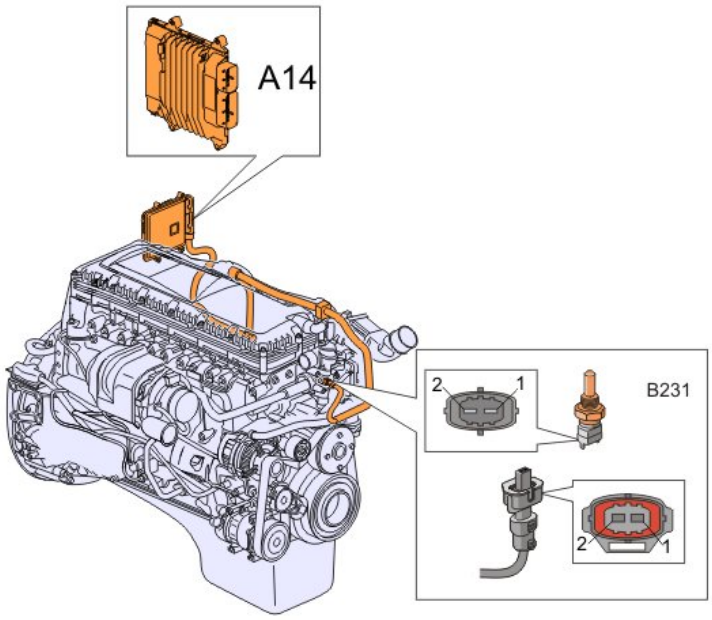
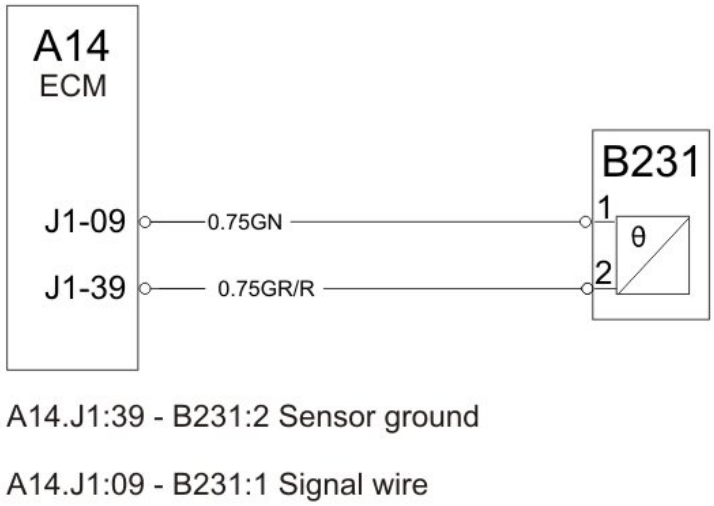
P0217 - Engine Coolant Over Temperature Condition

B231: Engine coolant temperature sensor.	Schematics:
	

Fault type	Condition for Fault	Observable Symptoms	Possible cause	
P0217 FTB 00	Temperature too high.	High derate with potential engine shutdown.	• Extreme driving conditions. • Coolant thermostat. • Engine cooling fan. • Radiator.	• Engine cooling system. • Coolant pump. • Cylinder head. • Oil cooler.

Information:

The following test(s) will be performed in sequence:

- Engine coolant level, check.
- Engine coolant, Oil contamination, check.
- Carbon monoxide in coolant, check.
- Engine oil quality, check.

The results from the tests will determine the continued fault tracing procedure.

Test instruction:

Purpose:	Action:	Evaluation:
Check engine coolant level.	Make sure that the coolant level is within the markings on the expansion tank.	• Leakage can be suspected if coolant needs to be refilled more often than normal. • Loss of coolant may show as white smoke since coolant can enter inlet and exhaust channels. • Low coolant level can cause high coolant temperatures
Coolant check	Check if the coolant is contaminated.	Check if there is oil in the coolant.
Check the cooling system for exhaust leakage.	Prepare the carbon monoxide tester per instructions • Open the filler cap of the expansion tank. • Hold the meter (9808038) over the filler port and draw in air into the meter. *Note: Fluid must not be drawn in to the tool since it destroys the indication fluid.*	• The indication fluid will change colour from blue-green to yellow if there is carbon monoxide in the tested fluid. • The indication of carbon monoxide shows that exhaust fumes leak into the system.

Check the oil.	Pull out the dipstick and check the colour.	• If the oil is not contaminated it should be black. • If coolant or water has leaked into the oil it will foam and be greyish. • If the dipstick shows increased level it may indicate that there is coolant in the oil.
Check that the oil cooler is free from leakage.	• Remove the oil cooler. • Check if there are residue on both the oil and the coolant side of the oil cooler. • Check the surfaces on the oil cooler cover and oil cooler for scratches that can cause leakage. • Pressure test oil cooler.	None.

Purpose:	Action:	Evaluation:
Check if the cylinder head & gasket is free from damage or cracks.	1. Loosen the component. 2. Pressure test the cylinder head.	• Damage to the cylinder head can result in low compression. • Damage to the cylinder head can result in exhaust leakage into the cooling system. • Damage to the cylinder head can result in oil leakage into the combustion chamber. • Damage to the cylinder head can result in coolant leakage into the combustion chamber. • Damages to the cylinder head can cause combustion gas leakage into the fuel system. • Excessive wear or damage to this component can cause engine oil contamination due to internal leakage.
Check that the cylinder liner is free from damages.	Remove the cylinder liner.	• Damage on the cylinder lining may result in low compression. • Damage on the cylinder lining will result in exhaust fumes entering the cooling system. • Damage on the cylinder liner will result in oil entering the combustion chamber. • Damage on the cylinder liner will result in coolant entering the combustion chamber. • Excessive wear or damage to this component can cause engine oil contamination due to internal leakage.

Connect TECHTOOL to the vehicle and execute the ***21006-3 Cylinder compression*** operation.

Verification:

Purpose:	Conditions:	Evaluation:
Verification.	• Run the engine for 40 seconds. • Perform a test drive(<= 30 min).	• If the fault code is not set during the verification the fault may be corrected. • The status of the diagnostic process in the control unit can not be tested without communication with the vehicle. • The fault code may appear later when the vehicle has been returned to service.