

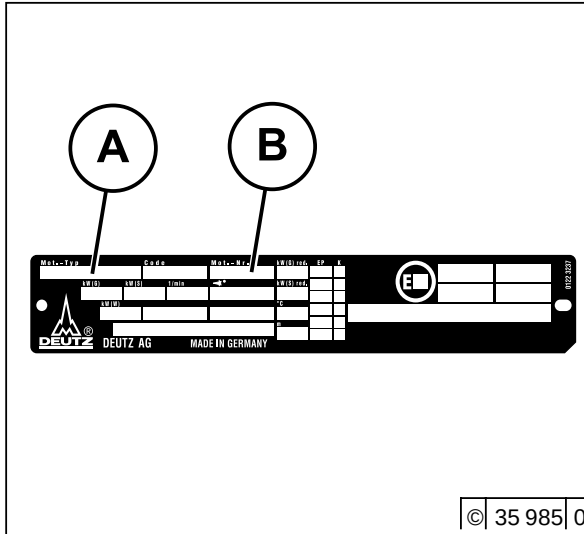
- 2.1 Engine type**
- 2.2 Engine diagrams**
- 2.3 Lube oil circuit**
- 2.4 Fuel circuit**
- 2.5 Coolant circuit**
- 2.6 Electrics**

Engine description

2.1 Engine type

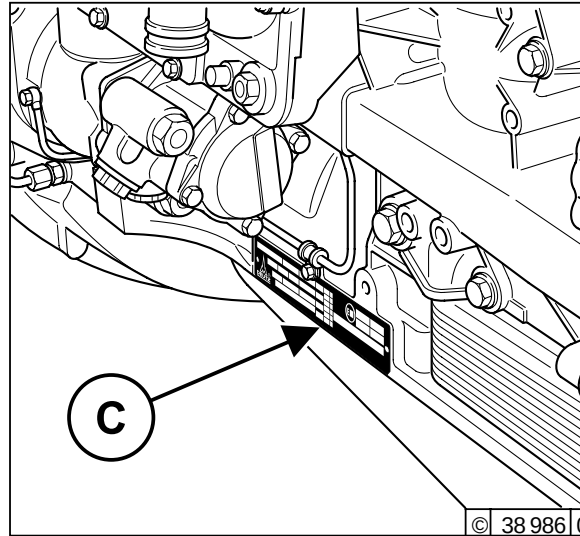
2

2.1.1 Company plate

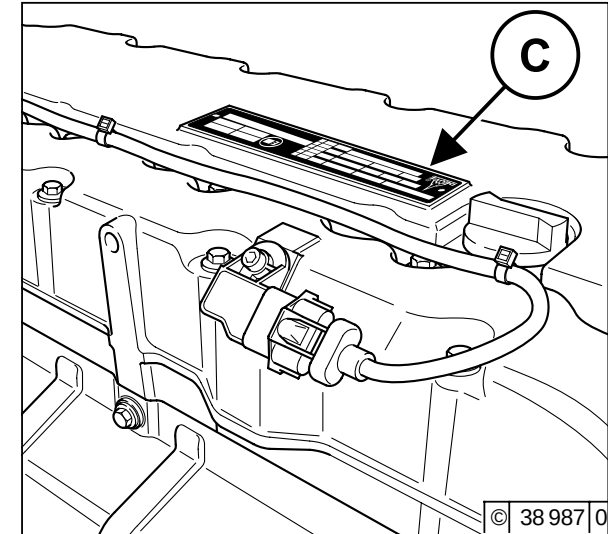


The engine type **A**, engine number **B** and the power data are stamped on the company plate. The engine type and number must be stated when purchasing spare parts.

2.1.2 Location of company plate



The company plate **C** is fixed on the crankcase.

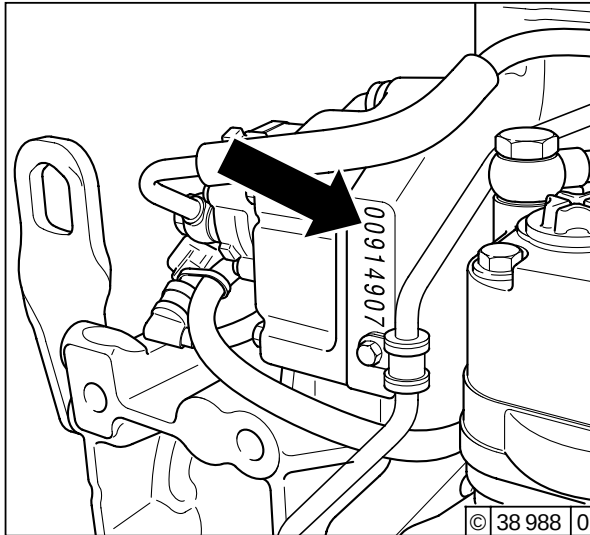


Or company plate **C** is fixed on the cylinder head cover.
Or both plates are attached.

2.1 Engine type

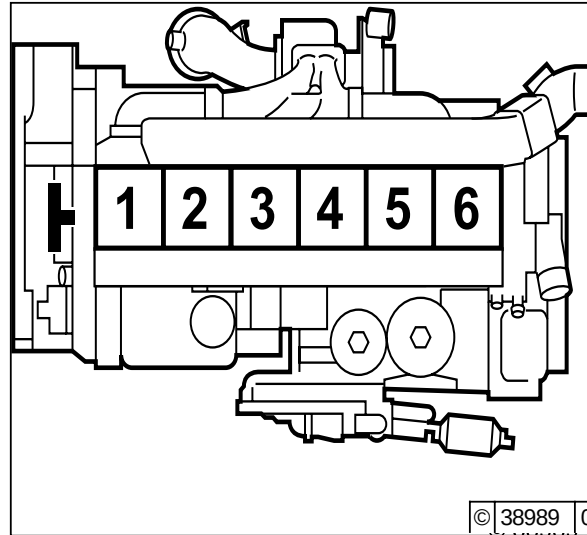
Engine description

2.1.3 Engine number



The engine number is stamped on the crankcase (**arrow**) and on the company plate.

2.1.4 Cylinder numbering



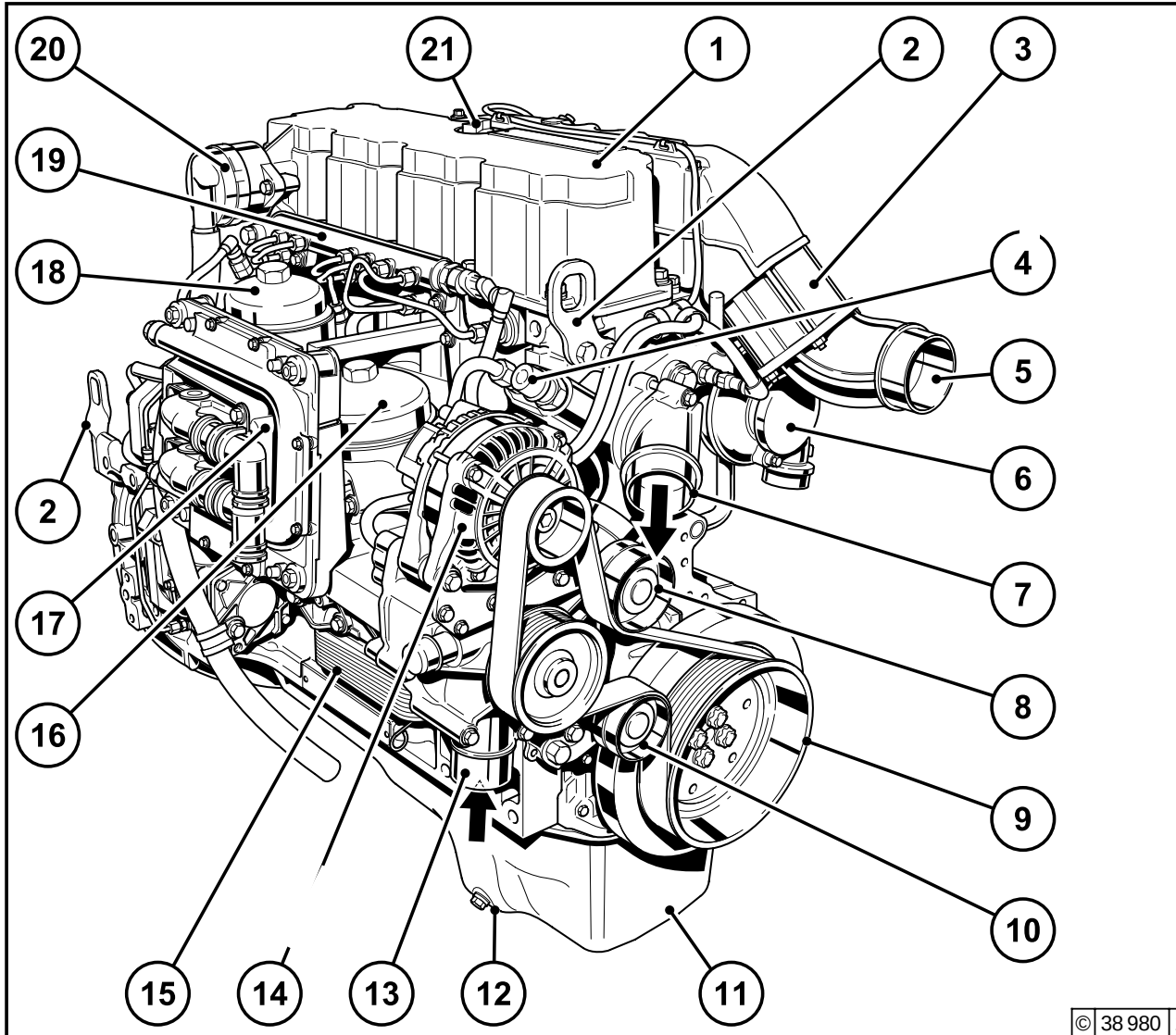
The cylinders are counted consecutively, starting from the flywheel.

Engine description

2.2 Engine diagrams

2

2.2.1 Operation side TCD 2013 L04 4V



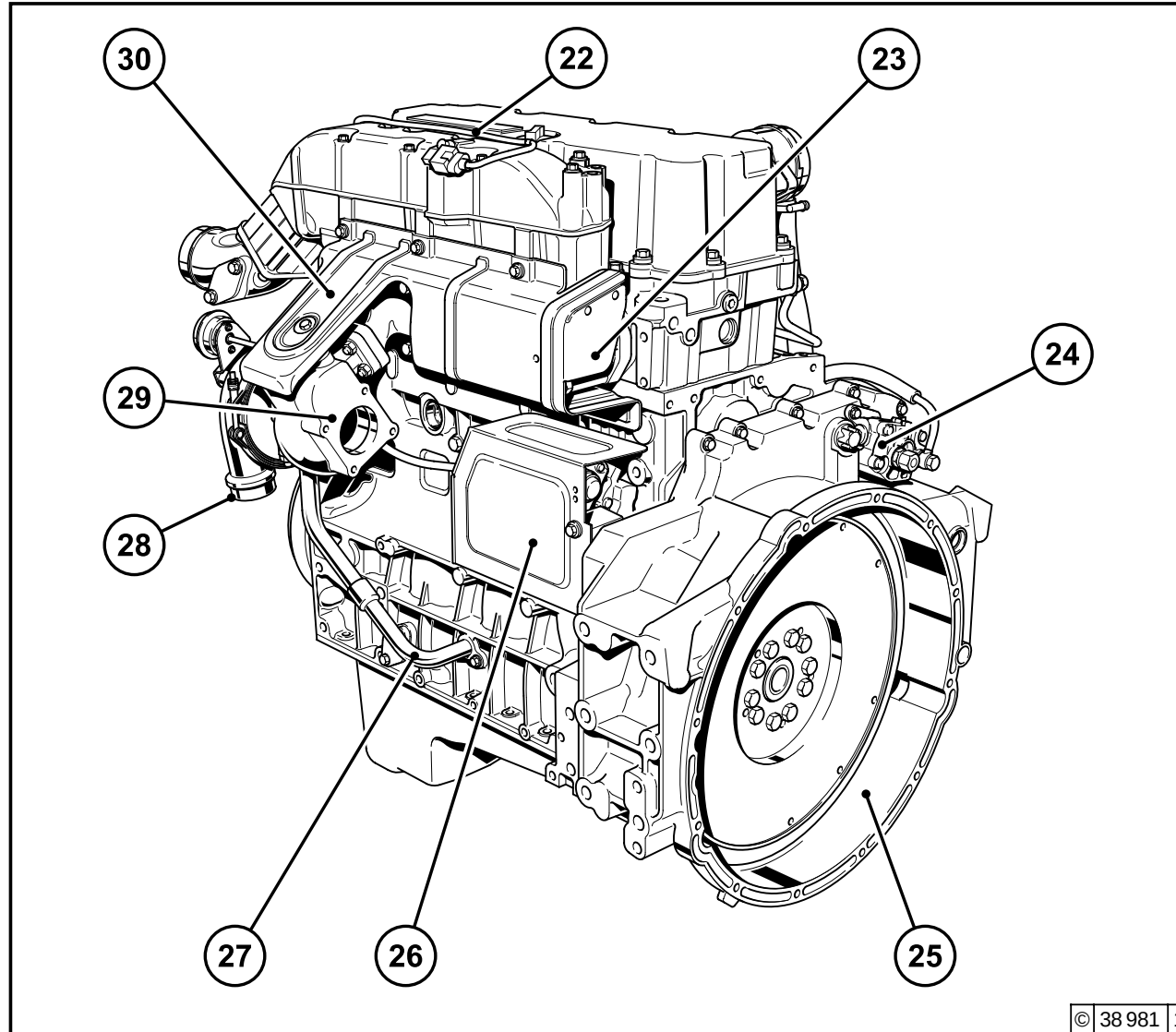
- 1 Cylinder head cover
- 2 Transportation eyelets
- 3 Heating flange
- 4 Cabin heater connection
- 5 Intake elbow to charge air cooler
- 6 Connection to air filter
- 7 Coolant outlet adapter
- 8 Deflection pulley
- 9 Belt pulley on crankshaft
- 10 Tension pulley
- 11 Oil tray
- 12 Oil drain screw
- 13 Coolant inlet adapter
- 14 Generator
- 15 Oil cooler
- 16 Exchangeable lube oil filter
- 17 Engine control unit
- 18 Exchangeable fuel filter
- 19 Rail with pressure reducing valve and pressure sensor
- 20 Crankcase ventilation (open system)
- 21 Oil filler neck

2.2 Engine diagrams

Engine description

2

2.2.6 Starter side TCD 2013 L04 4V



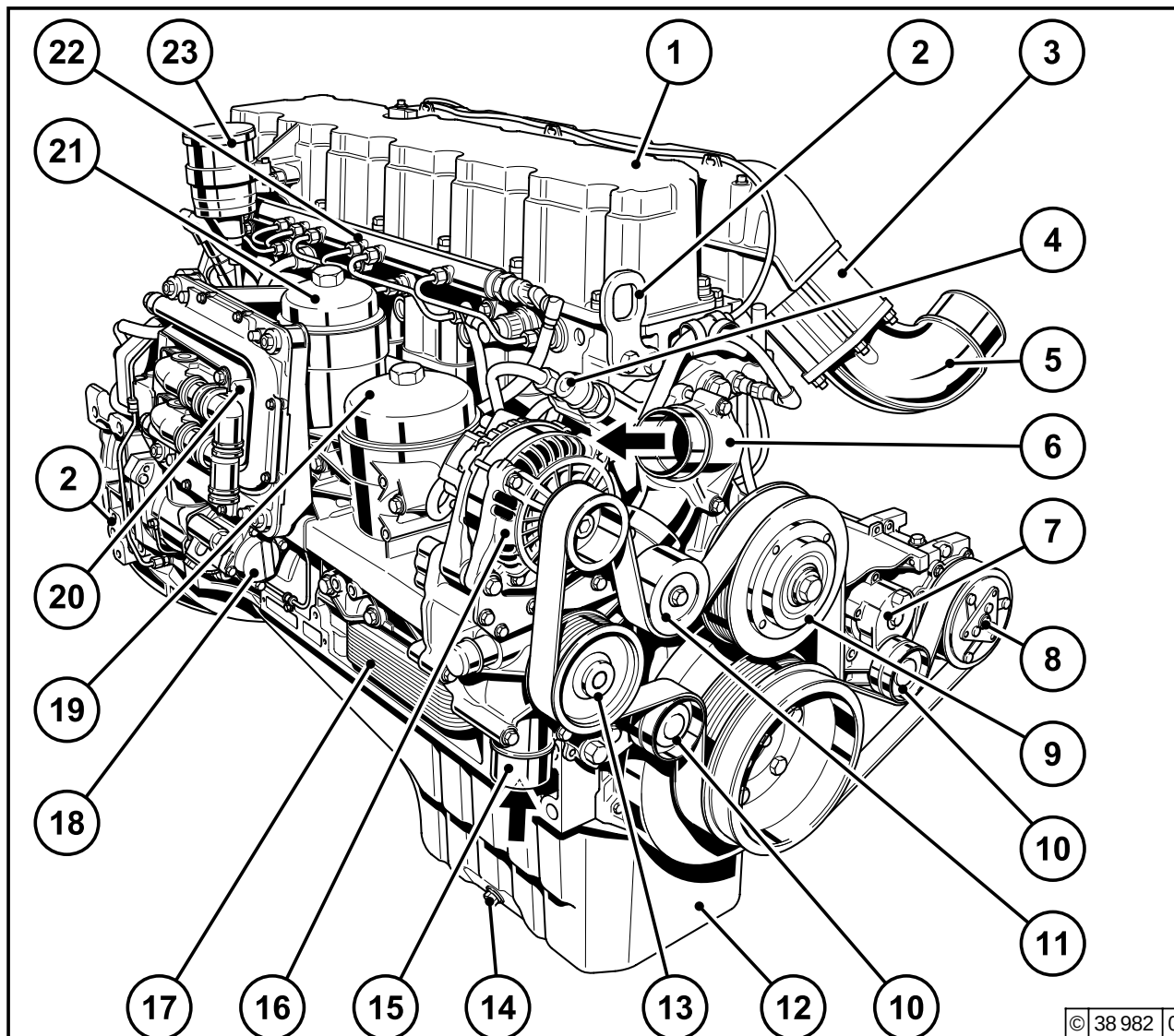
- 22 Charge air temperature line to transmitter
- 23 Exhaust manifold
- 24 Compressor (optional)
- 25 SAE housing
- 26 Starter cover
- 27 Oil return line from turbocharger
- 28 Inlet combustion air turbocharger
- 29 Turbocharger exhaust gas outlet
- 30 Screening plate (thermal protection)

Engine description

2.2 Engine diagrams

2

2.2.3 Operation side TCD 2013 L06 4V



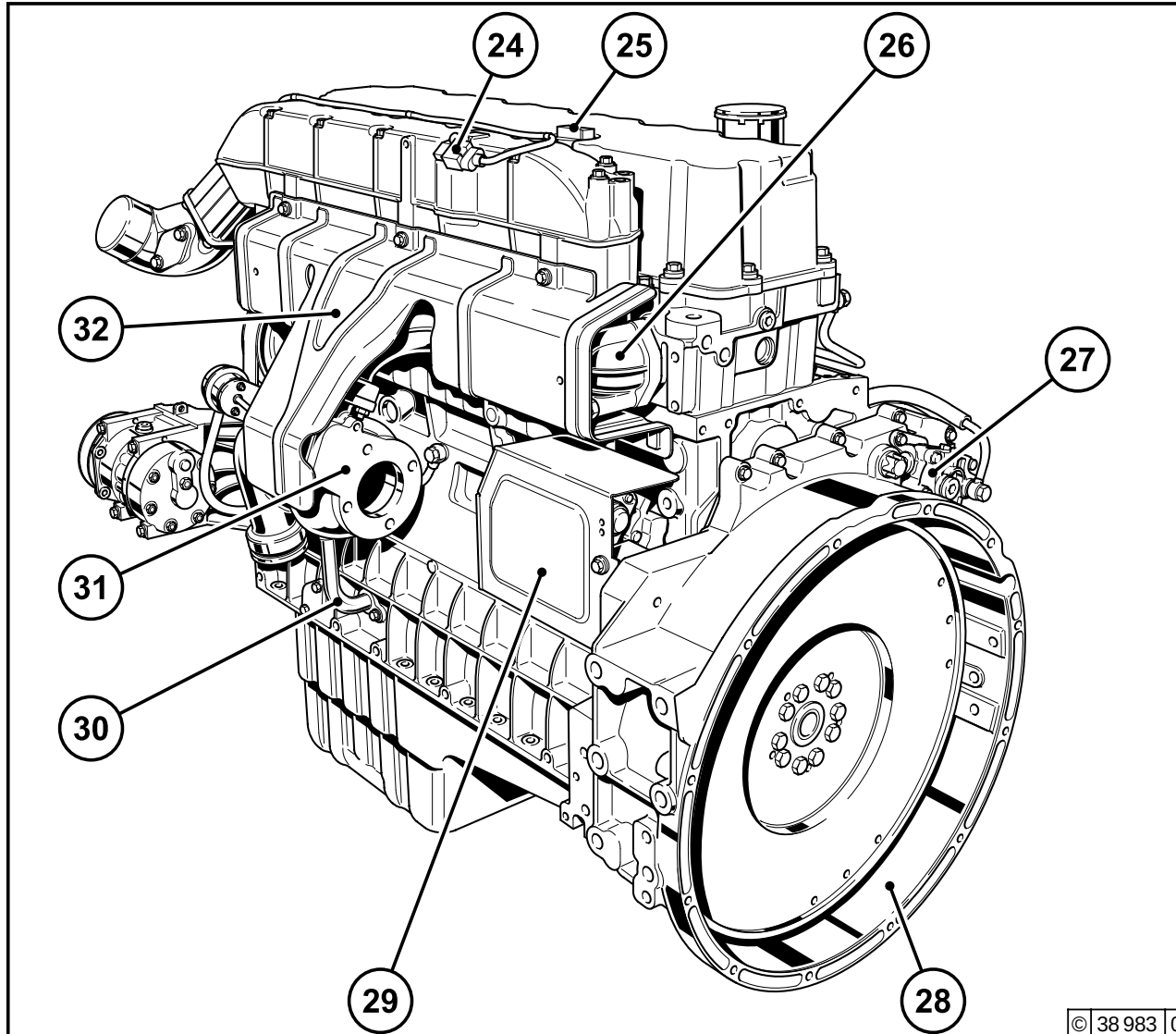
- 1 Cylinder head cover
- 2 Transportation eyelets
- 3 Heating flange
- 4 Cabin heater connection
- 5 Intake elbow from charge air cooler
- 6 Thermostat housing (coolant outlet)
- 7 Spring-loaded tension pulley
- 8 Compressor (optional)
- 9 Belt pulley for fan attachment
- 10 Tension pulley (s)
- 11 Deflection pulley
- 12 Oil tray
- 13 Belt pulley coolant pump
- 14 Oil drain screw
- 15 Coolant inlet adapter
- 16 Generator
- 17 Oil cooler
- 18 Hydraulic pump or compressor installation (optional)
- 19 Exchangeable lube oil filter
- 20 Engine control unit with fuel cooling
- 21 Exchangeable fuel filter
- 22 Rail with pressure reducing valve and pressure sensor
- 23 Crankcase ventilation (open system)

2.2 Engine diagrams

Engine description

2.2.4 Starter side TDC 2013 L06 4V

2



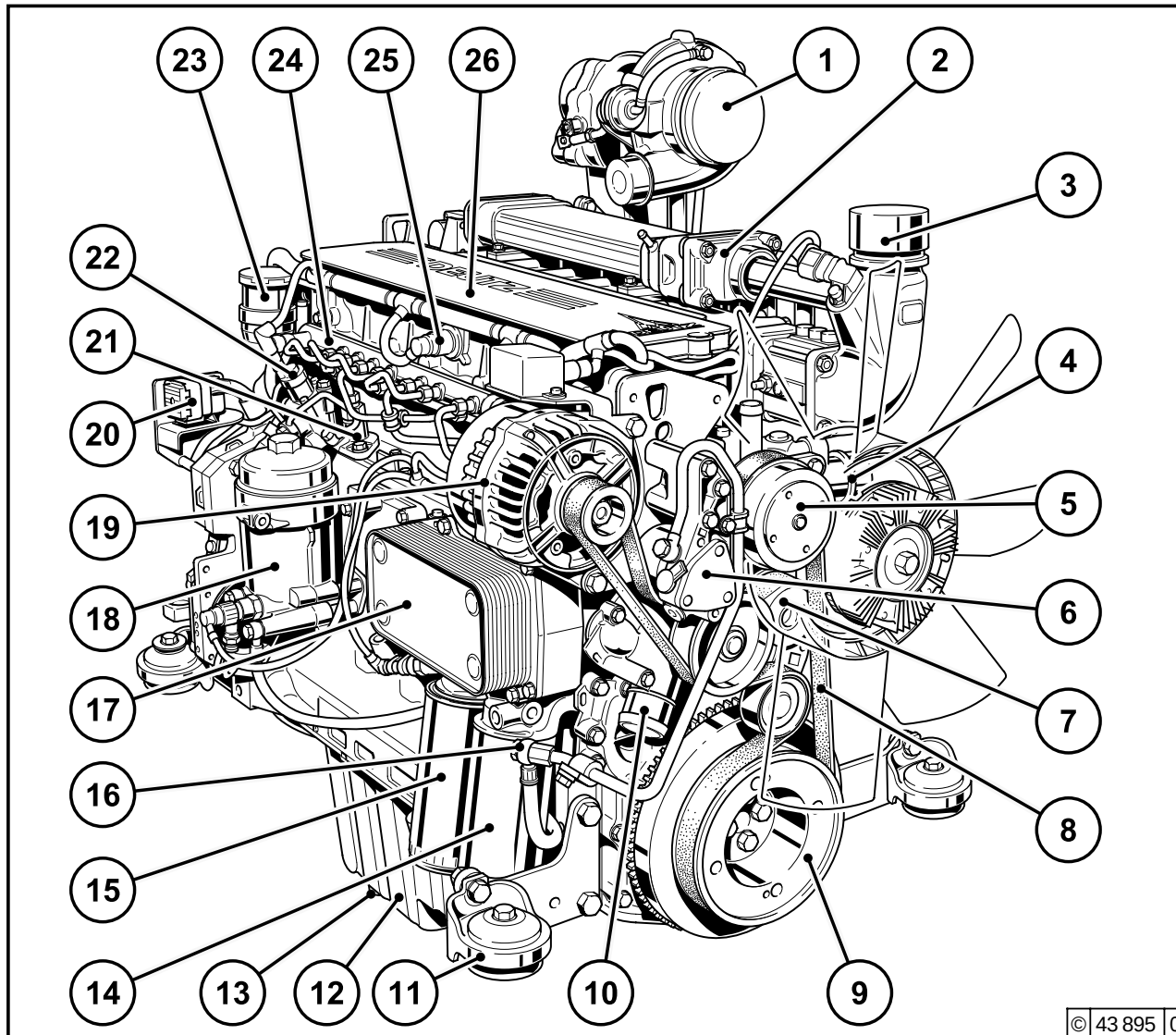
- 24 Pressure and temperature transmitter, charge air
- 25 Oil filler neck
- 26 Exhaust manifold
- 27 Compressor (optional)
- 28 SAE housing
- 29 Starter cover
- 30 Oil return line from turbocharger
- 31 Exhaust turbocharger
- 32 Screening plate (thermal protection).

Engine description

2.2 Engine diagrams

2

2.2.5 Operation side Agri Power TCD 2012 L04 4V



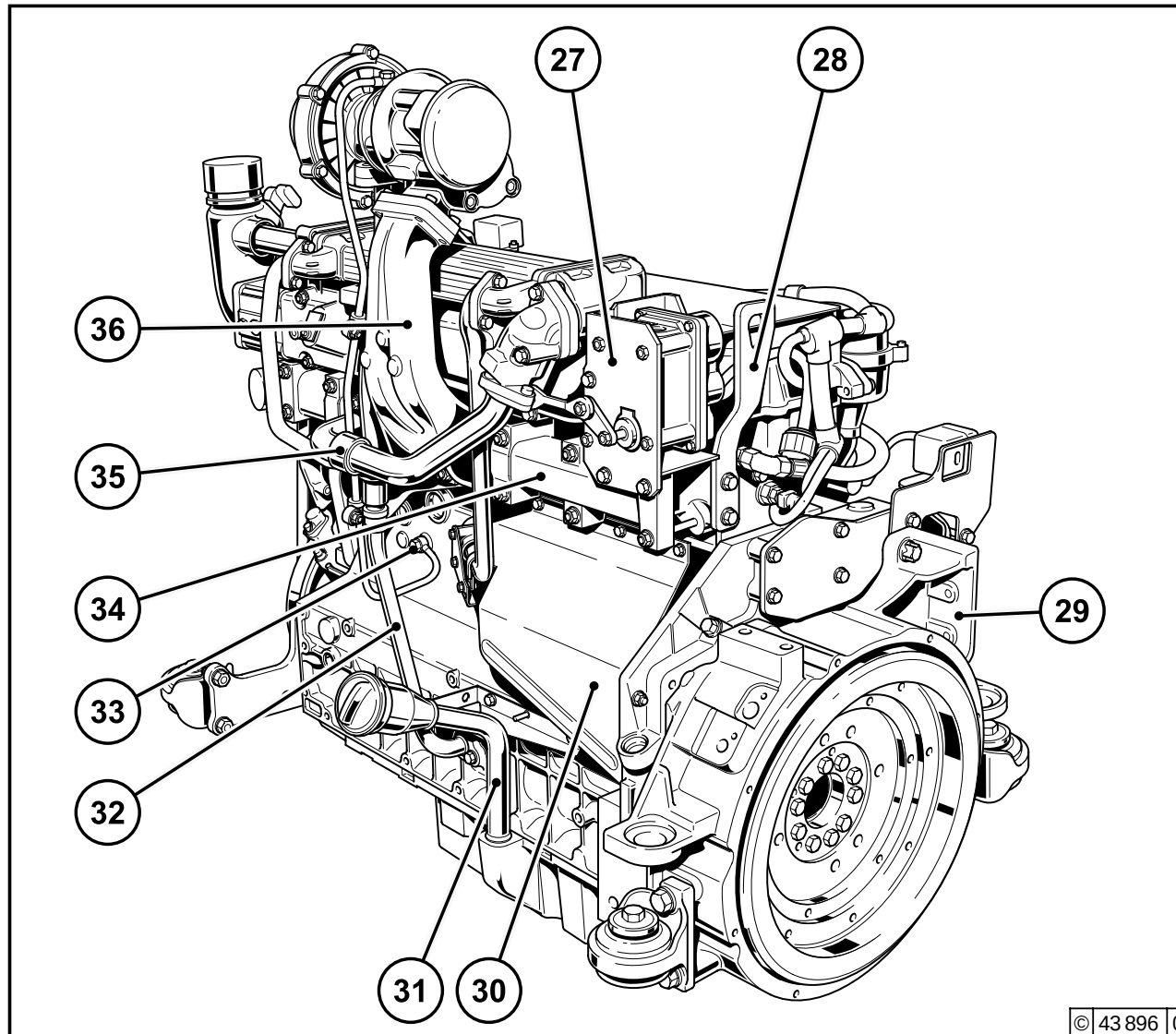
- 1 Exhaust turbocharger
- 2 EGR exhaust gas recirculation
- 3 Intake elbow from charge air cooler
- 4 Coolant return from cooler
- 5 Coolant pump
- 6 Fuel supply pump
- 7 Spring-loaded tension pulley
- 8 V-rib belt
- 9 Belt pulley for drive
- 10 Coolant inlet adapter from cooler
- 11 Mounting foot (engine suspension)
- 12 Oil tray
- 13 Oil drain screw
- 14 Fuel filter
- 15 Lube oil filter
- 16 Fuel connection from tank
- 17 Lube oil cooler
- 18 Fuel pre-filter
- 19 Generator
- 20 Central connector
- 21 **ECU Electronic Control Unit**
- 22 High-pressure pump
- 23 Crankcase ventilation
- 24 Rail with pressure reducing valve
- 25 Charge air sensor
- 26 Cylinder head cover

2.2 Engine diagrams

Engine description

2

2.2.6 Operation side Agri Power TCD 2012 L04 4V



- 27 **EGR** exhaustgasRecirculation
Throttle lever for exhaustgasrecirculation
- 28 Transportation eyelets
- 29 SAE housing
- 30 Starter with cover
- 31 Lube oil filler neck
- 32 Lube oil return from turbocharger
- 33 Oil pressure pipe to turbocharger
- 34 Exhaust manifold
- 35 Cooling line to exhaust gas recirculation
system
- 36 Exhaust manifold

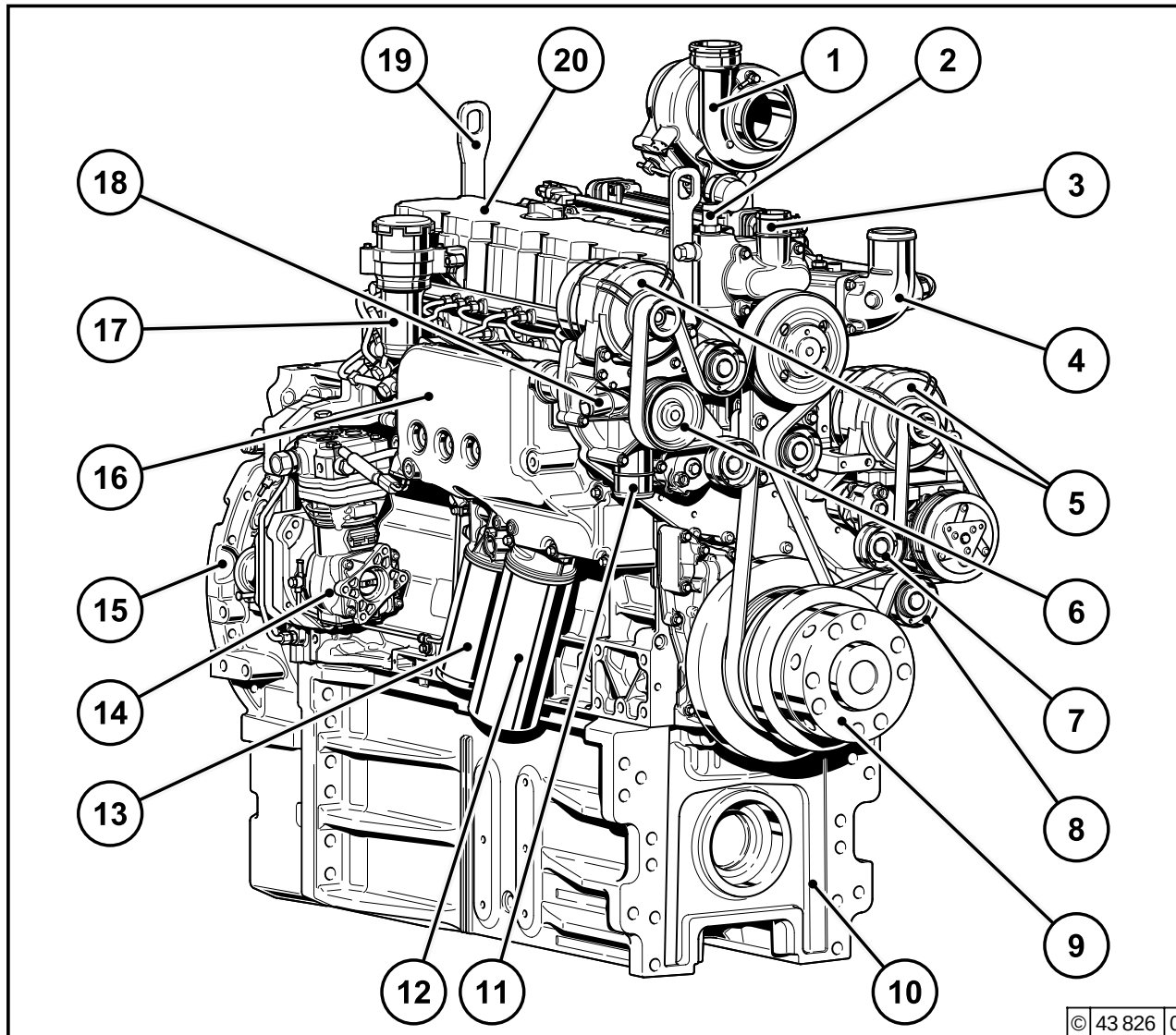
Engine description

2.2 Engine diagrams

2

2.2.7 Operation side

TCD 2013 L06 4V Agri Power



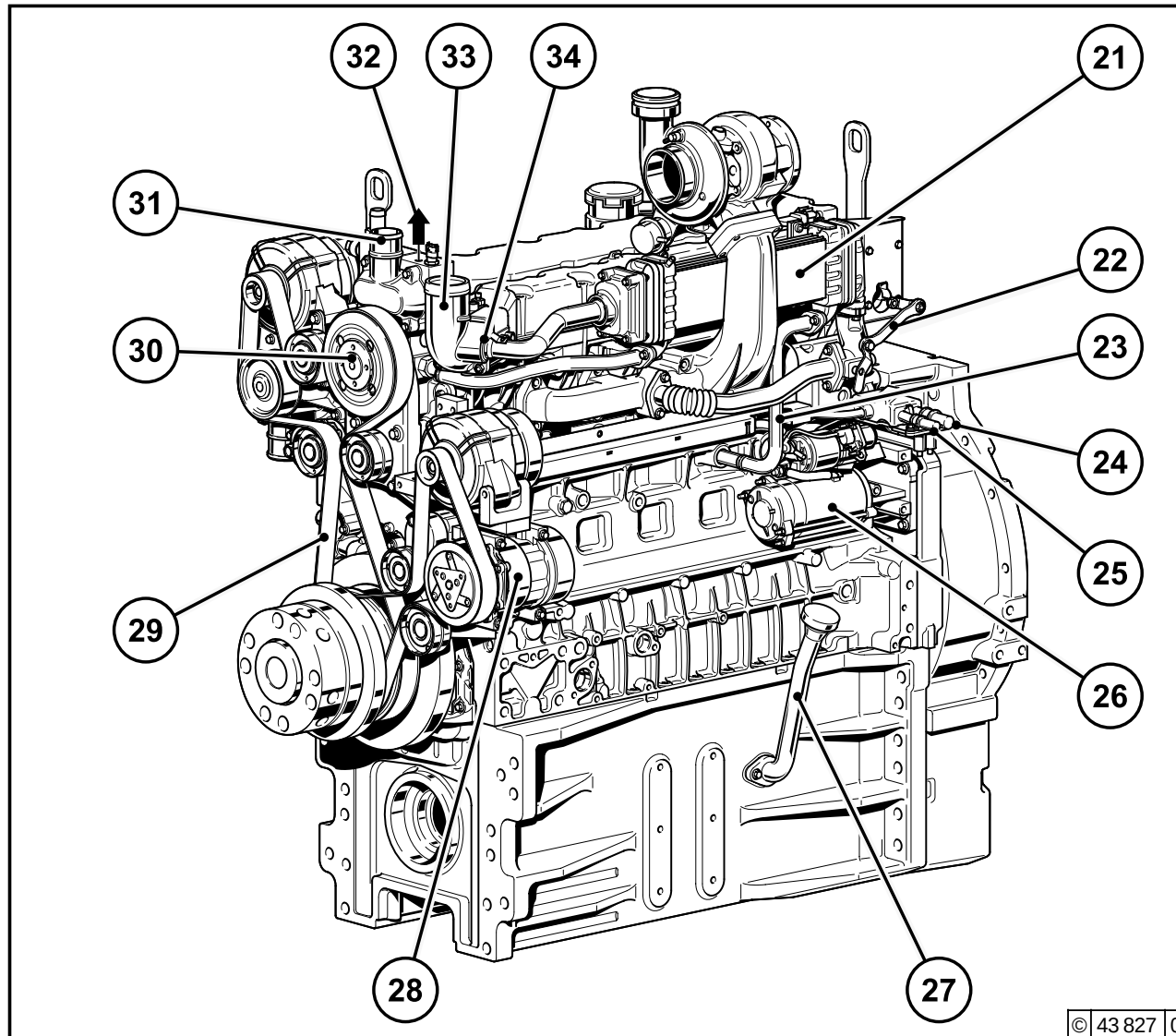
- 1 Exhaust turbocharger
- 2 Coolant return from heater
- 3 Coolant outlet to cooler
- 4 Intake elbow from charge air cooler
- 5 Generator
- 6 Coolant pump
- 7 Spring-loaded tension pulley
- 8 Deflection pulley
- 9 Front power takeoff
- 10 Oil tray
- 11 Coolant inlet adapter from cooler
- 12 Lube oil filter
- 13 Fuel filter
- 14 Compressor (optional)
- 15 SAE housing
- 16 Lube oil cooler
- 17 Crankcase ventilation socket
- 18 Coolant outlet adapter to heater
- 19 Engine suspension
- 20 Cylinder head cover

2.2 Engine diagrams

Engine description

2.2.8 Starter side

TCD 2013 L06 4V Agri Power



- 21 **EGR** exhaustgasrecirculation system
- 22 Throttle lever for exhaustgasrecirculation
- 23 Cooling line to exhaust gas recirculation system
- 24 Fuel inlet to engine
- 25 Fuel outlet to fuel container
- 26 Starter
- 27 Lube oil filler neck
- 28 Compressor
- 29 V-rib belt
- 30 Fan bearing /coolant pump
- 31 Thermostat housing coolant outlet to cooler
- 32 Ventilation line to cooler
- 33 Charge air supply to charge air cooler
- 34 Coolant return from **EGR**

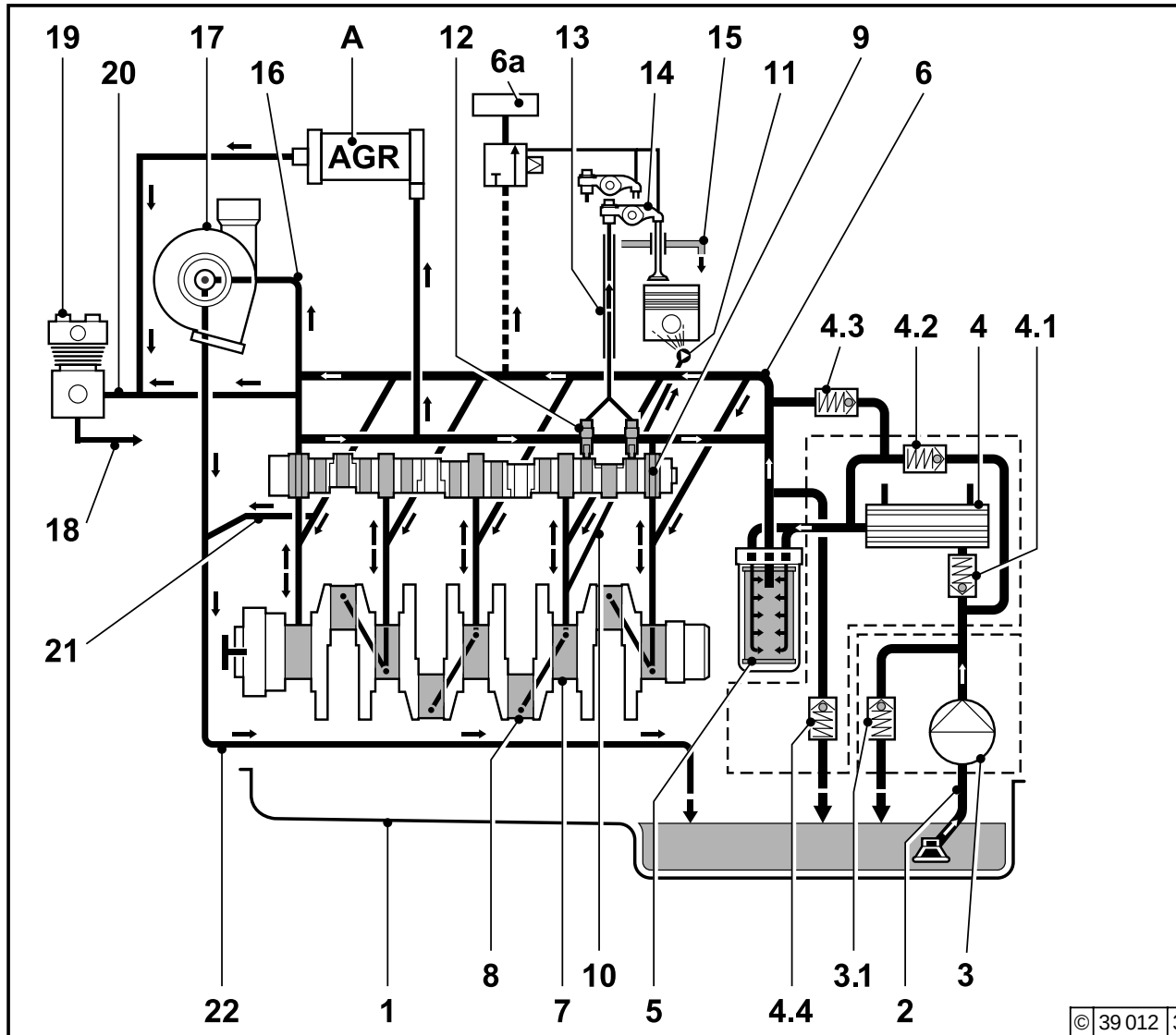
Engine description

2.3 Lube oil circuit

2

2.3.1 Lube oil diagram

TCD 2013 L06 4V (example)



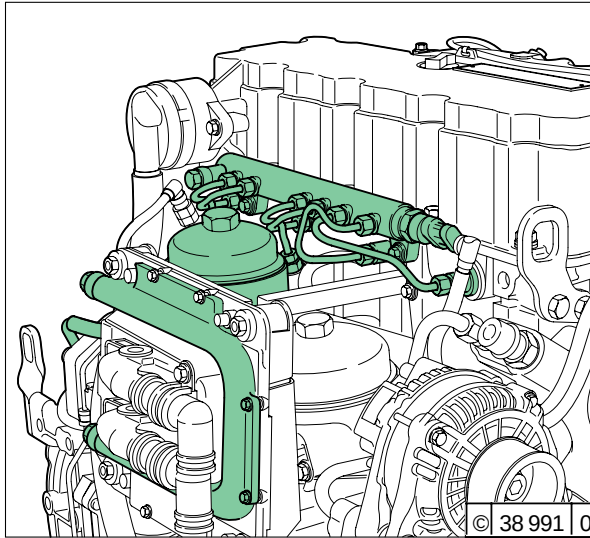
- 1 Oil tray
- 2 Intake pipe
- 3 Lube oil pump
 - 3.1 Safety valve
- 4 Lube oil cooler
 - 4.1 Reverse lock valve
 - 4.2 By-pass valve
 - 4.3 By-pass valve
 - 4.4 Control valve
- 5 Exchangeable lube oil filter
- 6 Main oil pipe
 - 6a Engine brake lubrication
- A Exhaust gas recirculation (EGR) lubrication
- 7 Crankshaft bearing
- 8 Con rod bearing
- 9 Camshaft bearing
- 10 Line to injection nozzle
- 11 Injection nozzle for piston cooling
- 12 Tappet with rocker arm pulse lubrication
- 13 Stop rod, oil supply for rocker arm lubrication
- 14 Rocker arm
- 15 Return line to oil tray
- 16 Oil line to exhaust turbocharger
- 17 Exhaust turbocharger
- 18 Oil line to compressor or hydraulic pump
- 19 Compressor or hydraulic pump
- 20 Return line from compressor
- 21 Return line from cylinder head
- 22 Exhaust turbocharger return to crankcase

2.4 Fuel circuit

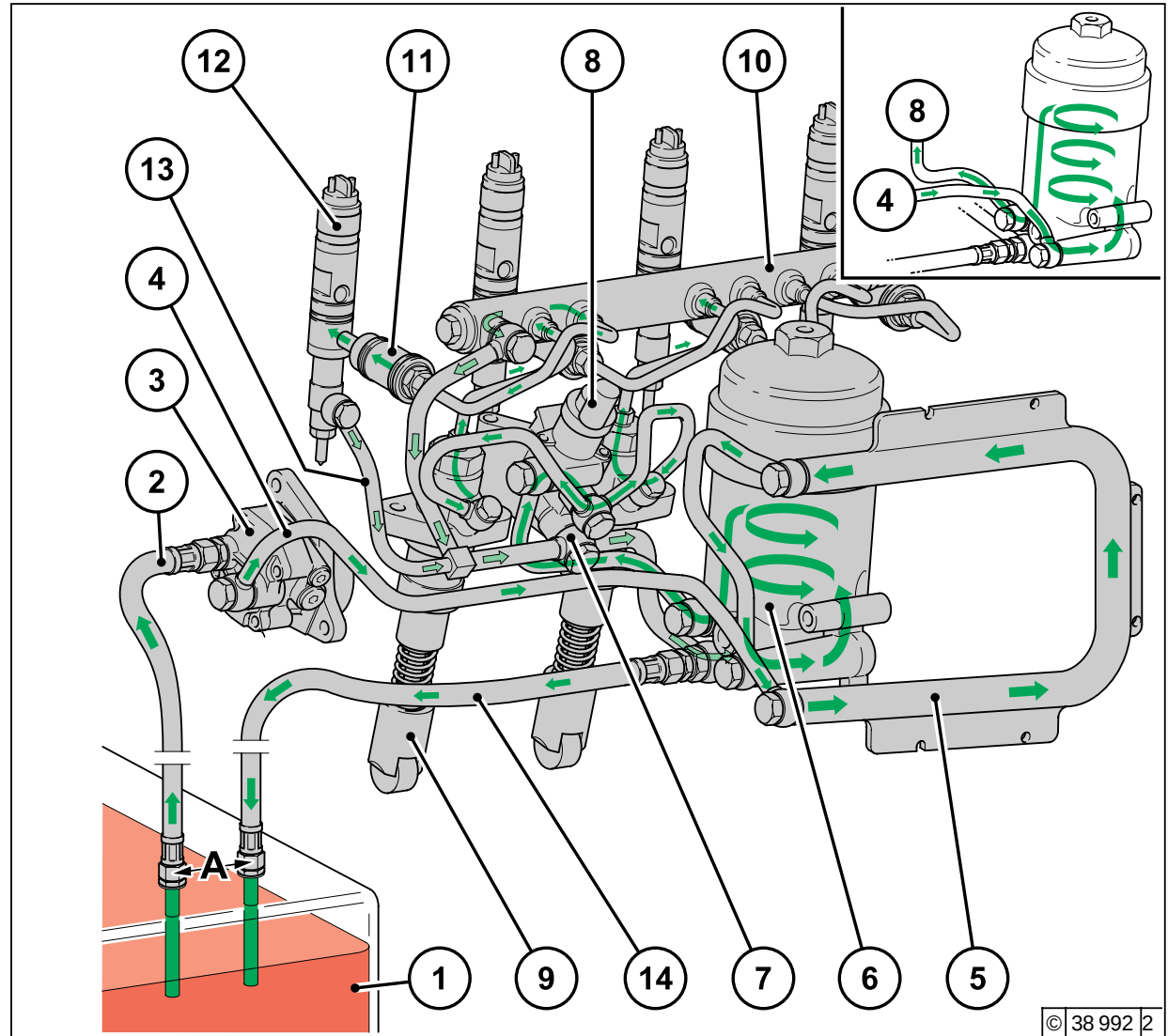
Engine description

2.4.1 Fuel diagram

2



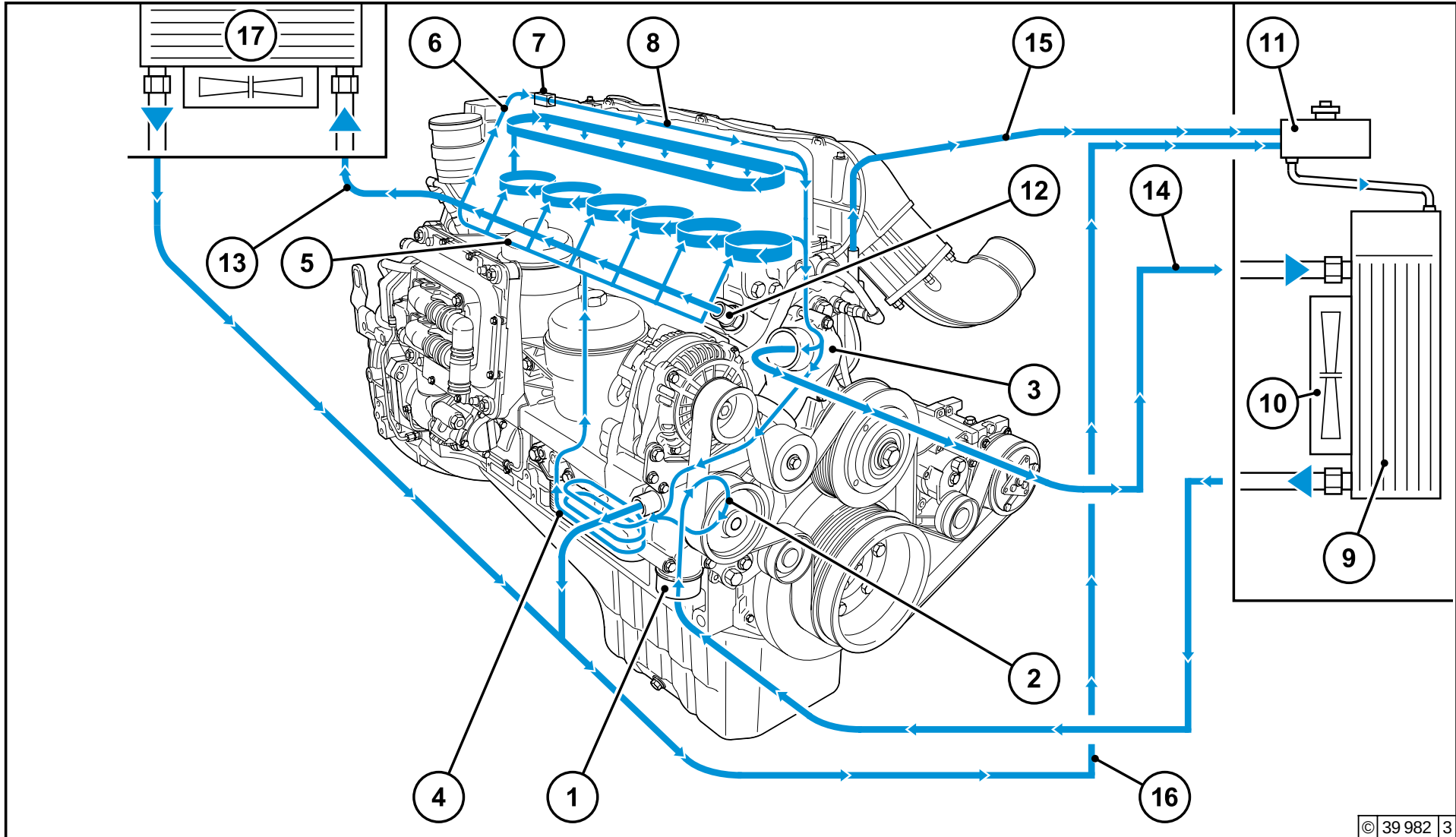
- 1 Fuel container
 - 2 Line to fuel pump
 - 3 Fuel pump
 - 4 Line to fuel filter
 - 5 Fuel cooling for engine control unit
(without cooler, upper right in diagram)
 - 6 Fuel filter
 - 7 Line to injection pumps
 - 8 Fuel to control unit
 - 9 Tappet rollers on camshaft
 - 10 **DCRRail**
 - 11 Injection line to injection valve
 - 12 Injectors
 - 13 Fuel leak oil line
 - 14 Return line to container
- A Keep distance as large as possible



Engine description

2.5 Coolant circuit

2



2.5 Coolant circuit

Engine description

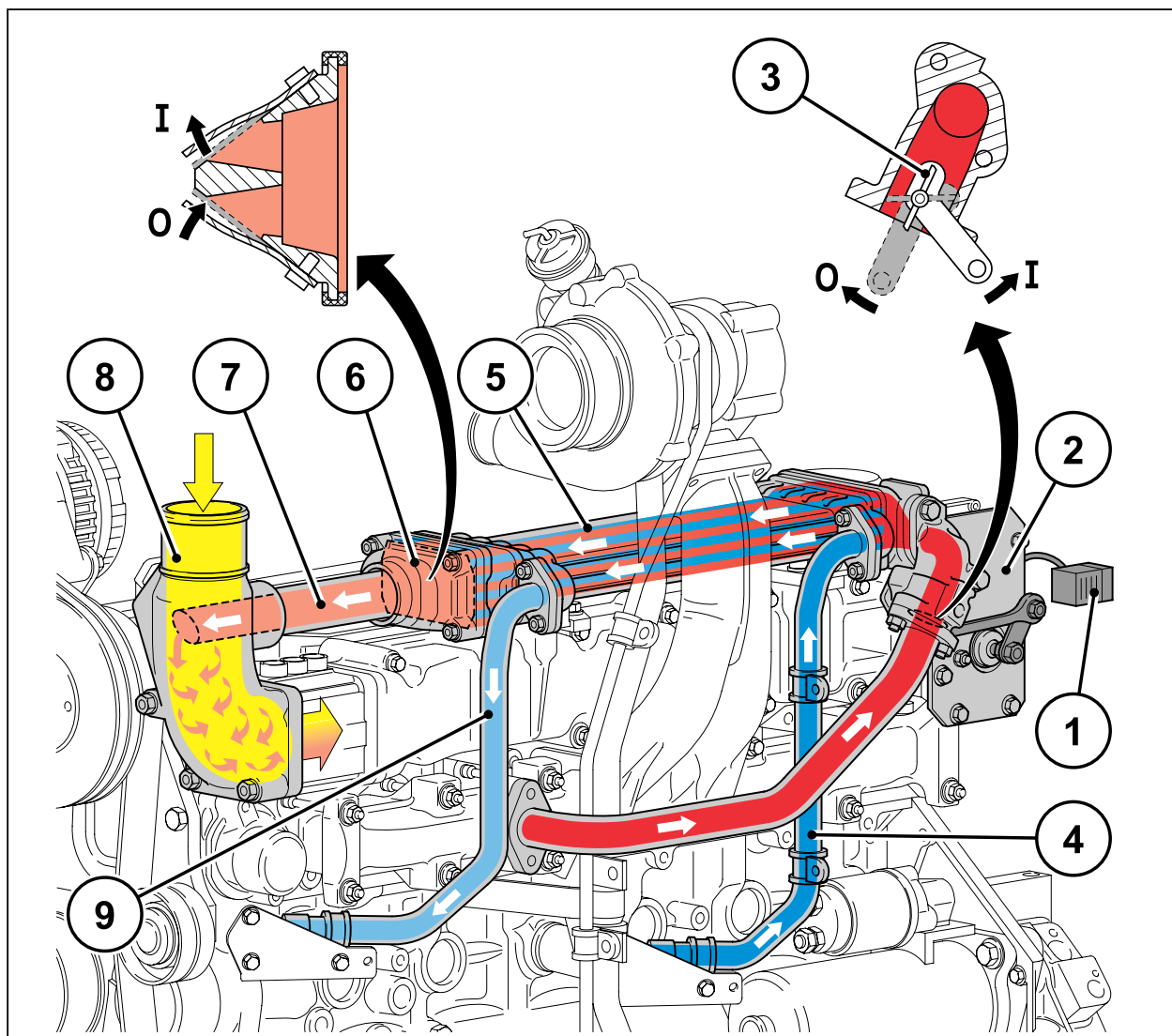
- 1 Coolant inlet to engine
- 2 Coolant pump
- 3 Thermostat housing
- 4 Lube oil cooler (plate cooling)
- 5 Cylinder head cooling and EGR cooling
- 6 Coolant supply to engine brake
- 7 Engine brake cooling
- 8 Return line to thermostat
- 9 Heat exchanger (customer)
- 10 Fan (customer)
- 11 Compensation tank (customer)
- 12 Heating connection
- 13 Compensation tank return line
to heater connection
- 14 Thermostat compensation tank return
- 15 Engine ventilation to compensation tank
- 16 Return line from engine heat exchanger

Engine description

2.5 Coolant circuit

2

2.6.1 Exhaust gas recirculation diagram

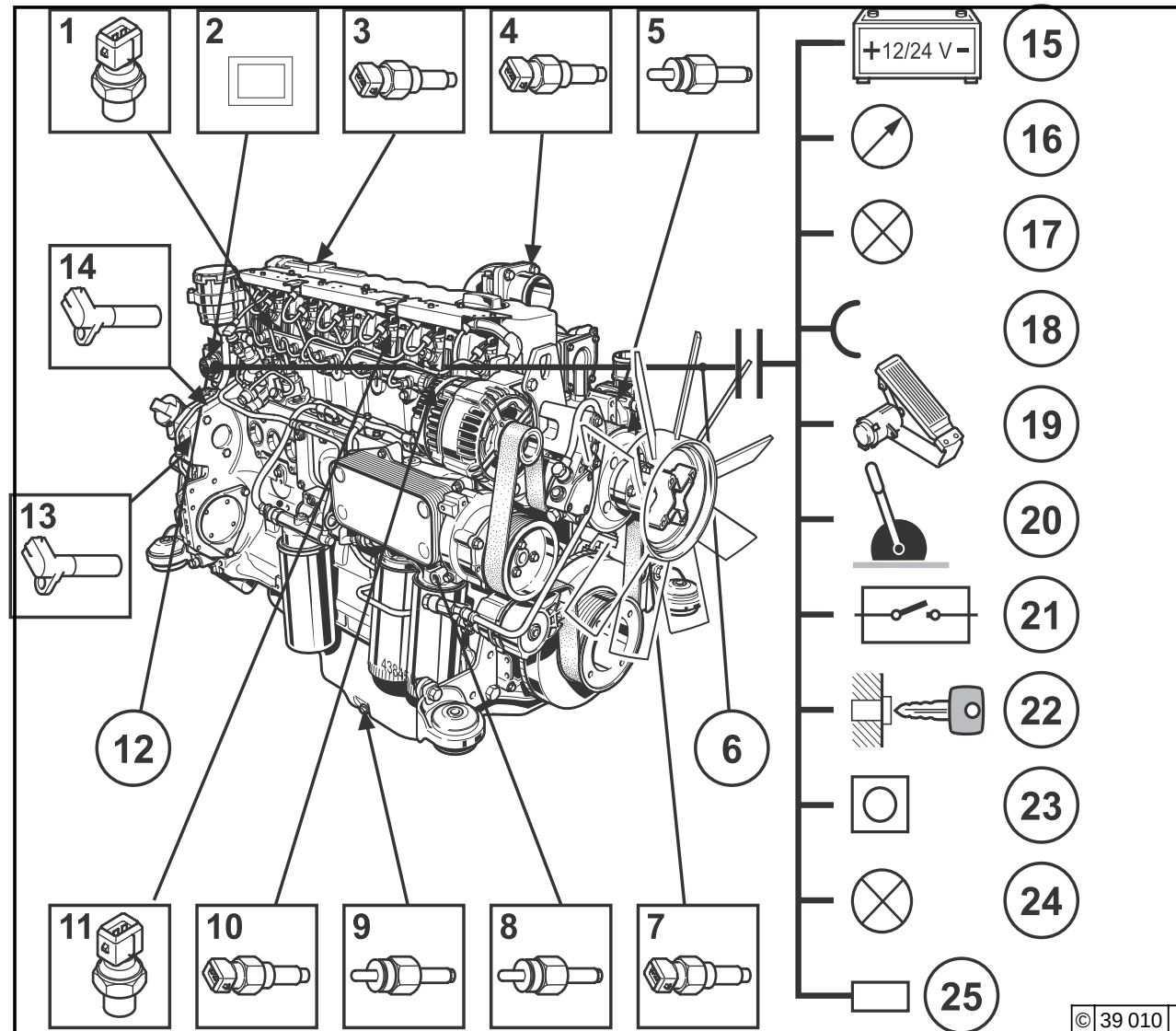


- 1 Coolant inlet to engine
- 2 Coolant pump
- 3 Thermostat housing
- 4 Lube oil cooler (plate cooling)
- 5 Cylinder head cooling and EGR cooling
- 6 Coolant supply to engine brake
- 7 Engine brake cooling
- 8 Return line to thermostat
- 9 Heat exchanger (customer)
- 10 Fan (customer)
- 11 Compensation tank (customer)
- 12 Heating connection
- 13 Compensation tank return line to heater connection
- 14 Thermostat compensation tank return
- 15 Engine ventilation to compensation tank
- 16 Return line from engine heat exchanger

2.6 Electrics

Engine description

2.6.1 Electrical cable connections for monitoring (example)



- 1 Fuel pressure
- 2 Shutdown magnet (solenoid valve) example
- 3 Charge air pressure/temperature sensor
- 4 Coolant temperature
- 5 Cold start aid
- 6 Rail pressure (fuel pressure)
- 7 Oil pressure transmitter
- 8 Oil temperature transmitter engine pre-heating heating
- 9 Oil level transmitter
- 10 Oil pressure sensor
- 11 Injectors engine brake (optional)
- 12 E.M.SII
- 13 Pick-up on SAE housing
- 14 Speed sensor
- 15 Energy supply
- 16 Multifunction displays
- 17 Outputs (configurable)
- 18 Inputs (configurable) (PWM/digital/analogue)
- 19 Accelerator pedal
- 20 Hand throttle (optional)
- 21 Switch functions
- 22 Key switch Start/stop
- 23 Diagnosis button
- 24 Fault light with blink code
- 25 Diagnosis interface/ CAN-Bus