

# Volkswagen New Beetle

## 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

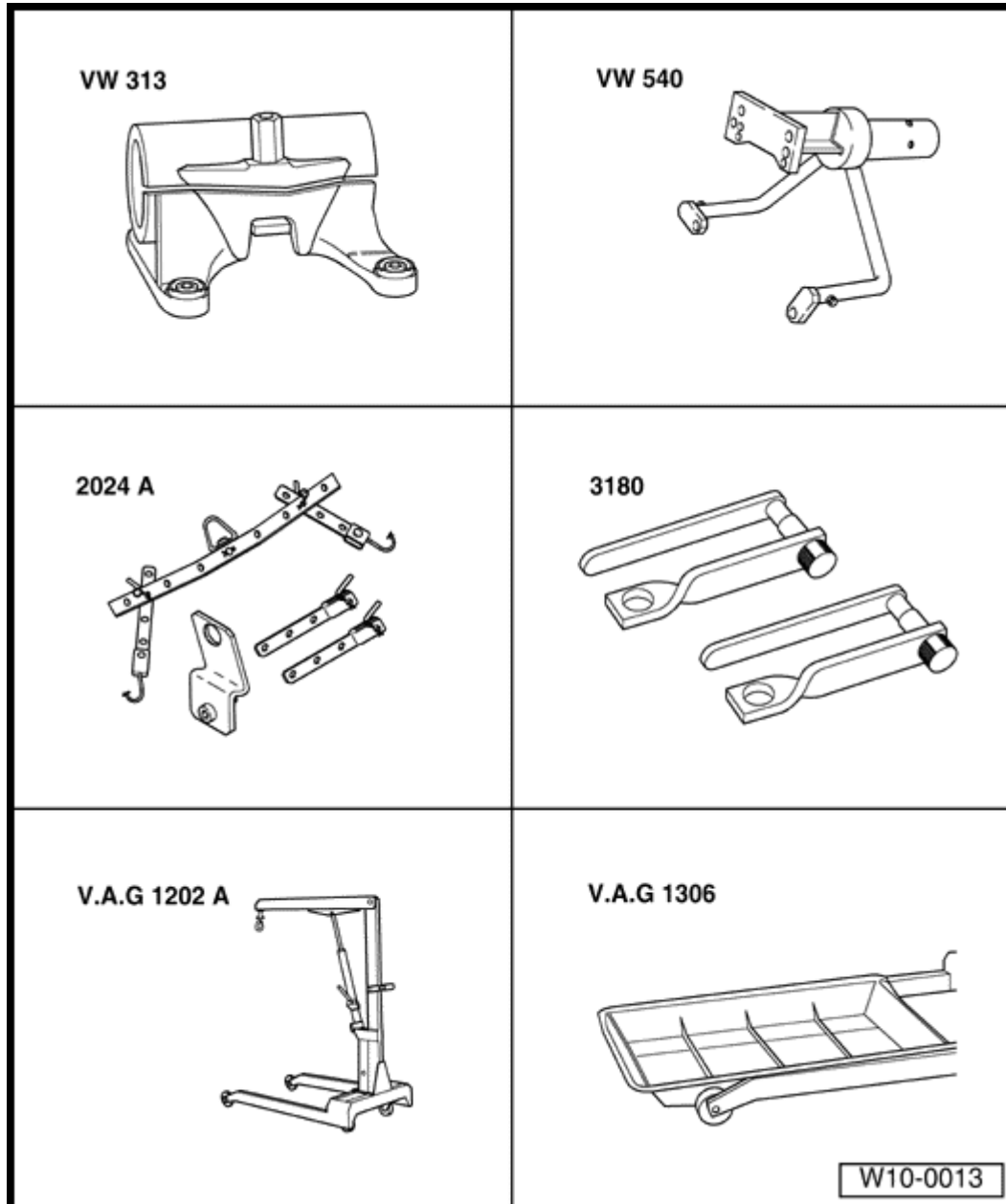
### 10 Engine-Assembly (Page GR-10)

---

- [Engine, removing and installing](#)
- [Assembly mountings](#)
- [Engine and gearbox mountings, aligning](#)
- [Installation notes](#)
- [Removal notes](#)
- [Securing engine to assembly stand](#)
- [Tightening torques](#)
- [Vehicles with air conditioner, additional information and removal instructions](#)

**Volkswagen New Beetle**  
**1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical**  
**Technical data (Page 10-1)**

---

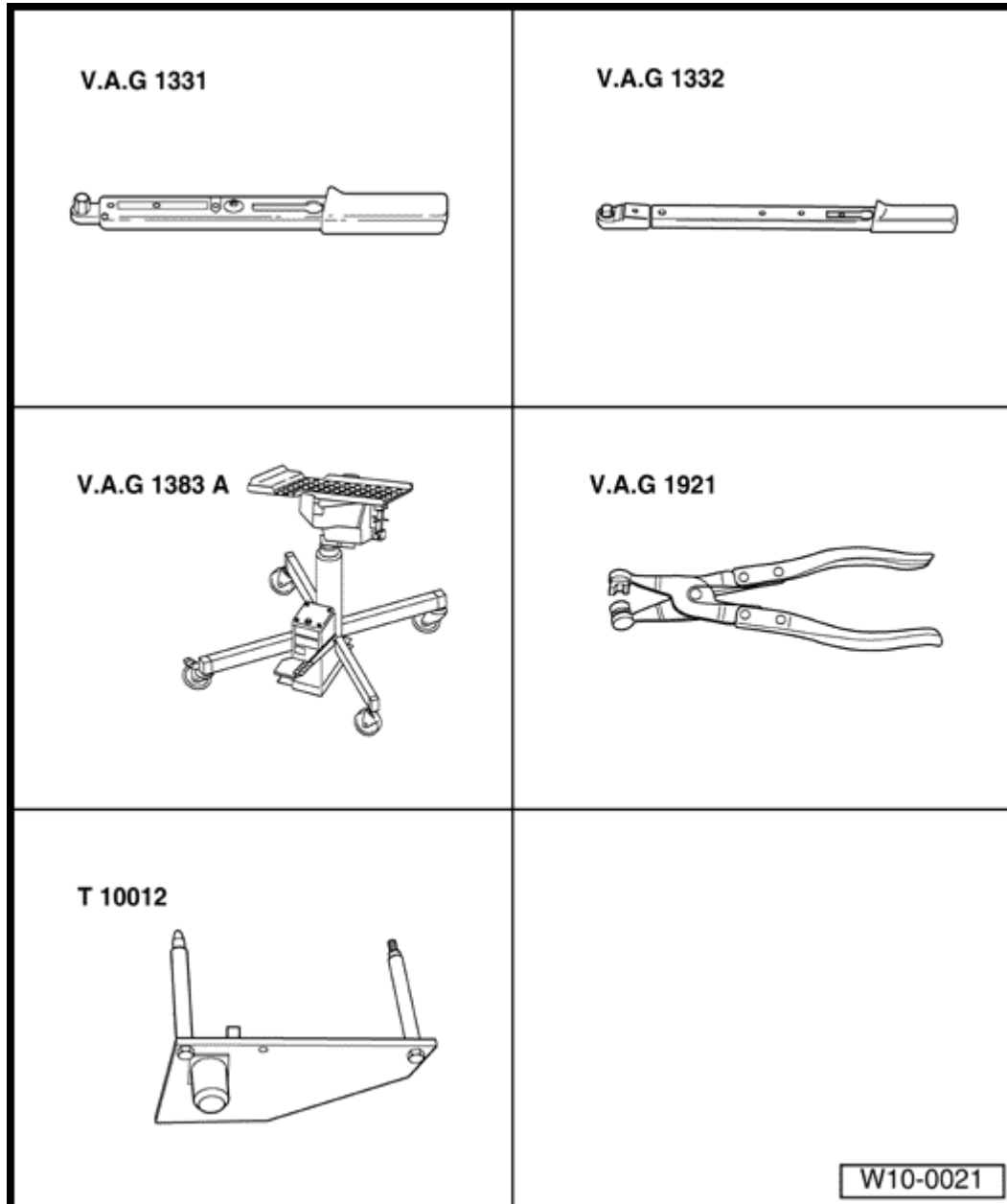


**Special tools and equipment**

- ◆ VW 313 Support clamp
- ◆ VW 540 Engine and gearbox support
- ◆ 2024 A Lifting tackle
- ◆ 3180 Retainer (for engine code AGU)
- ◆ V.A.G 1202 A Workshop crane
- ◆ V.A.G 1306 Drip tray

**Volkswagen New Beetle**  
**1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical**  
**Engine, removing and installing (Page 10-2)**

---



- ◆ V.A.G 1331 Torque wrench (5-50 Nm)
- ◆ V.A.G 1332 Torque wrench (40-200 Nm)
- ◆ V.A.G 1383 A Engine/gearbox jack
- ◆ V.A.G 1921 Spring - type clip pliers
- ◆ T10012 Engine bracket
- ◆ V.A.S 5085 Step ladder
- ◆ G 000 100 grease (vehicles with manual gearbox)
- ◆ Bolt M10 X 25 / 8.8
- ◆ Cable tie

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-3)

---

#### Removal notes

- First check whether a coded radio is fitted. If this is the case obtain the anti - theft coding.

The engine is removed downward together with the gearbox.

- With ignition switched off, disconnect battery Ground strap.

All cable ties which are opened or cut open when removing engine must be replaced in the same position when installing engine.

- Remove engine cover.

- Remove air cleaner:

⇒ [Repair Manual, 1.8 Liter 4 - Cyl. 5V Turbo OBDII Fuel Injection & Ignition, Repair Group 24](#)

- Remove intake hose between air mass meter (G70) and throttle valve control part (J338).

⇒ [Repair Manual, 1.8 Liter 4 - Cyl. 5V Turbo OBDII Fuel Injection & Ignition, Repair Group 24](#)

- Remove power steering fluid reservoir from battery holder without disconnecting hoses.

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

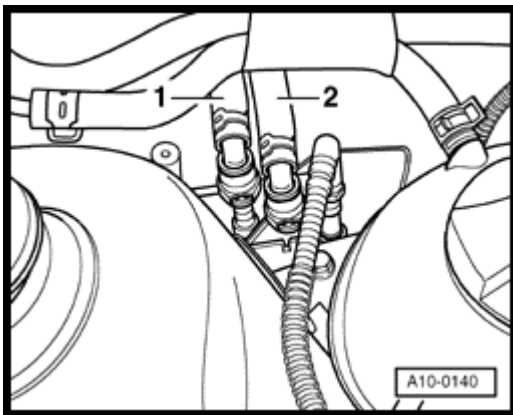
#### Engine, removing and installing (Page 10-4)

---

- Fasten reservoir to lock carrier.
- Remove battery and battery retainer.
- Pull vacuum and breather hoses off engine.

#### **WARNING!**

***Fuel supply pipes are under pressure! Before removing from hose connection wrap a cloth around the connection. Then release pressure by carefully pulling hose off connection.***



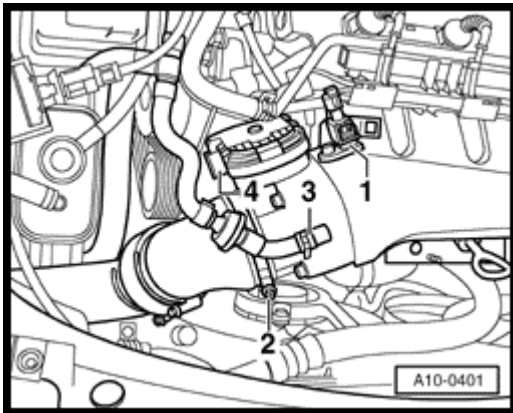
- Pull off fuel supply line - 1 - and fuel return line - 2 - at disconnecting location by applying pressure to the disengaged buttons.
- Seal the pipes so that the fuel system is not contaminated by dirt etc.

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

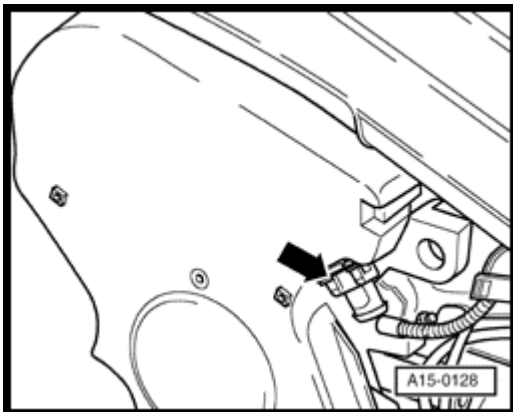
#### Engine, removing and installing (Page 10-5)

---



**A**

- Loosen and remove intake hose (between charge air cooler and throttle valve control unit) at throttle valve control unit.
- Disconnect harness connector for intake air temperature (G42), - 1 - and - 4 - for throttle valve control unit (J338) below throttle valve control unit.



**A**

- Pull connector off Hall sender (G40) - arrow - .
- Unbolt vacuum canister from cylinder head cover and pull from bracket.

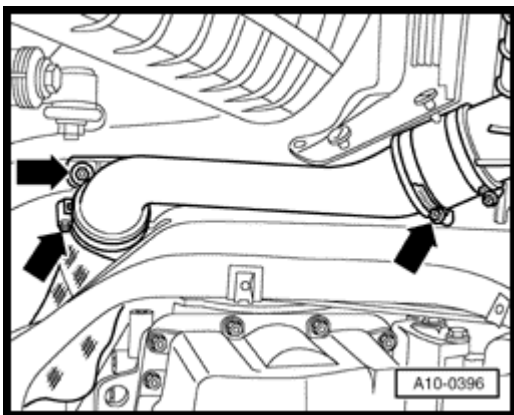
## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-6)

---

- Disconnect fuel injectors harness connector and unclip bracket rail from fuel distributor.
- Unscrew Ground wire between ignition coil - 1 - and - 2 - .
- Disconnect connectors from ignition coils.
- Disconnect connector for speedometer vehicle speed sensor (G22) at rear of transmission.
- Remove center, left and right insulation tray:  
⇒ [Repair Manual, Body-Exterior, Repair Group 50](#)



#### A

- Remove air duct to charge air cooler at lower right of long member.

#### Vehicles with manual gearbox

- Disconnect selector mechanism from gearbox.  
⇒ [Repair Manual, Manual Transmission 02J, Repair Group 34](#)
- Remove hydraulic clutch slave cylinder.  
⇒ [Repair Manual, 5 - Speed Manual Transmission 02J, Repair Group 30](#)

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-7)

---

#### **Notes:**

*Clutch pedal must not be depressed.*

#### **Vehicles with automatic gearbox**

- Remove selector lever cable from gearbox:

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

#### **Continued for all vehicles**

- Drain coolant ⇒ [Page 19-13](#)
- Pull radiator coolant hoses off engine using hose clip pliers V.A.G 1921.
- Remove coolant hoses at heater core.
- Remove coolant hose to coolant pipe at throttle valve control unit.
- Remove additional fan at right side of vehicle if present.
- Disconnect both harness connectors for cooling fan at notch at left bottom.



## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-8)

---

- Remove inter - connecting, coolant, vacuum and intake hoses on engine.
- Remove secondary air pump motor and bracket.
- Disconnect all electric wires from gearbox, alternator and starter and move clear.
- Remove securing clamps for power steering pressure pipe.
- Remove ribbed belt ⇒ [Page 13-8](#) .
- Remove power assisted steering vane pump with bracket and lay to side; hoses remain connected.

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

#### Vehicles with air conditioner

#### **WARNING!**

***The air conditioner refrigerant circuit must not be opened.***

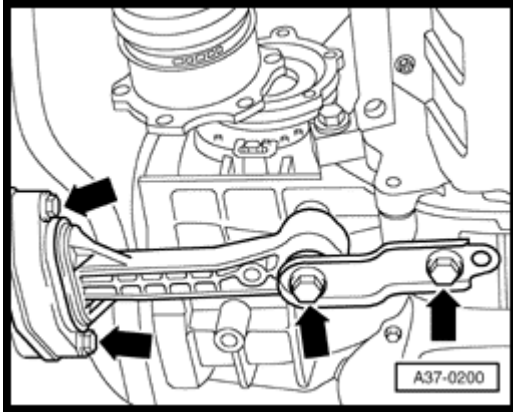
- Remove air conditioner compressor.
  - Observe additional notes and assembly work ⇒ [Page10 - 15](#).
  - Remove generator.
- ⇒ [Repair Manual, Electrical Equipment, Repair Group 27](#).
- Remove compact bracket including tightening element for ribbed V - belt ⇒ [page 13-7](#) , item 19.

## Volkswagen New Beetle 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical Engine, removing and installing (Page 10-9)

---

### Continued for all vehicles

- Remove protective cover for right - hand inner constant velocity joint from engine.
  - Remove right - hand drive shaft and disconnect left - hand drive shaft at gearbox.
- ⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 40](#)



**A**

- Remove pendulum support - arrows - .
- Remove front exhaust pipe with catalytic converter ⇒ [page 26-2](#) .

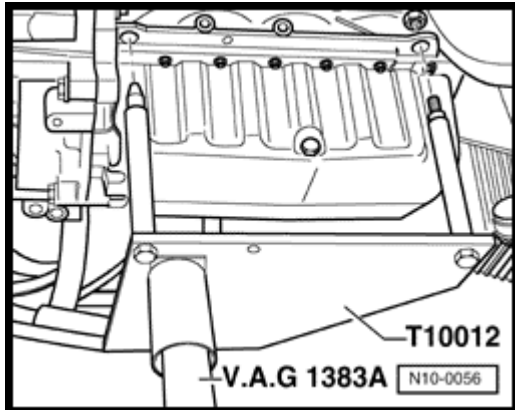
# Volkswagen New Beetle

## 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

### Engine, removing and installing (Page 10-10)

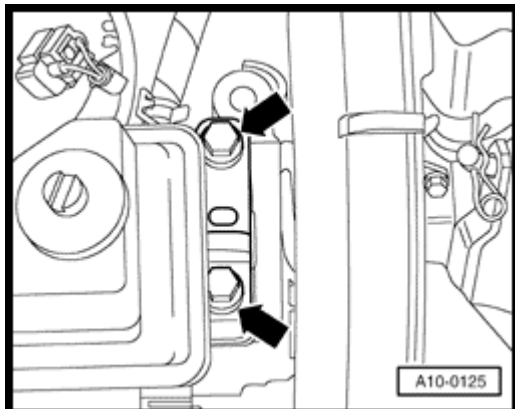
---

Continued for all vehicles



**A**

- Fit engine bracket T 10012 onto cylinder block with a securing nut and M10 X 25/ 8.8 bolt and tighten to approx. 40 Nm.
- Lift engine and gearbox lightly using engine/gearbox jack V.A.G 1383 A.



**A**

- Unbolt engine side of assembly mounting from engine carrier at top - arrows - .

**Notes:**

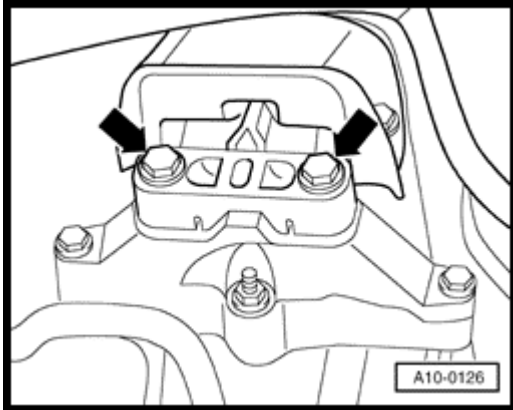
*To remove securing bolts use step ladder V.A.S 5085.*

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-11)

---



**A**

- Unbolt gearbox side of assembly mounting from gearbox carrier at top - arrows - .
- Carefully lower engine with gearbox.
- When doing this guide the power assisted steering pressure pipe past the gearbox.

**Notes:**

*Engine with gearbox must be guided carefully when lowering to prevent damage to the bodywork.*

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

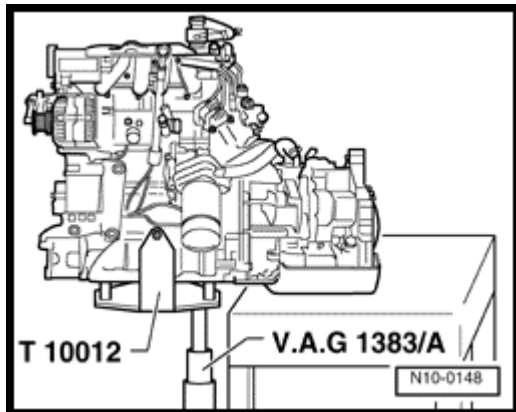
#### Engine, removing and installing (Page 10-12)

---

### Securing engine to assembly stand

When working on the engine, it should be secured to the assembly stand support clamp VW 313 using the engine and gearbox bracket VW 540.

### Work sequence



- Move engine/transmission with V.A.G 1383 A lift to a workbench.
- Lower engine/transmission unit so that the transmission is supported (at supporting point).
- Remove gearbox.

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

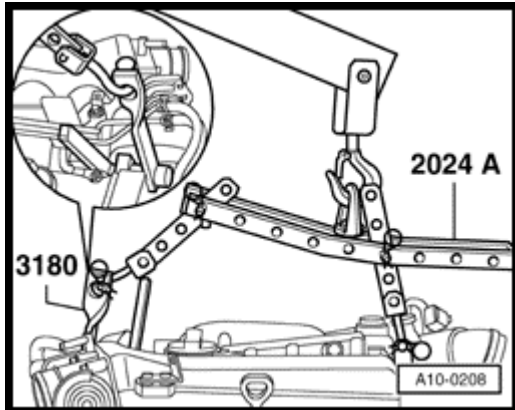
#### Engine, removing and installing (Page 10-13)

---

#### Vehicles with automatic gearbox

- Secure torque converter against "falling out" after separating engine from gearbox.

#### Continued for all vehicles



#### A

- Attach lifting tackle 2024A with bracket 3180 as follows and lift off engine/gearbox jack V.A.G 1383 with workshop crane V.A.G 1383 A.

Pulley end: 3rd hole in hook at position 1

Flywheel end: 2nd hole in hook at position 5

#### **WARNING!**

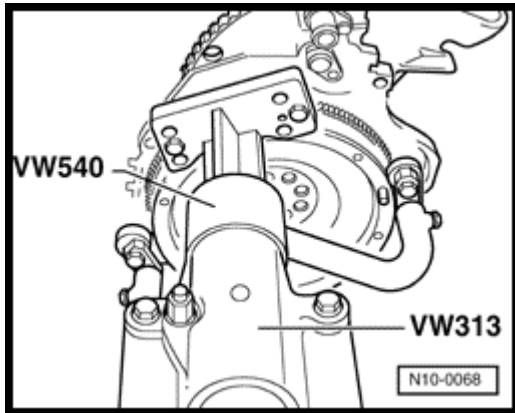
***The hooks and locating pins must be secured with locking pins.***

#### **Notes:**

- ◆ *The positions marked 1-4 on the bar must be toward the pulley end.*
- ◆ *The holes in the hooks are counted up from the hook.*

**Volkswagen New Beetle**  
**1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical**  
**Engine, removing and installing (Page 10-14)**

---



**A**

- Secure engine to support clamp VW 313 using engine and gearbox bracket VW 540.

# Volkswagen New Beetle

## 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

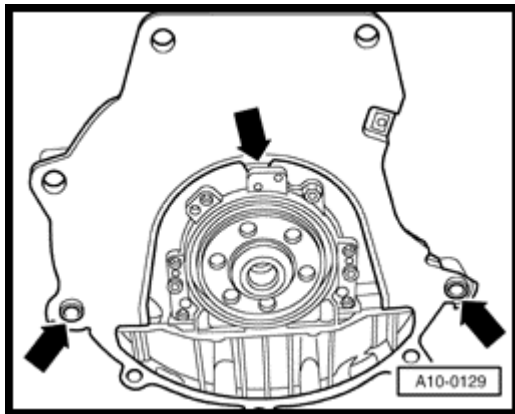
### Engine, removing and installing (Page 10-15)

---

#### Installation notes

Installation is carried out in the reverse sequence, when doing this note the following:

- Check whether the dowel sleeves for centralizing engine/gearbox are in the cylinder block, install if necessary.



- Fit intermediate plate onto sealing flange and slide onto dowel sleeves - arrows - .

#### Vehicles with manual gearbox

- Check centering of clutch drive plate, if necessary.
- Check clutch release bearing for wear, renew if necessary.
- Lightly grease clutch release bearing, release bearing guide sleeve and splines on input shaft with G 000 100.
- Install hydraulic clutch slave cylinder:

⇒ [Repair Manual, 5 - Speed Manual Transmission 02J, Repair Group 30](#)

- Install selector mechanism.
- If necessary, adjust gearchange cables:

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

#### Vehicles with automatic gearbox

- Only use nuts approved in parts programme to secure torque converter to drive plate.



## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-16)

---

- Install selector cable on gearbox, adjust if necessary:

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

#### **Continued for all vehicles**

- When installing the assembly, ensure sufficient clearance to drive shafts.

#### **Vehicles with air conditioner**

- Install generator.

⇒ [Repair Manual, Electrical Equipment, Repair Group 27](#).

- Install compact bracket including tightening element for ribbed V - belt ⇒ [page 13-7](#), item 19.

⇒ [Repair Manual, Electrical Equipment, Repair Group 27](#)

- Install A/C compressor.

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-17)

---

#### Continued for all vehicles

- Align engine and gearbox mountings ⇒ [Page 10-20](#) .

Installing drive shafts:

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

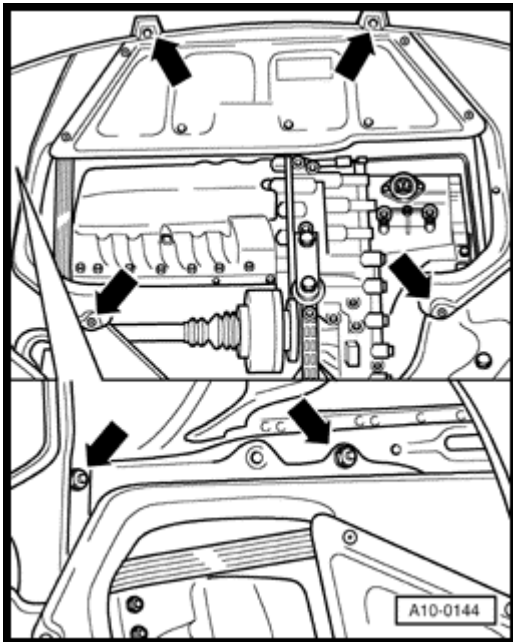
- Remove right hand inner constant velocity joint protective cover from engine if fitted.
- Remove front exhaust pipe ⇒ [Page 26-1](#) , removing and installing parts of exhaust system.
- Push on and tighten intake hose (between charge air cooler and throttle valve control unit) at throttle valve control unit.
- Installing P.A.S. power steering pump:  
⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 48](#)
- Electrical connections and routing:  
⇒ [Repair Manual, Electrical Equipment, Repair Group 97](#)
- Install ribbed belt ⇒ [Page 13-8](#) .

## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-18)

---



- Install center, left and right insulation trays:

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

- Install secondary air pump.

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

- Carry out a test drive and check DTC memory:

⇒ [Repair Manual, 1.8 Liter 4 - Cyl. 5V Turbo OBDII Fuel Injection & Ignition, Repair Group 01](#)

- Match engine electronics control unit to throttle valve control part:

⇒ [Repair Manual, 1.8 Liter 4 - Cyl. 5V Turbo OBDII Fuel Injection & Ignition, Repair Group 24](#)

- Read out readiness code:

⇒ [Repair Manual, 1.8 Liter 4 - Cyl. 5V Turbo OBDII Fuel Injection & Ignition, Repair Group 01](#)

- If DTC memory has been erased or the engine control unit separated from the permanent positive, the readiness code must be generated again.

⇒ [Repair Manual, 1.8 Liter 4 - Cyl. 5V Turbo OBDII Fuel Injection & Ignition, Repair Group 01](#)

# Volkswagen New Beetle

## 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

### Engine, removing and installing (Page 10-19)

---

### Tightening torques

<b>Bolted joint</b>		<b>Tightening torque</b>
Bolts, nuts	M6	10 Nm
	M7	15 Nm
	M8	25 Nm
	M10	40 Nm
	M12	60 Nm
<b>Exceptions:</b>		
Engine to gearbox connecting bolts	M10	45 Nm
Engine to gearbox connecting bolts	M12	80 Nm
Torque converter to drive plate		60 Nm
Drive shaft to joint flange/gear-box		40 Nm

# Volkswagen New Beetle

## 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

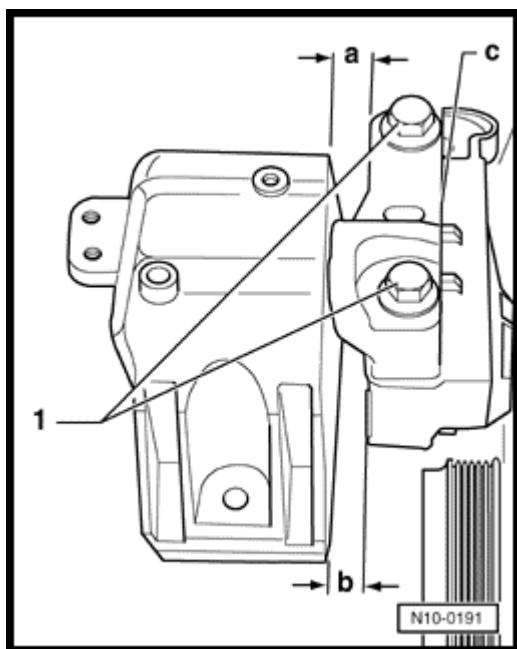
### Engine, removing and installing (Page 10-20)

---

#### Engine and gearbox mountings, aligning

#### **WARNING!**

**Before loosening the bolts the assemblies must be secured with the special tool 10-222A.**



Engine mounting

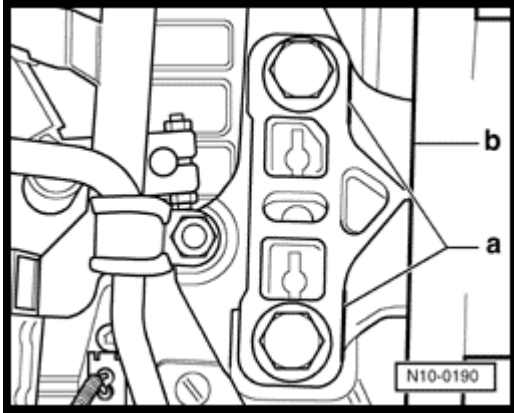
a = 14.0 mm

b = at least 10.0 mm

Both bolt heads 1 must be in flush with edge - c - .

**Volkswagen New Beetle**  
**1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical**  
**Engine, removing and installing (Page 10-21)**

---



**A**

Gearbox mounting

Edges - a - and - b - must be parallel with one another.

# Volkswagen New Beetle

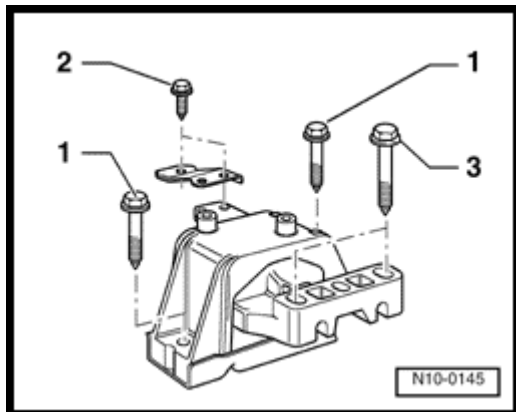
## 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

### Engine, removing and installing (Page 10-22)

---

### Assembly mountings

### Tightening torques



### Engine mounting

- |                                    |                        |
|------------------------------------|------------------------|
| 1 - Mounting to body 1):           | 40 Nm + 90° (1/4 turn) |
| 2 - Mounting/bracket to body:      | 25 Nm                  |
| 3 - Mounting to engine bracket 1): | 60 Nm + 90° (1/4 turn) |

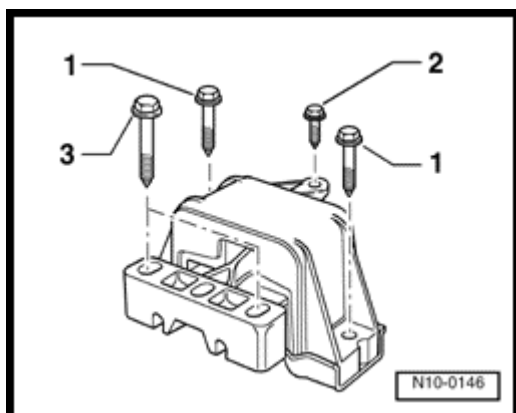
1) Replace bolts

# Volkswagen New Beetle

## 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

### Engine, removing and installing (Page 10-23)

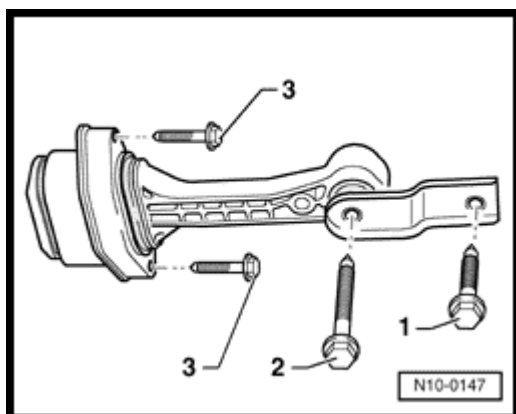
---



#### Gearbox assembly mounting

- 1 - Mounting to body 1): 40 Nm + 90° (1/4 turn)
- 2 - Mounting to body: 25 Nm
- 3 - Mounting to gearbox console 1): 60 Nm + 90° (1/4 turn)

#### 1) Replace bolts



#### Pendulum support

- 1 - Pendulum support to gearbox 1): 40 Nm + 90° (1/4 turn)
- 2 - Pendulum support to gearbox 1): 40 Nm + 90° (1/4 turn)
- 3 - Pendulum support to subframe 1): 20 Nm + 90° (1/4 turn)

#### 1) Replace bolts



## Volkswagen New Beetle

### 1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical

#### Engine, removing and installing (Page 10-24)

---

#### Vehicles with air conditioner, additional information and removal instructions

#### **WARNING!**

***The air conditioner refrigerant circuit must not be opened.***

#### **Notes:**

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

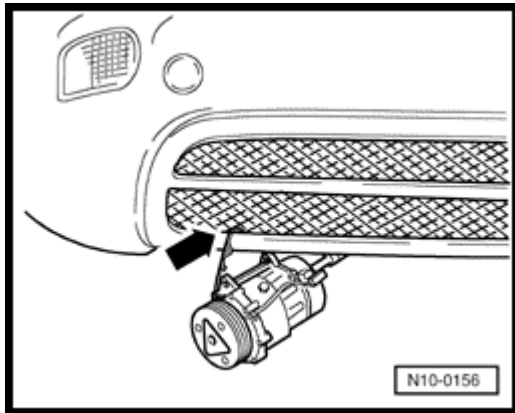
To facilitate removing and installing the engine without opening the refrigerant circuit:

- Remove retaining clamp(s) from refrigerant pipes.
- Remove ribbed belt ⇒ [Page 13-8](#) .
- Remove air conditioner compressor.

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

**Volkswagen New Beetle**  
**1.8 Liter 4-Cyl. 5V Turbo OBD II Engine Mechanical**  
**Engine, removing and installing (Page 10-25)**

---



**A**

- Secure air conditioner compressor to towing eye so that the refrigerant hoses/pipes are not under tension.

**Notes:**

*To prevent damage to bumper protect with adhesive tape.*

## Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>