Voltage Above Normal
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Engine	1209-4	Engine Exhaust Gas Pressure : Voltage Below Normal
Engine	1239-0	Engine Fuel Leakage 1 : High - most severe (3)
Engine	2791-5	Engine Exhaust Gas Recirculation (EGR) Valve Control : Current Below Normal
Engine	2791-6	Engine Exhaust Gas Recirculation (EGR) Valve Control : Current Above Normal
Engine	2791-7	Engine Exhaust Gas Recirculation (EGR) Valve Control : Not Responding Properly
Engine	3251-3	Particulate Trap Differential Pressure : Voltage Above Normal
Engine	3251-4	Particulate Trap Differential Pressure : Voltage Below Normal
Engine	3251-7	Particulate Trap Differential Pressure : Not Responding Properly
Engine	3251-10	Particulate Trap Differential Pressure : Abnormal Rate of Change
Engine	3251-18	Particulate Trap Differential Pressure : Low - moderate severity (2)
Engine	3509-2	Sensor Supply Voltage 1 : Erratic, Intermittent, or Incorrect
Engine	3510-2	Sensor Supply Voltage 2 : Erratic, Intermittent, or Incorrect
Engine	4765-3	Aftertreatment #1 Diesel Oxidation Catalyst Intake Gas Temperature : Voltage Above Normal
Engine	4765-4	Aftertreatment #1 Diesel Oxidation Catalyst Intake Gas Temperature : Voltage Below Normal
Engine	5319-31	Aftertreatment 1 Diesel Particulate Filter Incomplete Regeneration
Engine	5419-7	Engine Throttle Actuator #1 : Not Responding Properly
Engine	5571-7	High Pressure Common Rail Fuel Pressure Relief Valve : Not Responding Properly
Engine	5571-16	High Pressure Common Rail Fuel Pressure Relief Valve : High - moderate severity (2)