

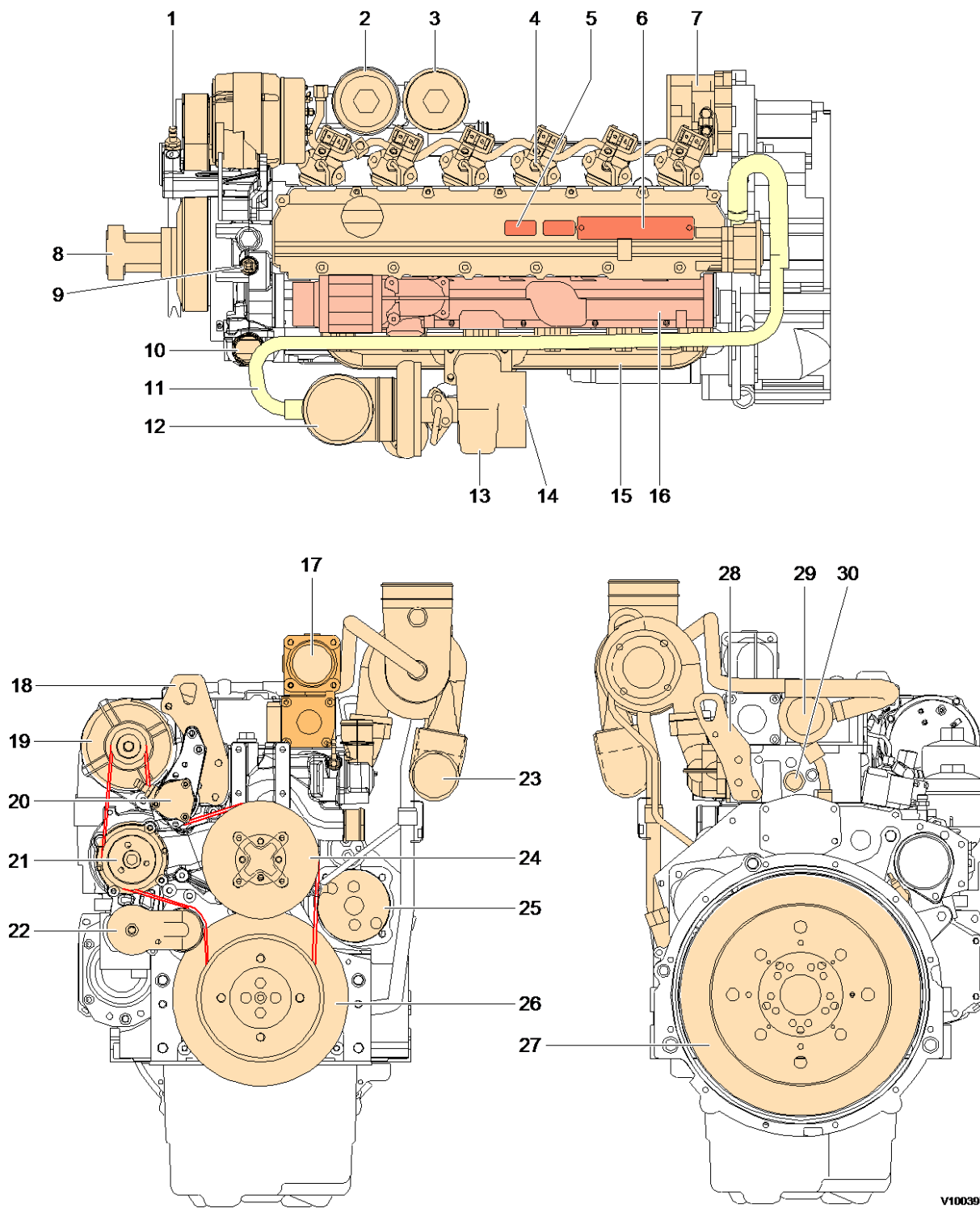
Document Title: Engine, description	Function Group: 200	Information Type: Service Information	Date: 2014/6/11
Profile: EXC, EC210B F [GB]			

Engine, description

D6D Engine

The engine is a 6-cylinder, 4-stroke, direct injected, turbocharged, aftercooled with a cast iron block and cylinder head. Gears in the engine gear case are hardened helical type for strength and reduced noise, arranged to provide quiet, smooth transmission of power.

The cylinder block and head are designed with internal passages forming galleries for both lubricating oil and coolant. The fan belt is a poly type V-belt for improved performance and an auto tension adjuster maintains belt tension.



V1003971

Figure 1
Engine, start motor side view

1	Fuel suction port	11	Blow-by gas pipe	21	Coolant pump
2	Engine oil filter	12	Air inlet (from air cleaner)	22	Belt tensioner
3	Old, Fuel filter (0.5 liters)	13	Turbocharger	23	Air outlet (to charge air cooler)
4	Unit injection pump	14	Exhaust gas outlet	24	Fan drive pulley
5	Emission label	15	Exhaust manifold	25	Air conditioner compressor pulley
6	Engine name plate	16	Intake manifold	26	Pulley with vibration damper
7	Power take off device (option)	17	Air inlet (from charge air cooler)	27	Flywheel
8	Fan drive	18	Lifting eye (front)	28	Lifting eye (rear)

9	Coolant make up port	19	Alternator	29	Crankcase breather
10	Coolant outlet (to radiator)	20	Fuel feed pump	30	Coolant temperature sensor port

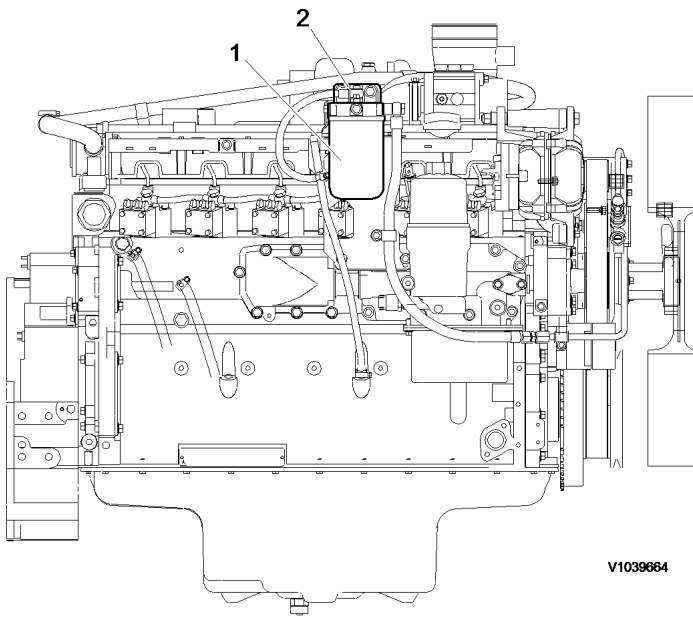
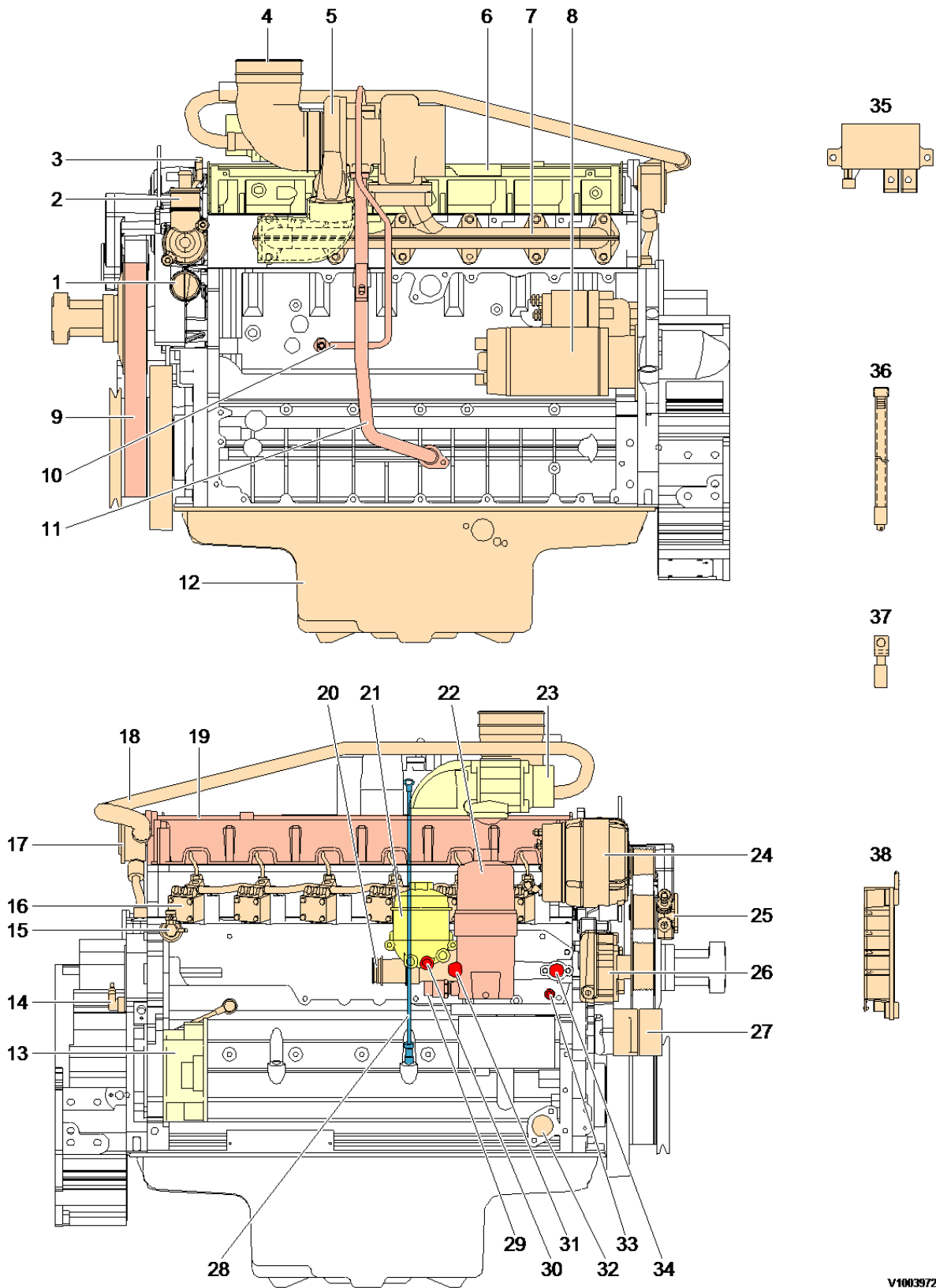


Figure 2
New, Fuel filter

1	Fuel filter (1.0 liters)
2	Bracket

		Serial number		
		Europe	North America	China
Old, Fuel filter	Fuel filter (0.5 liters) and bracket	~ 14467	~ 14317	~ 30840
New, Fuel filter	Fuel filter (1.0 liters) and bracket	14468 ~	14318 ~	30841 ~



V1003972

Figure 3
Engine, air heater side view

1	Coolant inlet (from radiator)	14	Engine speed sensor	27	Belt tensioner
2	Coolant outlet (to radiator)	15	Fuel pressure holding valve	28	Engine oil level gauge
3	Coolant make up port	16	Solenoid valve	29	Engine oil pressure sensor
4	Air inlet (from air cleaner)	17	Crankcase breather	30	Fuel suction port

5	Turbocharger	18	Blowby gas pipe	31	Coolant filter return port
6	Intake manifold	19	Valve cover	32	-
7	Exhaust manifold	20	Engine oil cooler	33	Coolant supply to cab heater
8	Starter	21	Fuel filter	34	Coolant heater port
9	Poly-vee belt	22	Engine oil filter	35	Air heater relay
10	Lube oil pipe (supply)	23	Air inlet (from charge air cooler)	36	Oil drain hose
11	Lube oil pipe (return)	24	Alternator	37	Fuel feed pump
12	Engine oil pan	25	Fuel feed pump	38	E-ECU
13	Power take off device	26	Coolant pump		

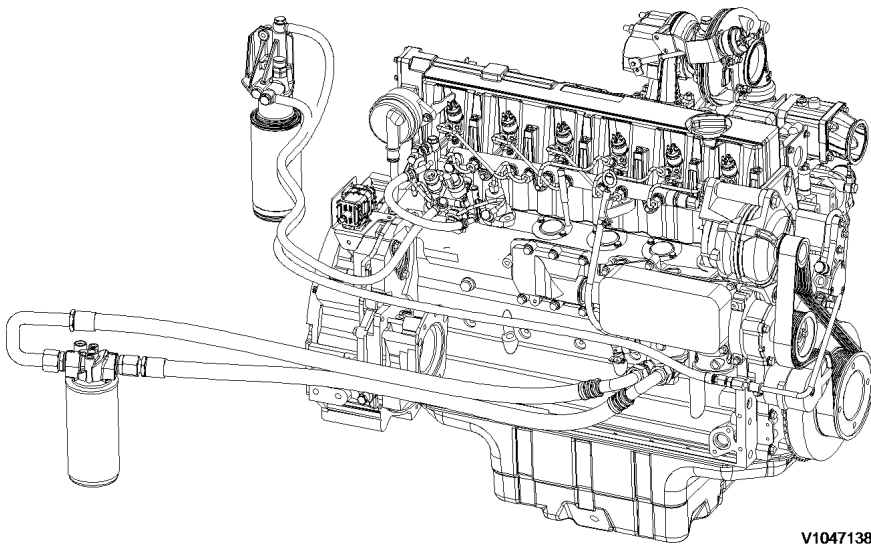
D6E Engine

The D6E configuration is a four stroke, straight six cylinder, turbocharged, direct injected diesel engine with charge air cooling and wet, replaceable cylinder liners.

The D6E engine uses a Common Rail Fuel System controlled by the engine electronic control (E-ECU) software.

Electronically controlled IEGR (Internal Exhaust Gas Recirculation) reduces NO_x formation and lowers emissions without the need for exhaust after treatment. Volvo's latest engine management system, E-ECU is used to control all engine electronic functions.

The cylinders are numbered consecutively beginning at the flywheel end. Engine rotational direction is counterclockwise as seen from the flywheel end.



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Figure 4
Engine, D6E

Document Title: Engine, identification	Function Group: 200	Information Type: Service Information	Date: 2014/6/11
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Engine, identification

Identification plate

The engine model, serial number and performance data are stamped on an identification plate which is attached on the cylinder head cover. The engine model designation and serial number must be indicated when ordering spare parts.

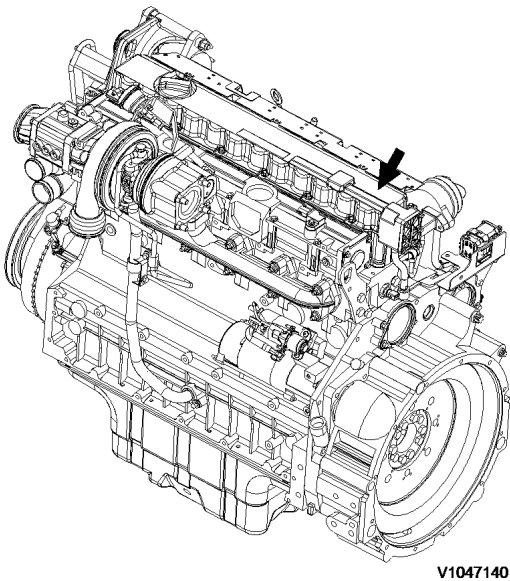


Figure 1
Engine identification, D6E

Document Title: Engine, tightening torques	Function Group: 200	Information Type: Service Information	Date: 2014/6/11
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Engine, tightening torques

NOTICE

Regarding bolted joints which are not listed here, see "Volvo standard tightening torques"

Engine, tightening torque	
Rocker arm bracket on cylinder head	30 Nm (22.2 lbf ft)
Cylinder head cover (M6) on cylinder head	13 Nm (9.6 lbf ft)
Exhaust return module on cylinder head	Step 1: 10 Nm (7.4 lbf ft) Step 2: 30 Nm (22.2 lbf ft)
Lock nut, valve adjusting screw	20 ±2 Nm (14.8 ±1.5 lbf ft)
Locking screw on cylinder head	34 Nm (25.2 lbf ft)
Solenoid valve on cylinder head	24 Nm (17.8 lbf ft)
Front cover on crankcase	Step 1: 3 Nm (2.2 lbf ft) Step 2: 21 Nm (15.5 lbf ft)
Drain plug on oil pan, M18	55 Nm (40.7 lbf ft)
Crankcase ventilation on cylinder head	21 Nm (15.5 lbf ft)
Return line to return stop valve	30 Nm (22.2 lbf ft)
Return stop valve to crankcase	80 Nm (59.2 lbf ft)
Impulse transmitter (crankshaft) on holder on front cover	9 Nm (6.7 lbf ft)
Impulse transmitter (camshaft) on gearcase	9 Nm (6.7 lbf ft)
Turbocharger on exhaust manifold	42 Nm (31.1 lbf ft)
Clamping shoe injector on cylinder head	16 Nm (11.8 lbf ft)
Injection lines on rail and injector, high pressure line on high-pressure pump	25 Nm (18.5 lbf ft)
Fuel supply pump on holder	22 Nm (16.3 lbf ft)
Holder fuel supply pump on holder	30 Nm (22.2 lbf ft)
V-belt pulley on fuel supply pump	27 Nm (20.0 lbf ft)
High pressure pump on crankcase, M10	Step 1: 10 Nm (7.4 lbf ft) Step 2: 50 Nm (37.0 lbf ft)
Fuel control valve	30 Nm (22.2 lbf ft)
Fuel pipe on high pressure pump	29 Nm (21.5 lbf ft)
Fuel pipe on control block	39 Nm (28.9 lbf ft)
Rail on cylinder head	30 Nm (22.2 lbf ft)
Pressure relief valve on rail	100 Nm (74.0 lbf ft)
Rail pressure sensor on rail	70 Nm (51.8 lbf ft)
Pipe clips, fuel line fastening	30 Nm (22.2 lbf ft)
Fuel line on control block, fuel filter console and rail	39 Nm (28.9 lbf ft)
Fuel pipe (return) on control block	49 Nm (36.3 lbf ft)
Fuel pipe (return) on cylinder head	29 Nm (21.5 lbf ft)
Fuel line on fuel filter8	39 Nm (28.9 lbf ft)
Fuel filter console/radiator tank on crankcase	30 Nm (22.2 lbf ft)

Fuel pressure sensor on fuel filter console	30 Nm (22.2 lbf ft)
Cover plate on cylinder cover, M6	30 Nm (22.2 lbf ft)

Document Title: Component locations	Function Group: 200	Information Type: Service Information	Date: 2014/6/11
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Component locations

D6E Engine

Component position, engine D6E. The following figures show the position of a number of components on engine D6E.

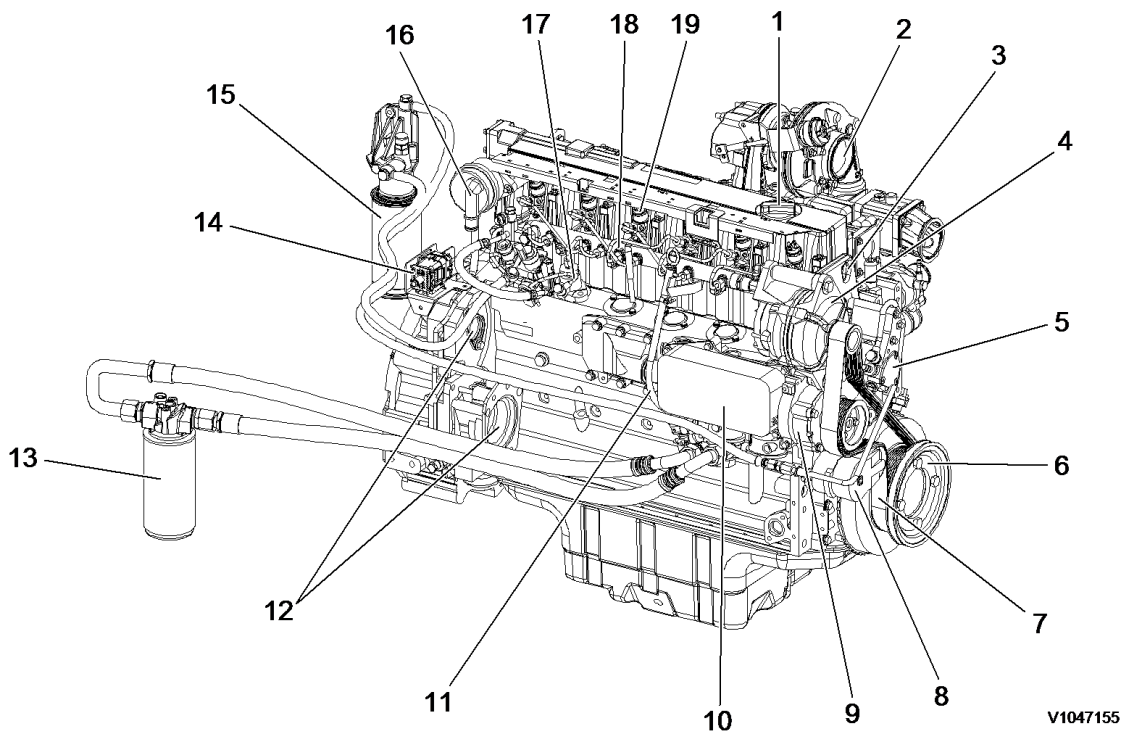
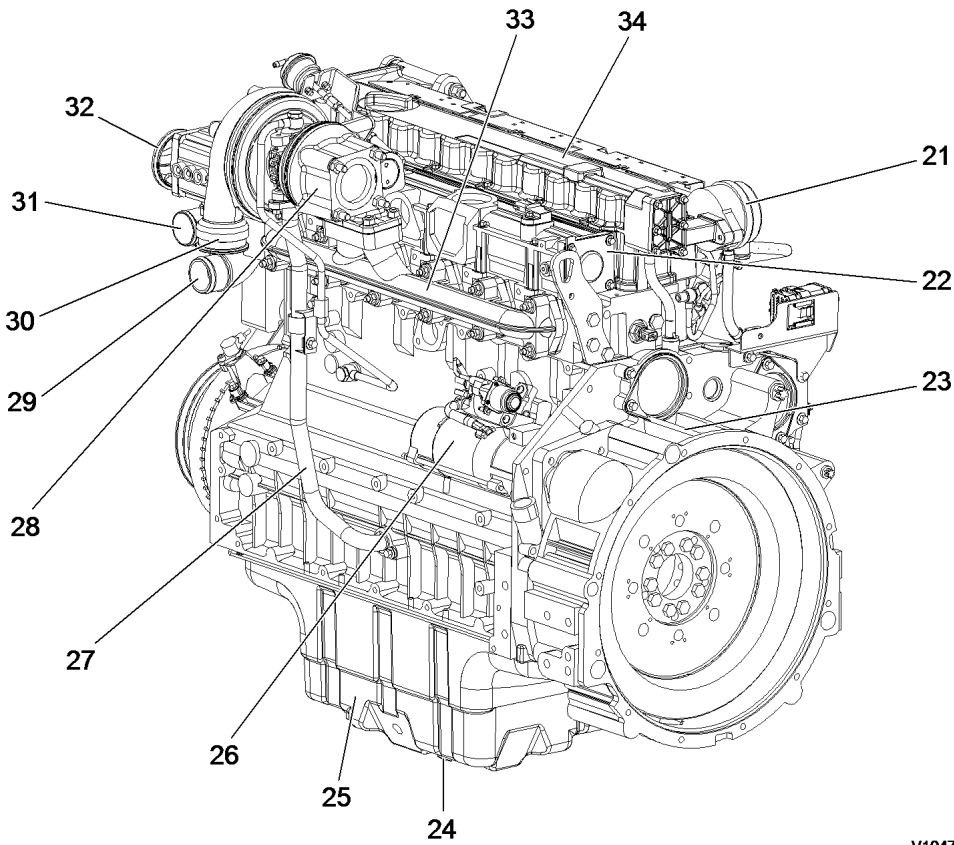


Figure 1
Component locations, front side

1	Engine oil filler	11	Oil dipstick
2	Air inlet	12	Power take off
3	Transport eye	13	Engine oil filter
4	Alternator	14	Connection to E-ECU
5	Fuel feed pump	15	Fuel filter
6	V-rib belt drive on crankshaft	16	Crankcase bleeding valve
7	V-rib belt	17	High pressure fuel pump
8	Automatic belt tensioner	18	Common rail
9	Coolant pump	19	Injector
10	Engine oil cooler		



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Figure 2
Component locations, flywheel side

21	Crankcase bleeding valve	28	Turbocharger
22	Charge air manifold	29	Coolant inlet
23	Flywheel housing	30	Air outlet (to charge air cooler)
24	Drain plug	31	Coolant outlet
25	Oil pan	32	Air inlet (from charge air cooler)
26	Starter motor	33	Exhaust manifold
27	Oil return line from turbocharger	34	Cylinder rocker arm cover

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