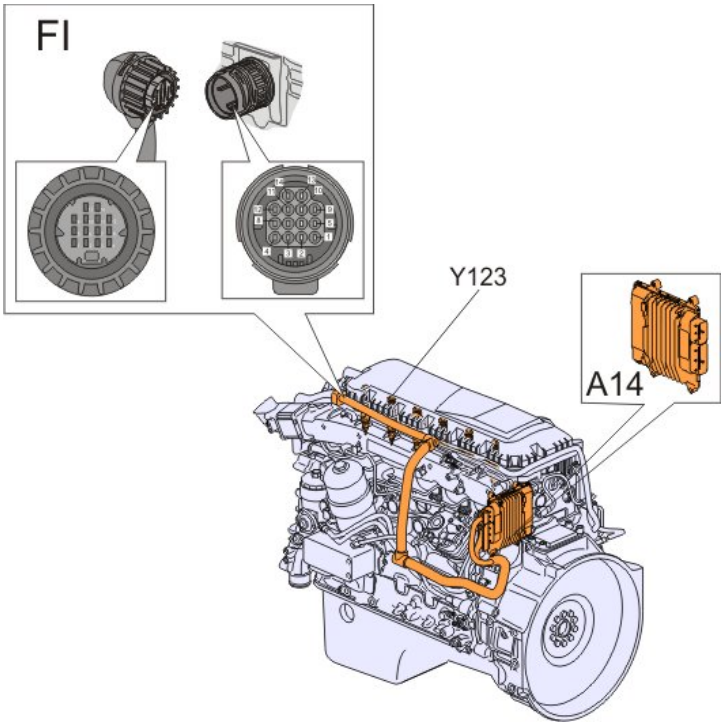
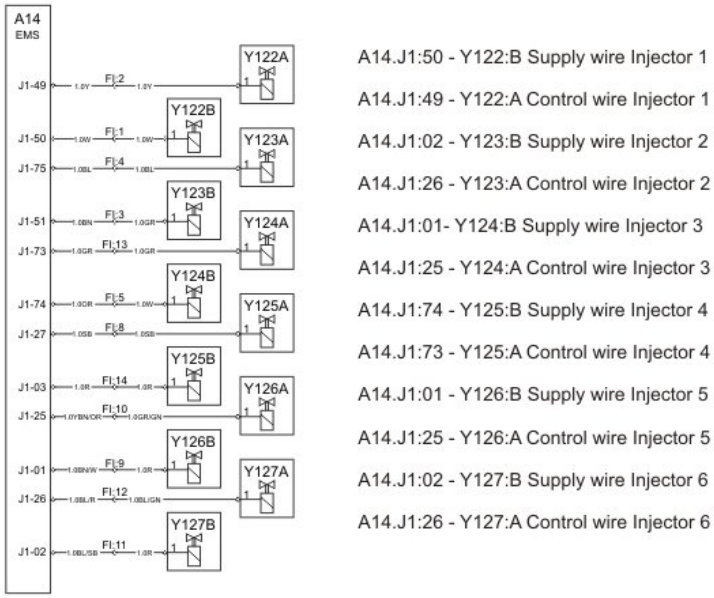
P02CF - Cylinder 2 Fuel Injector Offset Learning at Max Limit

Y123: Injector.	Schematics:
	

Fault type	Condition for Fault	Observable Symptoms	Possible cause
P02CF FTB 00	• Injector activated. • Cylinder balancing data too high	• Low power. • Abnormal noise. • Uneven operation.	• Injector. • Camshaft • Low compression.

Connect the TECHTOOL and execute the operation ***23016-3 Cylinder balancing***

Note: If the above test does not works as expected then test the ***21006-3 Cylinder compression*** *operation.*

Or If the test is ok continue with the operation ***23712 — 3 injectors shut off, manual***

Note: If all above operations passes , carry out the test mentioned below:

Carbon monoxide in coolant check:

Purpose:	Action:	Evaluation:
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 for coolant leakage. • Compressor, function and leakage check	• Drain the coolant until the expansion tank is empty. • Air drier, check	Leakage can be suspected if coolant needs to be refilled more often than normal.

Carbon monoxide in fuel system, check:

Purpose:	Action:	Evaluation:
Check if there are combustion gases entering the fuel system.	Prepare the carbon monoxide tester per instructions. • Open the fuel tank cap. • Hold the meter (9808038) over the filler port and draw in air into the meter.	• The indication fluid will change colour from blue-green to yellow if there is carbon monoxide in the tested fluid. • If there is carbon monoxide in the fuel, it means that combustion gases leaks

	• Perform the test when the engine is running or directly after the engine has been turned off. *Note: Fluid must not be drawn in to the tool since it destroys the indication fluid.*	into the fuel system

Fuel quality check:

Purpose:	Action:	Evaluation:
• Check that the water separator is free from residue. • Check that the fuel is of good quality.	1. Place a container under the vehicle to avoid fluid spillage. 2. Loosen the water separator bowl under the pre-filter. 3. Smell and look to try to determine if the fuel quality is normal. 4. Check that the water separator is free from residue. 5. Prime the fuel system with the hand pump after the test is finished.	• Water in the fuel can lead to engine failure. • Poor fuel quality can lead to deteriorated combustion and starting problems. • Water and other contaminants in the fuel can damage the injectors.
Note: Some debris can only be seen by draining and removing the component Check that the fuel tank is free from rubbish and other contaminants.	Check inside the fuel tank to see if there is anything that might affect the fuel quality or fuel pressure.	Fuel contamination can affect the fuel quality or fuel pressure.
Check the fuel level sensor.	1. Remove the component. 2. Perform a visual check. 3. Check that the component is not blocked.	The suction strainer shall not be plugged or restricted.

Air in the fuel system, check:

Purpose:	Action:	Evaluation:
Check for leakage that can cause air in the fuel system.	• Remove the return line on the fuel tank. • Plug the return line. • Remove the supply line from the fuel tank. • Connect 88800175 Kit on the supply line connection. • Attach the pressure gauge to the fuel hose and connect the pressure gauge to the pneumatic system in the workshop. • Check that the reduction valve on the pressure gauge and the shut-off valve are open. • Pressure test the fuel system. • Build up the pressure to 200 kPa (29 psi). • Apply soapy water to the lines and connections. *Note: In order to discover an air leak, it is important that all connections and hoses are covered in soapy water.*	Air in the fuel system • Leakage in fuel hoses and connections can cause air in the fuel system. • Air in the fuel can cause starting problems.

Miscellaneous:

Caution
Protect your eyes. Remove the line carefully, since fuel will be ejected.

- Close the shut-off valve on the pressure gauge.
- Close the reduction valve to decrease the pressure.
- Do not remove the hose until the pressure is 0 kPa.

Parameter codes, injector, check:

Connect the TECHTOOL to the vehicle and run the operation ***17030-3 Parameter, programming***

Valve adjustment:

Purpose:	Action:	Evaluation:
Check and adjustment of valve clearance, inlet and	Check whether the valves need adjustment or	• Incorrectly adjusted valves can cause a number of

exhaust valves.	replacement.	symptoms. • Incorrectly adjusted engine brake can cause weak engine braking effect.

Injector tip, check:

Purpose:	Action:	Evaluation:
Visual inspection.	Remove Injector 1.	• Perform a visual inspection of the injector tip. • Check for damaged spray holes & cracks.

Verification:

Purpose:	Action:	Evaluation:
Verification.	• Ignition key in OFF position. • Wait 5 seconds. • Ignition key in ON position. • Run the engine for 30 seconds.	• 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.