

Volkswagen Jetta, Golf, GTI 1999, 2000

2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP

10 Engine-Assembly (Page GR-10)

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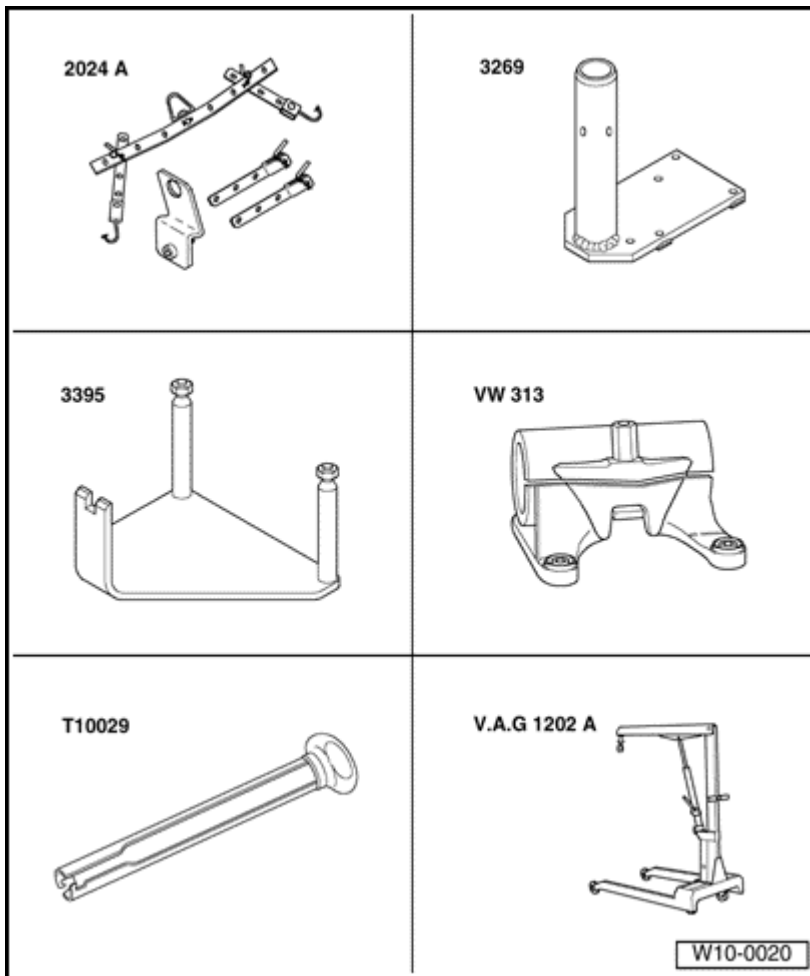
[Engine, installing](#)

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[Torque specifications](#)

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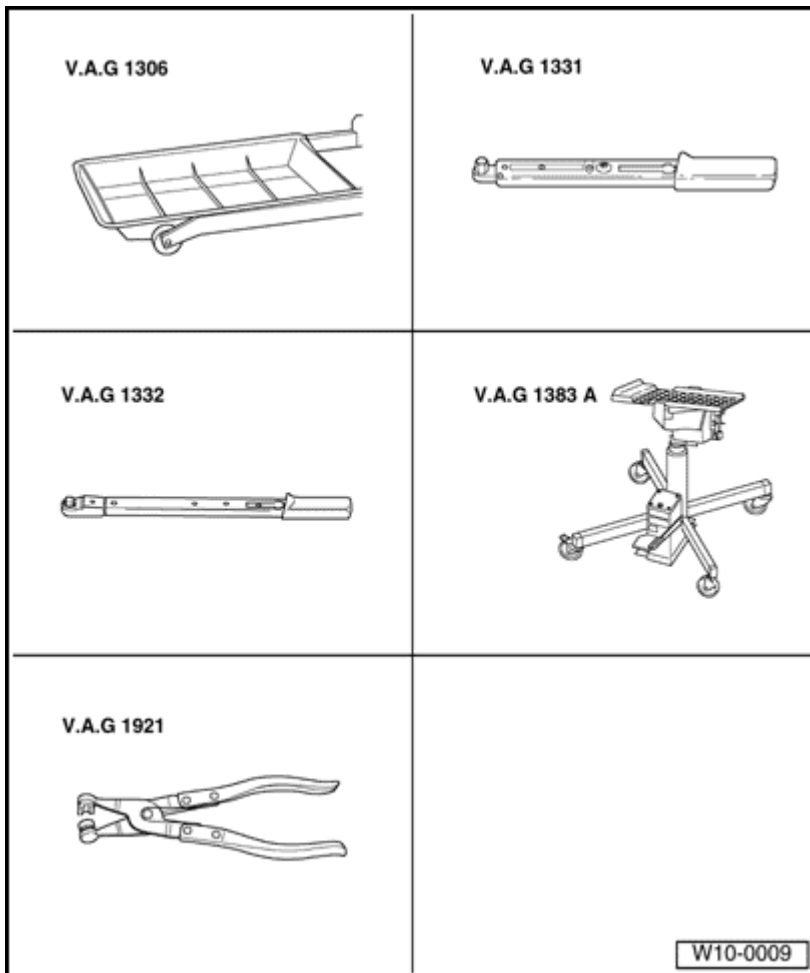
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Engine, removing and installing (Page 10-1)



Special tools, equipment, test and inspection devices; required accessories

- ◆ 2024 A Engine Support
- ◆ 3269 Engine bracket
- ◆ 3395 Engine bracket
- ◆ T10029 Assembly tool
- ◆ VW 313 Vise
- ◆ V.A.G 1202 Shop hoist

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Engine, removing and installing (Page 10-2)



- ◆ V.A.G 1306 Drip pan
- ◆ V.A.G 1331 Torque wrench (5-50 Nm)
- ◆ V.A.G 1332 Torque wrench (40-200 Nm)
- ◆ V.A.G 1383 A Engine/transmission jack
- ◆ V.A.G 1921 Pliers for spring clamps
- ◆ V.A.S 5085 Ladder
- ◆ G 000 100 Lubricating grease (vehicles with manual transmission)
- ◆ Cable ties

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Engine, removing and installing (Page 10-3)

Engine, removing

- Remove the engine together with the transmission from below.
- When installing, replace all cable ties that have been unfastened or cut during removal of the engine at the same location.

Notes:

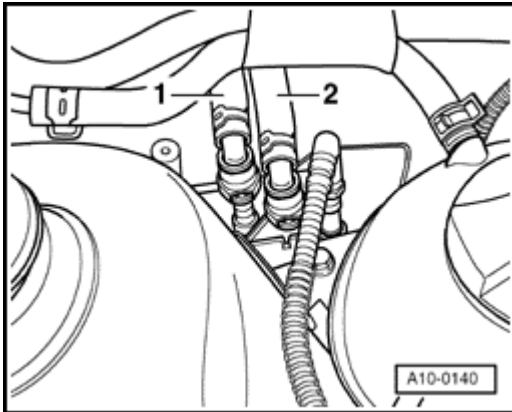
As work progresses, it will be necessary to disconnect the battery ground strap. Therefore, please check whether a coded radio device has been installed. If so, it may be necessary to obtain the radio anti-theft protection code in advance.

- With the ignition switched off, disconnect the battery ground strap.
- Pull spark plug boots with Installation Tool T10029 and detach the ignition cables:
⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition , Repair Group 28](#)
- Remove the engine cover.
⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition , Repair Group 28](#)
- Remove battery and battery tray.

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Engine, removing and installing (Page 10-4)

- Remove the air filter assembly:

⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition , Repair Group 24](#)



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- Remove supply hose -1- (with white marking) and return hose -2- (with blue marking) and catch the fuel that flows out with a cleaning rag.

Notes:

Squeeze the tabs on the hose clamps together.

WARNING!

The fuel system is pressurized. Before opening the system, place a clean rag around the connection. Then reduce pressure by carefully and slowly loosening the connection.

- Plug the lines to prevent contamination of the fuel system.
- Remove the center, left and right side sound damping tray:
⇒ [Repair Manual, Body—Exterior, Repair Group 50](#)
- Remove "V" ribbed belt ⇒ [page 13-28](#).

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- Remove power steering pump from its mount and set aside; leave hoses connected:

⇒ [Repair Manual, *Suspension, Wheels, Steering* , Repair Group 48](#)

- Remove mounting brackets for power steering pressure line.

Vehicles with air conditioning

- Observe additional instructions and installation operations ⇒ [page 10-20](#).

Vehicles with manual transmission

- Remove the shift linkage from the transmission:

⇒ [Repair Manual, *Manual Transmission 02J* , Repair Group 34](#)

- Remove hydraulic clutch slave cylinder:

⇒ [Repair Manual, *Manual Transmission 02J* , Repair Group 30](#)

Vehicles with automatic transmission

- Remove selector lever cable from transmission:

⇒ [Repair Manual, *Automatic Transmission 01M* , Repair Group 37](#)

Continuation for all vehicles

- Remove front bumper:

⇒ [Repair Manual, *Body-Exterior* , Repair Group 63](#)

- Put the lock carrier into service position:

⇒ [Repair Manual, *Body-Exterior* , Repair Group 50](#)

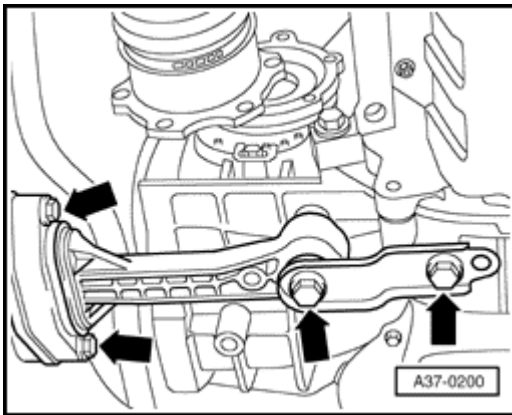
Volkswagen Jetta, Golf, GTI 1999, 2000
2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP
Engine, removing and installing (Page 10-6)

- Remove the intake pipe-top section ⇒ [page 15-8](#).
- Disconnect vacuum and vent hoses from engine.
- Remove/disconnect and expose all electrical lines from the transmission, alternator and starter.
- Disconnect the plug connections on the following components:
 - ◆ Plug for ignition transformer (N152)
 - ◆ Coolant servo pump (V51)
 - ◆ Hall generator (G40)
 - ◆ Injection valves (N30... N33, N83, N84)
 - ◆ Coolant temperature sensor (G62)
 - ◆ Engine speed sensor (G28)
 - ◆ Knock sensor 1 (G61)
 - ◆ Knock sensor 2 (G66)
 - ◆ Oxygen sensor 1 (G39)
 - ◆ Oxygen sensor 2 (G130)
- Installation locations:
⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition , Repair Group 24](#)

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2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP Engine, removing and installing (Page 10-7)

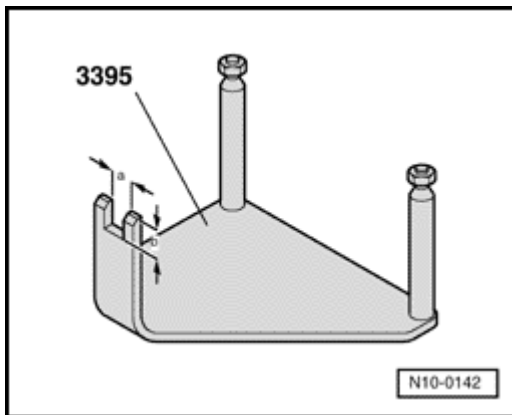
- Remove/disconnect and uncover from the engine any additional electrical lines that may be necessary.
- Disconnect vacuum and vent hoses from the engine.
- Drain coolant ⇒ [page 19-15](#).
- Remove radiator coolant hoses from engine with pliers for spring clamps VAG 1921.
- Remove front exhaust pipe ⇒ [page 26-1](#).
- Remove dust boot for inside right constant velocity joint from engine.
- Remove right and left drive axles from transmission:
⇒ [Repair Manual, Suspension, Wheels, Steering , Repair Group 40](#)



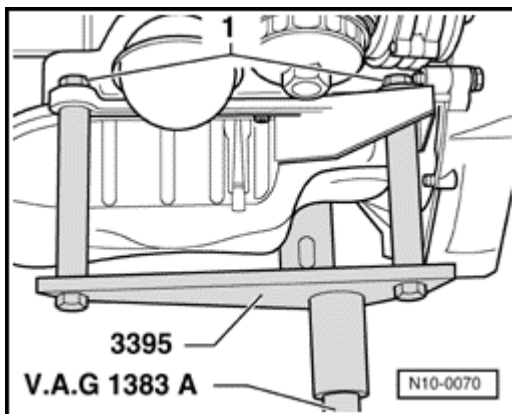
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- Remove rocker bracket -arrows-.

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2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP
Engine, removing and installing (Page 10-8)

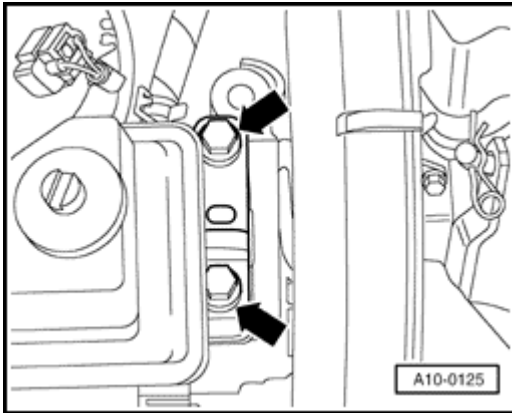


- Enlarge the slot of engine bracket 3395 as shown to the dimensions:
 - ◆ a = 32 mm
 - ◆ b = 27 mm
- Insert engine bracket 3395 into engine/transmission jack V.A.G 1383 A.



- Attach engine bracket 3395 to engine block and tighten to 40 Nm with retaining nuts -1-.
- Slightly raise engine and transmission with engine/transmission jack V.A.G 1383 A.

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2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP
Engine, removing and installing (Page 10-9)

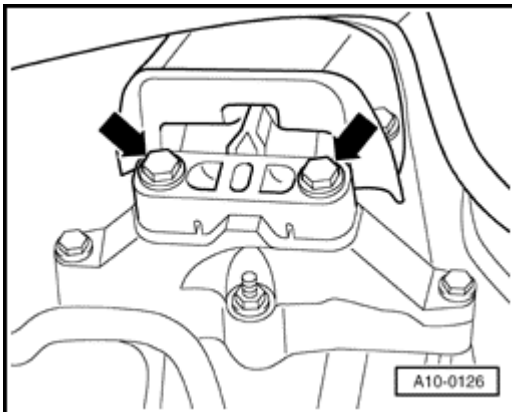


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- Remove support on engine side from engine bracket -arrows- from above.

Notes:

Use ladder V.A.S 5085 to remove retaining bolts.



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- Remove support on transmission side from transmission bracket -arrows- from above.
- Carefully lower engine together with transmission.

Notes:

When lowering the engine together with transmission, it must be guided carefully in order to prevent damage to the structure.

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2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP
Engine, removing and installing (Page 10-10)

Engine, attaching to engine stand

In order to carry out assembly work, the engine with engine bracket 3269 must be attached to clamping stand VW 313 of the mounting stand.

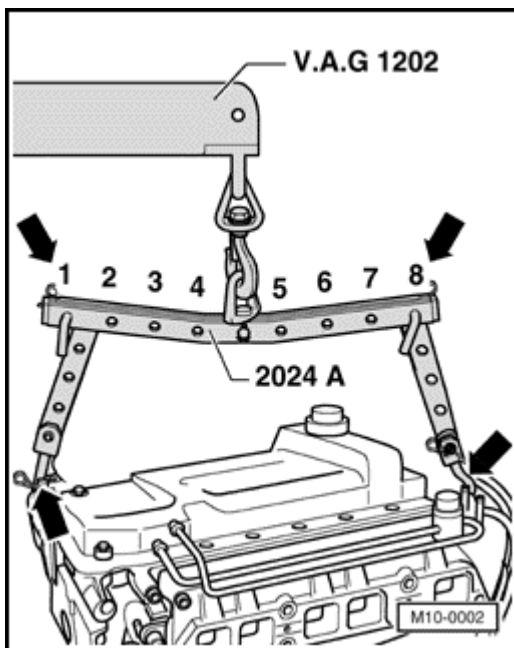
- Remove transmission from flange.

Vehicles with automatic transmission

- After separating the engine from the transmission, protect the torque converter from falling out.

Continuation for all vehicles

- Bolt engine bracket 3269 to the engine block.



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- Attach engine support 2024 A as follows and lift engine out of engine/transmission jack with shop hoist.
 - ♦ Vibration damper side: 4th hole of the perforated bar in Position 1
 - ♦ Flywheel side: 4th hole of the perforated bar in position 8

CAUTION!

Use retainer pins on the hooks and aligning pins.

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2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP
Engine, removing and installing (Page 10-11)

Notes:

- ◆ *The alignment positions of the support bracket marked 1-point to the belt pulley.*
- ◆ *Begin counting the holes in the perforated bars starting at the hook.*
- Using shop hoist V.A.G. 1202 A, place engine in clamping stand VW 313.

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2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP
Engine, removing and installing (Page 10-12)

Engine, installing

Installation is in reverse sequence; in doing so, please observe the following:

Vehicles with manual transmission

- Check clutch release bearing for wear, replace if necessary.
- Slightly lubricate clutch release bearing and splines of the input shaft with G 000 100 (do not lubricate the guide sleeve for the release bearing).

Vehicles with automatic transmission

- Only use nuts that are approved for the spare parts program to attach the torque converter to the drive plate.

Continuation for all vehicles

- Check if locating sleeves for centering the engine/transmission are present in the engine block; replace if necessary.
- When installing the major assembly, make sure there is free movement with the drive axles.
- When installing the engine/transmission assembly, make sure there is free movement with the assembly support and the radiator.

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Engine, removing and installing (Page 10-13)

- Align assembly support for engine and transmission ⇒ [page 10-16](#).
Tightening specs, assembly support ⇒ [page 10-18](#).

Vehicles with manual transmission

- Install hydraulic clutch slave cylinder
⇒ [Repair Manual, Manual Transmission 02J, Repair Group 30](#)
- Install shift linkage:
⇒ [Repair Manual, Manual Transmission 02J, Repair Group 34](#)
- Adjust shift cable, if necessary:
⇒ [Repair Manual, Manual Transmission 02J, Repair Group 34](#)

Vehicles with automatic transmission

- Replace the E-clip on the stop of the selector lever cable.
- Install selector lever cable on transmission, adjust if necessary:
⇒ [Repair Manual, Automatic Transmission 01M, Repair Group 37](#)

Continuation for all vehicles

- Install drive axles:
⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 40](#)
- Install dust boot for inside right constant velocity joint.

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Engine, removing and installing (Page 10-14)

- Install front exhaust pipe with catalytic converter ⇒ [page 26-1](#).
- Install intake pipe-top section ⇒ [page 15-8](#).
- Install power steering pump:
⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 48](#)
- Install "V" ribbed belt ⇒ [page 13-28](#).

Electrical connections and cable routing:

- ⇒ [Repair Manual, Electrical Equipment, Repair Group 97](#)
- Install center, left and right sound damping tray:
⇒ [Repair Manual, Body-Exterior, Repair Group 50](#)
- Fill with coolant ⇒ [page 19-15](#).
- Install the air filter assembly:
⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition, Repair Group 24](#)
- Check headlight adjustment; correct if necessary:
⇒ [Repair Manual, Maintenance](#)
- Test drive and check DTC memory:
⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition, Repair Group 01](#)
- Adjust control unit for engine electronics to the throttle valve control unit (basic settings):
⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition, Repair Group 24](#)

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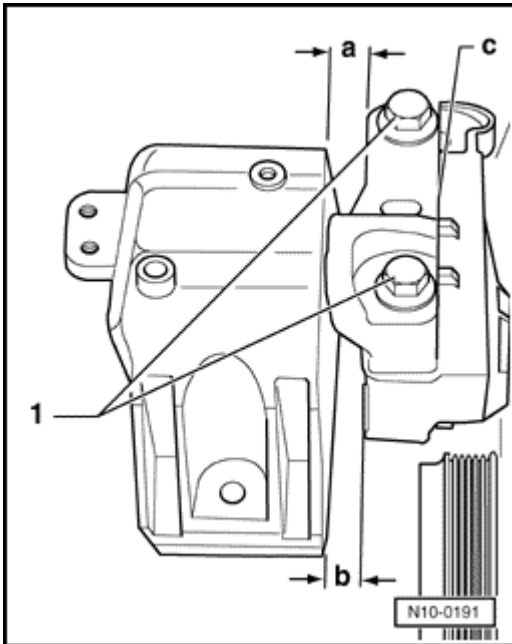
2.8 Liter VR6 2V Engine Mechanical, Engine Code(s): AFP Engine, removing and installing (Page 10-15)

- Read the readiness code:
 - ⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition , Repair Group 01](#)
- If the DTC memory was erased or the engine control unit was disconnected from the continuous positive power supply, you must regenerate the readiness code:
 - ⇒ [Repair Manual, 2.8 Liter VR6 OBD II Fuel Injection & Ignition , Repair Group 01](#)

Engine and transmission supports, aligning

CAUTION!

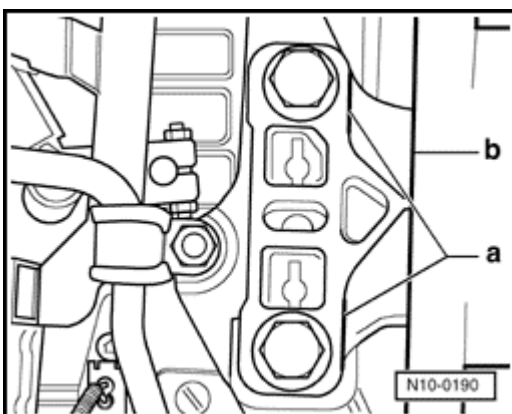
Before loosening the bolts the assembly must be secured with bracing unit 10-222A.



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Engine support

- ◆ a = 14.0 mm
- ◆ b = 10.0 mm minimum
- ◆ Both bolt heads must terminate flush with edge -c-.



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Transmission support

Edges -a- and -b- must be parallel to each other.

Notes:

Tightening specs, assembly support ⇒ [page 10-18](#).

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Engine, removing and installing (Page 10-17)

Torque specifications

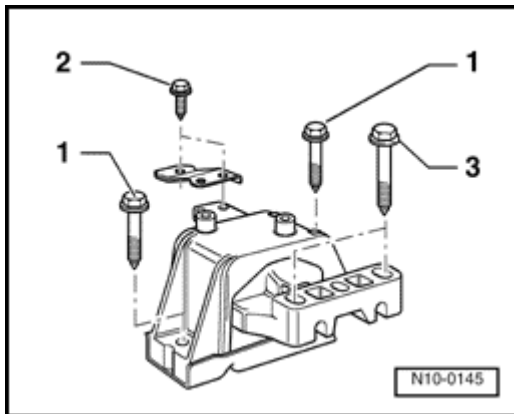
Connection		Torque
Bolts, Nuts	M 6	10 Nm
	M 8	20 Nm
	M10	45 Nm
	M 12	60 Nm
Except the following:		
Assembly support on transmission mount 1)		60 Nm + 90° (1/4 turn)
Assembly support on engine mount 1)		60 Nm + 90° (1/4 turn)
Assembly support on body 1)		40 Nm + 90° (1/4 turn)
Rocker bearing on transmission 1)		40 Nm + 90° (1/4 turn.)
Rocker bearing on assembly carrier 1)		20 Nm + 90° (1/4 turn)

1) Expansion bolts, replace

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Engine, removing and installing (Page 10-18)

Engine and transmission mounts

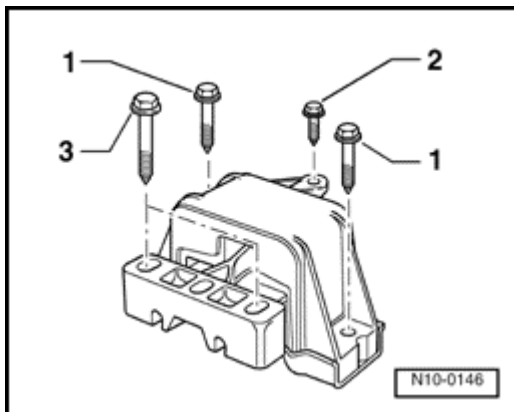
Torque specifications



Engine Assembly

- 1 - 40 Nm + additional 1/4 turn (90°) 1)
- 2 - 25 Nm
- 3 - 60 Nm + additional 1/4 turn (90°) 1)

1) Replace bolts

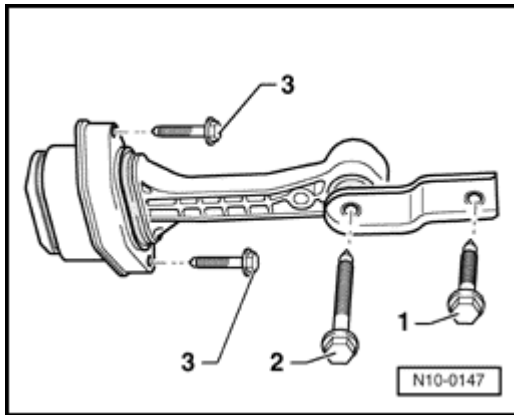


Transmission assembly

- 1 - 40 Nm + additional 1/4 turn (90°) 1)
- 2 - 25 Nm
- 3 - 60 Nm + additional 1/4 turn (90°) 1)

1) Replace bolts

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Engine, removing and installing (Page 10-19)



Rocker bearing

Notes:

The bolts must not be reused.

1 - 40 Nm+ additional 1/4 turn (90°)

2 - 40 Nm+ additional 1/4 turn (90°)

3 - 20 Nm+ additional 1/4 turn (90°)

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Engine, removing and installing (Page 10-20)

Vehicles with air conditioning; additional notes and assembly work

CAUTION!

The air conditioning coolant circuit must not be opened.

Notes:

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

To remove and install the engine without opening the refrigerant circuit:

- Remove the mounting bracket(s) of the refrigerant lines.
- Remove the "V" ribbed belt ⇒ [page 13-28](#).
- Remove the air conditioning compressor:
⇒ [Repair Manual, Heating & Air Conditioning , Repair Group 87](#)
- Attach the air conditioning compressor to the body in such a way that the refrigerant lines and hoses are not stressed.

Notes:

Protect the bumper against damage with adhesive tape.