





Engine, removing and installing

Special tools and equipment

- ◆ 2024 A Engine sling
- ◆ T10012 Engine/transmission support
- ◆ VW 313 Holding fixture
- ◆ VW 540 Holding fixture
- ◆ VAG 1202 A Workshop crane
- ◆ VAG 1306 Drip tray

<p>V.A.G 1331</p> 	<p>V.A.G 1332</p> 
<p>V.A.G 1383 A</p> 	<p>V.A.G 1921</p> 
<p style="text-align: right;">W10-0002</p>	

- ◆ VAG 1331 Torque wrench 5 to 50 Nm (3.7 to 37 ft lb) or equivalent
- ◆ VAG 1332 Torque wrench 40 to 200 Nm (30 to 148 ft lb) or equivalent
- ◆ VAG 1383A engine/transmission jack
- ◆ VAG 1921 Spring clip pliers
- ◆ VAS 5085 Step ladder or equivalent (not shown)
- ◆ MSO2 grease (manual transmission only) (not shown)
- ◆ M10 X 25 / 8.8 Bolt (not shown)
- ◆ M10 / 8.8 Nut (not shown)
- ◆ Cable ties (not shown)

Note:

- ◆ *Remove the engine/transmission assembly downward.*
- ◆ *All cable ties which were opened or cut open to remove the engine/transmission assembly, must be replaced in the original position when installing the engine.*

CAUTION!

Obtain the radio anti-theft code from the customer BEFORE disconnecting the battery Ground (GND) strap.

- After ensuring that ignition is switched OFF, disconnect battery ground strap.
- Remove engine cover.
- Remove battery and battery hold-down.
- Remove air cleaner.
- Remove sound dampening tray

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

Vehicles with A/C:

Observe additional information and removal instructions

⇒ [Page 10-18](#) .

Vehicles with manual transmission

- Disconnect selector mechanism from transmission.

⇒ [Repair Manual, 5 Spd. Manual Transmission 02J, Repair Group 34](#)

- Remove hydraulic clutch slave cylinder:

⇒ [Repair Manual, 5 Spd. Manual Transmission 02J, Repair Group 30](#)

Vehicles with automatic transmission

- Remove Transmission Range selector lever cable from transmission:

⇒ [Repair Manual, 4 Spd. Automatic Transmission 01M, Repair Group 37](#)

All vehicles

- Pull vacuum and breather hoses off engine.
- Disconnect all wiring from transmission, generator and starter and move them to one side for clearance.
- Remove ribbed belt ⇒ [Page 13-12](#)



- Remove intake air pipes between charge air cooler and turbocharger ⇒ [Page 21-6](#) .
- Remove power steering pump with bracket and lay to one side.

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

- Remove power steering hose mounting clamps.
- Remove right inner constant velocity joint protective cover from engine.
- Remove right drive shaft and disconnect left drive shaft at transmission:

⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 40](#)

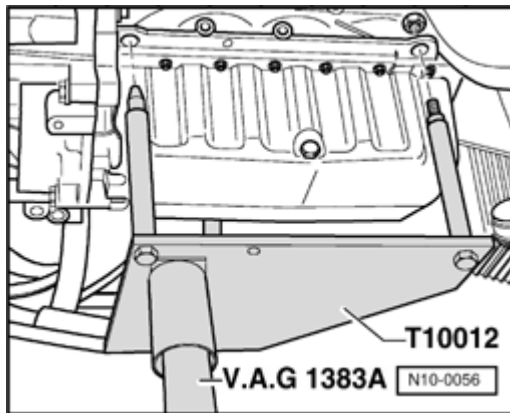
- Drain engine coolant ⇒ [Page 19-13](#) .
- Pull radiator hoses off engine using VAG 1921 hose clip pliers.



- Remove bolts from pendulum support (arrows).
- Remove front exhaust pipe ⇒ [Page 26-2](#) .

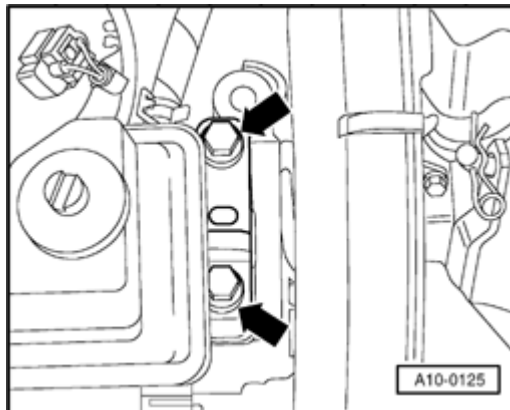
- Remove coolant hose and lower bracket from cylinder block. Mounting hole is used to fasten T 10012 engine support.

- Insert engine support T10012 into VAG 1383 A engine/transmission jack.



A

- Thread on T 10012 engine support using M10x 25 5/ 8.8 nut and bolt. Torque to 40 Nm (30 ft lb).
- Slightly lift engine/transmission assembly using VAG 1383A jack.

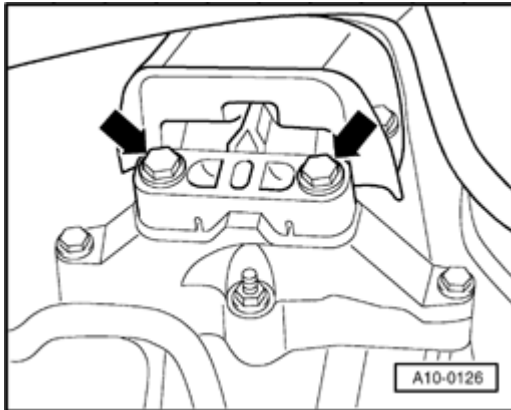


A

- Remove engine mount (engine side) from engine bracket (arrows) working from above.

Note:

Use VAS 5085 tool to remove mounting bolts.

**A**

- Remove engine/transmission mount from transmission bracket (arrows) working from above.
- Carefully lower engine/transmission assembly.
- While lowering, carefully guide power steering lines past transmission.

Note:

Carefully guide engine/transmission assembly during lowering process to prevent body damage.

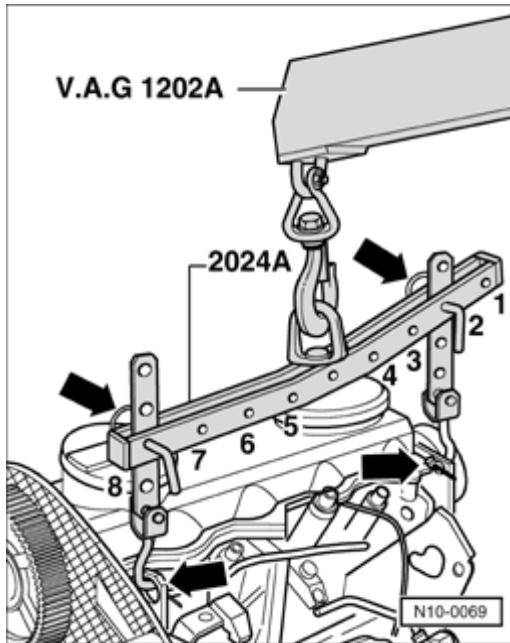
Engine, attaching to assembly stand**Note:**

To work on the engine outside of the vehicle, attach engine to assembly stand using VW 313 holding fixture along with VW 540 engine/transmission support.

- Remove transmission from engine.

Vehicles with automatic transmission

- Secure torque converter to prevent it from falling out.



All vehicles

A

- Attach 2024A engine sling as follows and lift from VAG 1383 engine/transmission jack using workshop crane:
 - Pulley end: 2nd hole in hook at position 8
 - Flywheel end: 3rd hole in hook at position 2

WARNING!

Secure ALL hooks and locating pins with lock pins!

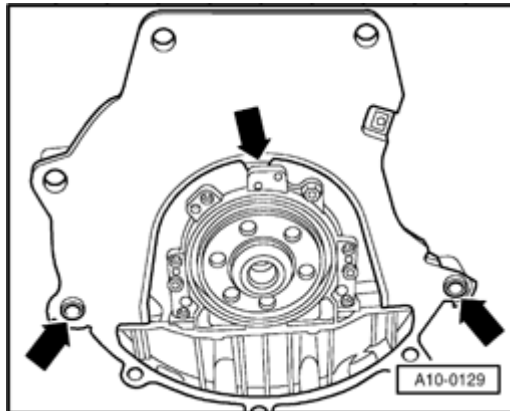
Notes:

- ◆ Positions marked 1 to 4 on the bar must be located toward the pulley end of the engine.
- ◆ The holes in the hooks are counted up from the hook.
- Secure engine to holding fixture VW 313 using VW 540 engine/transmission support.

Installation notes:

Installation is in reverse sequence of removal but note the following:

- Check whether centering dowels for engine/transmission are installed in cylinder block, install if necessary.



A

- Install intermediate plate onto sealing flange and slide onto dowel sleeves (arrows).

Vehicles with manual transmission

- Check that clutch disc is centered.
- Check clutch release bearing for wear, replace if necessary.
- Lightly grease clutch release bearing and splines on input shaft using MSO2 grease. Do not apply grease to release bearing guide sleeve.

Vehicles with automatic transmission

Only use approved spare parts when replacing torque converter mounting nuts.



All vehicles

Do not damage engine/transmission mounts or radiator when installing engine/transmission assembly.

Carefully guide power steering lines past transmission when installing.

Ensure sufficient clearance to drive shafts when installing engine/transmission assembly.

Aligning engine and transmission mounts ⇒ [Page 10-13](#)

Note:

Tightening torques ⇒ [Page 10-15](#)

Vehicles with manual transmission

- Install hydraulic clutch slave cylinder:

⇒ [Repair Manual, 5 Spd. Manual Transmission 02J, Repair Group 30](#)

- Install selector mechanism:

⇒ [Repair Manual, 5 Spd. Manual Transmission 02J, Repair Group 34](#)

- If necessary adjust gear shift cables:

⇒ [Repair Manual, 5 Spd. Manual Transmission
02J, Repair Group 34](#)



Vehicles with automatic transmission

Always replace lock washer on selector cable mount.

- Install selector cable on transmission, adjust if necessary:

⇒ [*Repair Manual, 4 Spd. Automatic Transmission 01M On Board Diagnostic \(OBD\), Repair Group 37*](#)

All vehicles

- Install right drive shaft and connect left drive shaft at transmission:

⇒ [*Repair Manual, Suspension, Wheels, Steering, Repair Group 40*](#)

- Install protective cover for right inner CV joint.
- Install exhaust pipe with catalyst ⇒ [Page 26-1](#)
- Install power steering pump

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

- Install ribbed belt ⇒ [Page 13-12](#) .
- Install air filter assembly.
- Electrical connections and routing:

⇒ [Repair Manual, Electrical Equipment, Repair Group 97](#)



- Fill with engine coolant ⇒ [Page 19-13](#)

- Install sound dampening tray

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

- Road test vehicle and check DTC memory:

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

- Read readiness code:

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

Readiness code must be reset if DTC memory is erased or ECM is subject to low voltage with ignition ON

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH,](#)

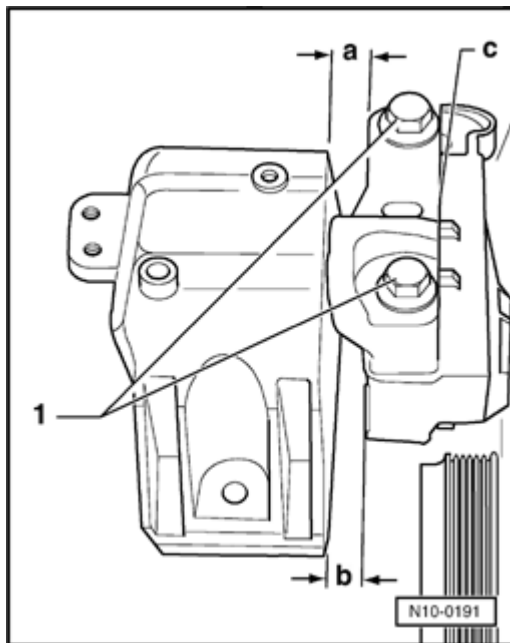
Repair Group 01



Engine and transmission mounts, aligning

CAUTION!

Engine/transmission support 10-222A must be installed before loosening bolts.



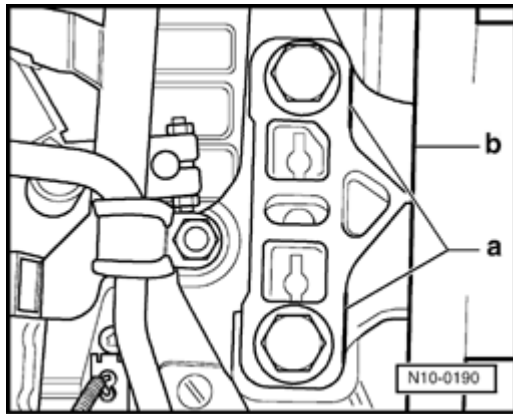
A

- Engine mount assembly

a = 14.0 mm (0.55 in.)

b = minimum 10.0 mm (0.40 in.)

Both bolt heads -1- must align flush with edge -c-.



Transmission mount assembly

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

Note:

Tightening torques ⇒ [Page 10-15](#)



Tightening torques

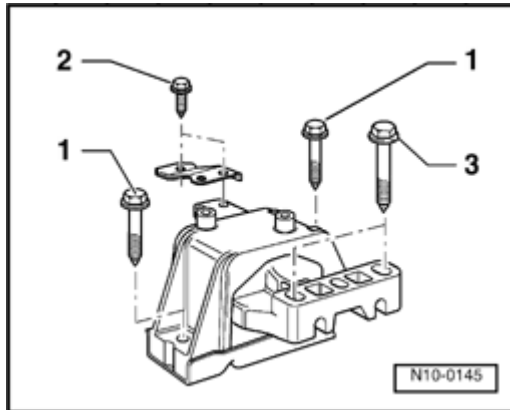
Bolted joint		Tightening torque
Bolts, nuts	M 6	10 Nm 7 ft lb
	M 8	25 Nm 18 ft lb
	M10	40 Nm 30 ft lb
	M 12	60 Nm 44 ft lb
Different from the above:		
Engine to transmission connecting bolts	M10	60 Nm 44 ft lb
Engine to transmission connecting bolts	M12	80 Nm 59 ft lb
Torque converter to drive plate		60 Nm 44 ft lb

Drive shaft to flange / transmission	40 Nm 30 ft lb
Front exhaust pipe to turbocharger	25 Nm 18 ft lb
	65 Nm
Starter to transmission	50 ft lb



Engine and transmission mounts, assembly

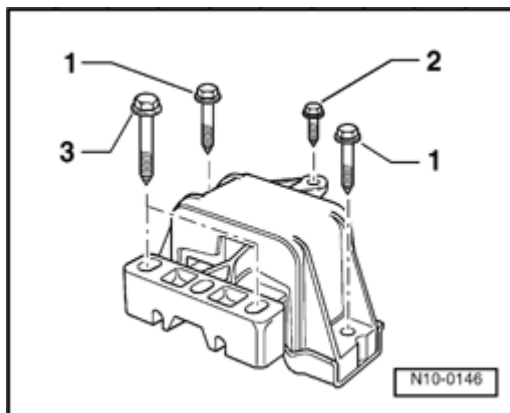
Tightening torques



▲ Engine mount

- 1 - Mount to body¹⁾ 40 Nm (30 ft lb) + 90° (1/4 turn.)
- 2 - Mount/bracket to body 25 Nm (18 ft lb)
- 3 - Mount to engine bracket¹⁾ 60 Nm (44 ft lb) + 90° (1/4 turn.)

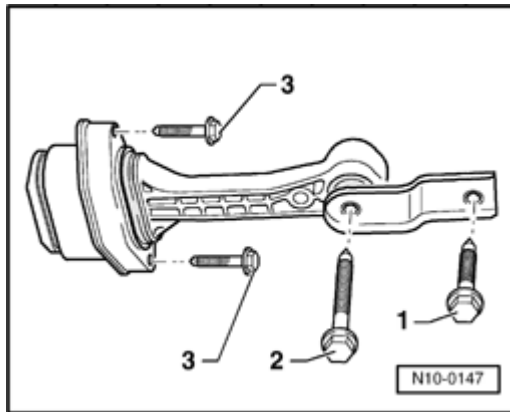
1) Always replace bolts



▲ Transmission mount

- 1 - Mount to body¹⁾ 40 Nm (30 ft lb) + 90° (1/4 turn.)
- 2 - Mount to body 25 Nm (18 ft lb)
- 3 - Mount to transmission housing¹⁾ 60 Nm (44 ft lb) + 90° (1/4 turn.)

1) Always replace bolts



▲ Pendulum support

- 1 - Pendulum support to transmission¹⁾ 40 Nm (30 ft lb) + 90° (1/4 turn.)
- 2 - Pendulum support to transmission¹⁾ 40 Nm (30 ft lb) + 90° (1/4 turn.)
- 3 - Pendulum support to engine¹⁾ 20 Nm (15 ft lb) + 90° (1/4 turn.)

¹⁾ Always replace bolts



Vehicles with A/C, additional information and removal instructions

CAUTION!

Do NOT open the A/C refrigerant circuit.

Note:

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

To ease engine removal and installation without opening the A/C refrigerant circuit:

- Remove retaining clamp(s) from refrigerant lines.
- Remove ribbed belt ⇒ [Page 13-12](#)
- Remove A/C compressor:

⇒ [Repair Manual, Heating & Air Conditioning, Repair Group 87](#)

- Hang up A/C compressor to vehicle body to relieve stress of refrigerant lines/hoses

Note;

Protect bumper with adhesive tape.