



Service

Workshop Manual

Golf 2004 ➤

Golf Plus 2005 ➤

Passat 2006 ➤

Touran 2003 ➤

4-cylinder diesel engine (1.9 l engine)

Engine ID	AVQ	BJB	BKC	BLS	BRU	BXE	BXF	BXJ	
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Edition 08.2010



List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 10 - Removing and installing engine
- 13 - Crankshaft group
- 15 - Cylinder head, valve gear
- 17 - Lubrication
- 19 - Cooling
- 20 - Fuel supply system
- 21 - Turbocharging/supercharging
- 23 - Mixture preparation - injection
- 26 - Exhaust system
- 28 - Glow plug system

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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Contents

00 - Technical data	1
1 Technical data	1
1.1 Engine number	1
1.2 Engine data	1
10 - Removing and installing engine	3
1 Removing and installing engine	3
1.1 Removing engine (Golf, Golf Plus)	3
1.2 Removing engine (Touran)	9
1.3 Removing engine (Passat)	14
1.4 Securing engine to assembly stand	20
1.5 Notes on installing	21
1.6 Assembly mountings	22
13 - Crankshaft group	24
1 Dismantling and assembling engine	24
1.1 Assembly overview - poly V-belt drive	24
1.2 Assembly overview - toothed belt drive	28
1.3 Removing and installing engine support	29
1.4 Assembly overview - crankcase	32
2 Removing and installing sealing flange and flywheel	33
2.1 Assembly overview - sealing flanges and flywheel	33
2.2 Removing and installing dual-mass flywheel	34
2.3 Renewing crankshaft oil seal - belt pulley end	36
2.4 Removing and installing sealing flange - pulley end	38
2.5 Renewing crankshaft sealing flange - flywheel end	40
2.6 Removing and installing engine speed sender G28	46
3 Crankshaft	48
3.1 Assembly overview - crankshaft	48
4 Pistons and conrods	54
4.1 Assembly overview - pistons and conrods	54
4.2 Separating new conrod	55
4.3 Checking piston projection at TDC	56
4.4 Piston and cylinder dimensions	57
4.5 Piston rings, cylinder bore and piston installation position	57
15 - Cylinder head, valve gear	60
1 Cylinder head	60
1.1 Assembly overview - cylinder head	61
1.2 Removing and installing cylinder head cover	64
1.3 Removing, installing and tensioning toothed belts	66
1.4 Removing and installing cylinder head	83
1.5 Checking compression	89
2 Valve gear	92
2.1 Assembly overview - valve gear	92
2.2 Checking valve guides	94
2.3 Renewing valve stem seals	95
2.4 Removing and installing camshaft	97
2.5 Removing and installing camshaft oil seal	101
17 - Lubrication	103
1 Engine oil	103



1.1	Oil capacities	103
1.2	Checking engine oil level	103
1.3	Checking engine oil level	103
2	Parts of lubrication system	104
2.1	Assembly overview - oil pump, sump	104
2.2	Removing and installing oil sump	105
3	Oil filter bracket, oil pressure, engine oil cooler and oil supply line	109
3.1	Assembly overview - oil filter bracket and engine oil cooler	109
3.2	Checking oil pressure and oil pressure switch	110
3.3	Assembly overview - oil supply line to turbocharger	111
3.4	Removing and installing oil supply line to turbocharger	112
19	Cooling	114
1	Parts of cooling system	114
1.1	Parts of cooling system, body side (radiator with two radiator fans)	115
1.2	Assembly overview - parts of cooling system, body side (radiator with one radiator fan)	117
1.3	Removing and installing fan support with fans (Golf, Golf Plus, Touran)	117
1.4	Removing and installing fan support with fans (Passat)	119
1.5	Parts of cooling system, engine side	120
1.6	Coolant hose schematic diagram	122
1.7	Draining and filling coolant	123
1.8	Removing and installing radiator (Golf, Golf Plus, Touran)	126
1.9	Removing and installing radiator (Passat)	127
1.10	Removing and installing coolant pump	128
1.11	Removing and installing thermostat	130
1.12	Checking cooling system for leaks	132
1.13	Checking engine oil cooler for leaks	134
20	Fuel supply system	136
1	Safety precautions	136
1.1	Safety precautions when working on fuel supply system	136
2	Rules for cleanliness	137
2.1	Rules for cleanliness when working on fuel supply system	137
3	Parts of fuel supply system (Golf, Golf Plus)	138
3.1	Fuel tank, vehicles with front-wheel drive	138
3.2	Fuel tank, vehicles with four-wheel drive	142
3.3	Emptying fuel tank	148
3.4	Removing and installing fuel delivery unit	150
3.5	Removing and installing fuel gauge sender	151
3.6	Checking fuel pump	152
3.7	Assembly overview - fuel filter	156
3.8	Removing and installing fuel cooler	158
4	Parts of fuel supply system (Touran)	160
4.1	Assembly overview - fuel tank with attachments	161
4.2	Emptying fuel tank	162
4.3	Removing and installing fuel tank	165
4.4	Assembly overview - fuel filter	167
4.5	Removing and installing fuel cooler	168
4.6	Removing and installing fuel delivery unit	169
4.7	Removing and installing fuel gauge sender	170
4.8	Checking fuel pump	171
5	Parts of fuel supply system (Passat)	176
5.1	Fuel tank, vehicles with front-wheel drive	176
5.2	Emptying fuel tank, vehicles with front-wheel drive	183
5.3	Checking fuel pump	185



5.4	Assembly overview - fuel filter	189
5.5	Removing and installing fuel cooler	191
6	Accelerator mechanism	193
6.1	Assembly overview - accelerator mechanism	193
7	Tandem pump	195
7.1	Checking tandem pump	195
7.2	Removing and installing tandem pump	198
21	Turbocharging/supercharging	201
1	Charge air system with turbocharger	201
1.1	Safety precautions	201
1.2	Rules for cleanliness	201
1.3	Hose connections	202
1.4	Assembly overview - turbocharger	203
1.5	Removing and installing turbocharger	216
1.6	Assembly overview - parts of charge air cooling	218
1.7	Checking charge air system for leaks	221
1.8	Vacuum hose schematic diagram	223
23	Mixture preparation - injection	225
1	Diesel direct injection system	225
1.1	Safety precautions	225
1.2	Rules for cleanliness	226
1.3	Removing and installing pre-wired wiring harness for unit injectors and glow plugs	226
1.4	Assembly overview - unit injector	229
1.5	Removing and installing unit injector	230
1.6	Adjusting non-contact gap of unit injectors	232
1.7	Removing and installing O-rings for unit injector	233
1.8	Assembly overview - intake manifold	235
1.9	Cleaning the intake manifold flap support, Engine code BLS and BXJ	237
1.10	Assembly overview - air filter	238
2	Engine control unit	239
2.1	Reading and clearing engine control unit fault memory	239
2.2	Adapting functions and components	240
2.3	Removing and installing engine control unit (Golf)	240
2.4	Removing and installing anti-theft engine control unit (Golf)	241
2.5	Removing and installing engine control unit (Golf Plus)	243
2.6	Removing and installing anti-theft engine control unit (Golf Plus)	244
2.7	Removing and installing engine control unit (Touran)	246
2.8	Removing and installing anti-theft engine control unit (Touran)	247
3	Engine control unit (Passat)	250
3.1	Removing and installing engine control unit	250
3.2	Removing and installing anti-theft engine control unit	251
26	Exhaust system	255
1	Exhaust system	255
1.1	Assembly overview - front exhaust pipe with catalytic converter	255
1.2	Assembly overview - front exhaust pipe with particulate filter	256
1.3	Assembly overview - silencer with mountings (vehicles with front wheel drive)	258
1.4	Assembly overview - silencers (Passat)	261
1.5	Assembly overview - silencer with mountings (vehicles with four-wheel drive)	262
1.6	Aligning exhaust system free of stress	262
2	Exhaust gas recirculation system	264
2.1	Assembly overview - parts of exhaust gas recirculation	264
2.2	Checking mechanical exhaust gas recirculation valve	268



28 - Glow plug system	269
1 Checking glow plug system	269
1.1 Removing, installing and checking glow plugs	269
1.2 Characteristics of ceramic glow plugs	270
1.3 Removing, installing and checking ceramic glow plugs	271





00 – Technical data

1 Technical data

Engine number ⇒ [page 1](#)

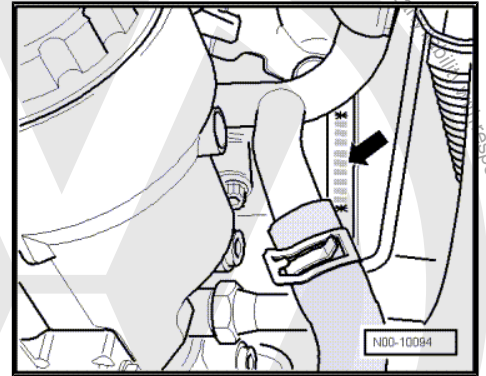
Engine data ⇒ [page 1](#)

1.1 Engine number

The engine number („code letters“ and „serial number“) can be found at the joint between engine and gearbox.

Additionally there is a sticker on the toothed belt guard with „engine code“ and „serial number“.

The engine code is also included on the vehicle data sticker.



1.2 Engine data

Edition 07.2010 Version 5.0

	AVQ	BJB	BKC	BRU	BLS	BXE	BXF	BXJ
Golf/Golf Plus production		10.03 ▶	10.03 ▶	04.04 ▶	02.06 ▶	03.06	03.06	11.07
Passat production			12.04 ▶		05.05 ▶	03.06		
Touran production	02.03 ▶		10.03 ▶	10.04	02.06 ▶	03.06	03.06 ▶	10.06 ▶
Emissions fulfil	EU4 standard	EU3 standard	EU4 standard	EU4 standard	EU4 standard	EU4 standard	EU4 standard	EU4 standard
Capacity l	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Output kW at rpm	74/4000	77/4000	77/4000	66/4000	77/4000	77/4000	66/4000	66/4000
Torque Nm at rpm	250/1900	250/1900	250/1900	210/1800 ...2500	250/1900	250/1900	210/1800	210/1800 ...2500
Bore Ø mm	79.5	79.5	79.5	79.5	79.5	79.5	79.5	79.5
Stroke mm	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5
Valves per cylinder	2	2	2	2	2	2	2	2
Compression ratio	19.0	19.0	19.0	19.0	18.5	18.5	19.0	19.0
Fuel according to	DIN 590 EN	DIN 590 EN	DIN 590 EN	DIN 590 EN	DIN 590 EN	DIN EN 590	DIN EN 590	DIN EN 590
Firing order	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
Catalytic converter	yes	yes	yes	yes	yes	yes	yes	yes
Exhaust gas recirculation	yes	yes	yes	yes	yes	yes	yes	yes



	AVQ	BJB	BKC	BRU	BLS	BXE	BXF	BXJ
Turbocharging/supercharging	yes	yes	yes	yes	yes	yes	yes	yes
Charge air cooler	yes	yes	yes	yes	yes	yes	yes	yes
Particulate filter	no	no	no	no	yes	no	no	yes





10 – Removing and installing engine

1 Removing and installing engine

Removing engine (Golf, Golf Plus) ⇒ [page 3](#)

Removing engine (Touran) ⇒ [page 9](#)

Removing engine (Passat) ⇒ [page 14](#)

Securing engine to assembly stand ⇒ [page 20](#) .

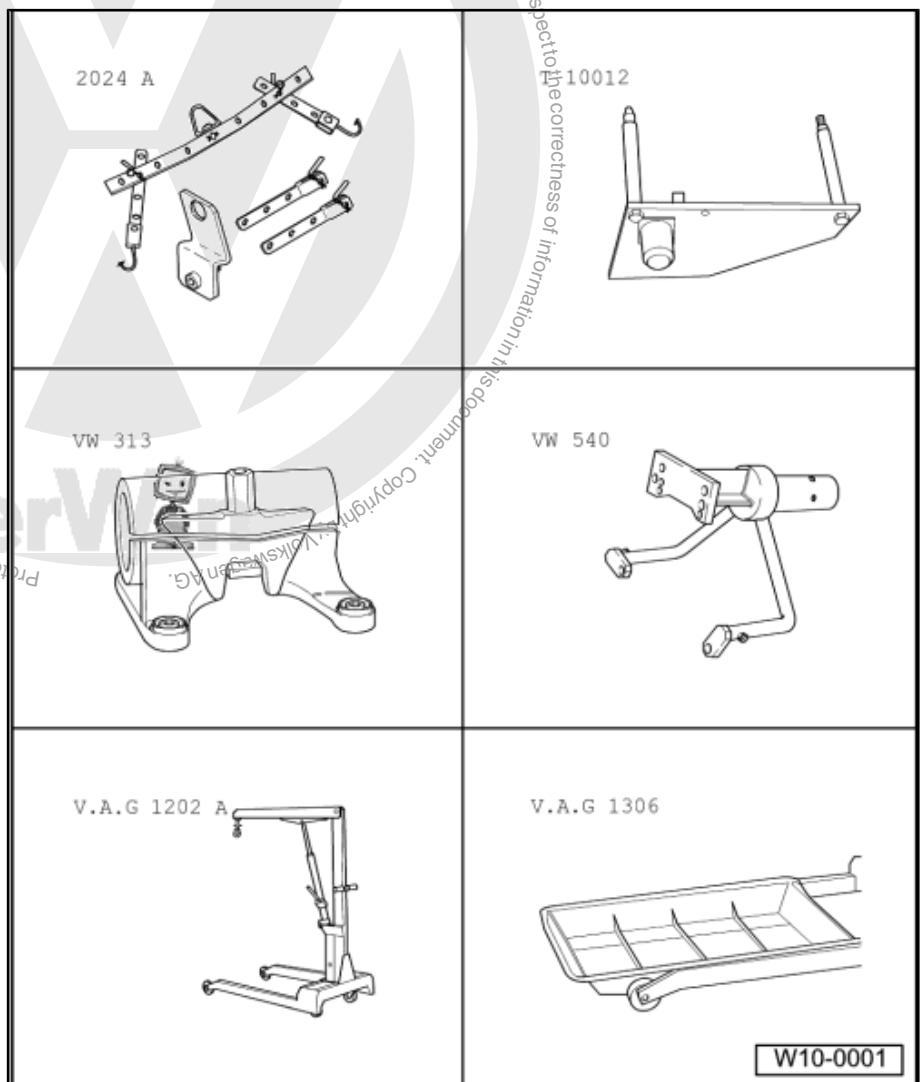
Notes on installing ⇒ [page 21](#) .

Assembly mountings ⇒ [page 22](#)

1.1 Removing engine (Golf, Golf Plus)

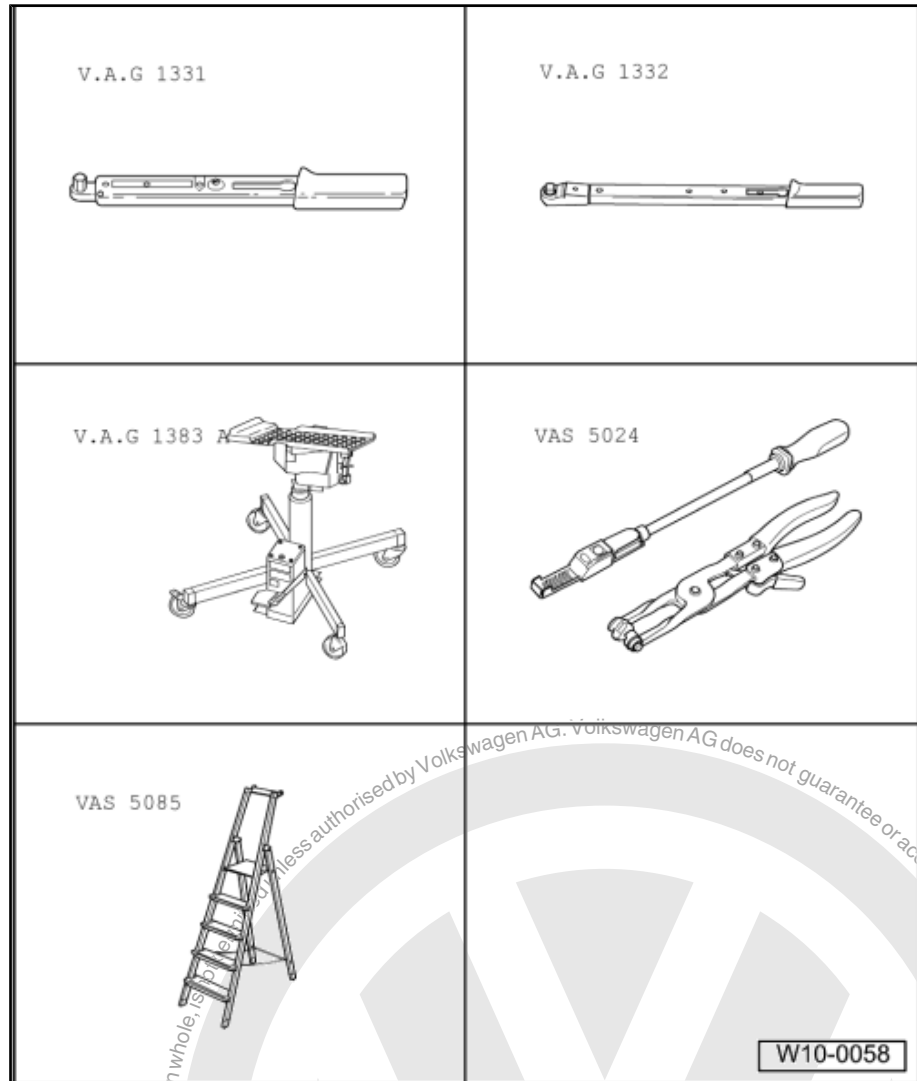
Special tools and workshop equipment required

- ◆ Lifting tackle -2024 A-
- ◆ Engine bracket -T10012-
- ◆ Support clamp -VW 313-
- ◆ Engine and gearbox support -VW 540-
- ◆ Workshop hoist -V.A.G 1202 A-
- ◆ Drip tray -V.A.G 1306-





- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Spring-type clip pliers -VAS 5024-
- ◆ Stepladder -VAS 5085-
- ◆ Guide rods -T10093-
- ◆ Cable ties



Note

- ◆ *Before carrying out further work, disconnect battery earth strap. First check whether a coded radio is fitted and obtain anti-theft coding if necessary.*
- ◆ *The engine is removed downwards together with the gearbox.*
- ◆ *All cable ties which are opened or cut through when engine is removed must be replaced in the same position when engine is installed.*



WARNING

When doing any repair work, especially in the engine compartment, pay attention to the following due to the cramped conditions:

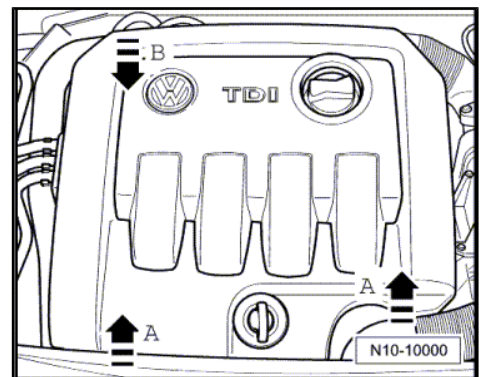
- ◆ *Route all the various lines (e.g. for fuel, hydraulics, activated charcoal filter system, coolant and refrigerant, brake fluid and vacuum) and electrical wiring in their original positions.*
- ◆ *Ensure that there is sufficient clearance to all moving or hot components.*

Procedure

- With ignition switched off, disconnect earth strap from battery.

One-piece engine cover

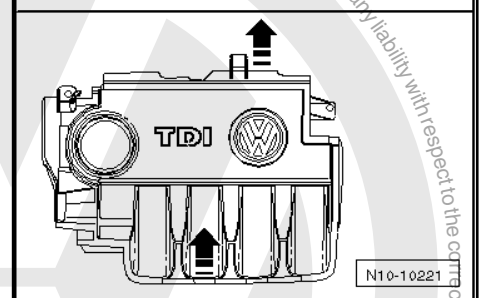
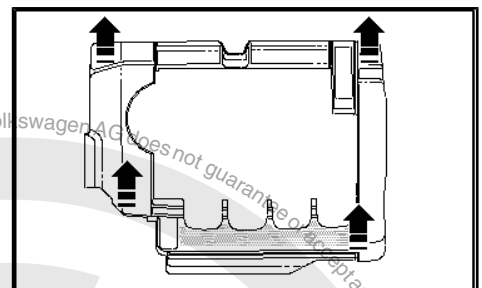
For one-piece engine cover, pull engine cover abruptly upwards at front and right -arrows A-, then pull forwards out of rear fastening -arrow B-.



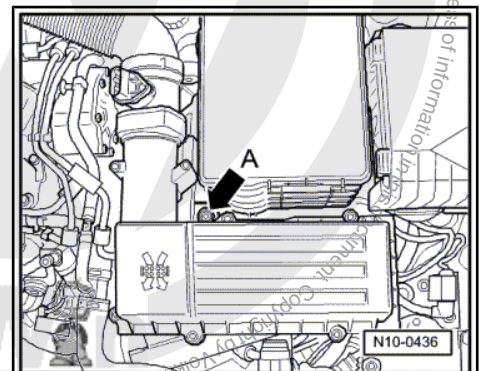
Two-piece engine cover

For two-piece engine cover, first pull outer engine cover abruptly upwards at -arrows-, then pull inner engine cover abruptly upwards at -arrows-.

- Remove plenum chamber bulkhead. => General body repairs, exterior; Rep. gr. 50 ; Body - front, plenum chamber bulkhead .
- Remove air filter housing with air mass meter and connecting pipe.



- Remove bolt -arrow A- and pull air filter housing upwards out of mounting.
- Remove battery and battery tray.
- Disconnect fuel supply and return lines as well as coolant line on cylinder head.





WARNING

- ◆ *The fuel and the fuel lines in the fuel system can become very hot (danger of scalding)!*
- ◆ *The fuel system is also under pressure! Before opening the system, place cloths around the connections. Then carefully loosen connection to release the pressure!*
- ◆ *Wear eye and hand protection when performing any type of repair work on the fuel system!*

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Assembly overview - Body - front .
- Bring lock carrier into service position ⇒ General body repairs, exterior; Rep. gr. 50 ; Body - front; Lock carrier - service position .
- Drain coolant ⇒ [page 123](#) .

Vehicles with air conditioner



Note

To prevent damage to condenser or to refrigerant lines/hoses, ensure that the lines and hoses are not stretched, kinked or bent.

To facilitate removing and installing engine without opening refrigerant circuit:

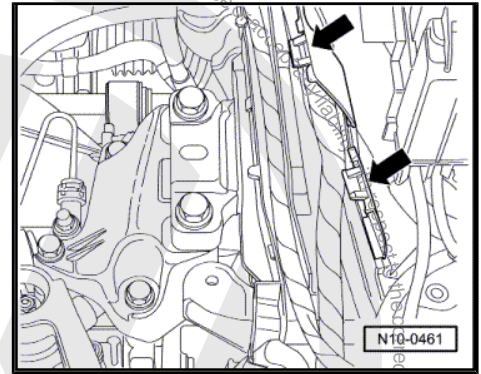
- Remove poly V-belt ⇒ [page 25](#) .
- Remove air conditioner compressor ⇒ Heating, air conditioning; Rep. gr. 87 ; Removing and installing compressor bracket .
- Secure air conditioner compressor to lock carrier so that refrigerant lines/hoses are free of stress.
- Remove alternator ⇒ Electrical system; Rep. gr. 27 ; Removing and installing alternator and poly V-belt .

Continuation for all vehicles

- Remove connecting pipes between charge air cooler and engine.
- Unbolt left and right-hand drive shafts from gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shaft .
- Remove front exhaust pipe ⇒ [page 255](#) .
- Release connector from engine control unit, disconnect connector.



- Open all cable guide fasteners -arrows-
- Remove wiring harness from cable guide on longitudinal member and lay to side on engine.
- Pull off or disconnect all other electrical connections from engine and gearbox as necessary and lay to side.
- Separate all connecting, coolant, vacuum and intake hoses from engine.



Vehicles with manual gearbox

- Remove slave cylinder for hydraulic clutch. => 6-speed manual gearbox 02S; Rep. gr. 30 ; Repairing clutch mechanism; Assembly overview - hydraulics .
- Unbolt selector mechanism from gearbox => 6-speed manual gearbox 02S; Rep. gr. 34 ; Repairing selector mechanism .

Vehicles with four-wheel drive:

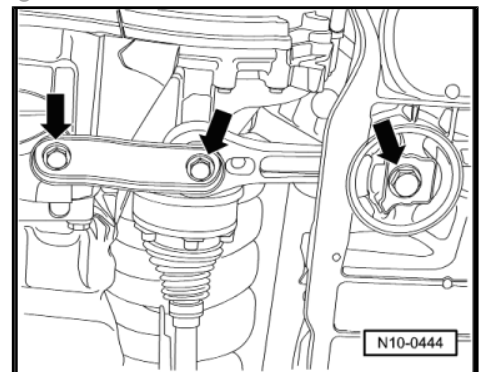
- Remove selector mechanism from gearbox => 6-speed manual gearbox 02Q, four-wheel drive; Rep. gr. 34 ; Repairing selector mechanism .
- Separate pressure line for hydraulic clutch control.
- Remove front propshaft => Final drive 02D, 0AV; Rep. gr. 39 ; Assembly overview - repairing propshaft

Continuation for all vehicles:

- Unbolt pendulum support -arrows-

Vehicles with particulate filter

- Remove subframe => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing subframe .
- Remove right drive shaft => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .
- Remove steering box => Running gear, axles, steering; Rep. gr. 48 ; Removing and installing steering box .



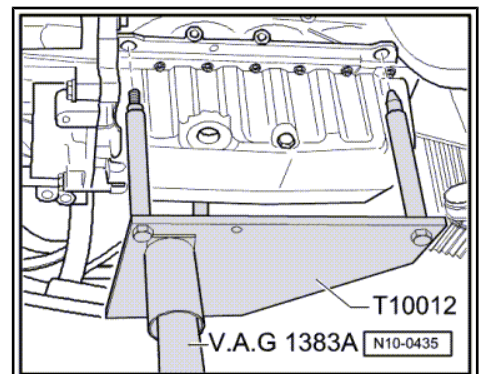
Continuation for all vehicles:

- Insert engine bracket -T10012- in engine and gearbox jack -V.A.G 1383 A- .

Note

Support pins must be secured to engine bracket -T10012- as shown.

- Fit engine bracket -T10012- to cylinder block with M10 x 25/ 8.8 bolt and tighten to approx. 40 Nm.
- Raise engine and gearbox slightly using engine and gearbox jack -V.A.G 1383 A- .



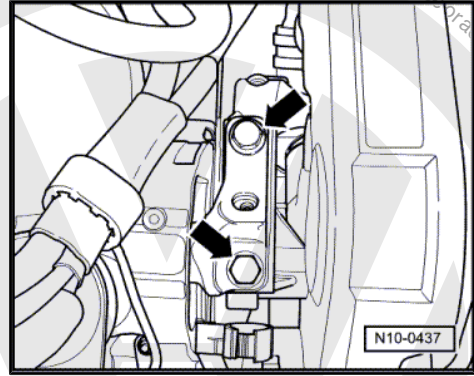


- Unbolt assembly mounting on engine side from engine bracket -arrows-.



Note

To remove securing bolts, use stepladder -VAS 5085- .

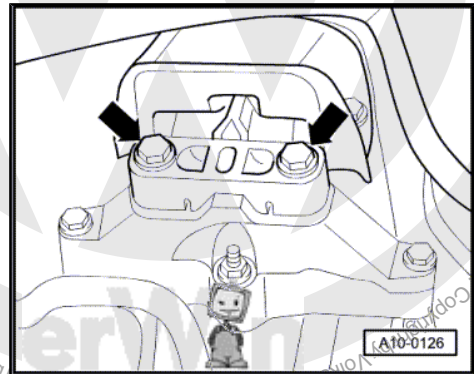


- Unbolt assembly mounting on gearbox side from gearbox bracket -arrows-.
- Carefully lower engine with gearbox.



Note

Engine with gearbox must be guided carefully when lowered to prevent damage to bodywork.

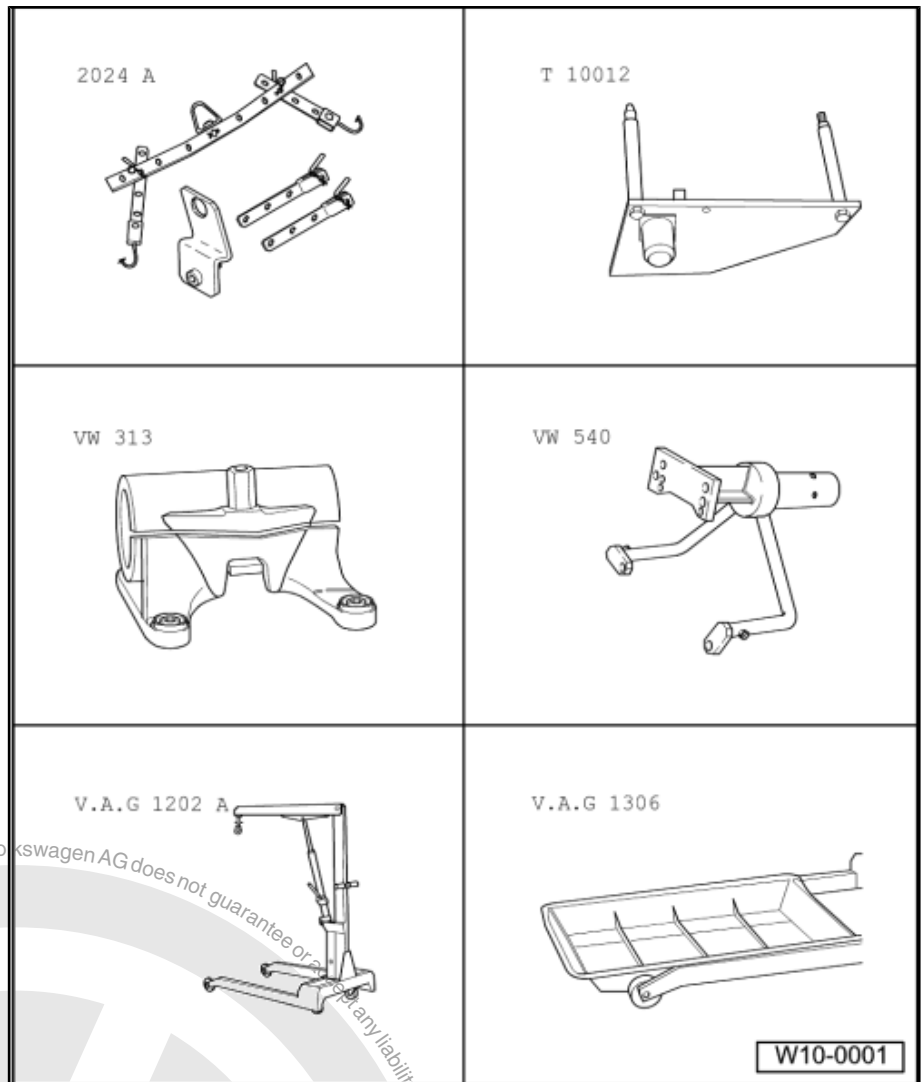




1.2 Removing engine (Touran)

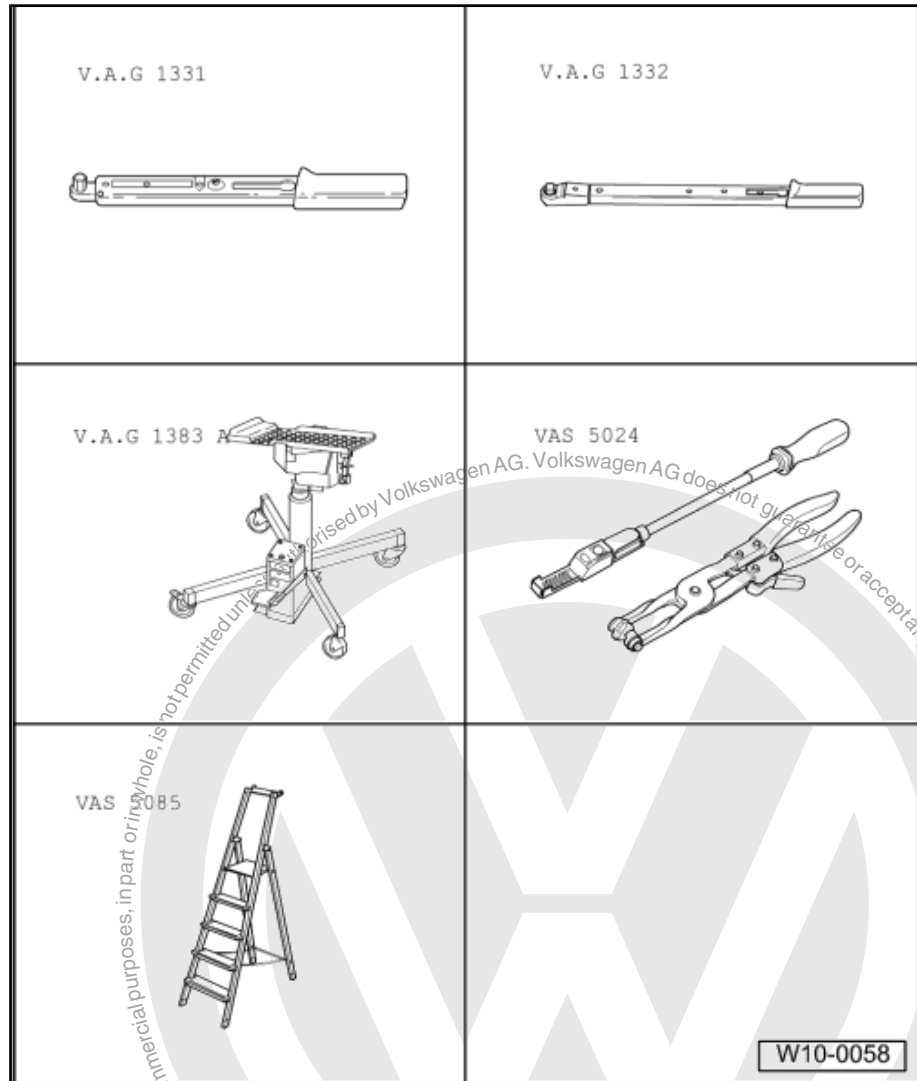
Special tools and workshop equipment required

- ◆ Lifting tackle -2024 A-
- ◆ Engine bracket -T10012-
- ◆ Support clamp -VW 313-
- ◆ Engine and gearbox support -VW 540-
- ◆ Workshop hoist -V.A.G 1202 A-
- ◆ Drip tray -V.A.G 1306-





- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Spring-type clip pliers -VAS 5024-
- ◆ Stepladder -VAS 5085-
- ◆ Guide rods -T10093-
- ◆ Cable ties



Note

- ◆ Before carrying out further work, disconnect battery earth strap. Check whether a coded radio is fitted. Obtain anti-theft coding first if necessary.
- ◆ The engine is removed downwards together with the gearbox.
- ◆ All cable ties which are opened or cut through when engine is removed must be replaced in the same position when engine is installed.

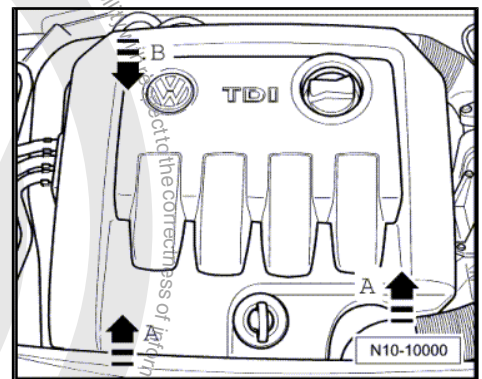


WARNING

When doing any repair work, especially in the engine compartment, pay attention to the following due to the cramped conditions:

- ◆ *Route all the various lines (e.g. for fuel, hydraulics, activated charcoal filter system, coolant and refrigerant, brake fluid and vacuum) and electrical wiring in their original positions.*
- ◆ *Ensure that there is sufficient clearance to all moving or hot components.*

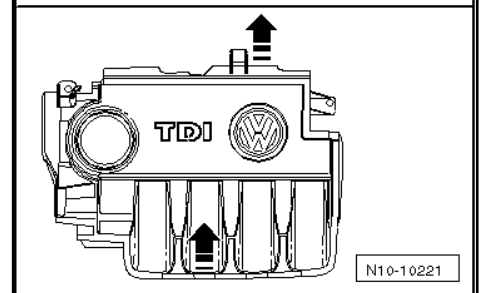
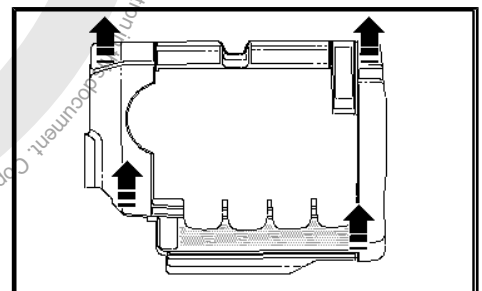
- With ignition switched off, disconnect earth strap from battery.
- Remove engine cover. To do this, pull engine cover upwards abruptly at front -arrows A- and then pull forwards out of rear fastening -arrow B-.



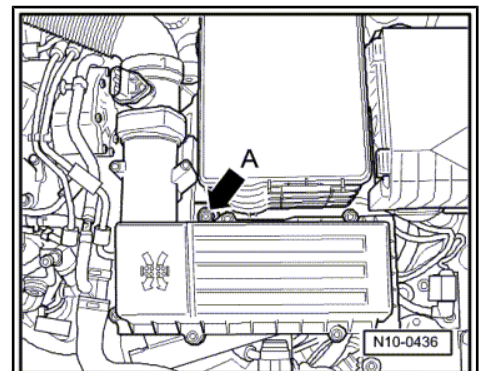
Two-piece engine cover

For two-piece engine cover, first pull out engine cover abruptly upwards at -arrows-, then pull inner engine cover abruptly upwards at -arrows-.

- Remove plenum chamber bulkhead. ⇒ General body repairs, exterior; Rep. gr. 50; Body - front, plenum chamber bulkhead.
- Remove air filter housing with air mass meter and connecting pipe.



- Remove bolt -arrow A- and pull air filter housing upwards out of mounting.
- Remove battery and battery tray.
- Disconnect fuel supply and return lines as well as coolant line on cylinder head.





WARNING

- ◆ *The fuel and the fuel lines in the fuel system can become very hot (danger of scalding)!*
- ◆ *The fuel system is also under pressure! Before opening the system, place cloths around the connections. Then carefully loosen connection to release the pressure!*
- ◆ *Wear eye and hand protection when performing any type of repair work on the fuel system!*

- Remove noise insulation. ⇒ General body repairs, exterior; Rep. gr. 50 ; Body - front; Assembly overview .
- Bring lock carrier into service position. ⇒ General body repairs, exterior; Rep. gr. 50 ; Body - front; Lock carrier service position .
- Drain coolant ⇒ [page 123](#)

Vehicles with air conditioner



Note

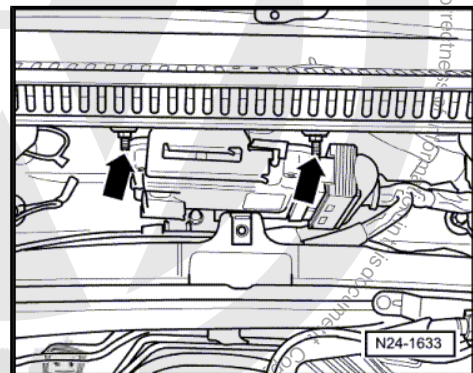
To prevent damage to condenser or to refrigerant lines/hoses, ensure that the lines and hoses are not stretched, kinked or bent.

To facilitate removing and installing engine without opening refrigerant circuit:

- Remove poly V-belt ⇒ [page 25](#) .
- Remove air conditioner compressor. ⇒ Heating, air conditioning; Rep. gr. 87 ; Removing and installing compressor bracket .
- Secure air conditioner compressor to lock carrier so that refrigerant lines/hoses are free of stress.
- Remove alternator. ⇒ Electrical system; Rep. gr. 27 ; Removing and installing alternator with poly V-belt .

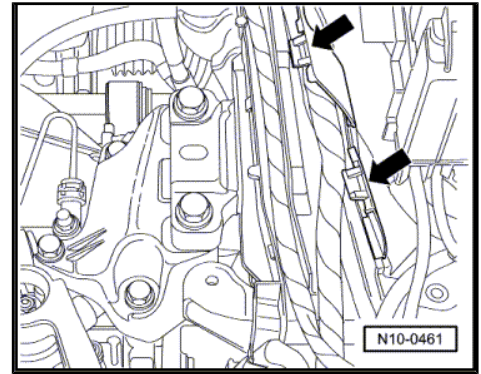
Continuation for all vehicles

- Remove connecting pipes between charge air cooler and engine.
- Unbolt left and right-hand drive shafts from gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shaft .
- Remove front exhaust pipe.
- Remove securing nuts -arrows- for engine control unit.
- Release connector from engine control unit, disconnect connector.



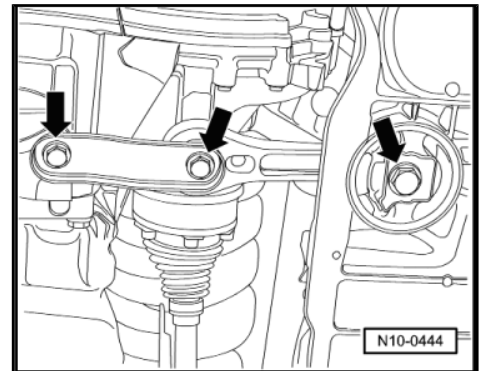


- Open all cable guide fasteners -arrows-.
- Remove wiring harness from cable guide on longitudinal member and lay to side on engine.
- Pull off or disconnect all other electrical connections from engine and gearbox as necessary and lay to side.
- Separate all connecting, coolant, vacuum and intake hoses from engine.
- Remove slave cylinder for hydraulic clutch. ⇒ 6-speed manual gearbox 02S; Rep. gr. 30 ; Repairing clutch mechanism; Assembly overview - hydraulics .
- Unbolt selector mechanism from gearbox ⇒ 6-speed manual gearbox 02S; Rep. gr. 34 ; Repairing selector mechanism .
- Unbolt pendulum support -arrows-.



Vehicles with particulate filter

- Remove subframe ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing subframe .
- Remove right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .
- Remove steering box ⇒ Running gear, axles, steering; Rep. gr. 48 ; Removing and installing steering box .



Continuation for all vehicles:

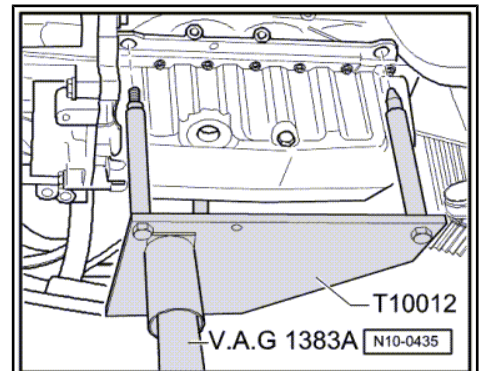
- Insert engine bracket -T10012- in engine and gearbox jack -V.A.G 1383 A- .



Note

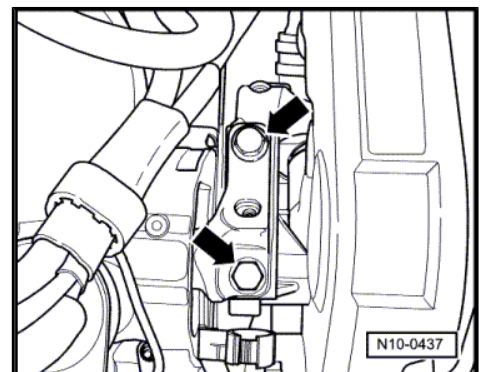
Support pins must be secured to engine bracket -T10012- as shown.

- Fit engine bracket -T10012- to cylinder block with M10 × 25/ 8.8 bolt and tighten to approx. 40 Nm.
- Raise engine and gearbox slightly using engine and gearbox jack -V.A.G 1383 A- .
- Unbolt assembly mounting on engine side from engine bracket -arrows-.



Note

To remove securing bolts, use stepladder -VAS 5085- .





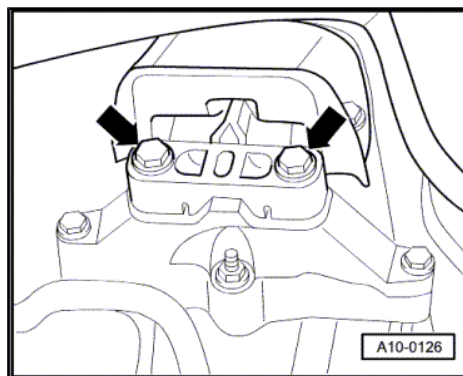
Golf 2004 > , Golf Plus 2005 > , Passat 2006 > , Touran 2003 >
4-cylinder diesel engine (1.9 l engine) - Edition 08.2010

- Unbolt assembly mounting on gearbox side from gearbox bracket -arrows-.
- Carefully lower engine with gearbox.



Note

Engine with gearbox must be guided carefully when lowered to prevent damage to bodywork.



1.3 Removing engine (Passat)

Special tools and workshop equipment required

- ◆ Lifting tackle -2024 A-
- ◆ Engine bracket -T10012-
- ◆ Support clamp -VW 313-
- ◆ Engine and gearbox support -VW 540- or engine and gearbox support -VAS 6095-
- ◆ Workshop hoist -V.A.G 1202 A- or workshop crane -VAS 6100-
- ◆ Drip tray -V.A.G 1306- or drip tray -VAS 6208-

