

Electronic Engine Controls - TDV8 3.6L Diesel - Electronic Engine Controls 3.6L (TdV8) Diesel

Diagnosis and Testing

Overview

This section covers the components of the engine management system.

For information on description and operation:

REFER to: Electronic Engine Controls (303-14C, Description and Operation).

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious mechanical or electrical faults.

Visual inspection

Mechanical	Electrical
<ul style="list-style-type: none"> ● Engine oil level ● Cooling system coolant level ● Fuel level/contamination ● Fuel leaks ● Fuel pumps ● Intake air system ● Accessory drive belt ● Sensor fitment/condition ● Viscous fan and solenoid 	<ul style="list-style-type: none"> ● Fuses ● Fuse 1E, engine compartment junction box ● Fuse 6E, engine compartment junction box ● Fuse 19E, engine compartment junction box ● Wiring harness ● Electrical connector(s) ● Injectors ● Glow plugs ● 5 volt sensor supply ● Sensor(s) ● Engine control module (ECM)

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step
4. Use the approved diagnostic system or a scan tool to retrieve any diagnostic trouble codes (DTCs) before moving onto the symptom chart or DTC index.
 - Make sure that all DTCs are cleared following rectification.

Symptom Chart

Symptom	Possible causes	Action
Engine does not crank	<ul style="list-style-type: none"> ● Starter relay output circuit: high resistance ● Starter relay output circuit: short circuit to power ● Starter motor fault ● Ignition switch fault ● CAN fault 	Check the starter relay and circuits. Refer to the electrical guides. Check the ignition switch operation. Check for DTCs indicating a CAN fault.
Engine cranks, but does not start	<ul style="list-style-type: none"> ● Inertia fuel shutoff switch ● Main ECM relay fault ● Low/Contaminated fuel ● Air leakage ● Low-pressure fuel system fault ● Fuel pump module (lift pump) fault ● Blocked fuel filter ● Fuel volume regulator blocked/contaminated ● Fuel pressure control valve blocked/contaminated ● Fuel pump fault ● Crankshaft position (CKP) sensor 	Check that the inertia switch has not tripped. Check the main ECM relay and circuits, refer to the electrical guides. Check the fuel level and condition. Draw off approximately 1 ltr (2.11 pints) of fuel and allow to stand for 1 minute. Check to make sure there is no separation of the fuel indicating water or other liquid in the fuel. Check the intake air system for leaks. Check the lift pump operation, check the low-pressure fuel system for leaks/damage. Check the fuel filter, check for DTCs indicating a fuel volume or pressure control valve fault. Check the fuel pump. Check the CKP sensor circuits. Refer to the electrical guides.
Difficult to start	<ul style="list-style-type: none"> ● Glow plug system fault (very cold conditions) ● Low/Contaminated fuel ● Air leakage ● Fuel pump module (lift pump) fault ● Low-pressure fuel system fault ● Blocked fuel filter ● Fuel volume control valve 	Check the glow plug circuits. Refer to the electrical guides. Check the fuel level/condition. Draw off approximately 1 ltr (2.11 pints) of fuel and allow to stand for 1 minute. Check to make sure there is no separation of the fuel indicating water or other liquid in the fuel. Check the intake air system for leaks. Check the lift pump operation, check the low-pressure fuel system for leaks/damage. Check the fuel filter, check for DTCs indicating a fuel volume or pressure control valve fault.

Symptom	Possible causes	Action
	blocked/contaminated ● Fuel pressure control valve blocked/contaminated ● Exhaust gas recirculation (EGR) valve(s) fault	
Rough idle	● Intake air system fault ● Low/Contaminated fuel ● Low-pressure fuel system fault ● Blocked fuel filter ● Fuel volume control valve blocked/contaminated ● Fuel pressure control valve blocked/contaminated ● Exhaust gas recirculation (EGR) valve(s) fault	Check the intake air system for leaks. Check the fuel level/condition. Draw off approximately 1 ltr (2.11 pints) of fuel and allow to stand for 1 minute. Check to make sure there is no separation of the fuel indicating water or other liquid in the fuel. Check the low-pressure fuel system for leaks/damage. Check the fuel filter, check for DTCs indicating a fuel volume or pressure control valve fault.
Lack of power when accelerating	● Intake air system fault ● Restricted exhaust system ● Low fuel pressure ● Exhaust gas recirculation (EGR) valve(s) fault ● Turbocharger actuator fault	Check the intake air system for leakage or restriction. Check for a blockage/restriction in the exhaust system, install new components as necessary. Check for DTCs indicating a fuel pressure fault.
Engine stops/stalls	● Air leakage ● Low/Contaminated fuel ● Low-pressure fuel system fault ● High pressure fuel leak ● Fuel volume control valve blocked/contaminated ● Fuel pressure control valve blocked/contaminated ● Exhaust gas recirculation (EGR) valve fault	Check the intake air system for leaks. Check the fuel level/condition. Draw off approximately 1 ltr (2.11 pints) of fuel and allow to stand for 1 minute. Check to make sure there is no separation of the fuel indicating water or other liquid in the fuel. Check the fuel system for leaks/damage: Check for DTCs indicating a fuel volume or pressure control valve fault.
Engine judders	● Low/Contaminated fuel ● Air ingress ● Low-pressure fuel system fault ● Fuel metering valve blocked/contaminated ● Fuel volume control valve blocked/contaminated ● Fuel pressure control valve blocked/contaminated ● High pressure fuel leak ● Fuel pump fault	Check the fuel level/condition. Draw off approximately 1 ltr (2.11 pints) of fuel and allow to stand for 1 minute. Check to make sure there is no separation of the fuel indicating water or other liquid in the fuel. Check the intake air system for leaks. Check the low-pressure fuel system for leaks/damage. Check the high pressure fuel system for leaks, check for DTCs indicating a fuel volume or pressure control valve fault. Check the fuel pump.
Excessive fuel consumption	● Low-pressure fuel system fault ● Fuel volume control valve blocked/contaminated ● Fuel pressure control valve blocked/contaminated ● Fuel temperature sensor leak ● High pressure fuel leak ● Injector(s) fault ● Exhaust gas recirculation (EGR) valve(s) fault	Check the low-pressure fuel system for leaks/damage. Check for DTCs indicating a fuel volume or pressure control valve fault. Check the fuel temperature sensor, fuel pump, etc for leaks. Check for injector DTCs.

DTC index

NOTE: Generic scan tools may not read the codes listed, or may read only 5-digit codes. Match the 5 digits from the scan tool to the first 5 digits of the 7-digit code listed to identify the fault (the last 2 digits give extra information read by the

manufacturer-approved diagnostic system).

DTC	Description	Possible Causes	Action
B10A2-31	Crash Input - No signal	<ul style="list-style-type: none"> No signal Inertia switch open circuit 	<ul style="list-style-type: none"> Check the crash inertia switch. Refer to the electrical circuit diagrams and check the inertia switch circuit
B10A2-36	Crash Input - Signal frequency too low	<ul style="list-style-type: none"> The engine control module detected excessive duration for one cycle of the output across a specified sample size Signal frequency too low Inertia switch low 	<ul style="list-style-type: none"> Check the crash inertia switch. Refer to the electrical circuit diagrams and check the inertia switch circuit
B10A2-37	Crash Input - Signal frequency too high	<ul style="list-style-type: none"> Signal frequency too high Inertia switch high 	<ul style="list-style-type: none"> Check the crash inertia switch. Refer to the electrical circuit diagrams and check the inertia switch circuit
B10A2-39	Crash Input - Incorrect has too few pulses	<ul style="list-style-type: none"> Incorrect signal, has too few pulses 	<ul style="list-style-type: none"> Check the crash inertia switch. Refer to the electrical circuit diagrams and check the inertia switch circuit
B10A2-3A	Crash Input - Incorrect has too many pulses	<ul style="list-style-type: none"> Incorrect signal, has too many pulses 	<ul style="list-style-type: none"> Check the crash inertia switch. Refer to the electrical circuit diagrams and check the inertia switch circuit
B10AC-3A	Cruise Control Switch - Incorrect has too many pulses	<ul style="list-style-type: none"> Speed control switch circuit, open circuit, short circuit to power, short circuit to ground, disconnected Harness fault - speed control circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the speed control switch circuit for open circuit, short circuit to power, short circuit to ground, disconnected Check speed control buttons are not jammed, contaminated or damaged Check speed control module for related DTCs and refer to the relevant DTC index
B10AC-81	Cruise Control Switch - Invalid serial data received	<ul style="list-style-type: none"> The DTC sets whenever the speed control buttons have been pressed for longer than a calibrated period of time. The system then assumes a stuck or damaged button and will cancel and or disable cruise Speed control steering wheel switch connector is disconnected Steering wheel module is not powered Rotary coupler failure Harness fault - speed control circuit Harness fault - CAN circuit 	<ul style="list-style-type: none"> Check speed control buttons are not jammed, contaminated or damaged Check speed control module for related DTCs and refer to the relevant DTC index Check speed control steering wheel switch connector is not disconnected and the switch operates correctly Refer to the electrical circuit diagrams and check steering wheel module power and ground circuits Check rotary coupler connector is not disconnected and operates correctly Refer to the electrical circuit diagrams and check speed control circuit. Repair wiring harness as required Refer to the electrical circuit diagrams and check CAN circuit. Repair wiring harness as required
B10AC-82	Cruise Control Switch - Alive / sequence counter incorrect / not updated	<ul style="list-style-type: none"> Speed control buttons CAN signal alive counter is not incrementing LIN bus failure Steering wheel module is not powered Steering wheel module is not connected Rotary coupler failure Harness fault - speed control circuit Steering wheel module failure 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the speed control switch circuit for open circuit, short circuit to power, short circuit to ground, disconnected Refer to the electrical circuit diagrams and check the LIN bus between steering wheel module and the CAN gateway Check and install a new steering wheel module as required Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
B10AC-83	Cruise Control Switch - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> Incorrect steering wheel module or speed control switch pack is installed Harness fault - CAN circuit 	<ul style="list-style-type: none"> Check correct steering wheel module and speed control switch pack is installed Check the engine control module for related DTCs and refer to the relevant DTC index Refer to the electrical circuit diagrams and check CAN circuit. Repair wiring harness as required
P0001-13	Fuel Volume Regulator Control Circuit / Open - Circuit open	<ul style="list-style-type: none"> Fuel volume control valve circuit high resistance Fuel volume control valve circuit open circuit 	<p>NOTE: An open circuit will prevent the engine from running</p> <ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the fuel volume control valve and

DTC	Description	Possible Causes	Action
		<ul style="list-style-type: none"> Fuel volume control valve failure 	<p>circuits. Check the resistance of the valve and install a new high pressure fuel pump if the resistance is not between 1.5 and 15 Ohms (the fuel volume control valve cannot be serviced separately). Clear DTC and retest. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component</p>
P0003-11	Fuel Volume Regulator Control Circuit Low - Circuit short to ground	<ul style="list-style-type: none"> Fuel volume control valve circuit short circuit to ground Fuel volume control valve failure 	<p>NOTE: An open circuit will prevent the engine from running.</p> <ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the fuel volume control valve and circuits. Check the resistance of the valve and install a new high pressure fuel pump if the resistance is not between 1.5 and 15 Ohms (the fuel volume control valve cannot be serviced separately). Clear DTC and retest
P0003-19	Fuel Volume Regulator Control Circuit Low - Circuit current above threshold	<ul style="list-style-type: none"> Fuel volume control valve circuit short circuit to ground Fuel volume control valve failure 	<p>NOTE: An open circuit will prevent the engine from running.</p> <ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the fuel volume control valve and circuits. Check the resistance of the valve and install a new high pressure fuel pump if the resistance is not between 1.5 and 15 Ohms (the fuel volume control valve cannot be serviced separately). Clear DTC and retest. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P0004-12	Fuel Volume Regulator Control Circuit High - Circuit short to battery	<ul style="list-style-type: none"> Fuel volume control valve circuit short circuit to power Fuel volume control valve failure 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the fuel volume control valve and circuits. Check the resistance of the valve and install a new high pressure fuel pump if the resistance is not between 1.5 and 15 Ohms (the fuel volume control valve cannot be serviced separately). Clear DTC and retest. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P000E-21	Fuel Volume Regulator Control Exceeded Learning Limit - Signal amplitude < minimum	<ul style="list-style-type: none"> Fuel volume control valve amplitude is less than the minimum specified 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the fuel volume control valve and circuits. Check the resistance of the valve and install a new high pressure fuel pump if the resistance is not between 1.5 and 15 Ohms (the fuel volume control valve cannot be serviced separately). Clear DTC and retest
P000E-22	Fuel Volume Regulator Control Exceeded Learning Limit - Signal amplitude > maximum	<ul style="list-style-type: none"> Fuel volume control valve amplitude is greater than the maximum specified 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the fuel volume control valve and circuits. Check the resistance of the valve and install a new high pressure fuel pump if the resistance is not between 1.5 and 15 Ohms (the fuel volume control valve cannot be serviced separately). Clear DTC and retest
P0047-11	Turbocharger/Supercharger Boost Control A Circuit Low - Circuit short to ground	<ul style="list-style-type: none"> Turbocharger control circuit short circuit to ground 	<ul style="list-style-type: none"> Check the right turbocharger and circuits. Refer to the electrical circuit diagrams. Repair or renew as required. Clear DTC and retest
P0048-12	Turbocharger/Supercharger Boost Control A Circuit High - Circuit short to battery	<ul style="list-style-type: none"> Turbocharger control circuit short circuit to power 	<ul style="list-style-type: none"> Check the right turbocharger and circuits. Refer to the electrical circuit diagrams. Repair or renew as required. Clear DTC and retest
P004C-11	Turbocharger/Supercharger Boost Control B Circuit Low - Circuit short to ground	<ul style="list-style-type: none"> Left turbocharger control circuit short circuit to ground 	<ul style="list-style-type: none"> Check the left turbocharger and circuits. Refer to the electrical circuit diagrams. Repair or renew as required. Clear DTC and retest

DTC	Description	Possible Causes	Action
P004D-11	Turbocharger/Supercharger Boost Control B Circuit High - Circuit short to ground	<ul style="list-style-type: none"> Left turbocharger control circuit short circuit to power 	<ul style="list-style-type: none"> Check the left turbocharger and circuits. Refer to the electrical circuit diagrams. Repair or renew as required. Clear DTC and retest
P004D-12	Turbocharger/Supercharger Boost Control B Circuit High - Circuit short to battery	<p>NOTE: - Circuit VGT_B_POS VGT_B_NEG -</p> <ul style="list-style-type: none"> Variable geometry turbocharger actuator vane circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check variable geometry turbocharger actuator vane circuit for short circuit to power
P006A-21	MAP - Mass or Volume Air Flow Correlation - Signal amplitude < minimum	<ul style="list-style-type: none"> Mass or volume air flow correlation - signal amplitude less than minimum Air leakage in the intake path between the turbocharger and the engine 	<ul style="list-style-type: none"> Using the manufacturer approved diagnostic system perform the (Turbo, exhaust gas recirculation and air path dynamic test) routine Check for related DTCs and refer to the relevant DTC index Check the intake air system for leakage after the turbocharger Clear DTC and retest
P006A-22	MAP - Mass or Volume Air Flow Correlation - Signal amplitude > maximum	<ul style="list-style-type: none"> Mass or volume air flow correlation right bank - signal amplitude greater than maximum Oil ingress into the intake manifold Manifold absolute sensor and temperature sensor circuit failure Manifold absolute pressure and temperature sensor failure Mass air flow sensor failure Turbocharger failure 	<ul style="list-style-type: none"> With the engine at idle, check the manifold air pressure and indicated torque set points using a data logger function. If the manifold air pressure is greater than 140 KPa (20.31lbs/in²) or the torque less than 70Nm (51.63lbf/ft), check for oil being drawn into the intake manifold. Repair or renew as required. Clear DTC and retest. Stop the engine and turn the ignition on. Using a data logger function, monitor the turbocharger actuator angles. Command the actuator to 5% pulse width modulated then to 95% pulse width modulated and check the angle values. The angle at 5% pulse width modulated should be 0 - 20%, and at 95% 80 - 95%. If the values are inside this range, check and install a new mass air flow sensor. Refer to the relevant section of the workshop manual. If the values are outside this range, check and install a new turbocharger. Clear DTC and retest Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P0071-16	Ambient Air Temperature sensor Range / Performance - Circuit voltage below threshold	<p>NOTE: - Circuit TAMB+VE -</p> <ul style="list-style-type: none"> The engine control module measured a voltage below a specified range but not necessarily a short circuit to ground Ambient air temperature sensor circuit, short circuit to ground, open circuit, high resistance Ambient air temperature sensor failure 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the ambient air temperature sensor circuit for short circuit to ground, open circuit, high resistance Check and install a new ambient air temperature sensor as required. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P0071-17	Ambient Air Temperature sensor Range / Performance - Circuit voltage above threshold	<p>NOTE: - Circuit TAMB+VE -</p> <ul style="list-style-type: none"> The engine control module measured a voltage above a specified range but not necessarily a short circuit to power Ambient air temperature sensor circuit, short circuit to power, open circuit, high resistance Ambient air temperature sensor failure 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the ambient air temperature sensor circuit for short circuit to power, open circuit, high resistance Check and install a new ambient air temperature sensor as required. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P0072-16	Ambient Air Temperature Sensor Circuit Low - Circuit voltage below threshold	<p>NOTE: - Circuit TAMB+VE -</p> <ul style="list-style-type: none"> The engine control module measured a voltage below a 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the ambient air temperature sensor circuit for short circuit to ground Check and install a new ambient air temperature sensor as required. Refer to the

DTC	Description	Possible Causes	Action
		<p>specified range but not necessarily a short circuit to ground</p> <ul style="list-style-type: none"> ● Ambient air temperature sensor circuit, short circuit to ground ● Ambient air temperature sensor failure 	<p>warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component</p>
P0073-17	Ambient Air Temperature Sensor Circuit High - Circuit voltage above threshold	<p>NOTE: - Circuit TAMB+VE -</p> <ul style="list-style-type: none"> ● The engine control module measured a voltage above a specified range but not necessarily a short circuit to power ● Ambient air temperature sensor circuit, short circuit to power ● Ambient air temperature sensor failure 	<ul style="list-style-type: none"> ● Refer to the electrical circuit diagrams and check the ambient air temperature sensor circuit for short circuit to power ● Check and install a new ambient air temperature sensor as required. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P007C-16	Charge Air Cooler Temperature Sensor Circuit Low (Bank 1) - Circuit voltage below threshold	<p>NOTE: - Circuit ACT-A -</p> <ul style="list-style-type: none"> ● The engine control module measured a voltage below a specified range but not necessarily a short circuit to ground ● Temperature and manifold absolute pressure sensor circuit, short circuit to ground ● Temperature and manifold absolute pressure sensor failure 	<ul style="list-style-type: none"> ● Refer to the electrical circuit diagrams and check the temperature and manifold absolute pressure sensor circuit for short circuit to ground ● Check the resistance of the temperature sensor between pins 1 and 4 ● Nominal resistance at 20°C (68°F) should be 2.5K Ohms ● Check and install a new temperature and manifold absolute pressure sensor as required ● Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P007D-17	Charge Air Cooler Temperature Sensor Circuit High (Bank 1) - Circuit voltage above threshold	<p>NOTE: - Circuit ACT-A -</p> <ul style="list-style-type: none"> ● The engine control module measured a voltage above a specified range but not necessarily a short circuit to power ● Temperature and manifold absolute pressure sensor circuit, short circuit to power, open circuit ● Temperature and manifold absolute pressure sensor failure 	<ul style="list-style-type: none"> ● Refer to the electrical circuit diagrams and check the temperature and manifold absolute pressure sensor circuit for short circuit to power, open circuit ● Check the resistance of the temperature sensor between pins 1 and 4 ● Nominal resistance at 20°C (68°F) should be 2.5K Ohms ● Check and install a new temperature and manifold absolute pressure sensor as required ● Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P007E-27	Charge Air Cooler Temperature Sensor Circuit Intermittent/Erratic (Bank 1) - Signal rate of change above threshold	<ul style="list-style-type: none"> ● Right charge air temperature sensor circuit high resistance (the charge air temperature sensor is part of the manifold absolute pressure and temperature sensor) ● Charge air temperature sensor circuit short circuit to ground ● Charge air temperature sensor circuit short circuit to power ● Manifold absolute pressure and temperature sensor failure 	<ul style="list-style-type: none"> ● Check the right manifold absolute pressure and temperature sensor and circuits. Refer to the electrical circuit diagrams. With the engine running and at operating temperature, check the charge air temperature using a data logger function. Record the measurement at idle and increase the engine speed to 3,000 rpm. Record the reading and compare with the idle figure. If the value has increased by more than 20°C in 100 ms, check and install a new sensor. Refer to the relevant section of the workshop manual. Clear DTC and retest ● Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P007F-62	Charge Air Cooler Temperature Sensor Bank ½ Correlation - Signal compare failure	<p>NOTE: Plausibility check of temperature and manifold absolute pressure sensor(s) between banks</p> <ul style="list-style-type: none"> ● Intake air system fault between the sensor(s) and the engine ● Temperature and 	<ul style="list-style-type: none"> ● Check the intake air system for mechanical faults, leakage. With the engine running and at operating temperature, check both temperature and manifold absolute pressure sensor temperatures using a data logger function. Record the measurements at idle and increase the engine speed to 3,000 rpm. Record the readings and compare with the idle figures. If the values have changed by

DTC	Description	Possible Causes	Action
		manifold absolute pressure sensor circuit short circuit to ground, short circuit to power, open circuit, high resistance <ul style="list-style-type: none"> ● Temperature and manifold absolute pressure sensor failure 	more than 30°C higher or lower and there are no other DTCs set, check and install new temperature and manifold absolute pressure sensor(s) as required <ul style="list-style-type: none"> ● Clear DTC and retest ● Refer to the electrical circuit diagrams and check temperature and manifold absolute pressure sensor circuit for short circuit to ground, short circuit to power, open circuit, high resistance
P0087-00	Fuel Rail/System Pressure Too Low - No sub type information	<ul style="list-style-type: none"> ● Fuel rail pressure sensor disconnected ● Fuel rail pressure sensor to Engine control module sensing circuit short circuit to ground ● Fuel rail pressure sensor supply circuit high resistance ● Fuel rail pressure sensor failure ● Fuel line leak ● Restricted fuel line ● Fuel pump module circuit high resistance ● Fuel pump module circuit short circuit to ground ● Fuel pump module failure ● Volume control valve failure ● Pressure control valve failure 	<ul style="list-style-type: none"> ● Refer to the electrical circuit diagrams and check the fuel rail pressure sensor circuits. For fuel rail pressure sensor tests, refer to the relevant workshop manual section. Check the low pressure fuel lines for damage or restrictions. Check the fuel pressure. Check the low pressure fuel pump module circuits and operation. Check for fuel rail and high pressure fuel line leaks. Check for volume and pressure control valve DTCs and rectify as required
P0087-72	Fuel Rail/System Pressure Too Low - Actuator stuck open	<ul style="list-style-type: none"> ● Pressure control valve failure 	<ul style="list-style-type: none"> ● Refer to the electrical circuit diagrams and check the pressure control valve actuator circuits and rectify as required. Check the resistance of the fuel pressure control valve. If the resistance is not between 0 and 5.4 Ohms, check and install a new high pressure fuel pump (the fuel pressure control valve cannot be serviced separately). Refer to the relevant section of the workshop manual. Clear DTC and retest. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
P0088-00	Fuel Rail/System Pressure Too High - No sub type information	<ul style="list-style-type: none"> ● Fuel rail pressure sensor to Engine control module wiring (supply/sense) short circuit to each other ● Fuel rail pressure sensor to engine control module sense circuit short circuit to power ● Fuel rail pressure sensor failure ● Fuel pressure control valve failure ● Fuel pump module circuit short circuit to power ● Fuel pump module failure 	<ul style="list-style-type: none"> ● Check the fuel rail pressure sensor circuits. Refer to the electrical circuit diagrams. For fuel rail pressure sensor tests, refer to the relevant workshop manual section. Check the fuel lines, check the fuel pressure and the fuel pump module circuits
P0088-73	Fuel Rail/System Pressure Too High - Actuator stuck closed	<ul style="list-style-type: none"> ● Fuel pressure control valve stuck closed 	<ul style="list-style-type: none"> ● Refer to the electrical circuit diagrams and check the pressure control valve actuator circuits and rectify as required. Check the resistance of the fuel pressure control valve. If the resistance is not between 0 and 5.4 Ohms, check and install a new high pressure fuel pump (the fuel pressure control valve cannot be serviced separately). Refer to the relevant section of the workshop manual. Clear DTC and retest. Refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component

