CASE CONSTRUCTION

SERVICE MANUAL

ENGINES NEF

Tier 3
F4CE9484, F4CE9684, F4DE9484, F4DE9684, F4DE9687, F4GE9484, F4GE9684, F4HE9484, F4HE9684

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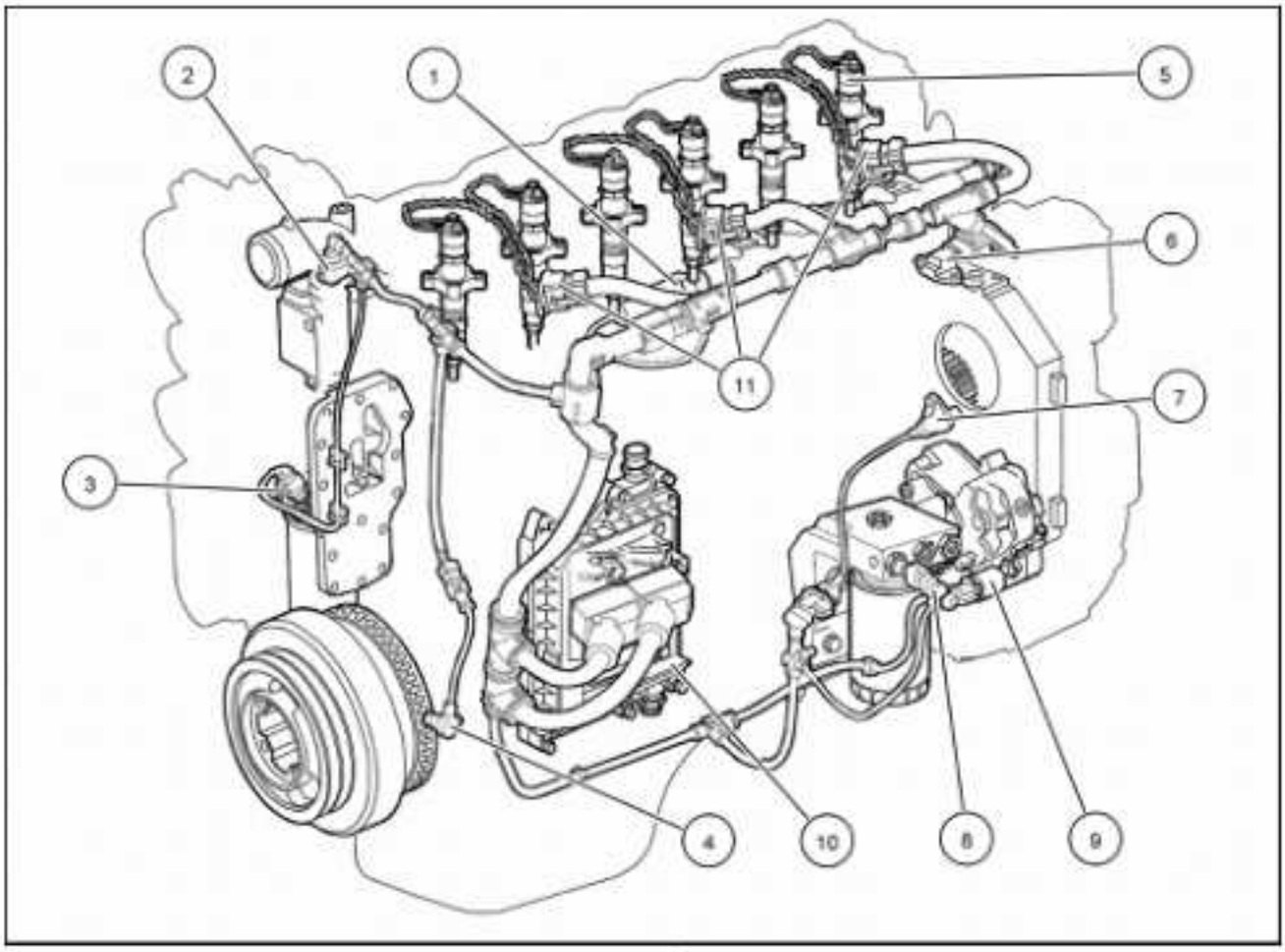
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General Specifications		
Engine Type	4 Cylinders	6 Cylinders
Cycle	Four-Stroke diesel engine	
Power	Turbocharged with intercooler	
Injection	Direct	
Number of cylinders	4	6
Bore	**104 mm (4 in)**	
Stroke	**132 mm (5 in)**	
Total Displacement	**4485 cm³**	**6728 cm³**
Timing		
Start before T.D.C.	**18.5 °**	
End after B.D.C.	**29.5 °**	
Start before B.D.C.	**67 °**	
End after T.D.C.	**35 °**	
Valve Clearance		
Intake	**0.20 - 0.30 mm (0.008 - 0.012 in)**	
Exhaust	**0.45 - 0.55 mm (0.018 - 0.022 in)**	
Fuel Feed		
Injection Type	Bosch high pressure common rail	
Control	EDC7 ECU	
Injector	CRIU 2	
Nozzle Type	DSLA and DLLA	
Injection Sequence	1-3-4-2	1-5-3-6-2-4
Injection pressure	**250 - 1600 bar (3625 - 23200 psi)**	
Aspiration		
Turbocharging	Intercooled	
Turbocharger Type	Holset HX35	
Lubrication		
Oil Pressure @ Low Idle	**0.7 bar (10 psi)**	
Oil Pressure @ Fast Idle	**3.5 bar (51 psi)**	
Oil Pan Capacity	**15 l (15.85 US qt)**	
Oil Filter Capacity	**1 l (1.06 US qt)**	
Cooling		
Water Pump	Belt Driven	
Thermostat	**79 - 83 °C (174 - 181 °F)**	

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Wiring harness - Disconnect

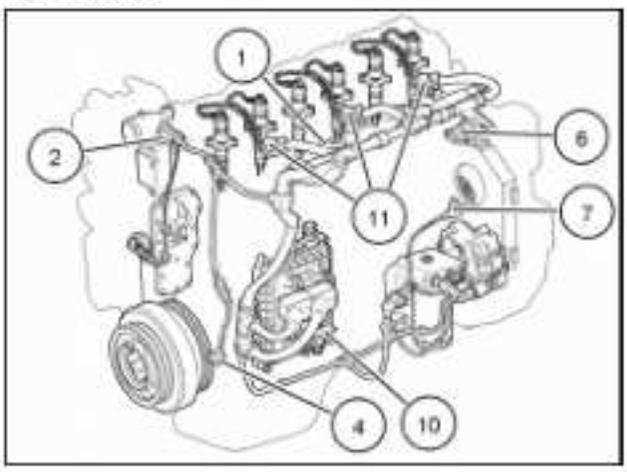
F4HE9484, F4HE9684



HARNESS 1

(1) Fuel Pressure Sensor - (2) Coolant Temperature Sensor - (3) Engine Oil Temperature Sensor - (4) Crankshaft Speed Sensor - (5) Electro-Injector - (6) Air Pressure/Temperature Sensor - (7) Timing Sensor - (8) Fuel Temperater Sensor - (9) Fuel Pressure Regulator - (10) EDC 7 Electronic Control Unit - (11) Connectors for Electro-Injectors

1. Disconnect the engine's cable from the connectors wiring harness to Electro-Injectors **(11)**; Air Pressure/Temperature Sensor; **(6)** Fuel Pressure Sensor **(1)**; Engine Control Module **(10)**; Timing Sensor **(7)**; Coolant Temperature Sensor **(2)**; Crankshaft Speed Sensor **(4)**.



HARNESS 2

Next operation:
Wiring harness - Connect (B.10.A)

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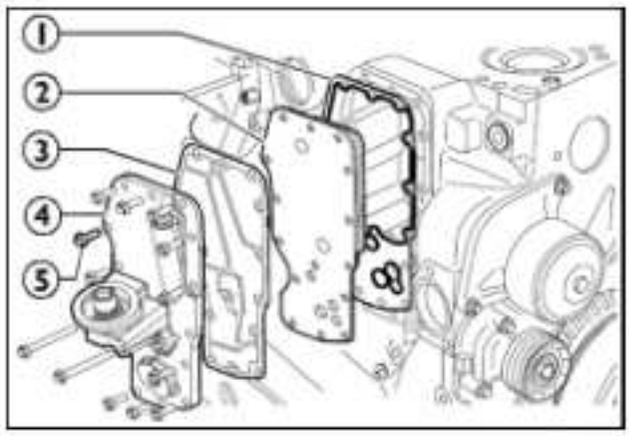
Oil cooler - Install

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Prior operation:
Oil cooler - Remove (B.60.A)

1. Place a new gasket **(1)** on the engine block.
2. Install the oil cooler **(2)**.
3. Place a new gasket **(3)** on the oil cooler.
4. Install the oil filter base **(4)**.
5. Tighten the mounting bolts **(5)** to the specified torque.

NOTE: *Before any assembly operation always verify that the hole and bolt threads have no evidence of wear or dirt*



Next operation:
Oil filter - Install (B.60.A)

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