

Form No.
50960088
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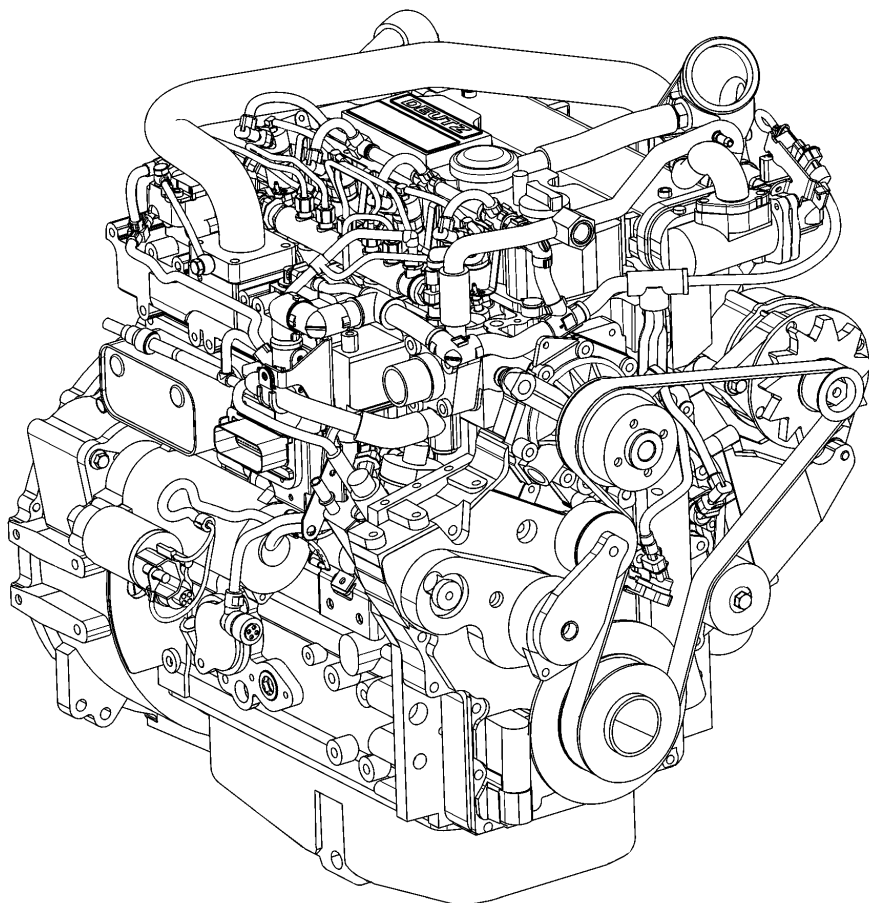
TD 3.6 L4

Deutz Engine

Telescopic Handlers

Gehl RS6-34 (Tier IV)

Manitou MT6034 T (Tier IV)



Parts Manual

Introduction

Deutz TD 3.6 L4

The Table of Contents pages list the page locations of the various component groups on the engine.

Manitou Americas, Inc. reserves the right to make changes or improvements in the design or construction of any part of the unit without incurring the obligation to install such changes on any unit previously delivered.

When ordering service parts, specify the part number, full description, quantity required, and the engine model and serial number.

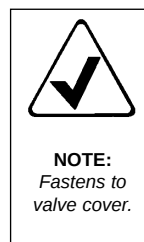
Model and serial number for this engine are stamped on the engine identification plate located on the top of the valve cover.

NOTE: The engine manufacturer occasionally makes changes to engine components; therefore, it is important to always provide the factory parts department with the model and serial number of the engine when ordering parts. This is especially important when the part number in this parts manual is listed as **CFPD** (Call Factory Parts Department) or **TBD** (To Be Determined).

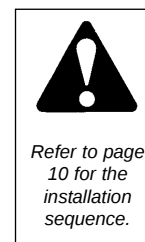
The following icons shown on various pages provide important information or identify where additional information can be found.



Identifies where additional information can be found.



Identifies missing, hidden parts, or adds informational comments.



Alerts and directs user to investigate more information.



Informs user of specific parts details for ordering.



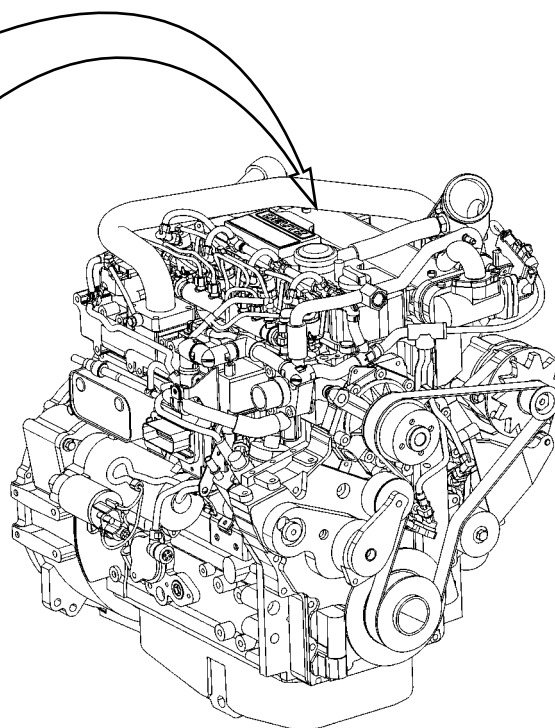
Identifies the correct torque of the bolt, nut, fitting, or other hardware. When a value is not present, refer to the engine shop manual for correct torque values and procedures.

Model

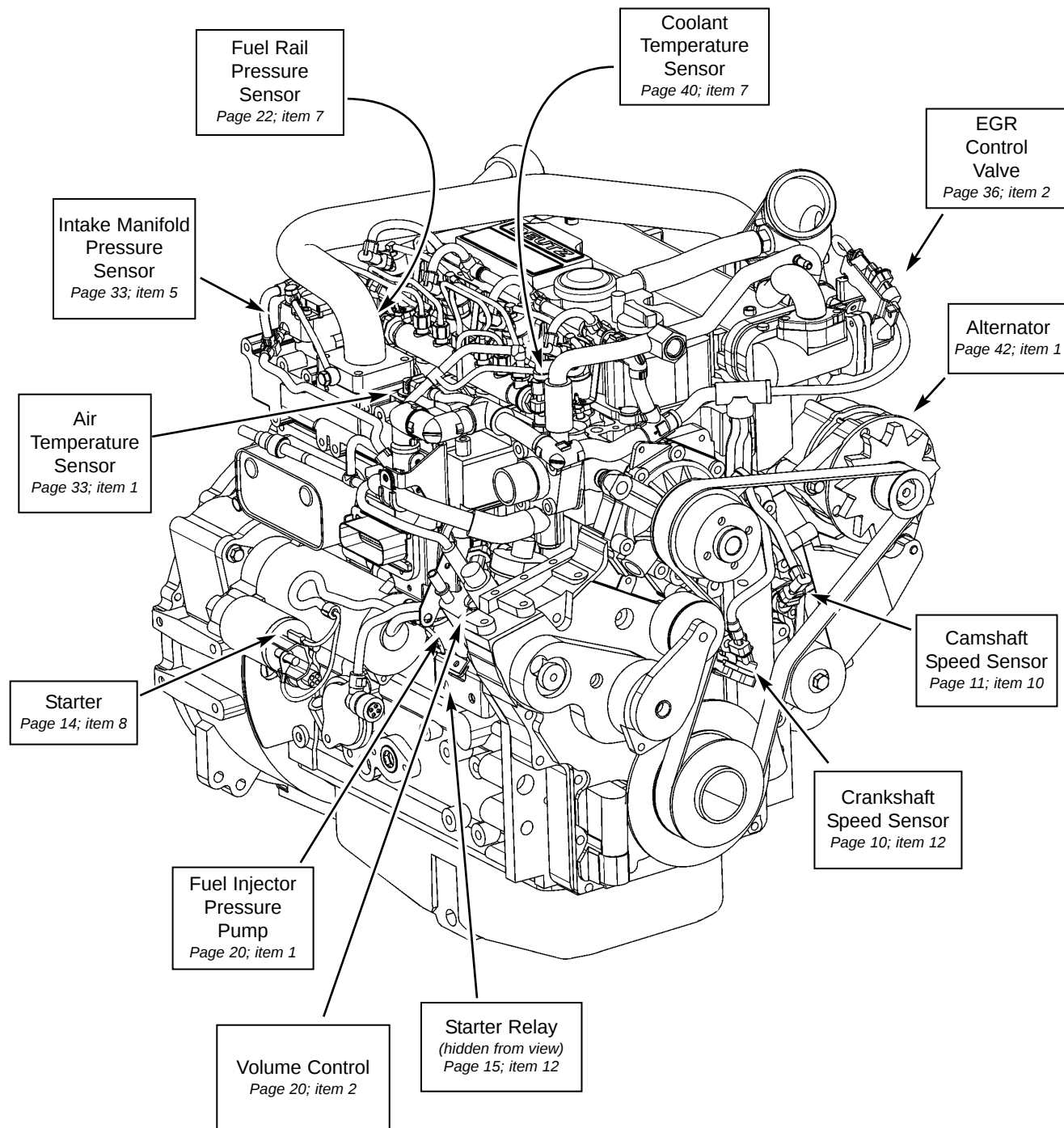
Serial Number

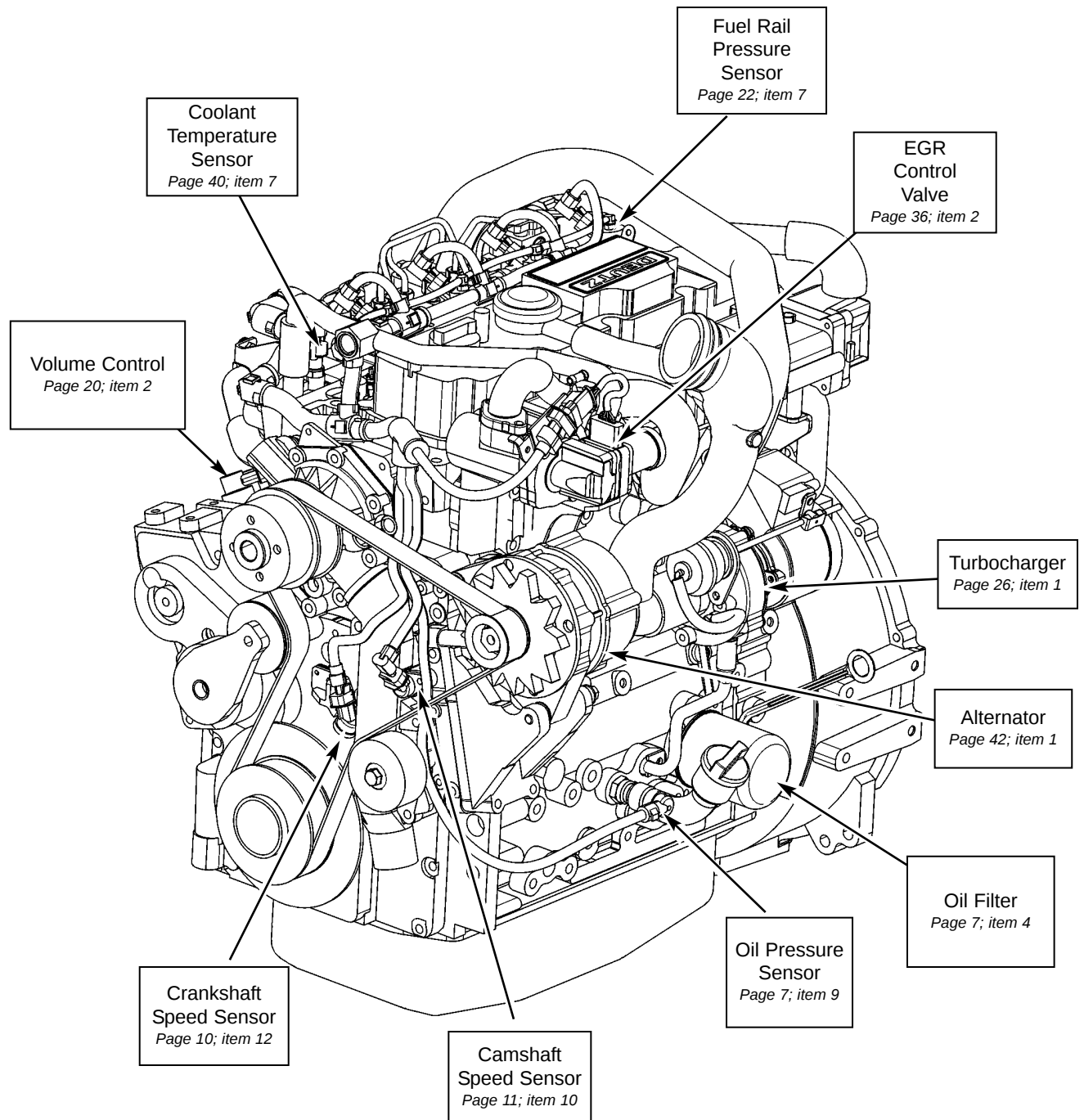


Engine Identification Plate
(Located on top of the valve cover)



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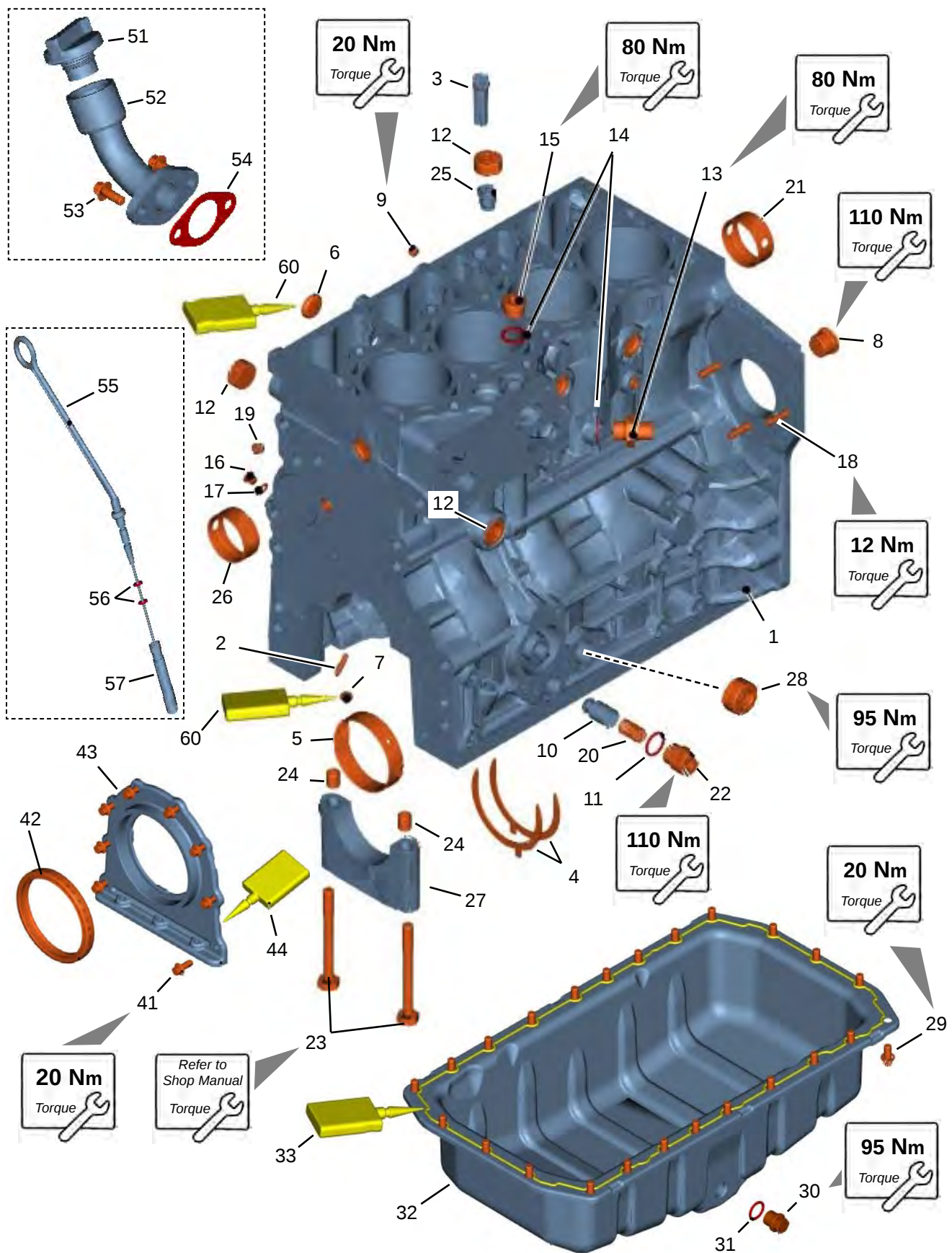




Engine

Deutz TD 3.6 L4

Engine Block, Oil Pan, Plugs, and Gasket Set

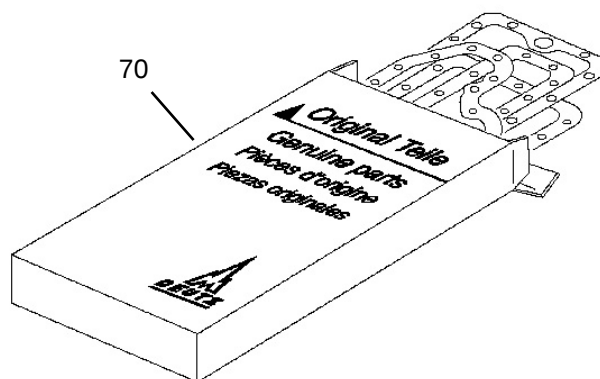
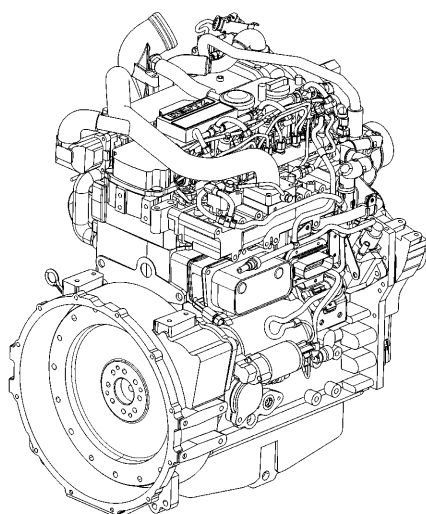


Engine Block, Oil Pan, Plugs, and Gasket Set

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220780	ENGINE BLOCK ASSEMBLY 1 (includes items 6-27)	1	23	50220332	BOLT, MAIN BEARING CAP 10	10
02	133417	PISTON COOLING NOZZLE 8	8	24	50220333	ALIGNMENT BUSHING 10	10
03	50220323	VALVE 1	1	25	50220562	BY-PASS 1	1
04		BEARING, THRUST 1	1	26	TBD	CAM BEARING/BUSHING 4	4
	50220324	Standard		27	NSS	MAIN BEARING CAP 5 (included with item 1)	5
	50220334	Oversize — 2,53 mm		28	133537	PLUG 1	1
05		BEARING, MAIN 5	5	29	187234	BOLT, TORX HEAD 24	24
	50220325	Standard		30	133149	PLUG, OIL PAN DRAIN 1	1
	50220335	Undersize — 84,75 mm		31	105407	SEAL 1	1
	50220336	Undersize — 84,50 mm		32	50220340	OIL PAN 1	1
06	187262	PLUG 5	5	33	50220560	SEALANT 1	1
07	50220326	PLUG 1	1	41	105289	BOLT 8	8
08	50220327	PLUG 1	1	42	133387	REAR MAIN SEAL 1	1
09	133539	PLUG (M10-1.0 mm) 2	2	43	50220315	REAR MAIN SEAL HOUSING 1 (includes item 42)	1
10	133414	VALVE 1	1	44	133103	SEALANT 1	1
11	133139	SEALING RING 1	1	51	133444	FILLER CAP 1	1
12	133537	PLUG 3	3	52	50220776	OIL FILLER TUBE 1	1
13	50220328	HOSE CONNECTOR 1	1	53	105289	BOLT (torque 30Nm) 2	2
14	50220329	SEALING RING 2	2	54	50220777	GASKET 1	1
15	187276	PLUG (M22-1.5 mm) 1	1	55	50220774	DIPSTICK, ENGINE OIL LEVEL . . 1 (includes item #56)	1
16	133147	PLUG (M10-1.0 mm) 2	2	56	50220775	O-RING (included w/#57) 2	2
17	133132	SEALING RING 2	2	57	50220773	GUIDE TUBE, DIPSTICK 1	1
18	187115	STUD 3	3	60	50220561	SAFETY LOCK AGENT 1	1
19	133536	PLUG (M14-1.5 mm) 6	6	70	50220559	GASKET SET, TD3.6 L4 ENGINE. . 1	1
20	50220330	COMPRESSION SPRING 1	1				
21	133405	BUSHING 1	1				
22	50220331	ADAPTER 1	1				



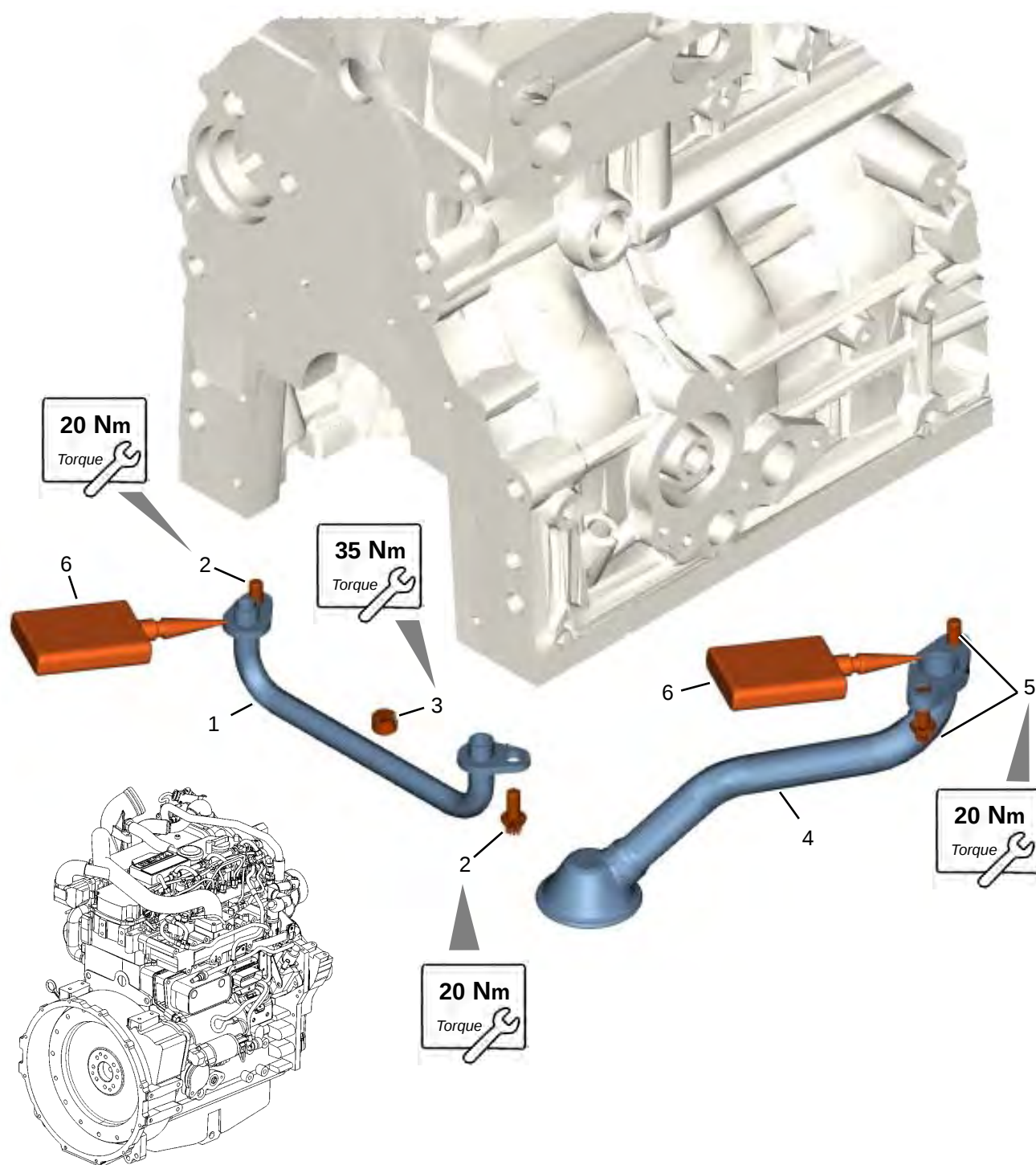
NOTE: At the time of publication of this parts manual, the engine OEM was unable to provide availability or pricing for the cam bushings/bearings (item 26). Please contact the Factory Parts Department for more information.



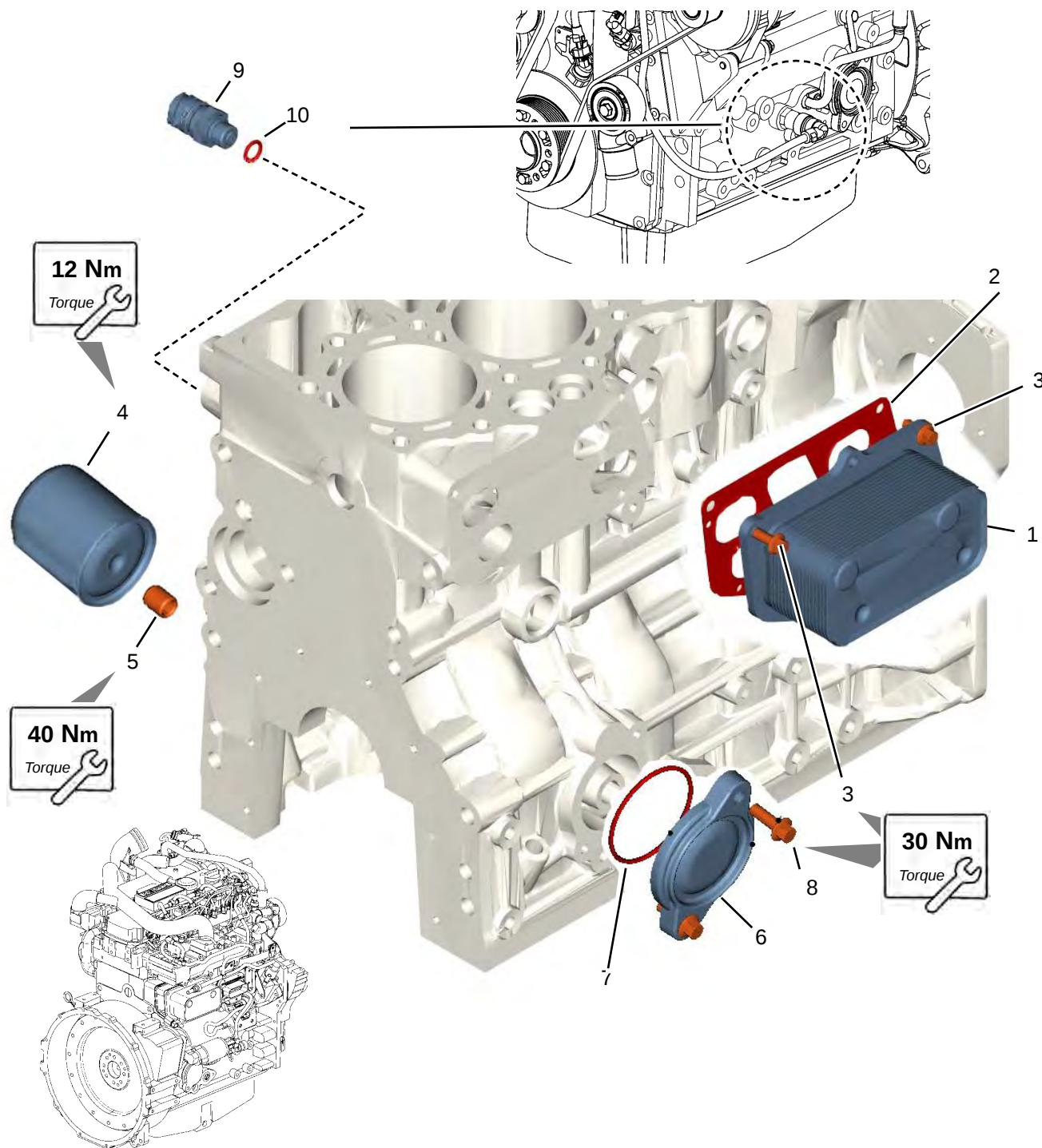
Engine

Oil Pickup Lines

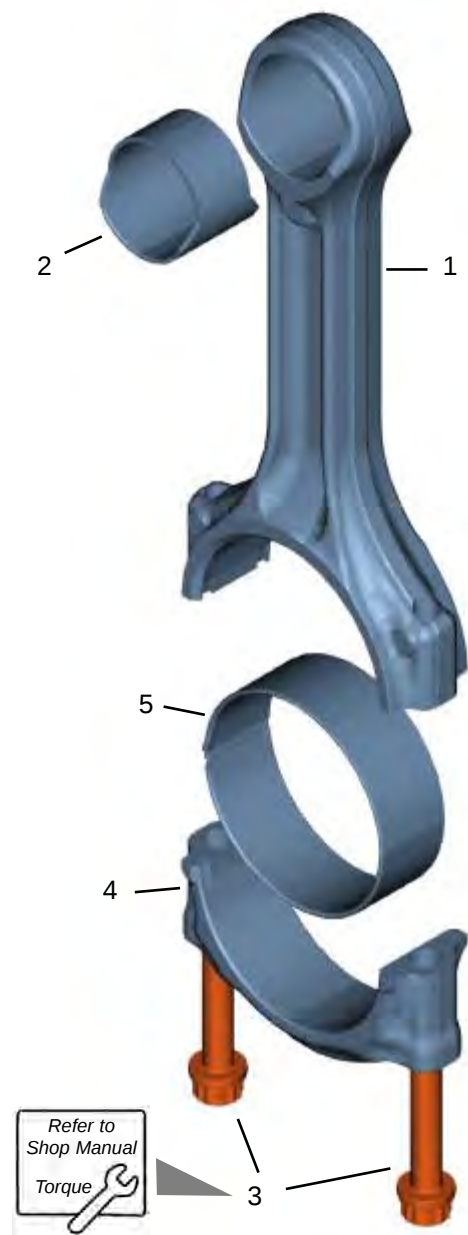
Deutz TD 3.6 L4



Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220406	TRANSFER PIPE, OIL	1	04	50220407	OIL SUCTION PIPE	1
02	187233	BOLT, TORX-HEAD.....	2	05	50220270	BOLT, TORX-HEAD.....	2
03	133538	PLUG.....	1	06	50220561	SEALANT	1



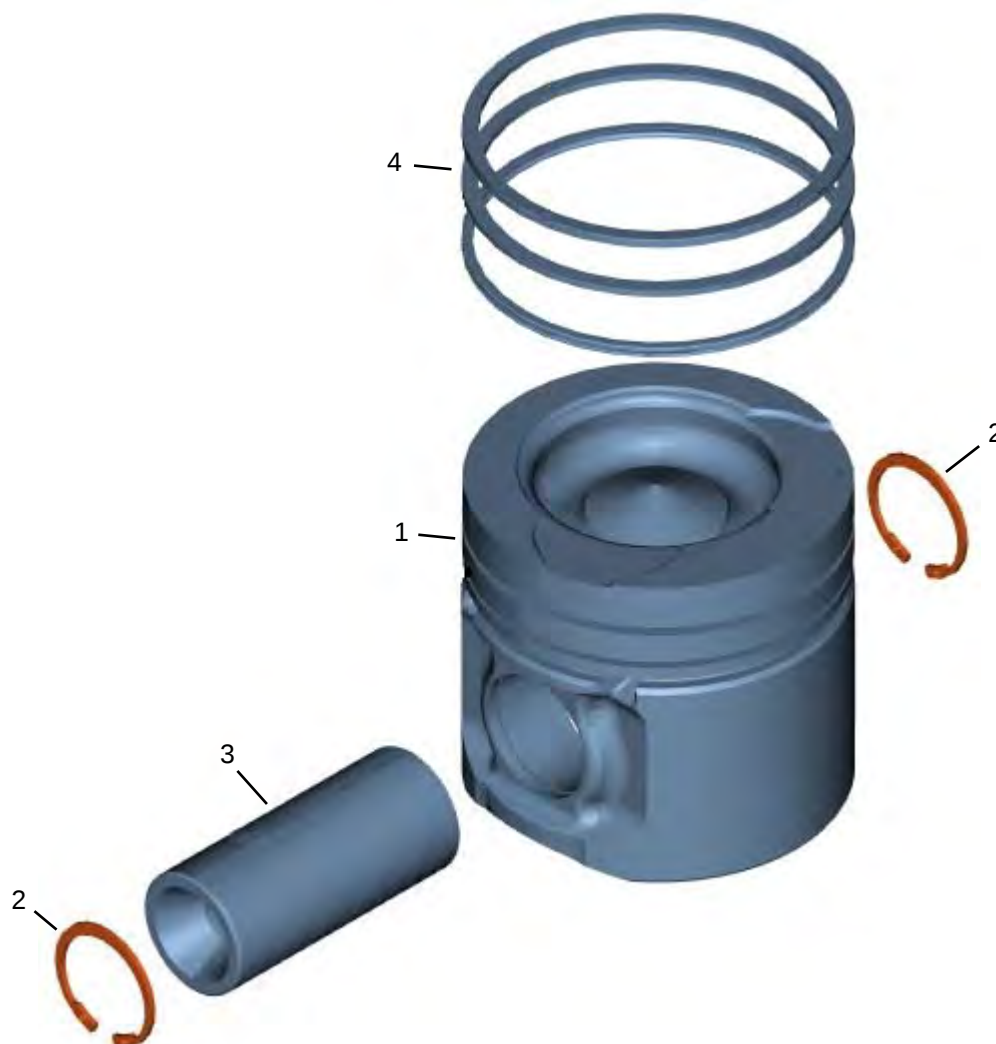
Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220401	OIL COOLER.....	1	07	50220405	O-RING	1
02	50220402	GASKET, OIL COOLER	1	08	105905	BOLT	2
03	105289	BOLT	4	09	50220553	SENSOR, OIL PRESSURE.....	1
04	132023	FILTER, ENGINE OIL	1			(includes item 10)	
05	133326	THREADED ADAPTER.....	1	10	50220554	O-RING SEAL	1
06	50220404	PLATE/COVER	1				



Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220351	CONNECTING ROD ASSEMBLY . . . 1 (includes items 2-4)		05		ROD BEARING 1	
02	50220352	BUSHING, WRIST PIN 1			50220354	Standard — 68,0 mm	
03	50220353	BOLT, CONNECTING ROD. 2			50220355	1st undersize — 67,75 mm	
04	NSS	CONNECTING ROD CAP. 1 (included with item 1)			50220356	2nd undersize — 67,50 mm	



NOTE: Quantities are for one connecting rod; the engine uses four connecting rods.



Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220357	PISTON ASSEMBLY 1		03	50220359	WRIST PIN 1	
02	50220358	SNAP RING, WRIST PIN. 2		04	50220360	PISTON RING SET (<i>one piston</i>) . . . 1	

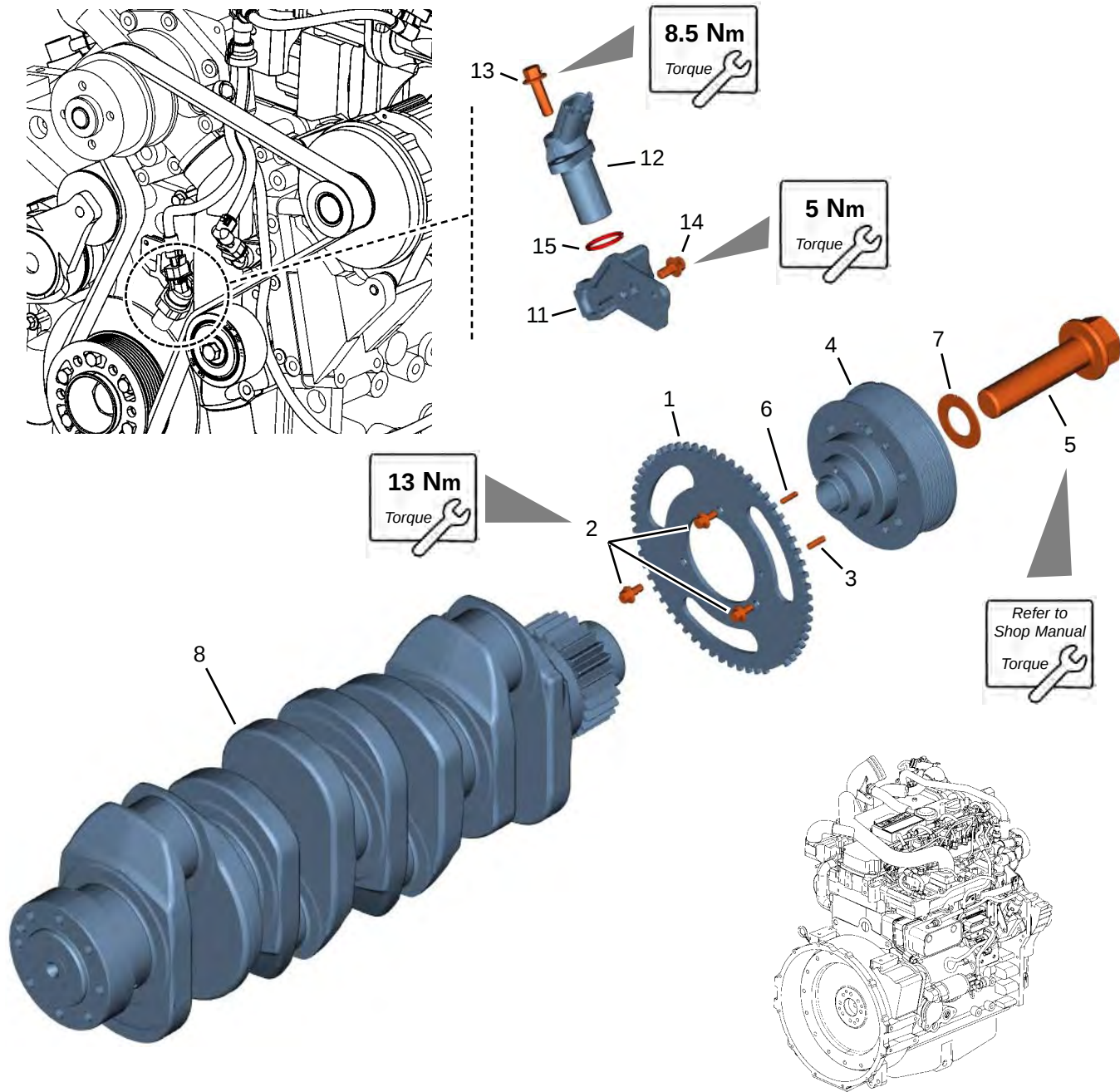


NOTE: Quantities are for one piston; the engine uses four pistons.

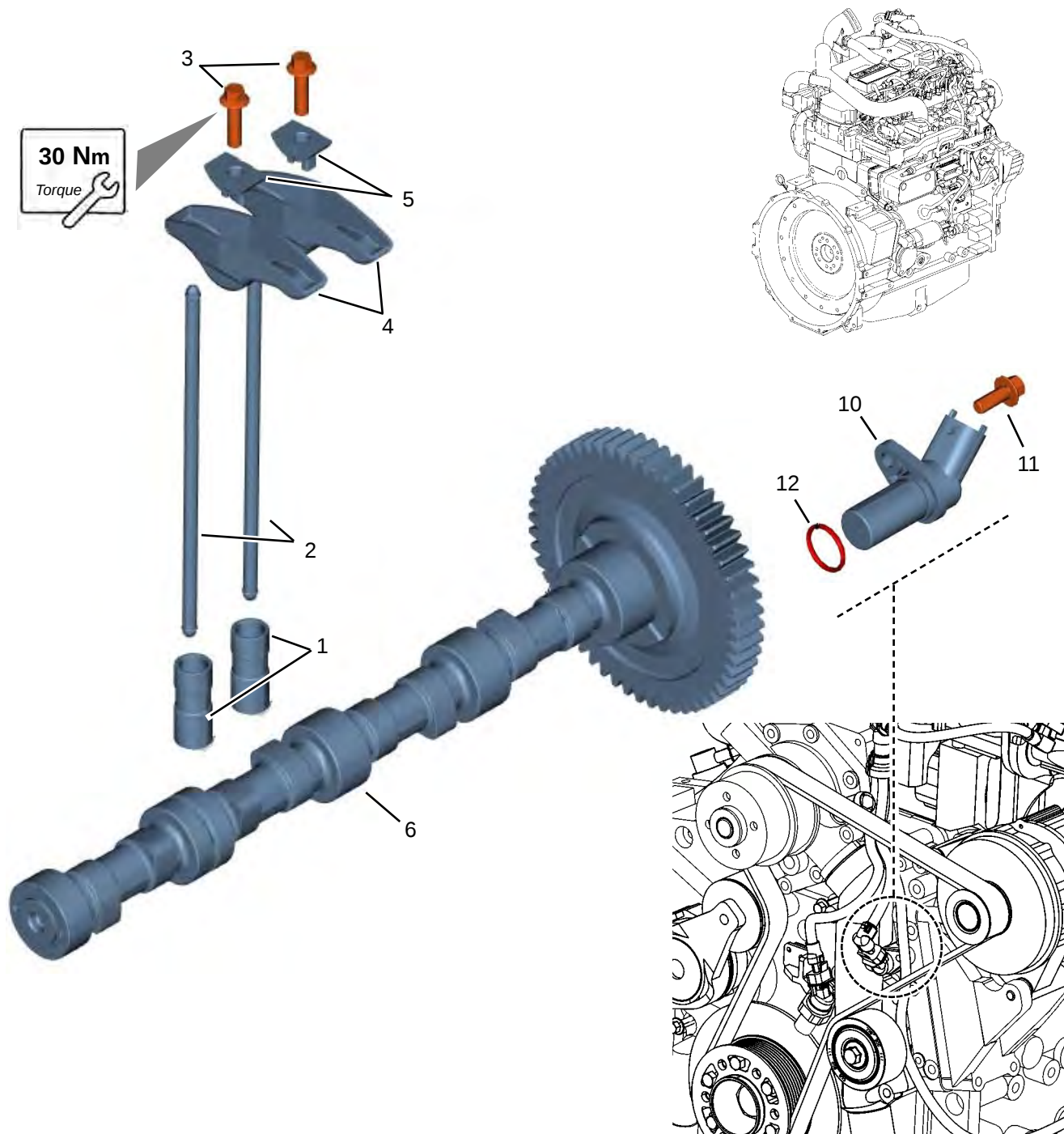
Engine

Crankshaft, Pulley, and Sensor

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Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220344	GEAR, ENGINE SPEED	1	08	50220343	CRANKSHAFT	1
02	50220345	BOLT	3	11	50220376	BRACKET, ENGINE SPEED	1
03	50220346	PIN, ALIGNMENT	1	12	50220552	SENSOR, ENGINE SPEED	1
04	50220347	PULLEY, CRANKSHAFT	1	13	50220378	BOLT (Torque 8,5 Nm)	1
05	50220348	BOLT, CRANKSHAFT PULLEY	1	14	50220379	BOLT (Torque 5 Nm)	1
06	50220349	PIN, ALIGNMENT	1	15	50220563	O-RING	1
07	50220350	WASHER, FLAT	1				

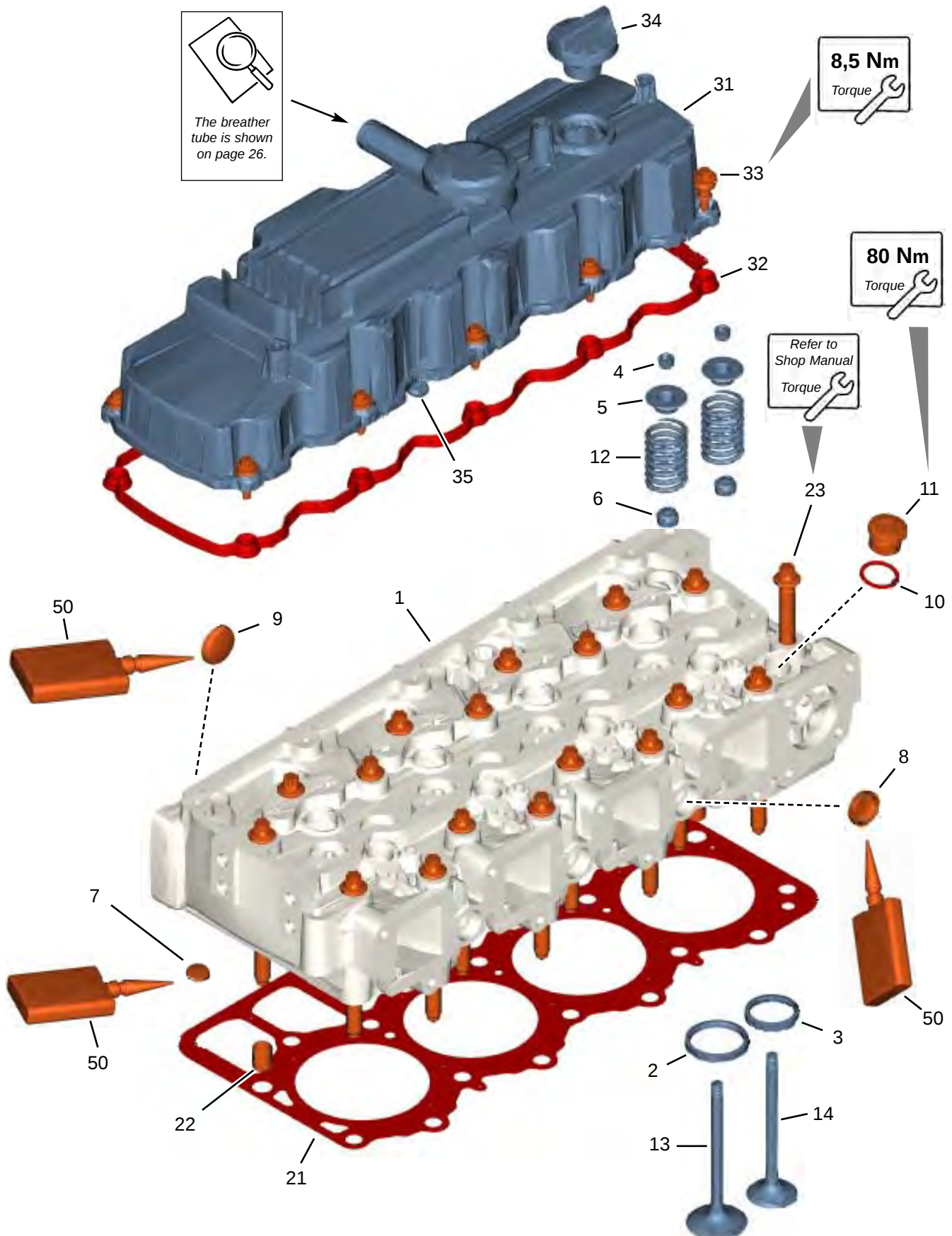


Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	105325	VALVE LIFTER, HYDRAULIC	8	10	50220552	SENSOR, ENGINE SPEED 1 (includes item 3)	
02	50220392	PUSHROD, VALVE LIFTER	8	11	187227	BOLT	1
03	105303	BOLT	8	12	50220563	O-RING	1
04	50220393	ROCKER ARM	8				
05	50220394	ROCKER ARM BEARING	8				
06	50220778	CAMSHAFT	1				

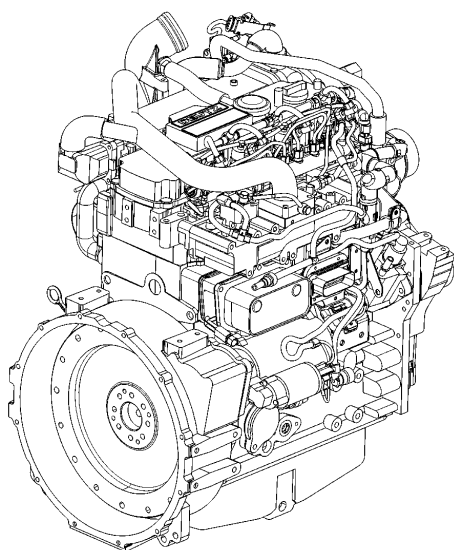
Engine

Cylinder Head and Valve Cover

Deutz TD 3.6 L4



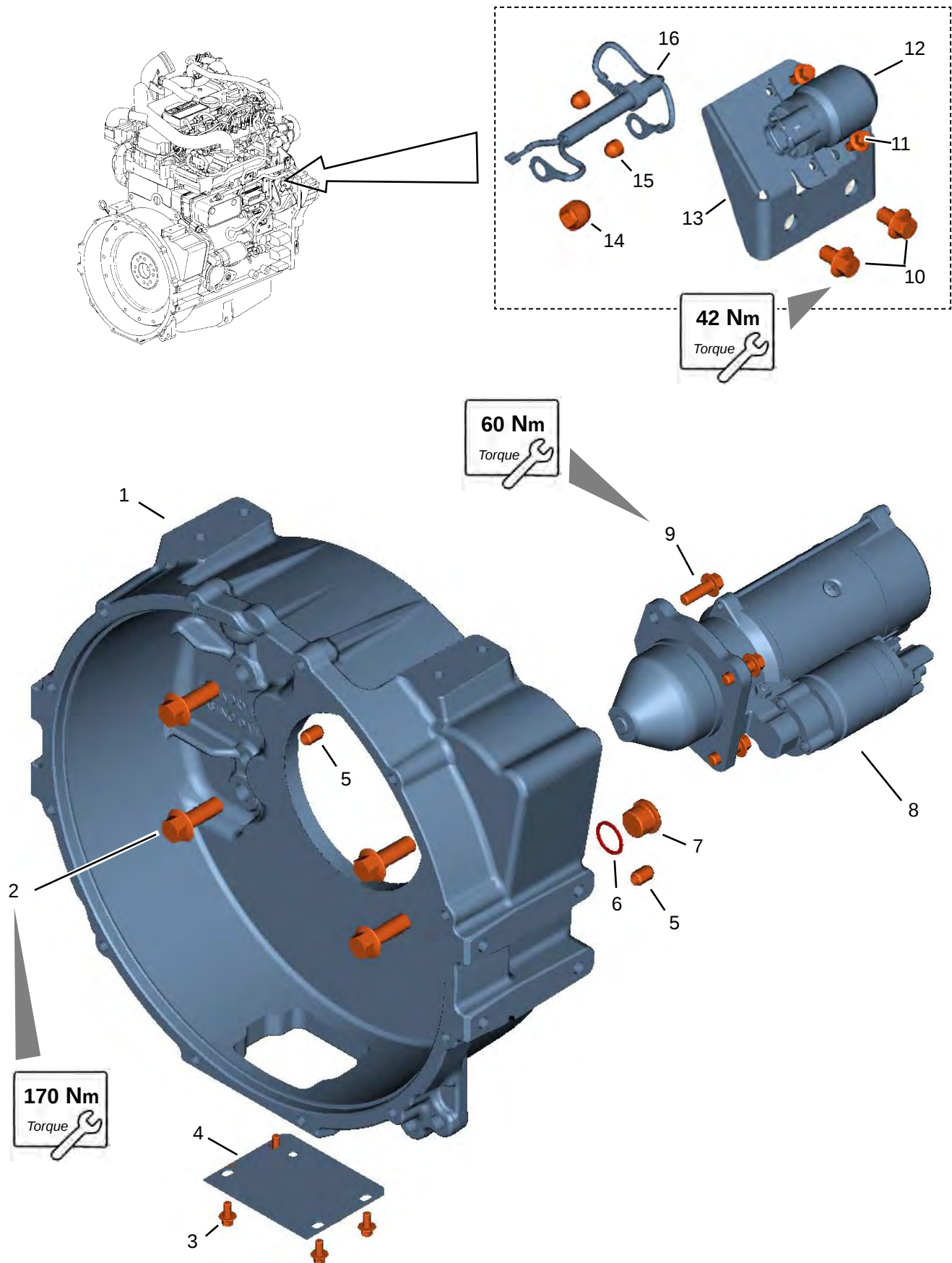
Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220779	CYLINDER HEAD 1 (includes items 2-14)	1	12	50220367	VALVE SPRING 8	8
02	50220364	VALVE SEAT, INTAKE 4	4	13	50220368	INTAKE VALVE 4	4
03	50220365	VALVE SEAT, EXHAUST 4	4	14	50220369	EXHAUST VALVE 4	4
04	133322	VALVE KEEPER 16	16	21	50220361	GASKET, CYLINDER HEAD 1	1
05	187148	VALVE SPRING CAP 8	8	22	50220333	BUSHING, ALIGNMENT 2	2
06	133352	VALVE SEAL 8	8	23	50220362	CYLINDER HEAD BOLT 18	18
07	133166	PLUG 5	5	31	50220370	VALVE COVER 1 (includes items 32-34)	1
08	50220366	PLUG 8	8	32	50220371	GASKET, VALVE COVER 1	1
09	187262	PLUG 4	4	33	50220372	BOLT 10	10
10	133138	SEALING RING (22x27 mm) 1	1	34	133444	CAP, OIL FILL 1	1
11	187276	PLUG (M22-1.5) 1	1	35	50220373	PLUG 1	1
				50	105307	SAFETY LOCK AGENT AR	AR



Engine

Flywheel Housing, Starter, and Starter Relay

Deutz TD 3.6 L4

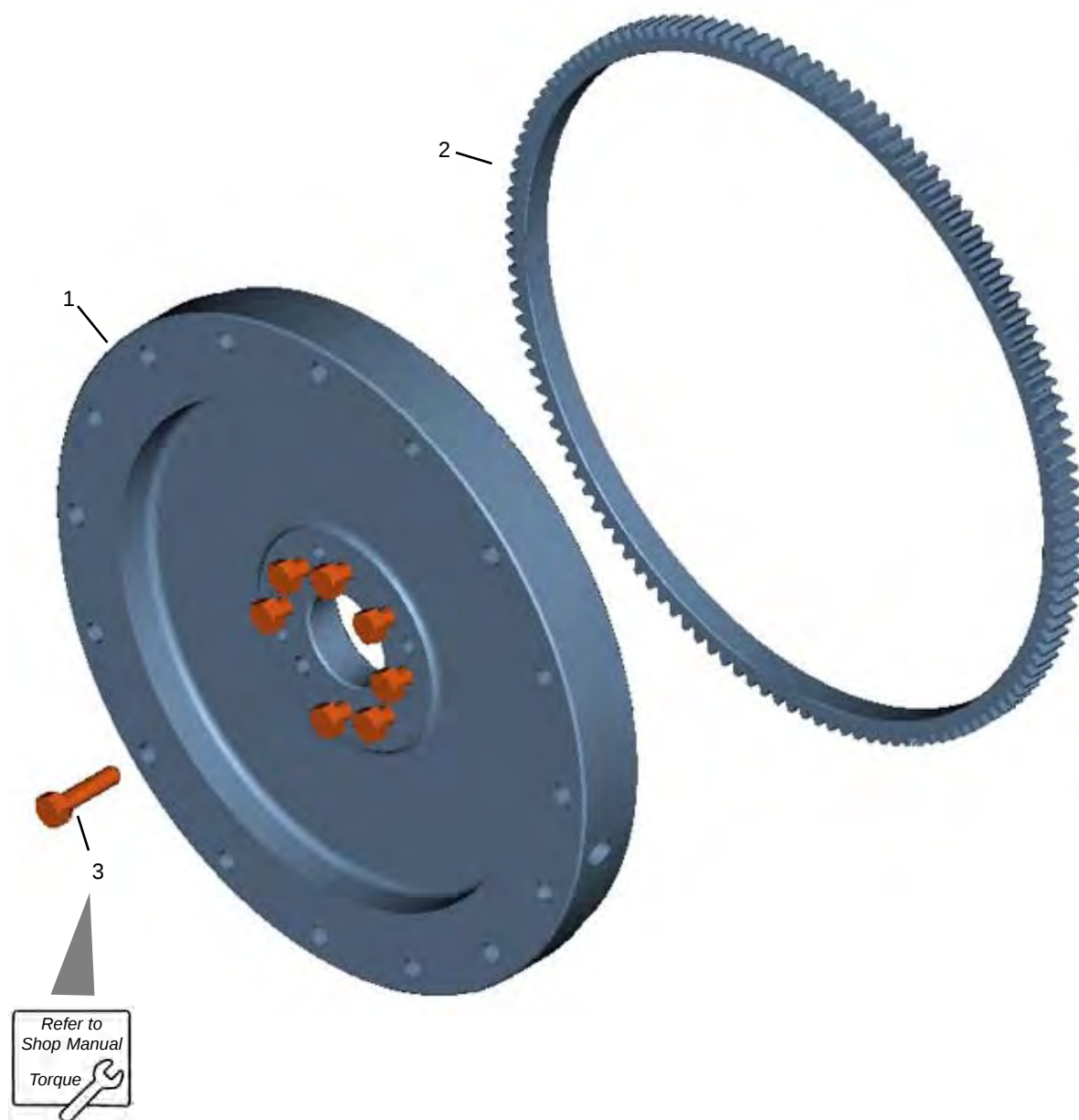


Flywheel Housing, Starter, and Starter Relay

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220781	FLYWHEEL HOUSING	1	09	105910	BOLT	3
02	50220556	BOLT	6	10	105298	BOLT	2
03	50220345	BOLT	4	11	50220345	BOLT	2
04	50220872	COVER PLATE	1	12	50220639	RELAY, STARTER.....	1
05	133329	BUSHING, ALIGNMENT	2	13	50220638	BRACKET, STARTER RELAY.....	1
06	133138	SEALING RING	1	14	50220642	PROTECTING CAP.....	1
07	187276	SCREW PLUG	1	15	50220641	PROTECTING CAP.....	2
08	TBD	STARTER	1	16	50220640	HARNESS, STARTER RELAY	1

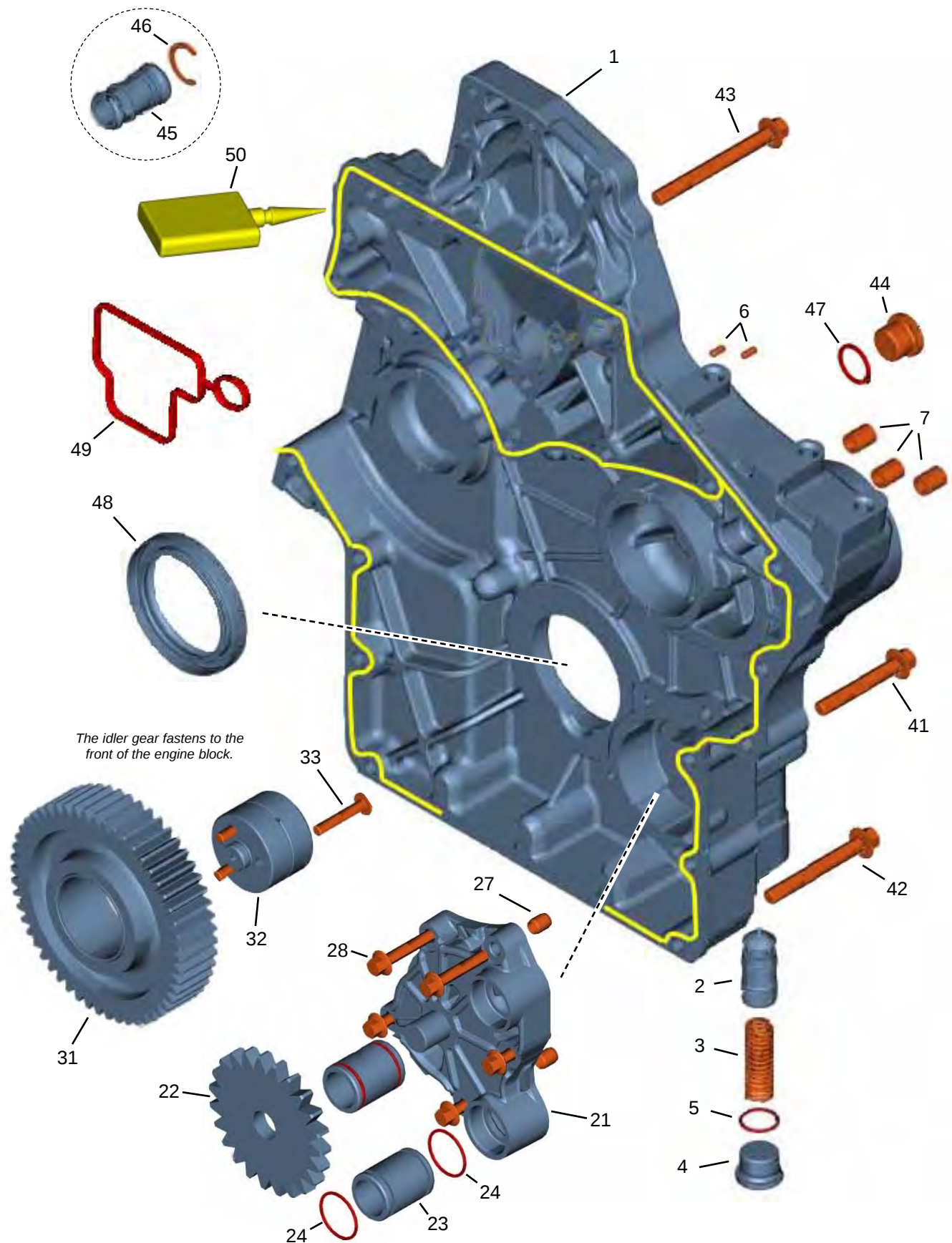


NOTE: At the time of publication of this parts manual, the OEM for the starter was unable to provide availability or pricing. Please contact the Factory Parts Department for more information.



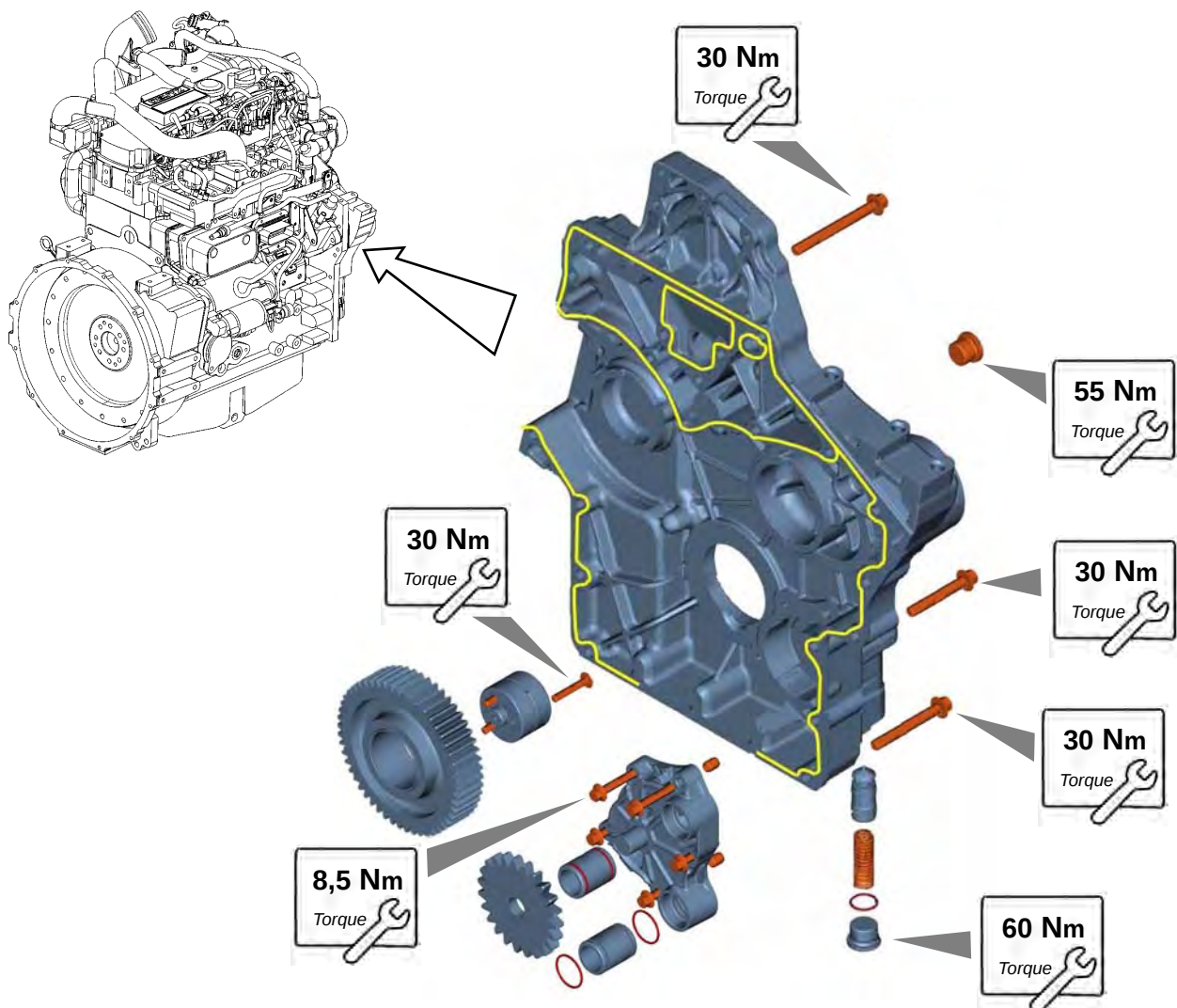
Item No.	Part No.	Description	Qty. Req.
01	50220783	FLYWHEEL 1 <i>(includes item 2)</i>	
02	50220784	STARTER RING 1 <i>(included with item 1)</i>	
03	133335	BOLT 8	

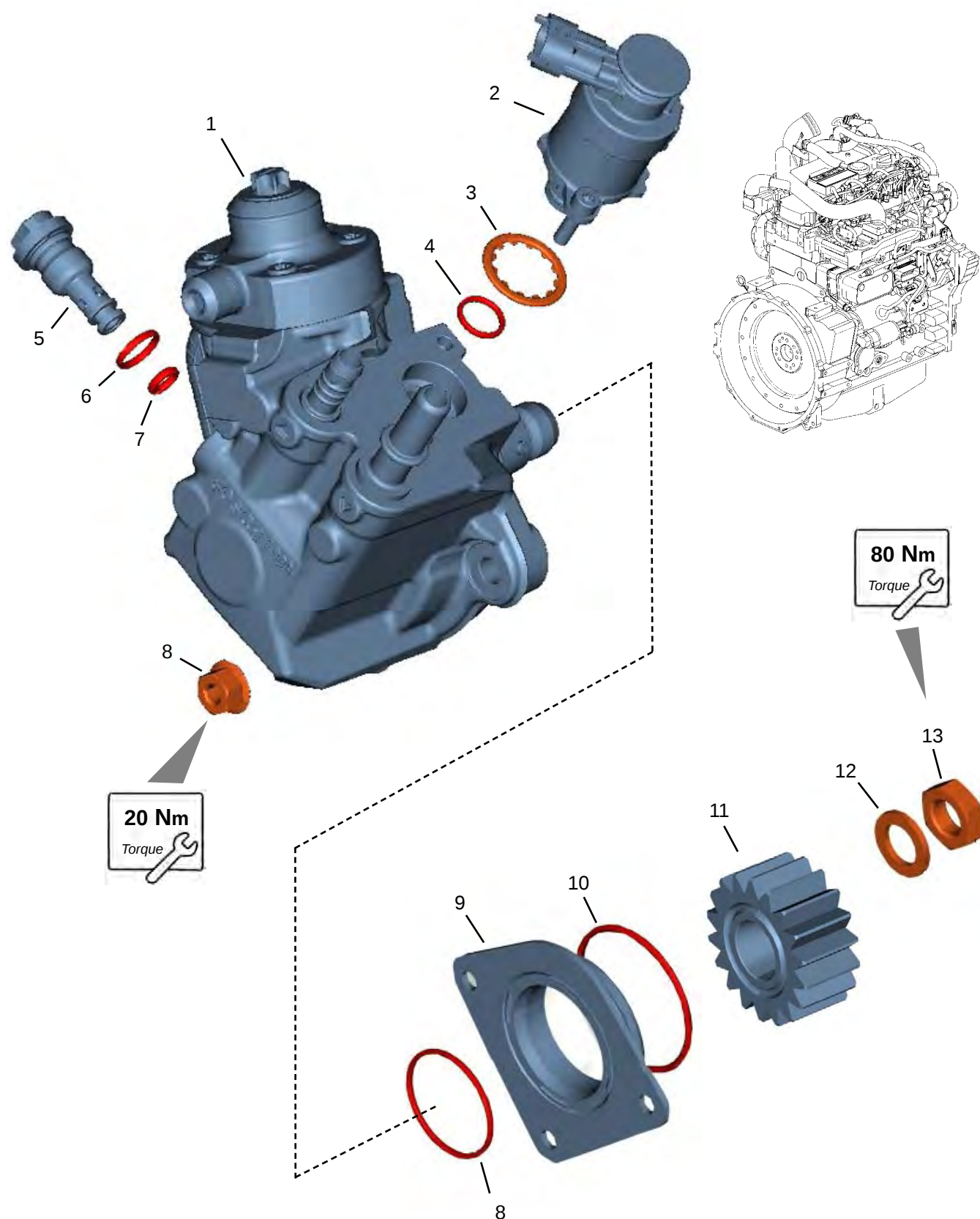
Oil Pump and Timing Gear Cover



Oil Pump and Timing Gear Cover

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220785	COVER, TIMING GEAR	1	31	50220374	GEAR, IDLER	1
02	50220385	VALVE PLUNGER	1	32	50220375	SHAFT	1
03	50220386	VALVE SPRING	1	33	105896	BOLT (Torque 30 Nm)	3
04	50220387	SPRING CAP (Torque 60 Nm)	1	41	50220380	BOLT (Torque 30 Nm)	10
05	50220388	O-RING	1	42	105292	BOLT (Torque 30 Nm)	7
06	50220389	PIN, ALIGNMENT	2	43	50220381	BOLT (Torque 30 Nm)	5
07	50220390	THREADED INSERT	3	44	133151	PLUG (Torque 55 Nm)	1
21	50220395	OIL PUMP	1	45	50220382	CONNECTOR, COOLANT PORT ..	1
		(includes items 22-24)		46	50220383	RETAINER, COOLANT CONN....	1
22	50220396	GEAR, OIL PUMP	1	47	133136	SEALING RING (18x20 mm)	1
23	50220397	ADAPTER TUBE	2	48	133388	SEAL, CRANKSHAFT	1
24	50220398	O-RING	4	49	50220786	PROFILE WASHER	1
27	50220399	DOWEL BUSHING	2	50	133103	SEALANT	1
28	50220400	BOLT (Torque 8,5 Nm)	5				

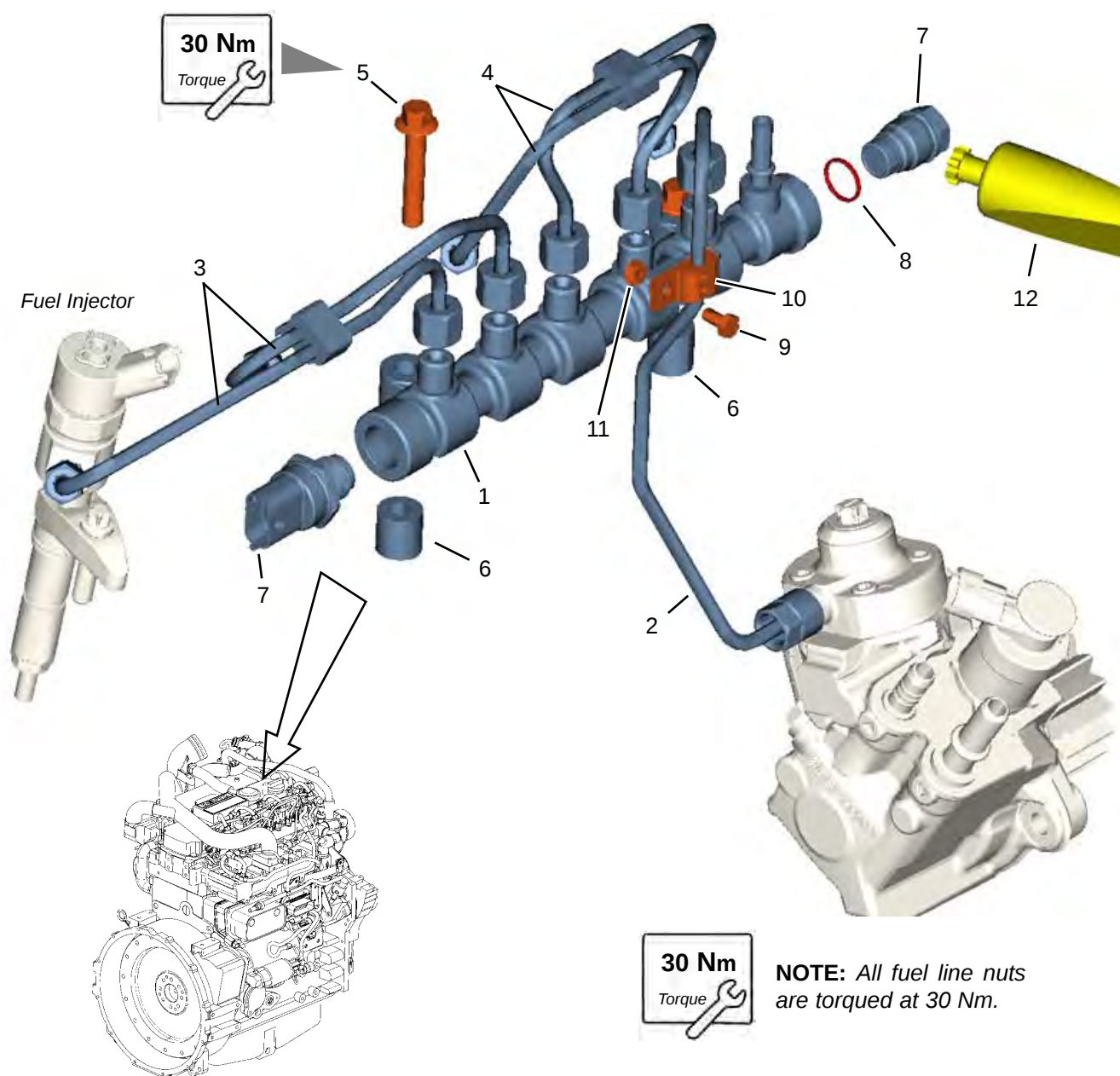




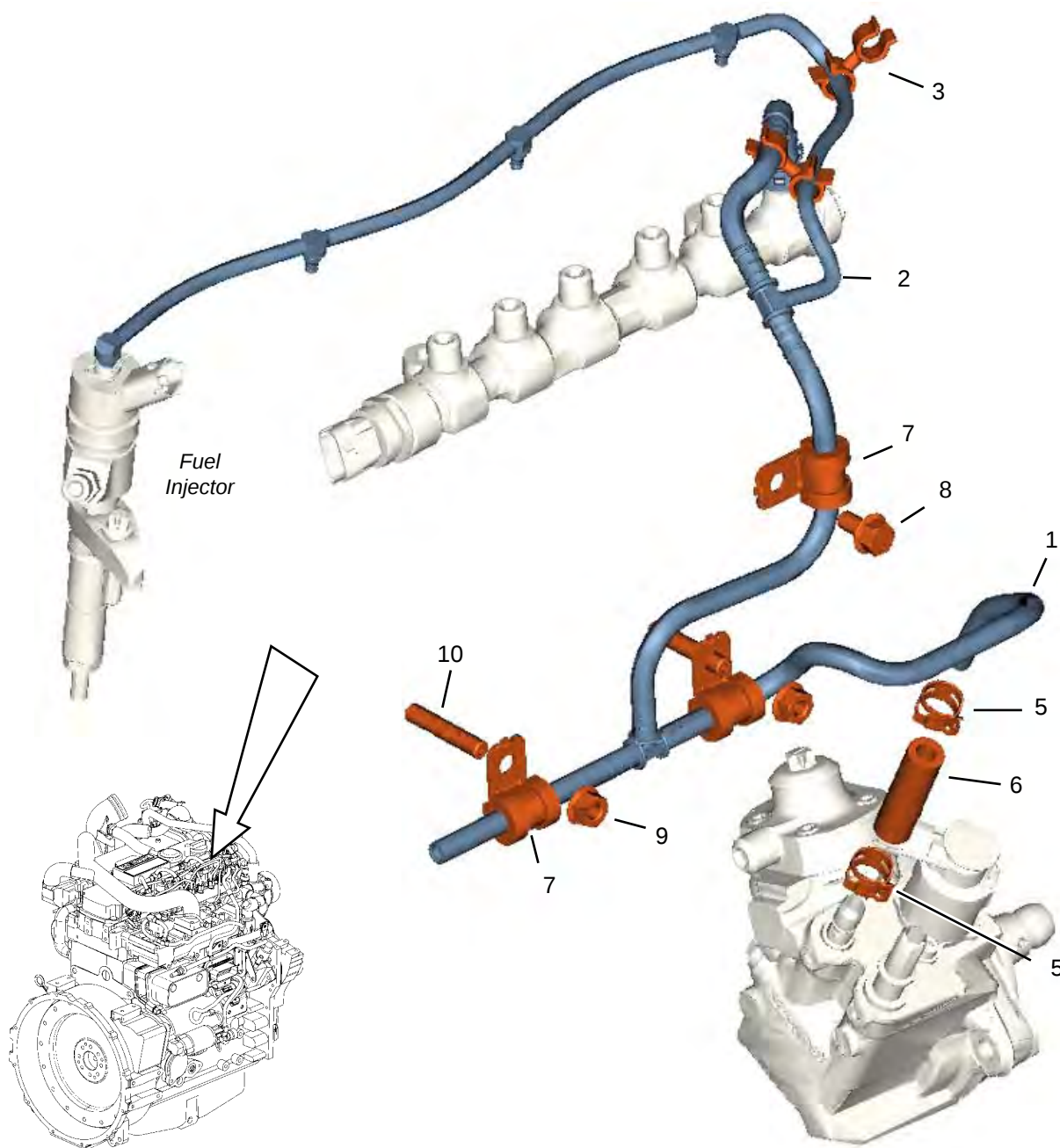
Fuel Injector Pressure Pump

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50288228	HIGH PRESSURE PUMP	1	07	50220788	O-RING	1
		<i>(includes items 2-7)</i>		08	50220419	O-RING SEAL	1
02	50220790	VOLUME CONTROL VALVE	1	09	50220415	SPACER/ADAPTER	1
		<i>(includes items 3-4)</i>		10	50220417	O-RING SEAL	1
03	50220792	GASKET	1	11	50220420	GEAR, FUEL INJ. PUMP DRIVE . .	1
04	50220791	O-RING	1	12	50220416	WASHER	1
05	50220787	OVER-FLOW VALVE	1	13	50220418	NUT, INJECTION PUMP	1
		<i>(includes items 6-7)</i>					
06	50220789	O-RING	1				

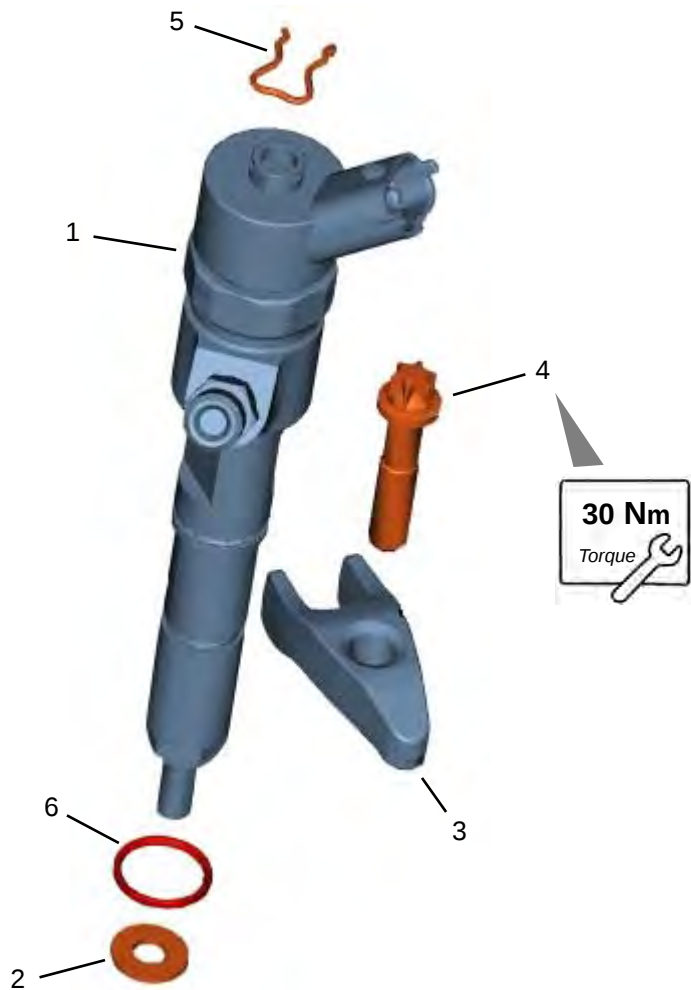
Fuel Rail and High-Pressure Fuel Lines



Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220426	FUEL RAIL. 1 (includes item 7 and 8)	1	07	50220565	RAIL PRESSURE SENSOR KIT. . . 1 (includes item 8)	1
02	50220427	FUEL LINE ASSEMBLY. 1 (includes items 9-11)	1	08	50220793	O-RING 1	1
03	50220428	FUEL LINE ASSEMBLY. 1 (used with cylinders 3 and 4)	1	09	NSS	BOLT (included with item 2) 1	1
04	50220429	FUEL LINE, HIGH-PRESSURE . . . 1 (used with cylinders 1 and 2)	1	10	NSS	PIPE CLAMP (included with item 2) 1	1
05	50220430	BOLT, TORX-HEAD. 2	2	11	NSS	NUT (included with item 2) 1	1
06	50220431	SPACER, FUEL RAIL 2	2	12	50220569	MULTI-PURPOSE GREASE AR	AR



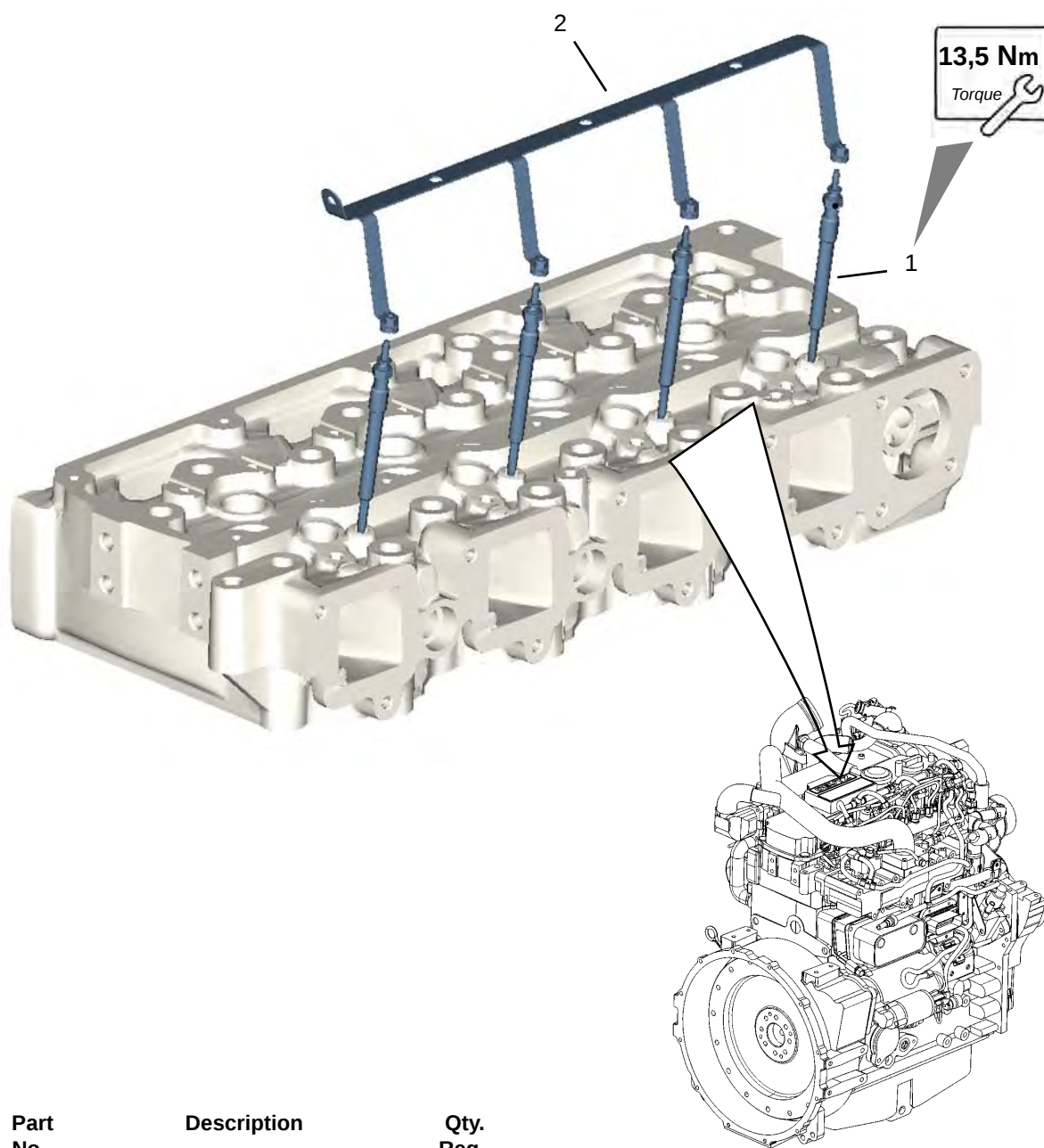
Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01 ^a	50220432	FUEL LINE ASSEMBLY..... 1 (includes items 5-7)		06	50220436	HOSE ASSEMBLY	1
02	50220794	FUEL RETURN LINE	1	07	50220437	PIPE CLAMP	3
03	50220434	HOSE RETAINER	2	08	50220795	BOLT	1
05	50220435	CLAMP, SPRING BAND	2	09	105646	NUT	2
				10	50220796	STUD.....	2



Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220421	FUEL INJECTOR.	4	04	50220424	BOLT, FUEL INJECTOR	4
		(includes items 2 and 5)		05	50220425	RETAINING CLIP	4
02	50220422	SEAL, FUEL INJECTOR.	4	06	50220564	O-RING	4
03	50220423	CLAMP, FUEL INJECTOR.	4				



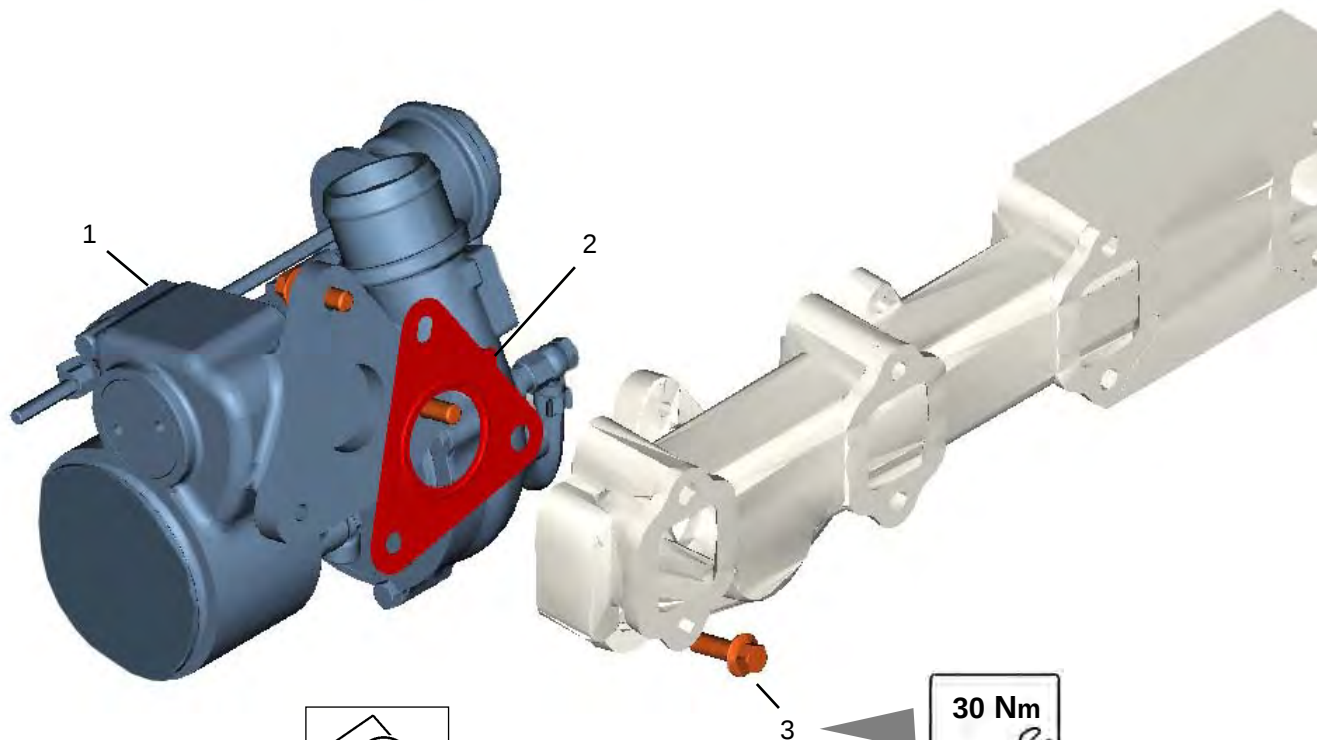
NOTE: The engine uses four injectors; the quantities shown are for all four injectors.



Item No.	Part No.	Description	Qty. Req.
01	50220557	GLOW PLUG	4
02	50220558	CONNECTING RAIL	1



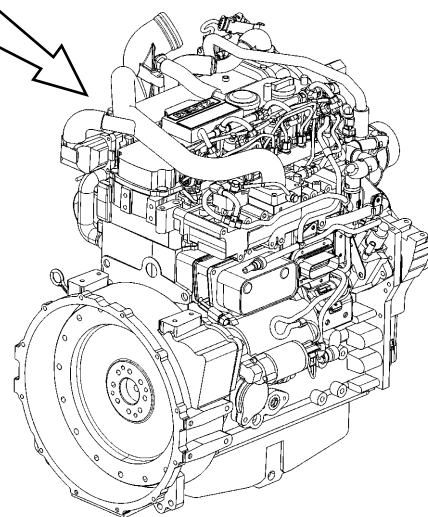
NOTE: The engine uses four glow plugs;
the quantities shown are for all four.

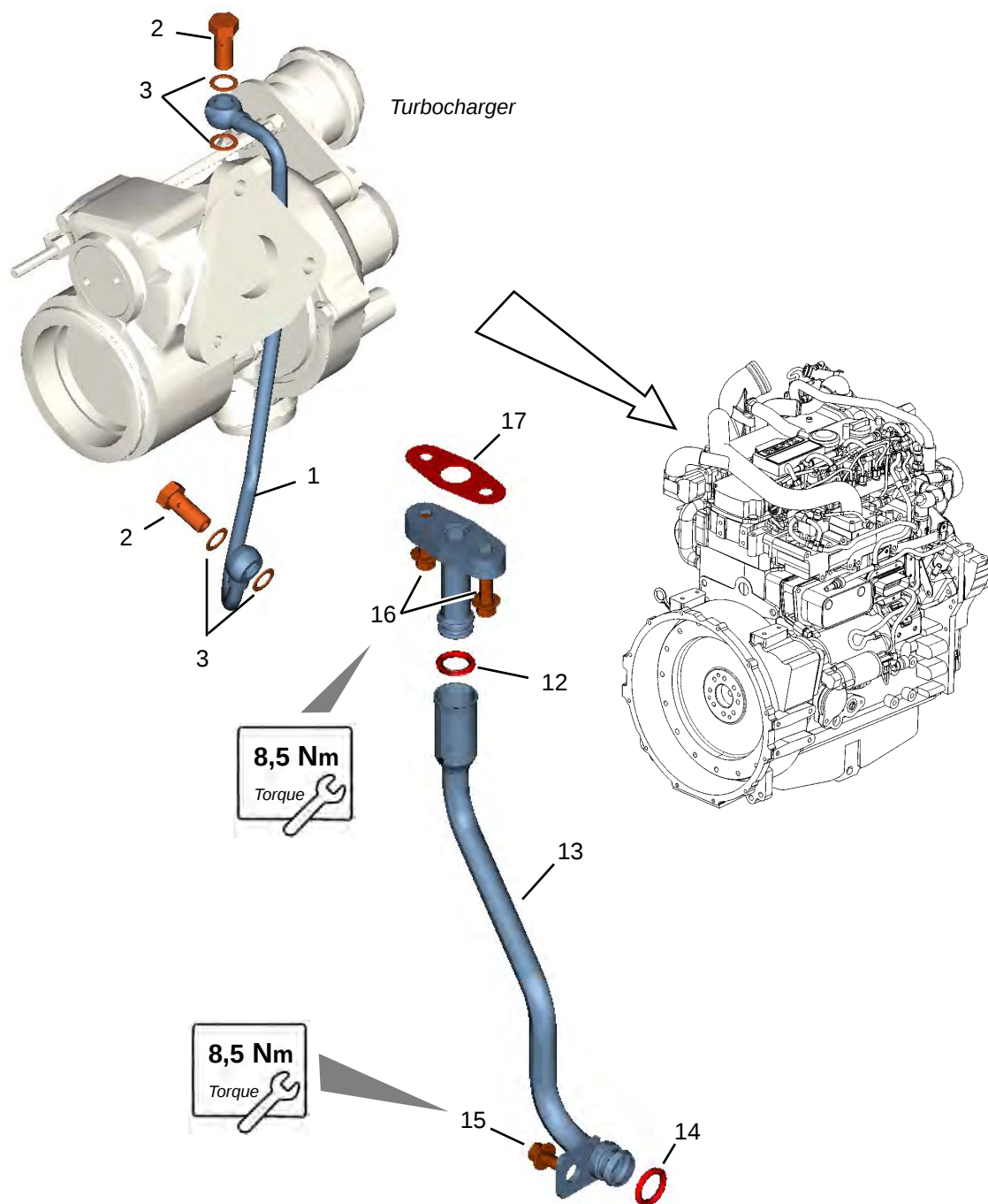


*Turbocharger
rubber hose
adapter is on
page 26.*

30 Nm
Torque

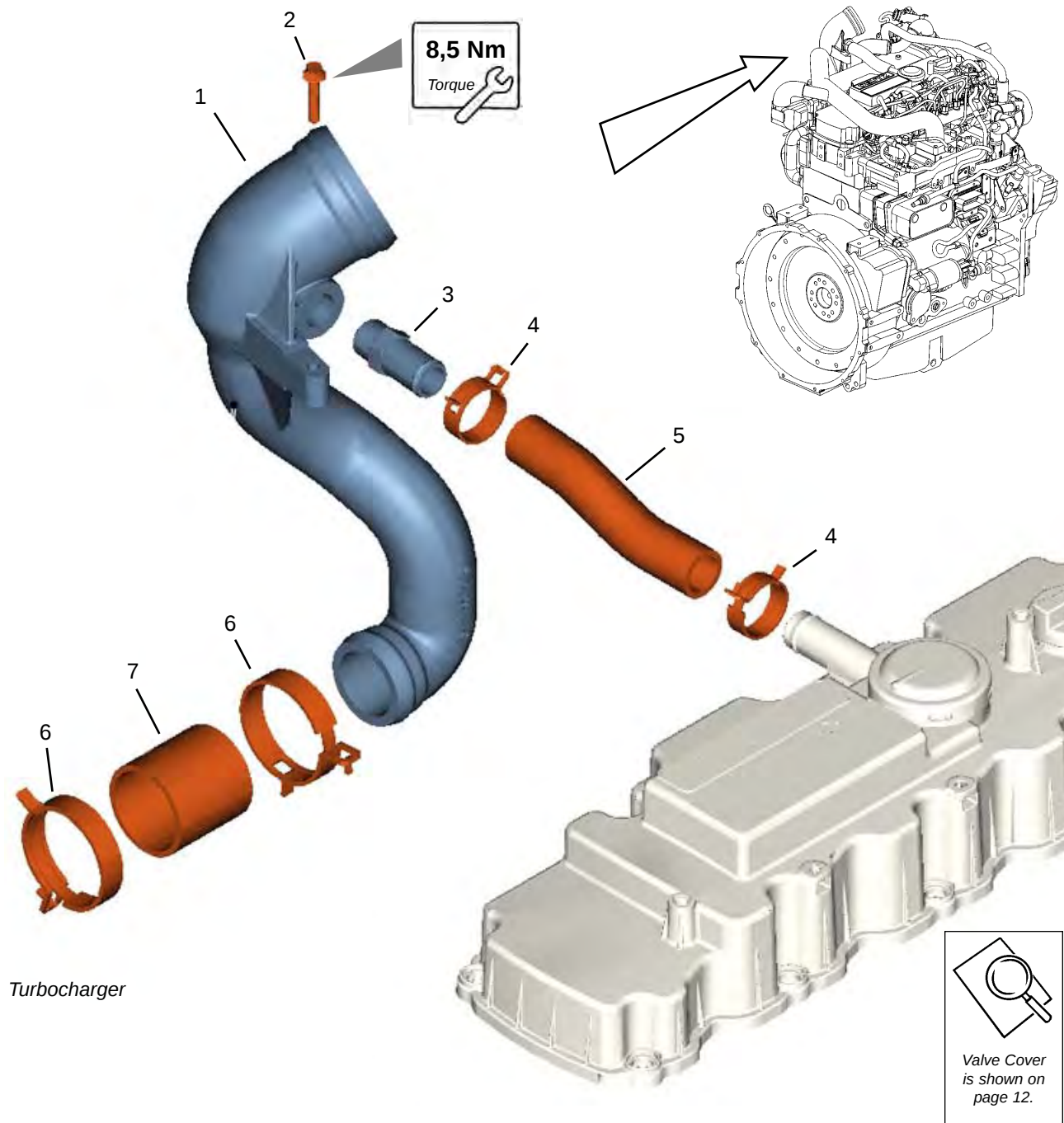
Item No.	Part No.	Description	Qty. Req.
01	50220797	TURBOCHARGER	1
02	50220503	GASKET, TURBOCHARAGER	1
03	50220487	BOLT	3



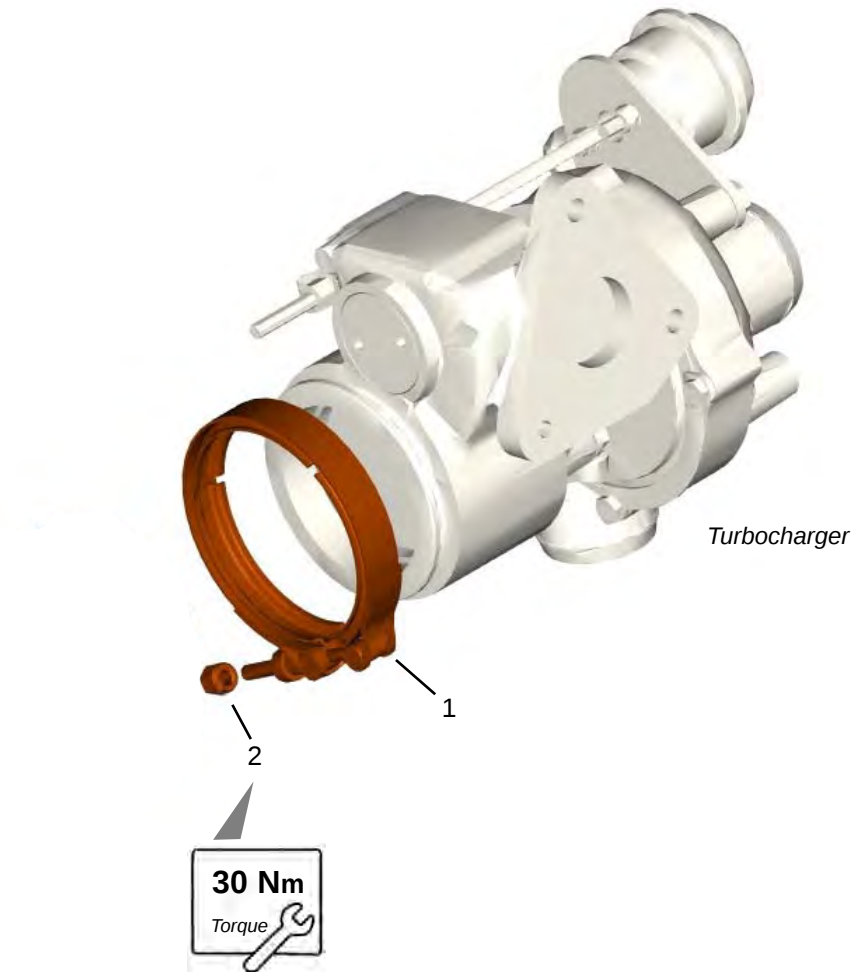


Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220798	OIL LINE, PRESSURE	1	13	50220806	OIL LINE, RETURN.	1
		(includes items 2-3)				(includes items 14)	
02	50220409	BOLT, HOLLOW	2	14	187222	O-RING	1
03	105483	SEALING RING.	4	15	133232	BOLT	1
11	50220410	FLANGE	1	16	133162	BOLT	2
12	50220411	O-RING SEAL	1	17	50220413	GASKET, FLANGE	1

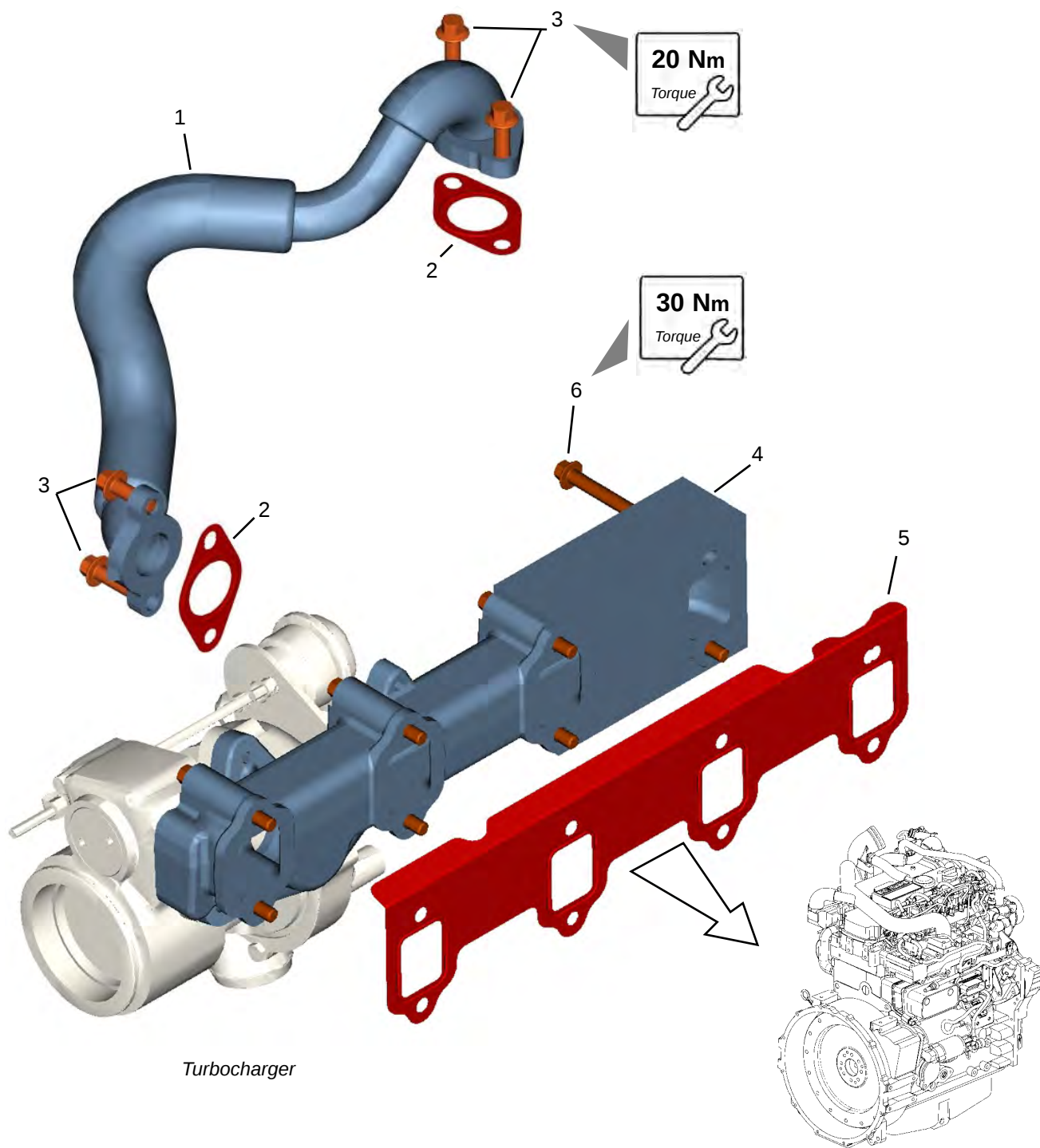
Turbocharger Hose and Crankcase Breather Tube



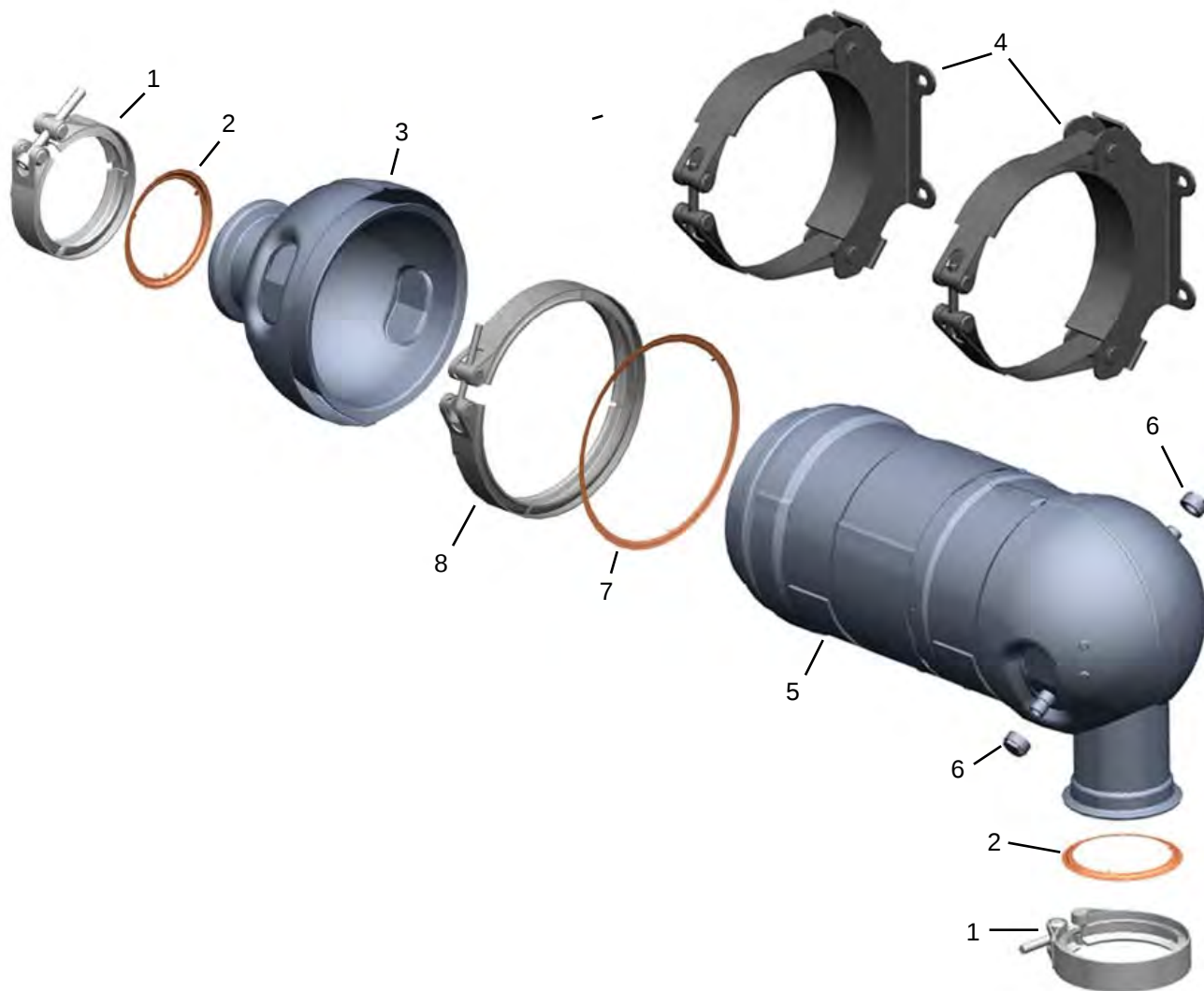
Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220767	INTAKE ELBOW	1	05	50220771	HOSE.	1
02	50220769	BOLT	1	06	50220318	SPRING CLAMP	2
03	50220770	HOSE NIPPLE.	1	07	50220768	HOSE.	1
04	133214	SPRING CLAMP	2				



Item No.	Part No.	Description	Qty. Req.
01	50220500	CLAMP, T-BOLT	1
02	50220501	NUT	1



Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220801	COMPENSATOR TUBE	1	04	50220800	EXHAUST MANIFOLD	1
02	50220486	GASKET, COMPENSATOR TUBE .	2	05	50220483	GASKET, EXHAUST MANIFOLD .	1
03	50220487	BOLT	4	06	50220484	BOLT	8

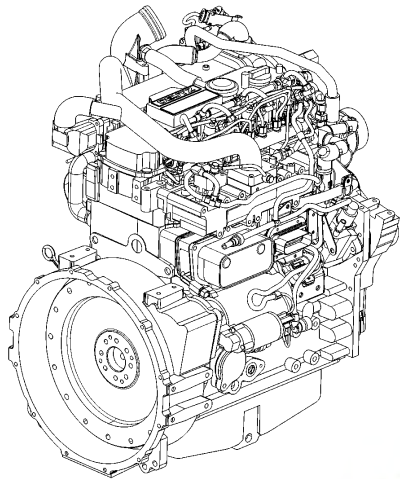


Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220574	CLAMP, EXHAUST	2	06	50220573	LOCK, CAP	2
02	50220575	GASKET, EXHAUST	2	07	50220572	GASKET	1
03	50220799	OUTLET, DOC	1	08	50220571	CLAMP, DOC	1
04	50302200	BRACKET, DOC	2				
05	50302554	INLET, DOC	1				
		(includes items 6-8)					

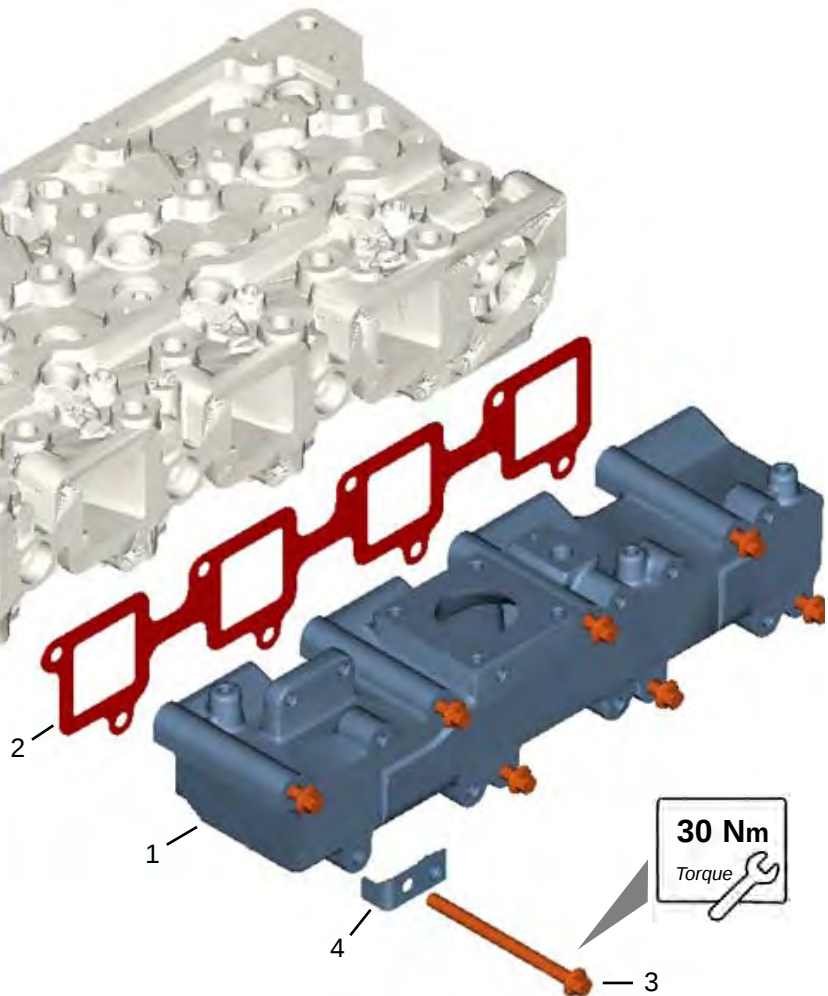
Engine

Air Intake Manifold

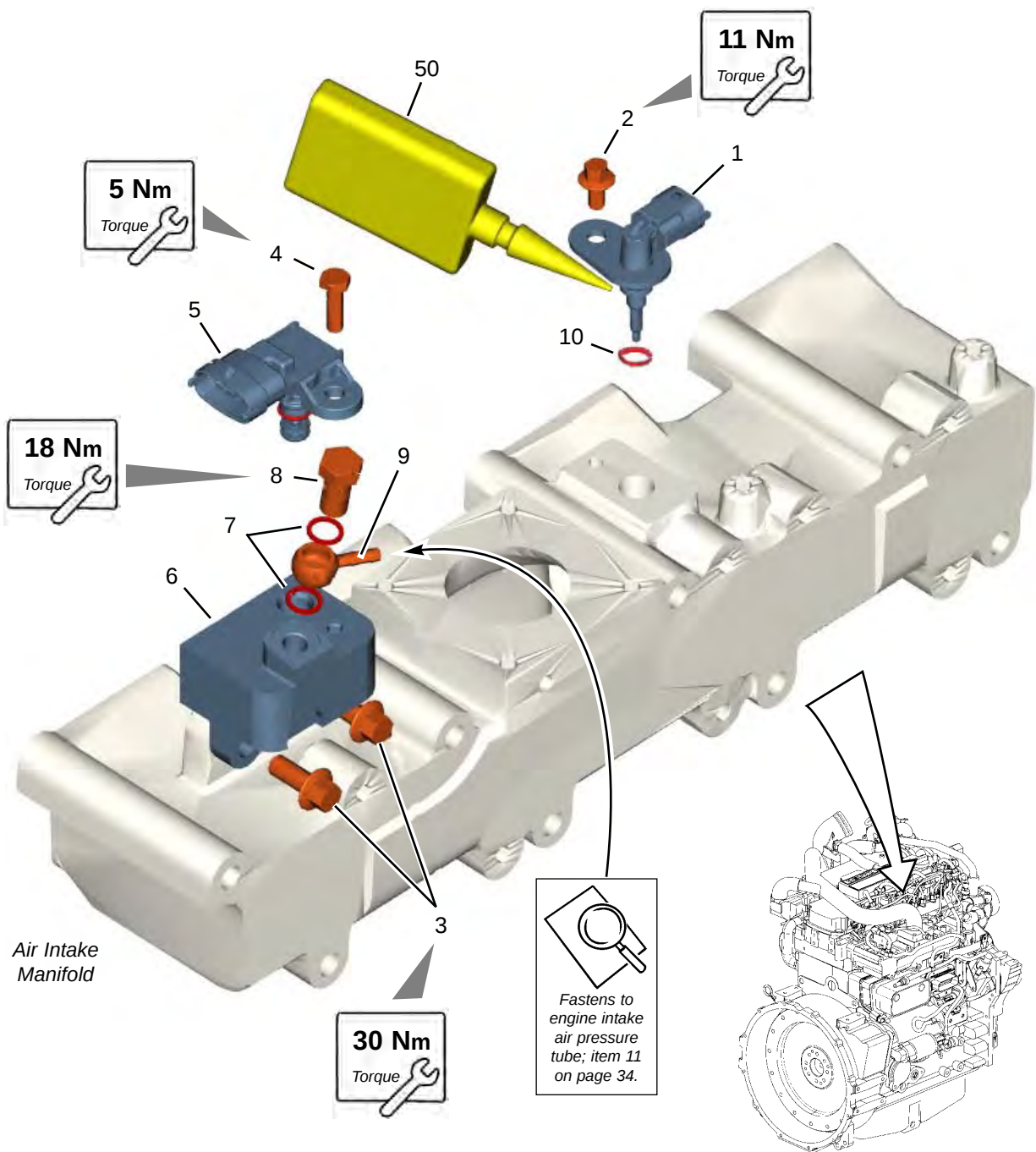
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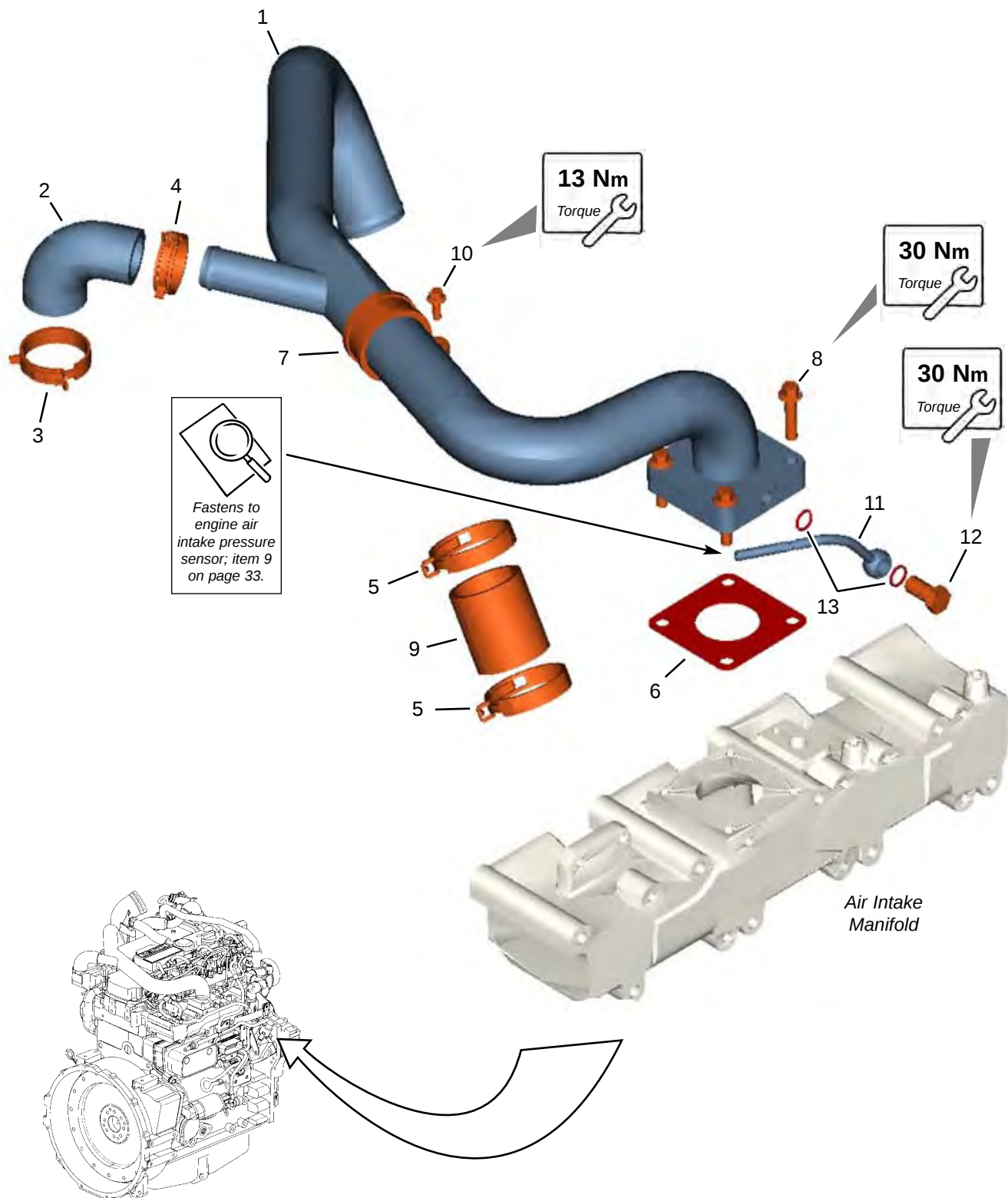
Cylinder Head



Item No.	Part No.	Description	Qty. Req.
01	50220438	AIR INTAKE MANIFOLD	1
02	50220439	GASKET, AIR INTAKE MANIFOLD .	1
03	50220440	BOLT	8
04	50220802	RETAINING PLATE	1



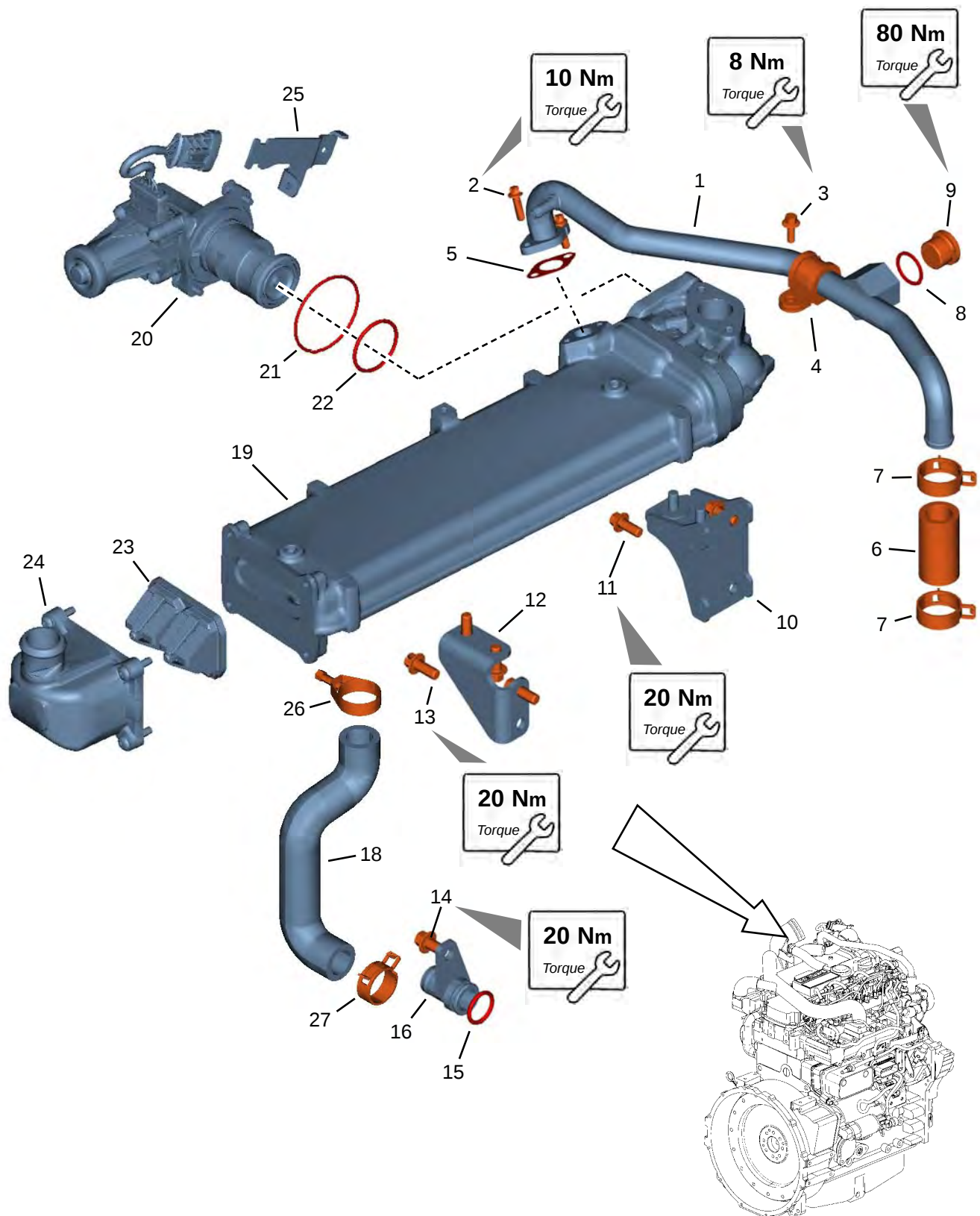
Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220441	SENSOR, TEMPERATURE.....	1	07	187282	SEALING RING.....	2
02	50220345	BOLT.....	1	08	50220445	BOLT, HOLLOW.....	1
03	105289	BOLT, TORX-HEAD.....	2	09	50220446	HOSE FITTING.....	1
04	50220442	BOLT.....	1	10	50220803	O-RING (included w/ item 1).....	1
05	50220443	SENSOR, PRESSURE.....	1	50	194281	SEALANT, SENSOR.....	1
06	50220444	PRESSURE SENSOR ASSEMBLY. 1 (includes items 7-9)	1				



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Engine *Air Intake Tube Group*

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220804	AIR INTAKE TUBE	1	08	50220453	BOLT	4
02	50220448	HOSE, RUBBER 90°	1	09	50220447	HOSE, RUBBER	1
03	105437	CLAMP, SPRING	1	10	187227	BOLT	1
04	50220449	CLAMP, SPRING	1	11	50220455	AIR PRESSURE TUBE ASSY,	1
05	50220450	CLAMP, SPRING	2			<i>(includes items 12 and 13)</i>	
06	50220451	GASKET, AIR INTAKE TUBE	1	12	133141	BOLT, HOLLOW	1
07	50220452	PIPE CLAMP	1	13	133133	SEALING RING	2

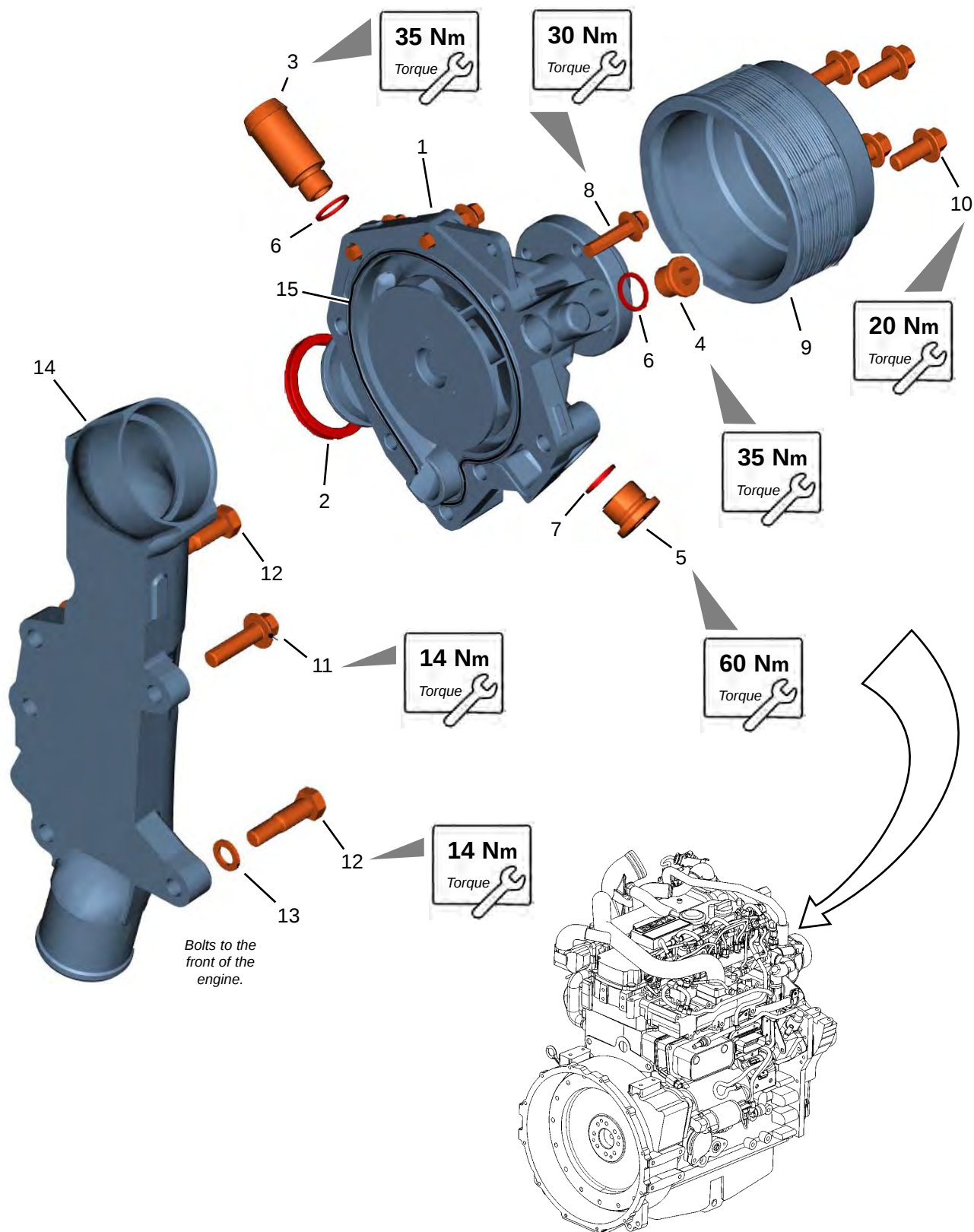


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Engine

EGR Valve and EGR Cooler Group

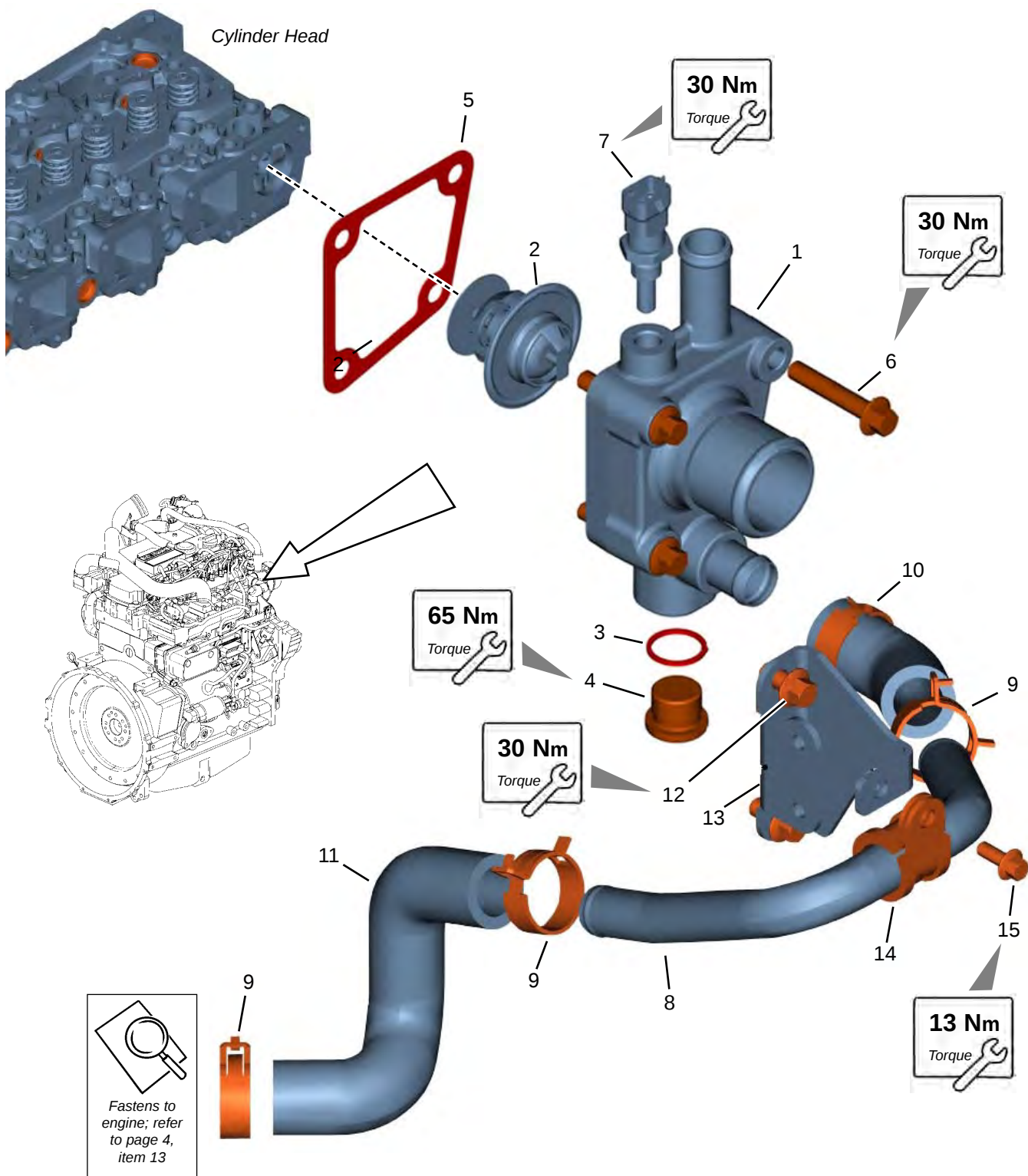
Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220494	COOLANT TUBE, EGR.....	1	16	50220479	HOSE CONNECTOR	1
02	50220495	BOLT, TORX-HEAD.....	2	18	50220498	HOSE, EGR COOLER	1
03	187227	BOLT	1	19	50220477	EGR COOLER.....	1
04	50220473	PIPE CLAMP	1			(includes items 20-25)	
05	50220496	GASKET, EGR COOLANT TUBE ..	1	20	50220403	EGR CONTROL VALVE	1
06	50220497	HOSE, RUBBER	1			(includes items 21 and 22)	
07	50220318	CLAMP, SPRING.....	2	21	NSS	O-RING	1
08	133138	SEALING RING 22x27mm	1	22	NSS	O-RING	1
09	187276	PLUG (M22-1.5)	1	23	50220742	SHUTTLE VALVE	1
10	50220488	EGR BRACKET ASSEMBLY.....	1	24	NSS	END CAP (included with item 19) ..	1
11	50220478	BOLT	2	25	NSS	BRACKET (included with item 19) .	1
12	50220493	EGR BRACKET.....	1	26	50220744	HOSE CLAMP	1
13	50220478	BOLT	4	27	50220743	SPRING CLAMP	1
14	50220481	BOLT	1				
15	50220480	O-RING SEAL	1				



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Engine Water Pump Group

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220458	WATER PUMP.....	1	09	50220463	PULLEY, FAN	1
02	50220459	SEAL	1	10	105289	BOLT	4
03	50220460	HOSE CONNECTOR	1	11	105303	BOLT	1
04	50220461	PLUG	1	12	50220475	BOLT	2
05	133168	PUG	2	13	50220476	SHIM/WASHER	2
06	133135	O-RING SEAL	1	14	50220474	MANIFOLD, COOLANT	1
07	50220462	O-RING SEAL	1	15	NSS	SILICON O-RING SEAL	1
08	105303	BOLT	3			<i>(included with item 1)</i>	

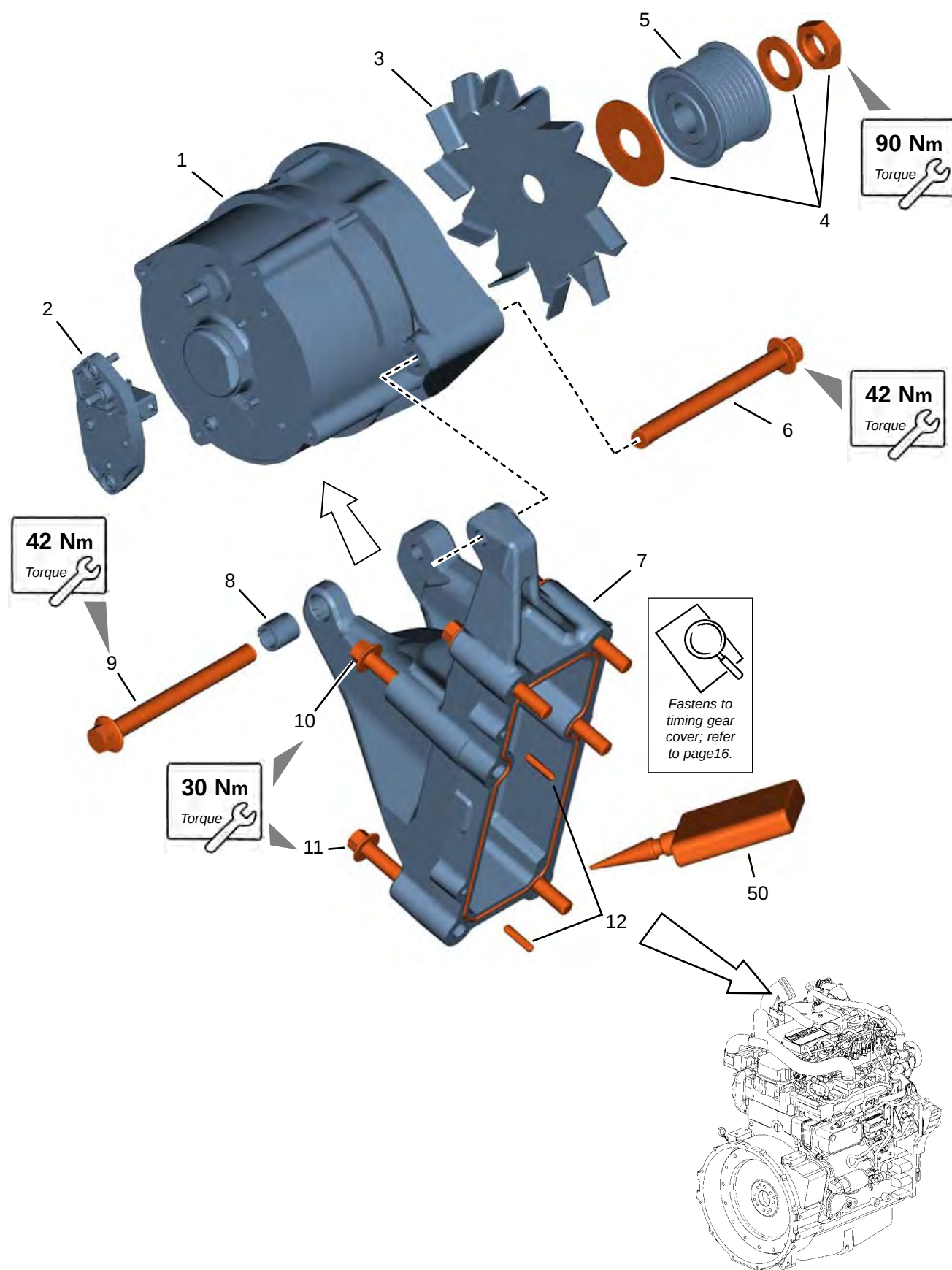


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Engine

Thermostat Housing Group

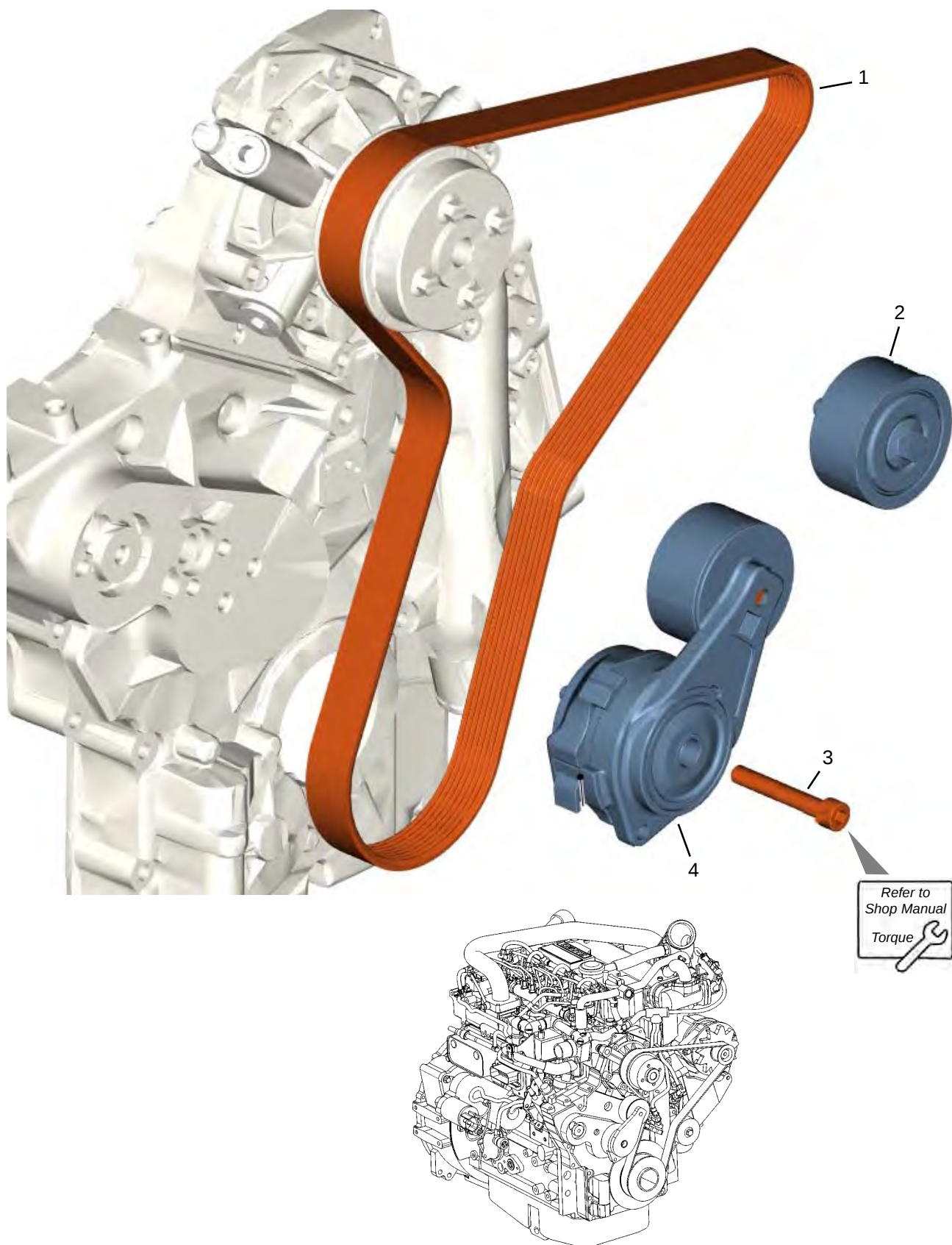
Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220464	THERMOSTAT HOUSING ASY. . . . 1 (includes items 2-4)		08	50220468	TUBE, COOLANT 1	
02	243440	THERMOSTAT 1		09	50220318	CLAMP, SPRING 4	
03	50220462	O-RING SEAL 1		10	50220469	MANIFOLD, COOLANT 1	
04	50220465	PLUG 1		11	50220470	HOSE, COOLANT 1	
05	50220466	GASKET, THERMOSTAT 1		12	50220471	BOLT 2	
06	105896	BOLT 4		13	50220472	BRACKET, SUPPORT 1	
07	50220467	TEMPERATURE SENDER 1		14	50220473	PIPE CLAMP 1	
				15	187227	BOLT 1	



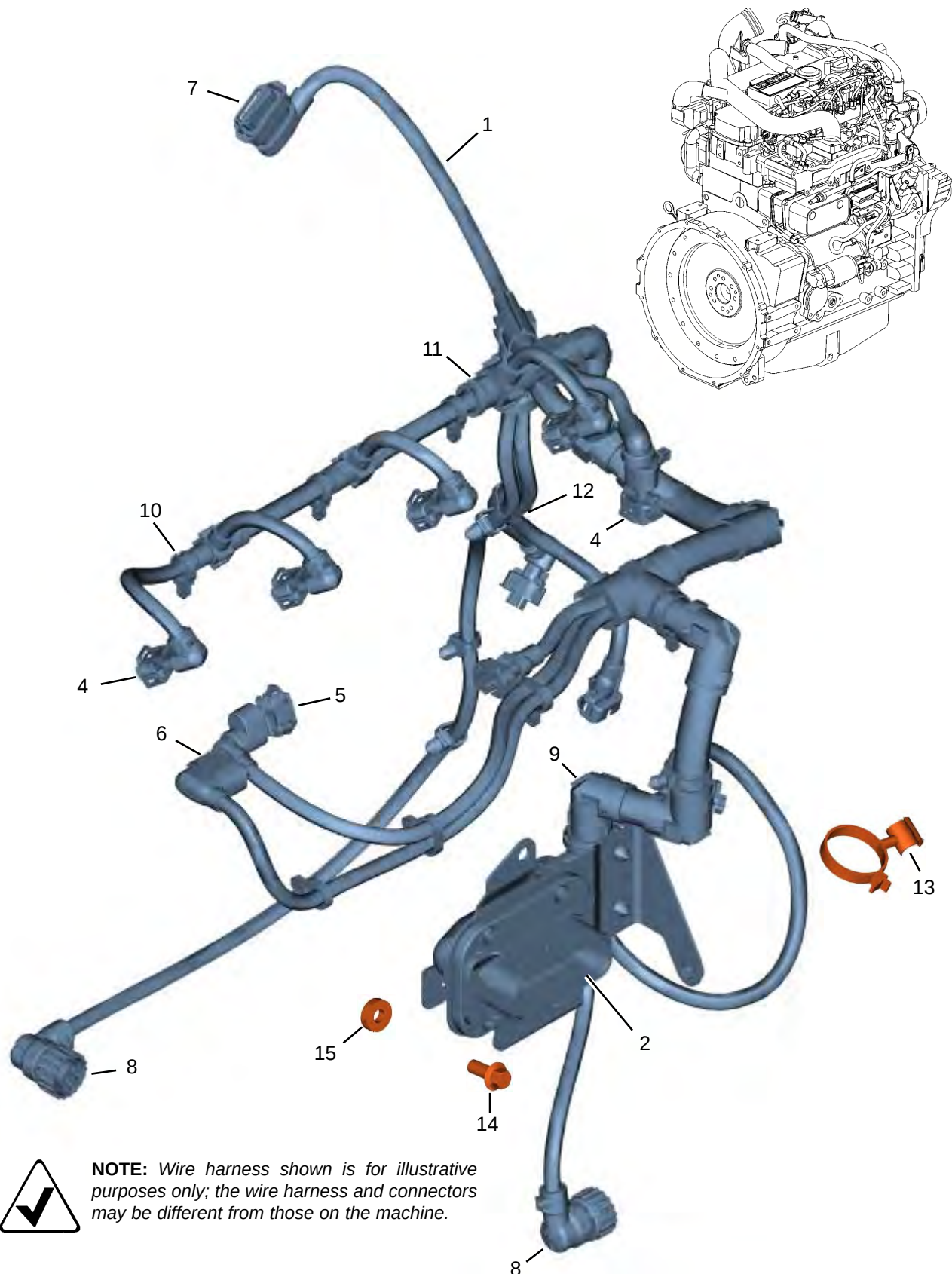
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Engine Alternator Group

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220515	ALTERNATOR	1	07	50220504	MOUNT, ALTERNATOR	1
		(includes items 1-5)		08	50220507	BUSHING	1
02	50220516	REGULATOR, ALTERNATOR	1	09	50220513	BOLT	1
03	133184	FAN, ALTERNATOR	1	10	50220508	BOLT	1
04	50220577	NUT AND WASHERS	1	11	50220506	BOLT	5
05	50220519	PULLEY, ALTERNATOR	1	12	50220505	PIN, ALIGNMENT	2
06	50220805	BOLT	1	50	133104	SEALANT	1



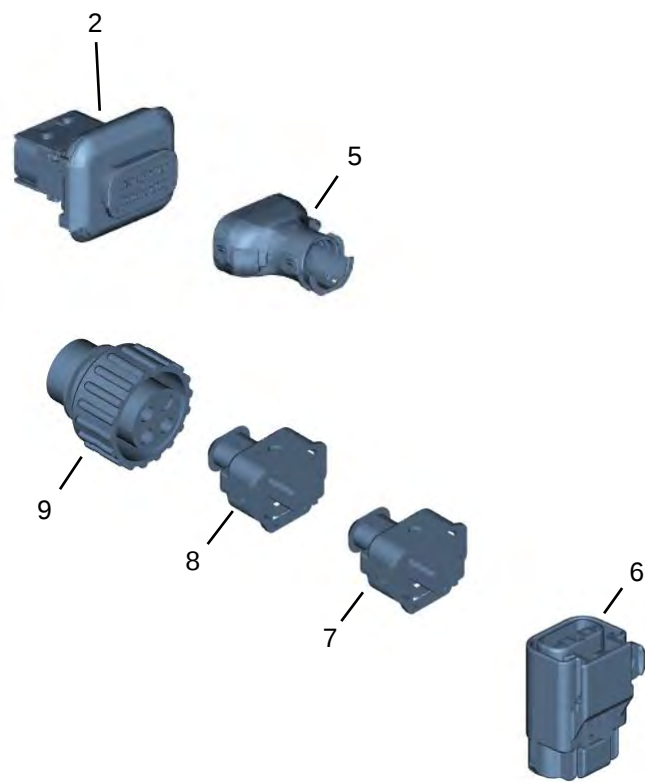
Item No.	Part No.	Description	Qty. Req.
01	50220511	V-RIBBED BELT	1
02	50220510	IDLER, BELT	1
03	50220512	BOLT, SOCKET-HEAD	1
04	50220509	BELT TENSIONER	1



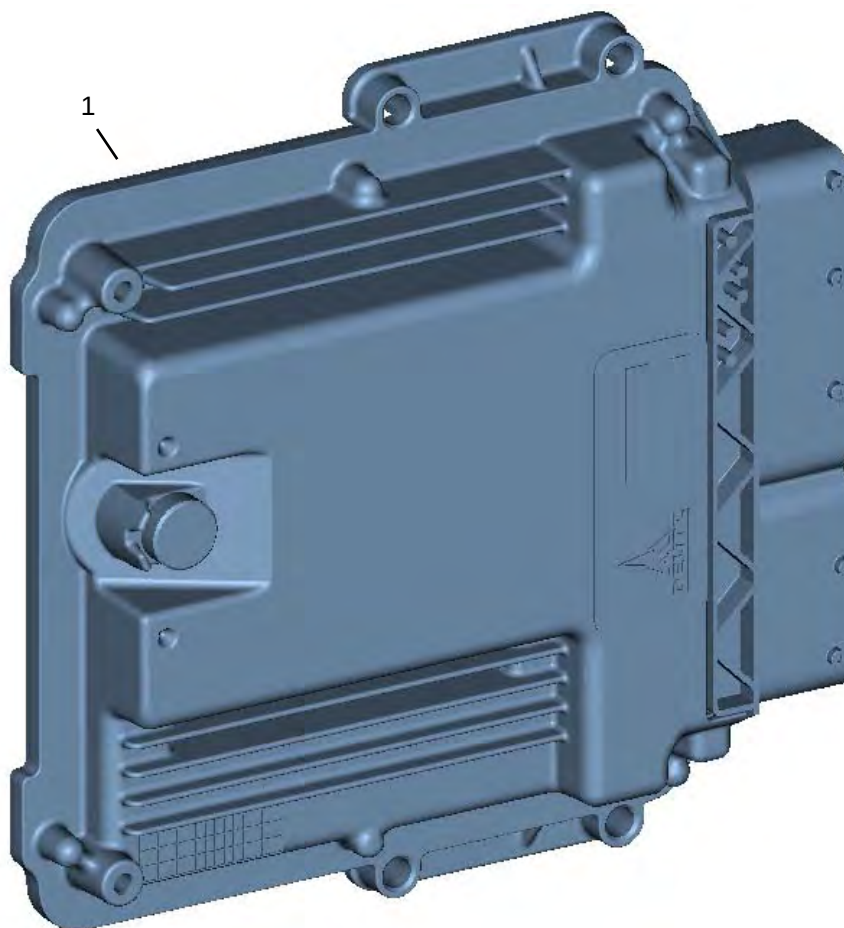
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Engine Engine Wire Harnesses

Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
01	50220545	ENGINE WIRE HARNESS	1	09	50220535	CLAMPING BAND	2
02	50220527	CONNECTOR, INTERFACE	1	10	50220550	CLAMPING BAND	13
03	50220546	CONNECTOR, COOLANT TEMP. . . .	4	11	50220551	CLAMPING BAND	1
04	50220543	CONNECTOR, INJECTORS	5	12	187173	CLAMPING BAND	1
05	50220547	CONNECTOR, RAIL PRES.	1	13	50220534	CLAMPING BAND	1
06	50220548	CONNECTOR, BOOST PRES.	1	14	105289	BOLT	1
07	50220549	CONNECTOR, EGR VALVE	1	15	50220536	SPACER	1
08	50220530	CONNECTOR, OIL PRES.	2				



Item No.	Part No.	Description	Qty. Req.	Item No.	Part No.	Description	Qty. Req.
02	50220537	PLUG-IN CONNECTOR 1 (12 pins)		07	50220543	PLUG-IN CONNECTOR 1	
05	50220540	ADAPTER 1		08	50220544	PLUG-IN CONNECTOR 1	
06	50220541	PLUG-IN CONNECTOR 1		09	50220542	PLUG-IN CONNECTOR 1	



Item No.	Part No.	Description	Qty. Req.
01	50220456	ENGINE CONTROL UNIT (ECU) . . 1	



NOTE: This is a special order item that requires programming. Please provide the engine model and serial number when placing the order for this part. Be aware that because of the programming requirements there will be a delay in obtaining this part.

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Sensor, Oil Pressure	07
Sensor, Pressure	33
Sensor, Temperature	33
Starter	15
Starter Ring	17

T

Temperature Sender	41
Thermostat	41
Transfer Pipe, Oil	06
Tube, Coolant	41
Turbocharger	26

V

Valve Cover	13
Valve Lifter, Hydraulic	11
Volume Control Valve	21

W

Water Pump	39
Wire Harness, Starter Relay	15
Wrist Pin	09

Use these torque values when tightening hardware—excluding: lock nuts, thread-forming, self-tapping, and metal screws—unless otherwise specified.

Grade 8.8		Grade 10.9		Grade 12.9	
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Metric Coarse-Pitch Thread	All torque values are in Foot-Pounds and Newton Meters (Nm).				
	DIN 912, DIN 931, DIN 933, etc...			DIN 7984	
	8.8	10.9	12.9	8.8	10.9
M5	4.1 (5.5)	6 (8)	7 (10)	4 (5)	5 (7)
M6	7 (10)	10 (14)	13 (17)	6.3 (8.5)	9 (12)
M8	18 (25)	26 (35)	31 (42)	15 (20)	22 (30)
M10	33 (45)	48 (65)	59 (80)	30 (40)	44 (59)
M12	64 (87)	81 (110)	108 (147)	51 (69)	74 (100)
M14	100 (135)	133 (180)	170 (230)	81 (110)	118 (160)
M16	155 (210)	203 (275)	258 (350)	125 (170)	184 (250)
M18	207 (280)	302 (410)	354 (480)	181 (245)	254 (345)
M20	302 (410)	420 (570)	509 (690)	251 (340)	361 (490)
M22	406 (550)	575 (780)	686 (930)	339 (460)	487 (660)
M24	524 (710)	738 (1000)	878 (1190)	435 (590)	620 (840)
M27	767 (1040)	1092 (1480)	1305 (1770)	642 (870)	922 (1250)
M30	1047 (1420)	1482 (2010)	1770 (2400)	885 (1200)	1254 (1700)

Metric Fine-Pitch Thread	All torque values are in Foot-Pounds and Newton Meters (Nm).				
	DIN 912, DIN 931, DIN 933, etc...			DIN 7984	
	8.8	10.9	12.9	8.8	10.9
M8X1.0	18 (25)	27 (37)	32 (43)	16 (22)	24 (32)
M10X1.0	37 (50)	55 (75)	65 (88)	32 (43)	48 (65)
M10X1.25	36 (49)	52 (71)	61 (83)	31 (42)	46 (62)
M12X1.25	64 (87)	96 (130)	111 (150)	55 (75)	81 (110)
M12X1.5	61 (83)	92 (125)	107 (145)	53 (72)	77 (105)
M14X1.5	100 (135)	148 (200)	173 (235)	89 (120)	129 (175)
M16X1.5	155 (210)	229 (310)	266 (360)	133 (180)	195 (265)
M18X1.5	232 (315)	332 (450)	391 (530)	199 (270)	284 (385)
M20X1.5	325 (440)	465 (630)	538 (730)	277 (375)	391 (530)
M22X1.5	435 (590)	620 (840)	723 (980)	369 (500)	524 (710)
M24X2.0	546 (740)	789 (1070)	922 (1250)	465 (630)	664 (900)
M27X2.0	811 (1100)	1143 (1550)	1328 (1800)	679 (920)	959 (1300)
M30X2.0	1106 (1500)	1586 (2150)	1844 (2500)	959 (1300)	1364 (1850)

Use these torque values when tightening hardware—excluding: lock nuts, thread-forming, self-tapping, and metal screws—unless otherwise specified.

NOTE: All torque values are in foot-pounds (lb.-ft.), except those marked with asterisks (*), which are in inch-pounds (lb.-in.). To convert lb.-ft. to Newton Meter (Nm)—metric—torque values, multiply the lb.-ft. value by 1.355, or for inch pounds, multiply the lb.-in. value by 0.113.

Unified National Thread	Grade 2 		Grade 5 		Grade 8 	
	Dry	Oiled	Dry	Oiled	Dry	Oiled
8-32	19*	14*	30*	22*	41*	31*
8-36	20*	15*	31*	23*	43*	32*
10-24	27*	21*	43*	32*	60*	45*
10-32	31*	23*	49*	36*	68*	51*
1/4-20	66*	50*	9	75*	12	9
1/4-28	76*	56*	10	86*	14	10
5/16-18	11	9	17	13	25	18
5/16-24	12	9	19	14	25	20
3/8-16	20	15	30	23	45	35
3/8-24	23	17	35	25	50	35
7/16-14	32	24	50	35	70	55
7/16-20	36	27	55	40	80	60
1/2-13	35	35	75	55	110	80
1/2-20	40	40	90	65	120	90
9/16-12	55	55	110	80	150	110
9/16-18	60	60	120	90	170	130
5/8-11	75	75	150	110	220	170
5/8-18	85	85	180	130	240	180
3/4-10	130	130	260	200	380	280
3/4-16	150	150	300	220	420	320
7/8-9	125	125	430	320	600	460
7/8-14	140	140	470	630	660	500
1-8	190	190	640	480	900	680
1-14	210	210	710	530	1000	740

* Value shown is in pound-force inch (lb.-in.)—inch pounds.

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