

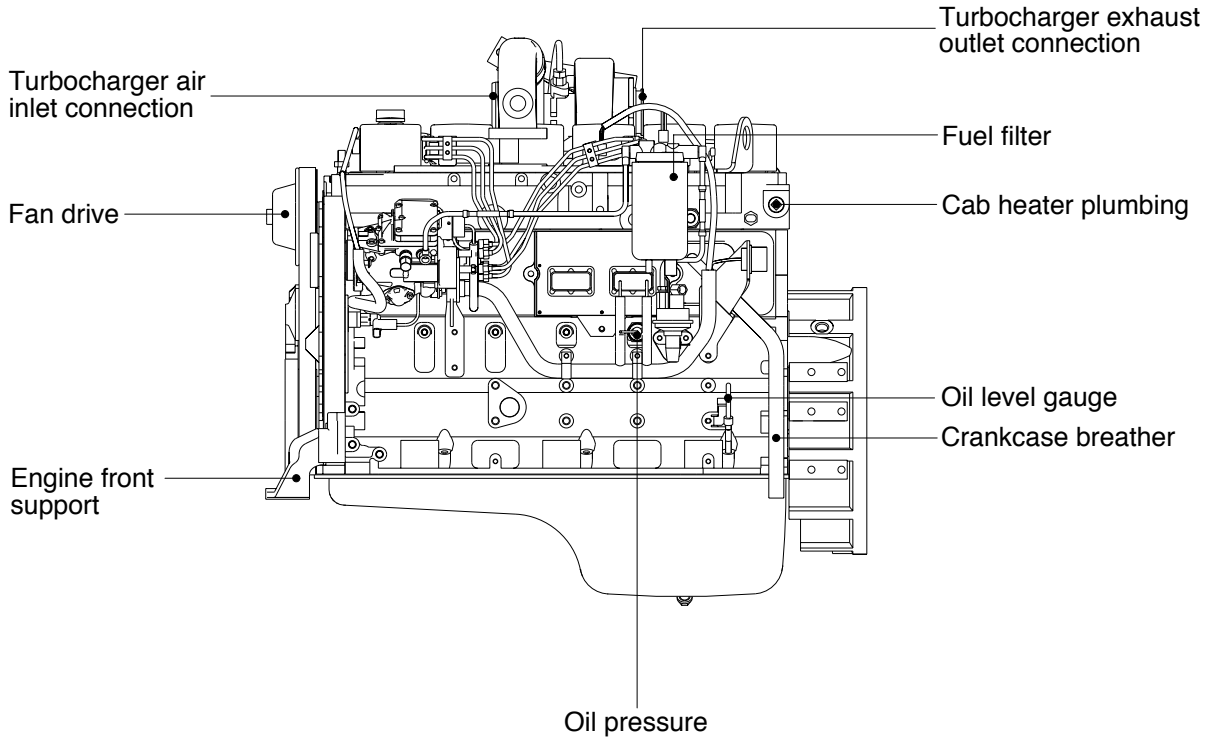
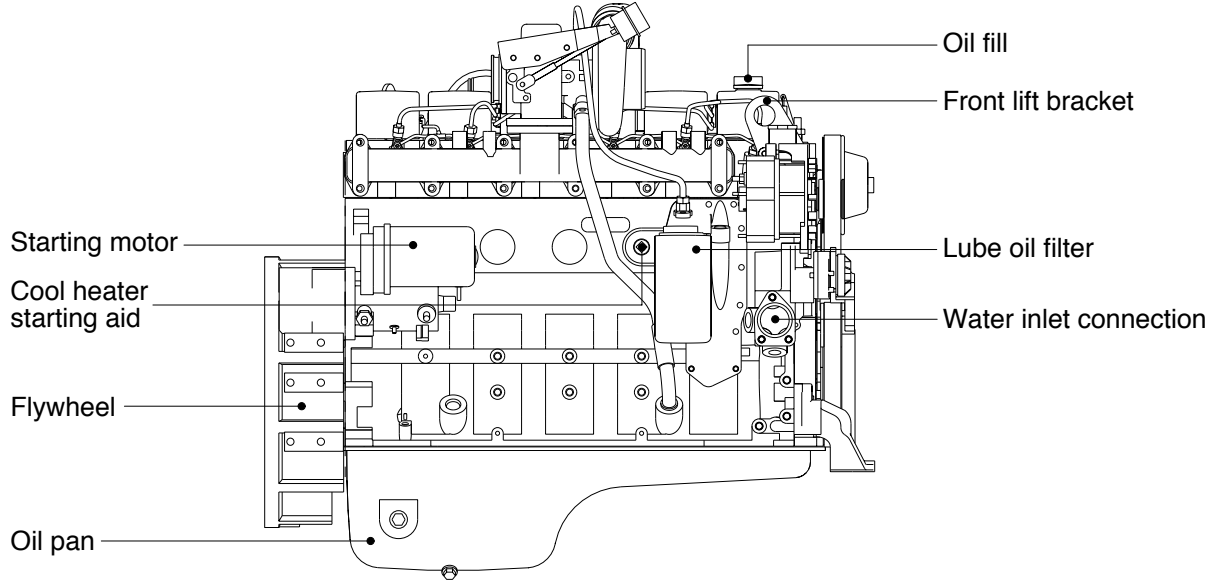
## SECTION 2 ENGINE

Group 1 Structure and Function ----- 2-1

# SECTION 2 ENGINE

## GROUP 1 STRUCTURE AND FUNCTION

### 1. STRUCTURE



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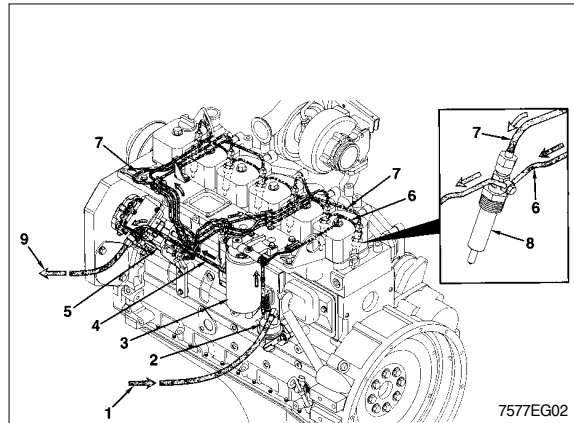
- Direct 4-stroke, 6-cylinders, water-cooling and charge air cooled diesel engine in installed, cylinder block and cylinder head are made of case iron and turbocharger is attached.

## 2. SYSTEM DIAGRAMS

The following drawings show the flow through the engine systems.

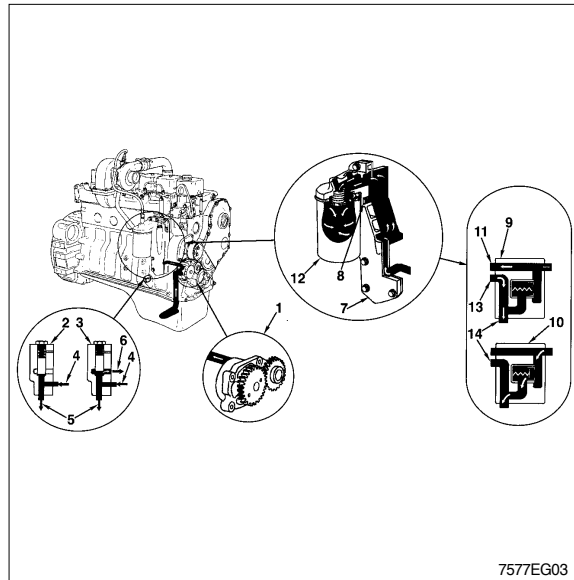
### 1) Fuel system

- 1 Fuel from supply tank
- 2 Electronic lift pump
- 3 Fuel filter and water separator
- 4 Low pressure supply lines
- 5 Injection pump
- 6 Fuel drain manifold
- 7 High pressure supply lines
- 8 Closed nozzle injectors
- 9 Fuel return to supply tank



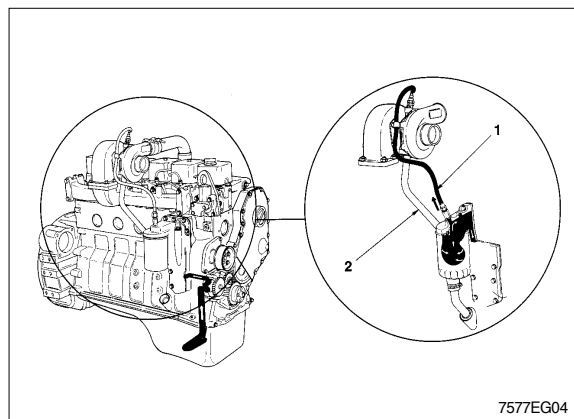
### 2) Lubricating oil system

- 1 Lubricating oil pump
- 2 Pressure regulating valve closed
- 3 Pressure regulating valve open
- 4 From lubricating oil pump
- 5 To lubricating oil cooler
- 6 To lubricating oil pan
- 7 Lubricating oil cooler
- 8 Filter bypass valve
- 9 Filter bypass valve closed
- 10 Filter bypass valve open
- 11 To lubricating oil filter
- 12 Lubricating oil filter
- 13 From lubricating oil filter
- 14 Main lubricating oil rifle



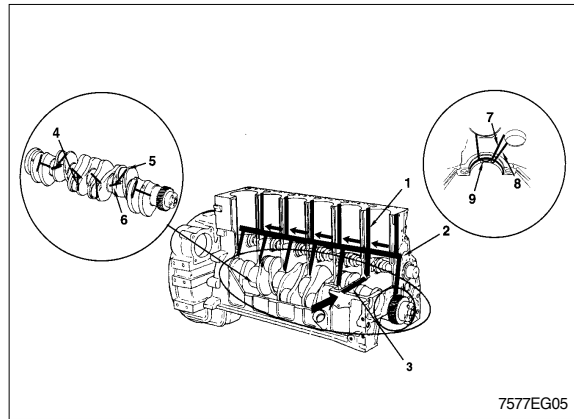
### (1) Lubrication for the turbocharger

- 1 Lubricating oil supply
- 2 Lubricating oil drain



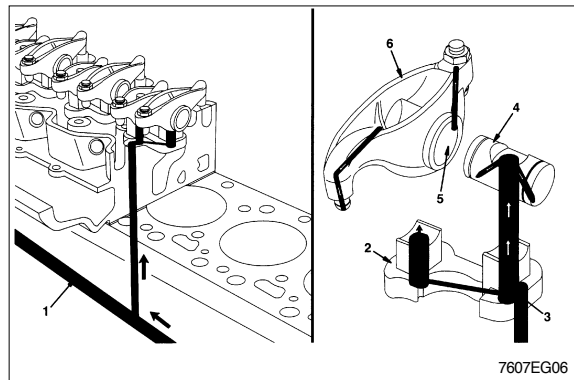
**(2) Lubrication for the power components**

- 1 To valve train
- 2 Main lubricating oil rifle
- 3 From lubricating oil cooler
- 4 Conneting rod journal
- 5 To connecting rod bearing
- 6 Crankshaft main journal
- 7 From main lubricating oil rifle
- 8 To camshaft
- 9 To piston cooling nozzle.



**(3) Lubrication for the overhead**

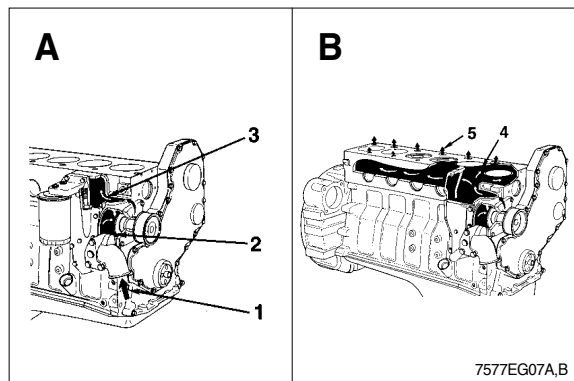
- 1 Main lubricating oil rifle
- 2 Rocker lever support
- 3 Transfer slot
- 4 Rocker lever shaft
- 5 Rocker lever bore
- 6 Rocker lever



**3) Cooling system**

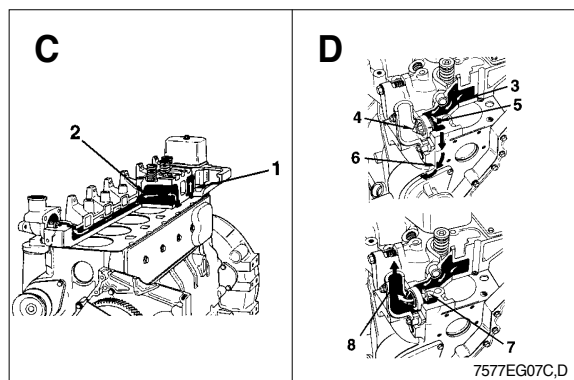
**Views A and B**

- 1 Coolant inlet
- 2 Pump Impeller
- 3 Coolant flows past lubricating oil cooler
- 4 Coolant flows past cylinders
- 5 Coolant flow to cylinder head



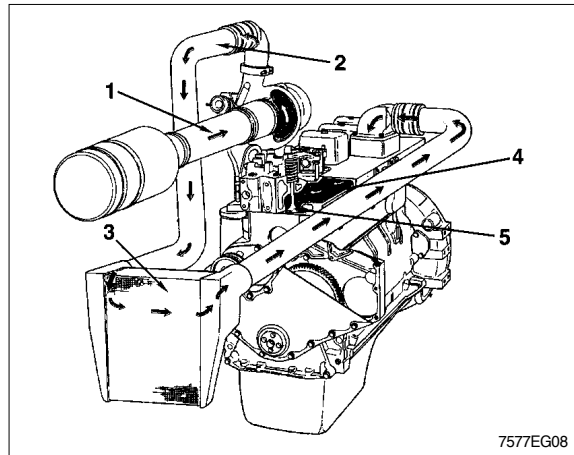
**Views C and D**

- 1 Coolant flow from the cylinder head
- 2 Coolant flow to thermostat housing
- 3 Coolant flow past injector
- 4 Thermostat
- 5 Coolant bypass passage
- 6 Coolant flow to water pump inlet
- 7 Coolant bypass closed
- 8 Coolant flow back to radiator



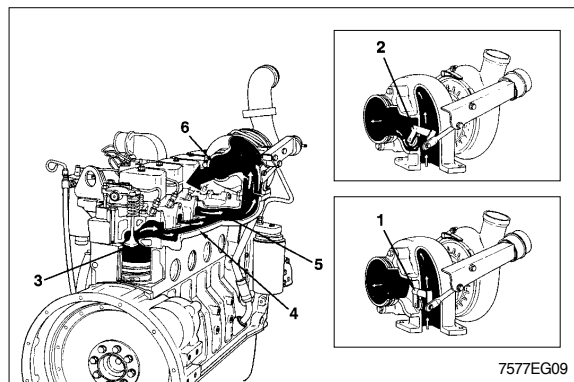
#### 4) Air intake system

- 1 Intake air inlet to turbocharger
- 2 Turbocharger air to charge air cooler
- 3 Charge air cooler
- 4 Intake manifold
- 5 Intake valve



#### 5) Exhaust system

- 1 Wastegate closed
- 2 Wastegate open
- 3 Exhaust valve
- 4 Exhaust manifold
- 5 Turbocharger exhaust inlet
- 6 Turbocharger exhaust outlet



#### 6) Compressed air system

- 1 Air in
- 2 Air out
- 3 Coolant in
- 4 Coolant out
- 5 Lubricating oil in
- 6 Lubricating oil out is internal to the gear housing

