

## Volkswagen > Jetta > 2005-2008

### 1.9 Liter 4-Cyl. 2V TDI PD Engine Mechanical, Fuel Injection & Glow Plug, Engine Code(s): BRM 13 - Removal and Installation

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#### Sealing Flange, Flywheel Side

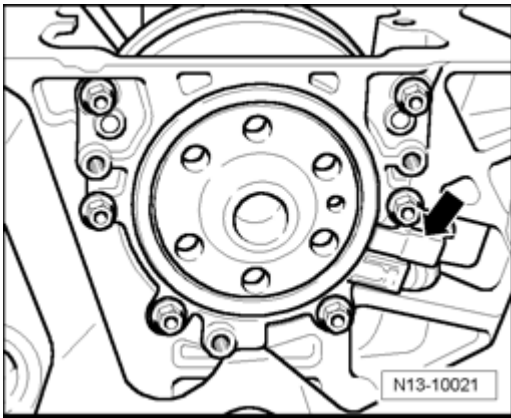
##### Special tools, testers and auxiliary items required

- Torque wrench V.A.G 1331
- Assembly tool V.A.G 1332/11
- Assembly tool T10134
- Caliper gauge
- Three bolts M6 x 35 mm
- Two bolts M7 x 35 mm

##### Pressing Out

##### Note:

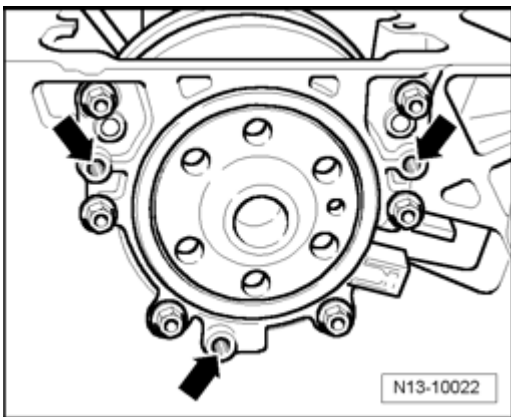
- ◆ To improve clarity, the work procedures will be shown with the engine removed.
- ◆ The work procedures are the same with the engine installed and removed.
- Remove the dual mass flywheel ⇒ Dual Mass Flywheel .
- Remove the intermediate plate.
- Set engine to TDC cyl. 1 ⇒ Toothed Belt .
- Remove oil pan ⇒ Oil Pan .



- Remove the engine speed (RPM) sensor G28 - **arrow** - using a commercially available ball head socket insert.
- Remove the sealing flange bolts.

**Note:**

- ◆ Sealing flange and sensor wheel are pressed off together from the crankshaft using three bolts M6 x 35 mm .



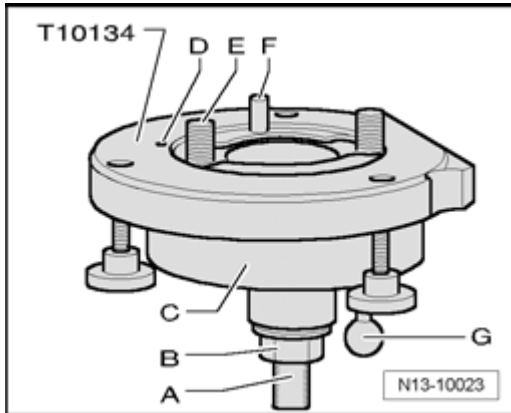
- Screw three bolts M6 x 35 mm into the threaded holes - **arrows** - of the sealing flange.
- Screw the bolts alternating (max. one  $1/2$  turn (180 degree ) per bolt) into the sealing flange and press the sealing flange together with the sensor wheel off from the crankshaft.

**Pressing In**

**Note:**

- ◆ Sealing flange with PTFE seal is equipped with a sealing lip support ring. This support ring serves the same function of an assembly sleeve and must not be removed before installation.
- ◆ The sealing flange and sensor wheel must not be separated or rotated after being removed from the replacement part packaging.

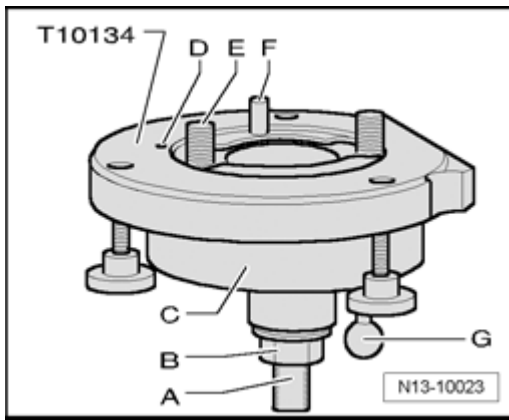
- ◆ The sensor wheel retains the installation position via being located on the locating pin of the assembly tool T10134 .
- ◆ The sealing flange and seal are one unit and may only be replaced together with the sensor wheel.
- ◆ The assembly tool T10134 retains the installation position to the crankshaft via a guide pin, which is guided into the bore of the crankshaft.



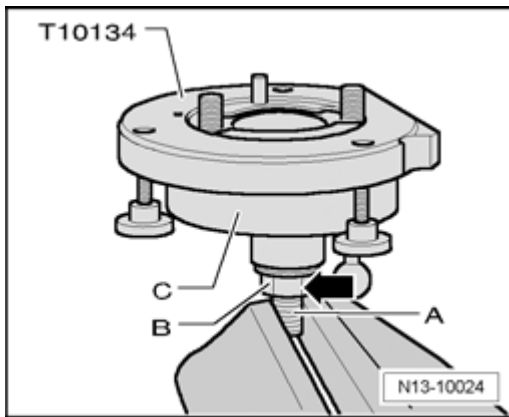
Assembly tool T10134

- A - Tension surface
- B - Nut
- C - Assembly bell
- D - Locating pin
- E - Socket head hex bolt
- F - Guide pin for diesel engines (red handle)
- G - Guide pin for gasoline engines (black handle)

### **Mounting Seal with Sensor Wheel on Assembly Tool**



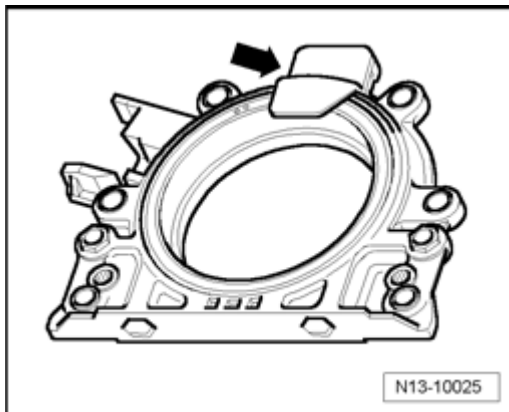
- Screw on the nut - **B** - until shortly before the tension surface - **A** - of the threaded spindle.



- Tension the assembly tool T10134 in a vise on the tension surface - **A** - of the threaded spindle.
- Press the assembly bell - **C** - downward so that it rests on the nut - **B** - - **arrow** - .

**Note:**

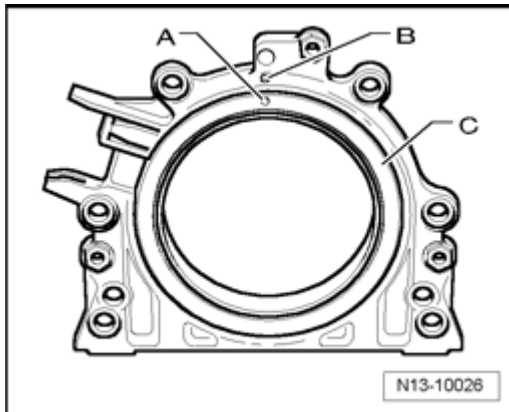
- ♦ Inner part of the assembly tool and assembly bell must be on the same level.



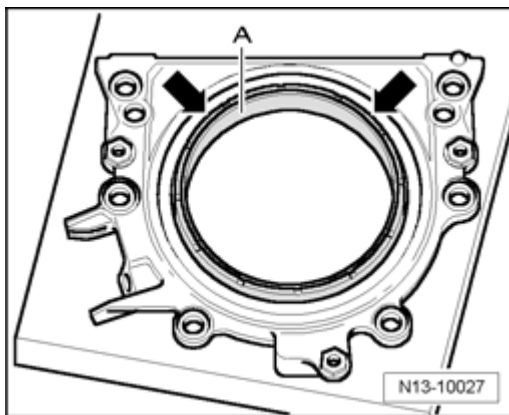
- Remove the securing clip - **arrow** - from the new sealing flange.

**Note:**

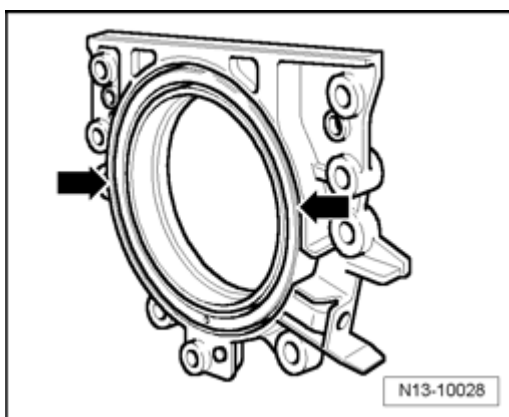
- ♦ The sensor wheel must not be removed from or rotated in the sealing flange.



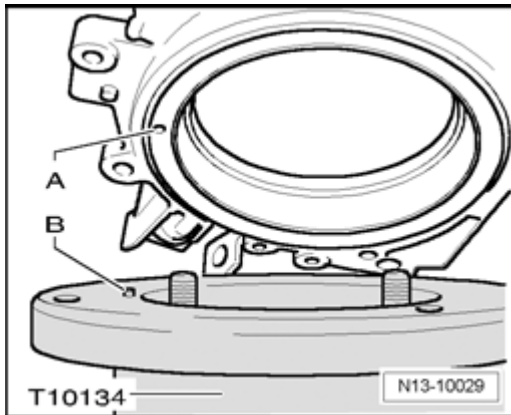
- The locating pin - **A** - on the sensor wheel - **C** - must align with the marking - **B** - on the sealing flange.
- Place the front side of the sealing flange onto a clean level surface.



- Press the sealing lip support ring - **A** - in - **direction of arrow** - downward until it rests on the level surface.



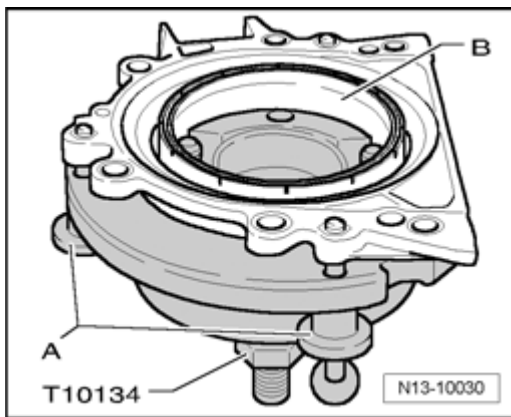
- The upper edge of the sensor wheel and the front edge of the sealing flange must align - **arrows** - .



- Place the front side of the sealing flange onto the assembly tool T10134 so that the locating pin - **B** - is positioned in the bore - **A** - of the sensor wheel.

**Note:**

- ◆ Make sure that all sealing flange is positioned flat on the assembly tool.



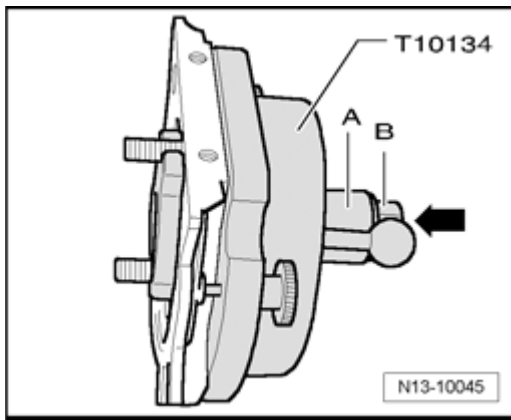
- While tightening the knurled bolts - **A** - , press the sealing flange and sealing lip support ring - **B** - onto the surface of the assembly tool T10134 so that the locating pin can no longer slip out of the bore of the sensor wheel.

**Note:**

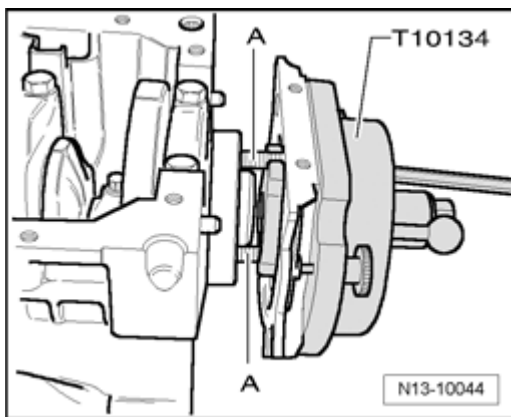
- ◆ Make sure that, when installing the sealing flange, the sensor wheel remains located in the assembly tool.

**Mounting Assembly Tool with Sealing Flange on Crankshaft Flange**

- Crankshaft flange must be free of oil and grease.
- Engine cyl. 1 is at TDC.



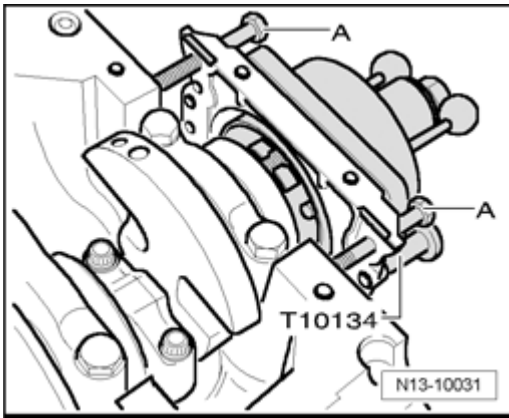
- Screw the nut - **B** - to the end of the threaded spindle.
- Press the threaded spindle of the assembly tool T10134 in - **direction of arrow** - until the nut - **B** - rests on the assembly bell - **A** - .
- Position the flattened side of the assembly bell toward the oil pan sealing surface side of the crankcase.



- Secure the assembly tool T10134 onto the crankshaft flange using the socket head hex bolts - **A** - .

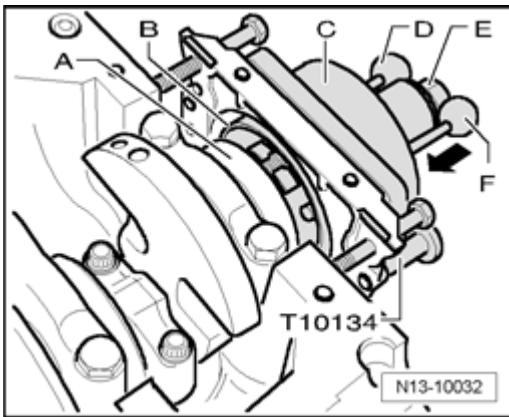
**Note:**

- ◆ Screw the socket head hex bolts - **A** - approximately 5 threads into the crankshaft flange.



- Screw two bolts M7 x 35 mm - **A** - into the cylinder block to guide the sealing flange.

### **Bolting Assembly Tool to Crankshaft Flange**



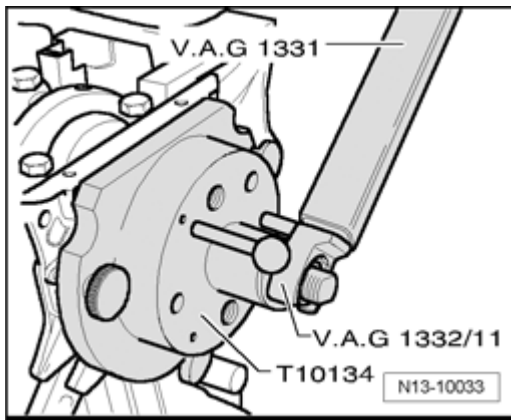
- Push the assembly bell - **C** - by hand in - **direction of arrow** - until the sealing lip support ring - **B** - rests on the crankshaft flange - **A** - .
- Push the guide pin for diesel engines (red handle) - **D** - into the bore of the crankshaft. Thereby the sensor wheel is retained in the final installed position.

### **Note:**

- ♦ The guide pin for gasoline engines (black handle) - **F** - must not be inserted into the threaded bore of the crankshaft.
- Hand tighten both socket head hex bolts of the assembly tool.
- Screw the nut - **E** - onto the threaded spindle so far by hand, until it rests against the assembly bell - **C** - .

### **Pressing Sensor Wheel with Assembly Tool to Crankshaft Flange**



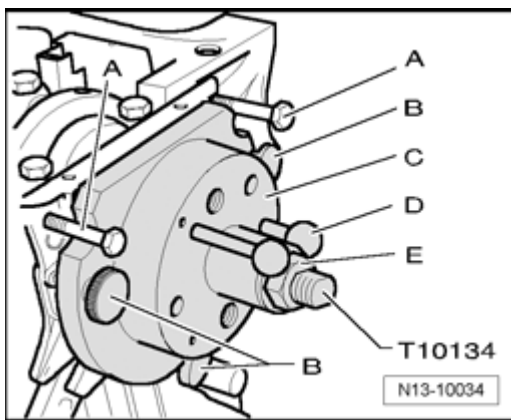


- Tighten the nut of the assembly tool T10134 with torque wrench V.A.G 1331 and socket insert V.A.G 1332/11 to 35 Nm.

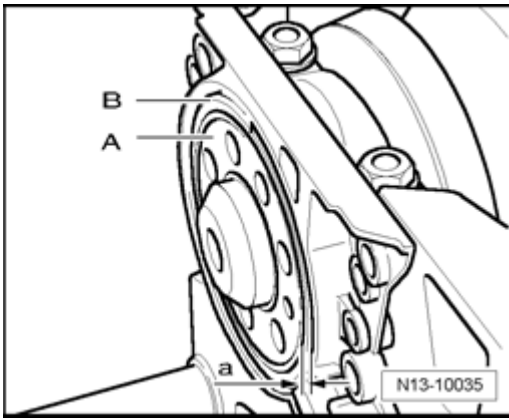
**Note:**

- ◆ After tightening the nut to 35 Nm, a minimal air gap must still be present between the cylinder block and sealing flange.

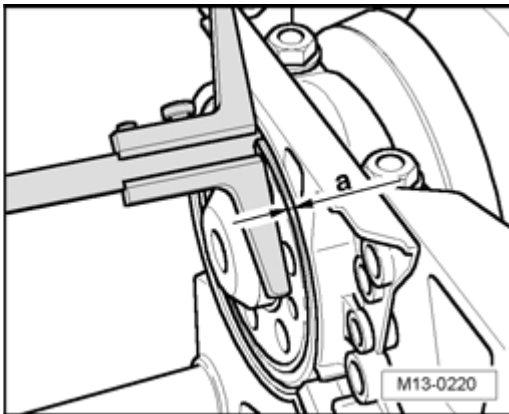
**Sensor Wheel on Crankshaft, Checking Installation Position**



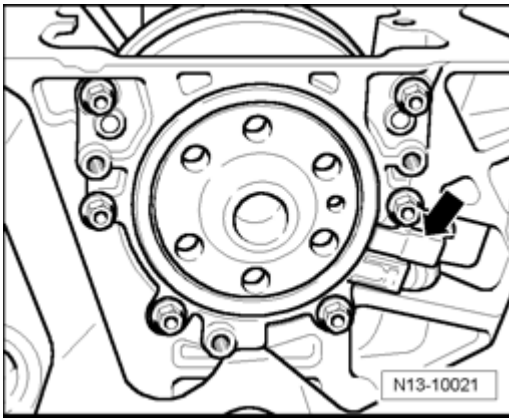
- Screw the nut - **E** - to the end of the threaded spindle.
- Screw the two bolts - **A** - out of the cylinder block.
- Screw the three knurled bolts - **B** - out of the sealing flange.
- Remove the assembly tool T10134 .
- Remove the sealing lip support ring.



- The installed position of the sensor wheel on the crankshaft is exact, if a gap - **a** - of 0.5 mm is present between the crankshaft flange - **A** - and sensor wheel - **B** - .
- Set a caliper gauge onto the crankshaft flange.

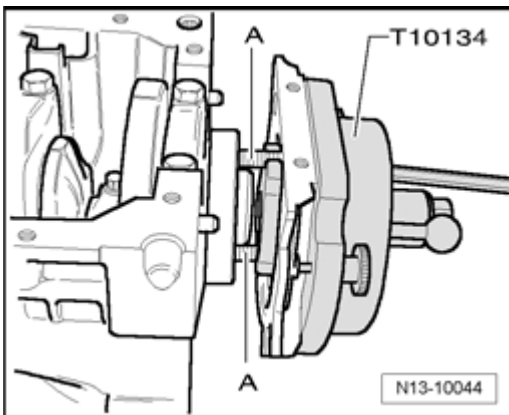


- Measure the gap - **a** - between the crankshaft flange and sensor wheel.
- If dimension - **a** - is too small:
- Press the sensor wheel again  $\Rightarrow$  Sensor Wheel, Pressing On Again .
- If dimension - **a** - is obtained:
- Tighten new bolts of sealing flange in an alternating diagonal sequence to 15 Nm.

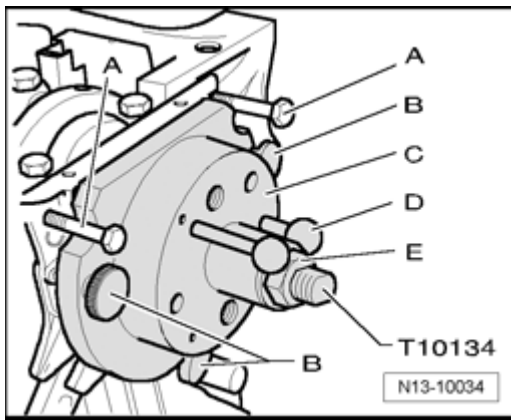


- Install the engine speed (RPM) sensor G28 - **arrow** - and tighten the bolt to 5 Nm.
- Install oil pan ⇒ Oil Pan .
- Install the intermediate plate.
- Install the flywheel with new bolts. Tighten bolts to 60 Nm + 90 degree (  $1/4$  turn).

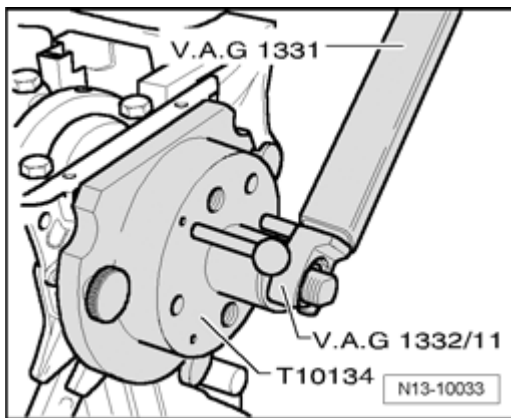
### Sensor Wheel, Pressing On Again



- Secure the assembly tool T10134 onto the crankshaft flange using the socket head hex bolts - **A** - .
- Hand tighten both of the socket head hex bolts.
- Push the assembly tool T10134 onto the sealing flange by hand.



- Screw the nut - **E** - onto the threaded spindle so far by hand, until it rests against the assembly bell - **C** - .



- Tighten the nut of the assembly tool T10134 with torque wrench V.A.G 1331 and socket insert V.A.G 1332/11 to 40 Nm.
- Check the installed position of the sensor wheel on the crankshaft again ⇒ Sensor Wheel on Crankshaft, Checking Installation Position .

If dimension "a" is again too small:

- Tighten the nut of the assembly tool T10134 to 45 Nm.
- Check the installed position of the sensor wheel on the crankshaft again ⇒ Sensor Wheel on Crankshaft, Checking Installation Position .