



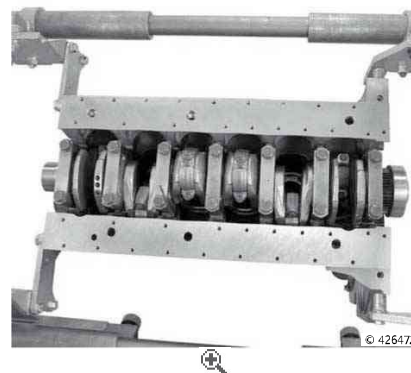
## Assembly and disassembly of the crankshaft

Special tools:

- Box spanner insert: 8035
- Rotation device: 100330

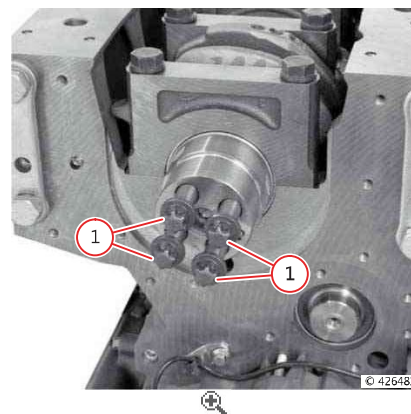
### Disassembly of the piston pin bush

- Disassemble the front cover.  
[See para.](#)
- Disassemble the gear case cover.  
[See para.](#)



1.

- Tighten screws (1).
- Disassemble all the connecting rod bearing covers.
- Remove the connecting rod bearing shells.  
[See para.](#)



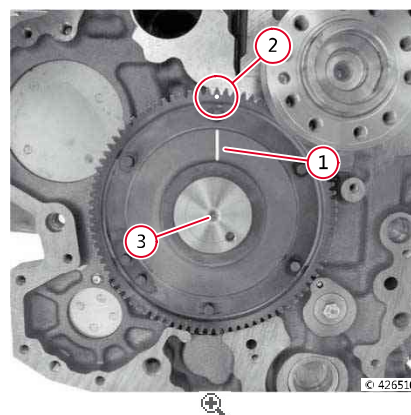
2.

- Place the mark of reference (1) on the ring gear of the camshaft.



#### NOTE

The reference mark must be located on a line between the marking (2) and the mid point (3) of the camshaft.



3.

- Uniformly rotate the crankshaft until the mark (1) on the flange of the shaft coincides with the auxiliary mark (2) on the camshaft ring gear.



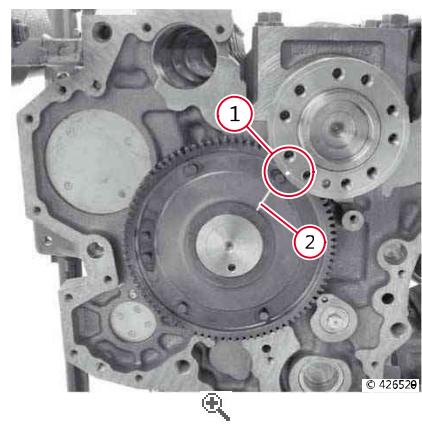
#### NOTE

If the crankshaft flange is aligned, the mark on the camshaft ring gear will be covered.

#### WARNING



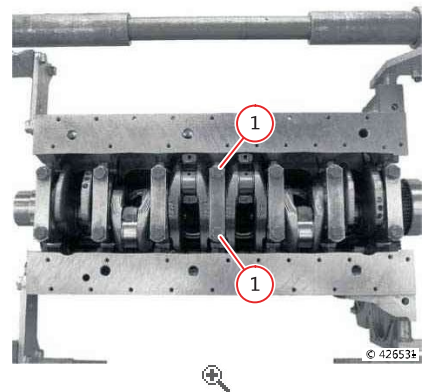
Do not bend the connecting rod drums while rotating the crankshaft.



4.

### Disassembly of the main bearing cover

- Unscrew all the screws (1) using the long reach socket.



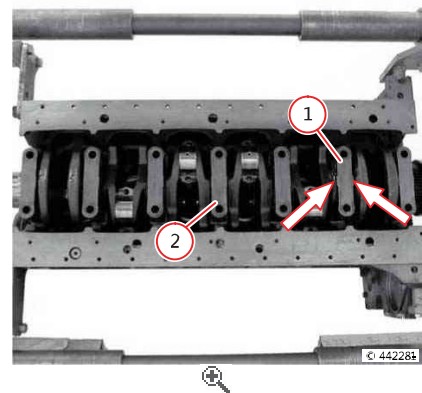
1.

- Remove flanged bearing cover (1).
- Remove the bearing shell.
- Remove the two halves of the thrust ring (arrows).
- Remove all the main bearing covers (2).
- Remove the bearing shells.



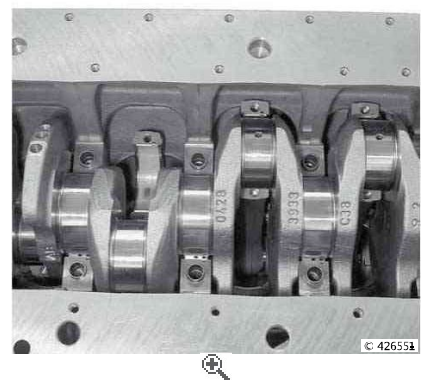
#### NOTE

Put the components to one side in the order in which they were removed. Note the cylinder order.



2.

- Delicately extract the connecting rod drums from the relative pins.
- Extract the crankshaft by applying leverage.



3.

- Remove the two halves of the thrust ring (arrows).
- Remove all the main bearing shells (1).

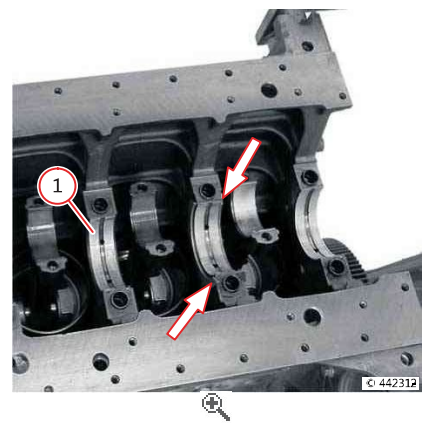


#### NOTE

Put the components to one side in the order in which they were removed. Note the cylinder order.

- Carry out a visual inspection of the components.

- o Check the endfloat of the crankshaft (disassembled crankshaft).  
See para. See para.



4.

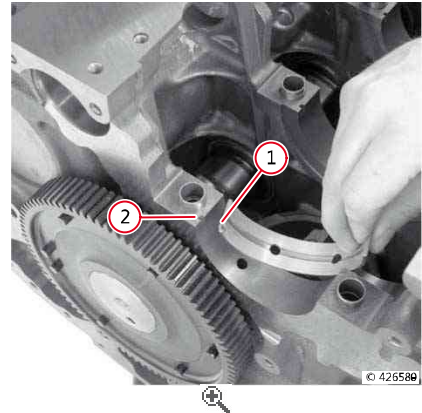
## Assembly of the crankshaft

- o Insert the upper shells of the main bearings.



### NOTE

Take care to couple the bearing shells. The anti-twist safety (1) must enter the groove (2).



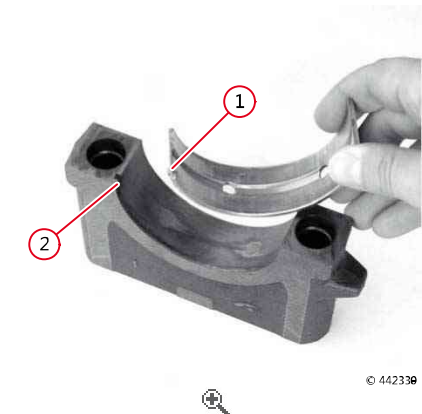
1.

- o Insert the lower shells of the main bearings in the relative main bearing covers.



### NOTE

Take care to couple the bearing shells. The anti-twist safety (1) must enter the groove (2).

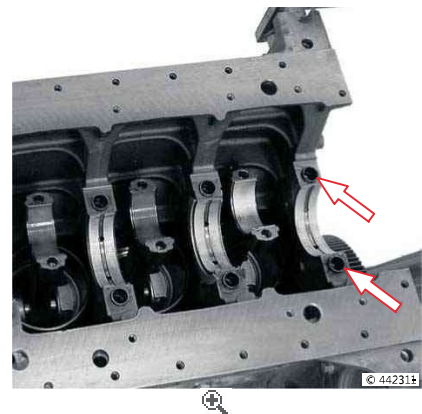


2.



### NOTE

Make sure all the tightening bushes are present (arrows).



3.

- o Position the camshaft.



### NOTE

Align the hole (1) in the direction of the cylinder head.

- o Oil the surfaces of the bearings.

4.

- o Delicately insert the crankshaft in the crankcase.



#### WARNING

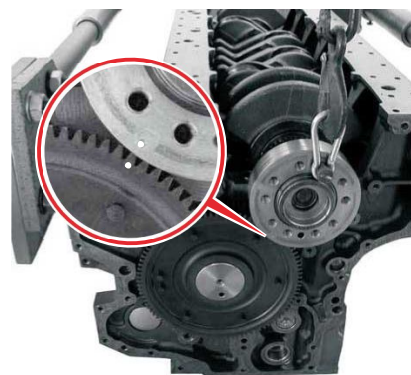
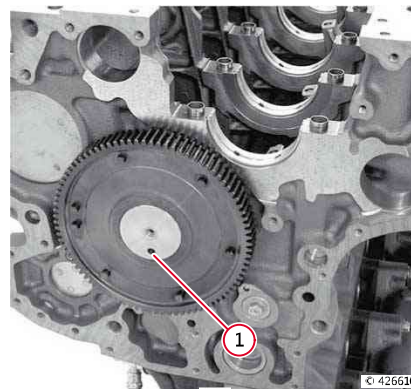
Do not bend the connecting rod drums while inserting the crankshaft!

- o Move the crankshaft in correspondence of the camshaft.



#### NOTE

Make sure the marks line up.



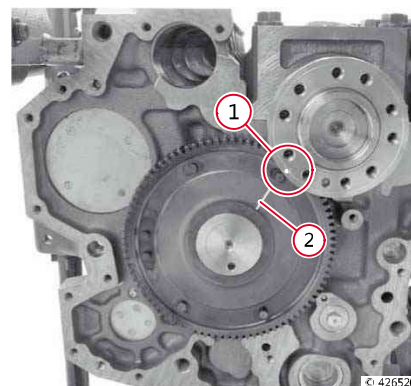
5.

- o Check the control times.



#### NOTE

The mark (1) on the flange of the crankshaft must line up with the reference mark (2).



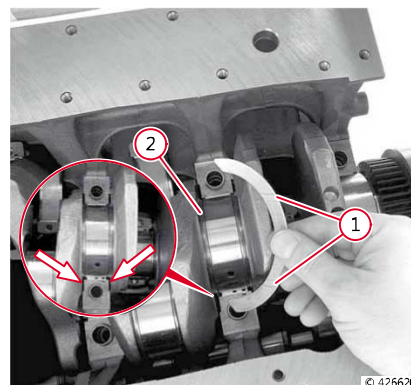
6.

- o Assemble the upper thrust ring halves based on the measured endfloat.



#### NOTE

Thrust ring halves without the key, between the crankshaft and crankcase (arrows). The oil grooves (1) in the thrust ring halves face towards the thrust discs (2) of the crankshaft (arrows).



7.

- o Fix the two thrust ring halves with a small amount of grease on the flanged bearing cover.



#### NOTE


Flanged bearing cover marked with "2". Use the halves of the thrust ring with the key (arrow). The oil grooves (1) face towards the shoulder disc of the crankshaft.



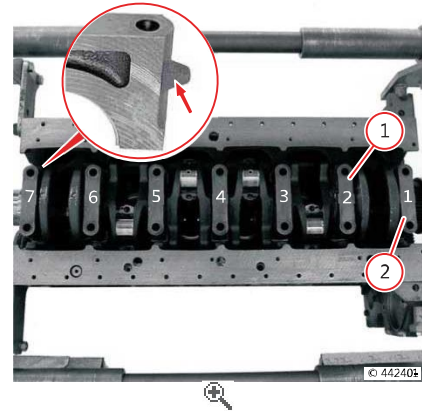
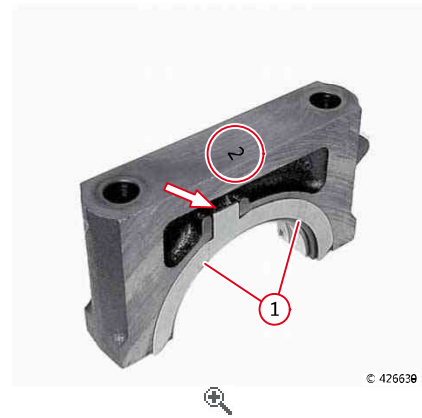
8.

### Assembly of the main bearing cover

- Insert the flanged bearing cover (1).
- Insert the main bearing cover (2) based on the numbering.




**Pay attention to the attribution and assembly position:**  
Insert the main bearing cover with number 1 on the flywheel side. The end (arrow) of the bearing cover is facing the curve side.



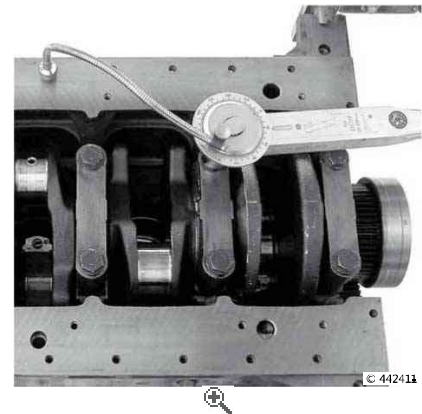
1.

- Main bearing cover with socket wrench insert and rotation angle gauge: 50 Nm + 90° + 90°.



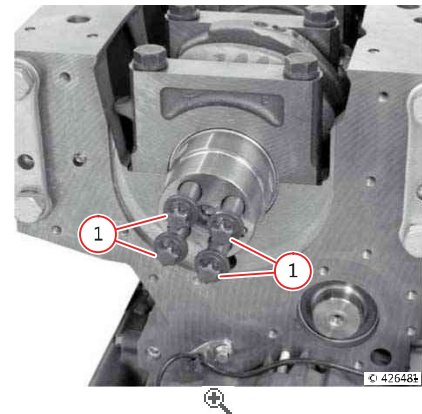
**WARNING**  
In the case of written certification, the screws can be used a maximum of 3 times. Otherwise, replace the screws each time after being removed.

- Assemble the flanged bearing cover.  
See para.



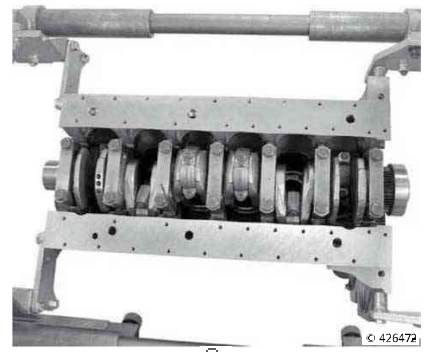
2.

- Remove screws (1).



3.

- Assemble the gear case cover.  
See para.
- Fitting the front cover.  
See para.



4.

T.\$76.21.B0.04.00.00.03 - v1



## Fitting and removing counterweight shafts, checking

Commercially available tools:

- Palmer
- Torque wrench

Special tools:

- Alignment pins (q.ty 2): 100810
- Plaster
- DEUTZ DW 72 mastic

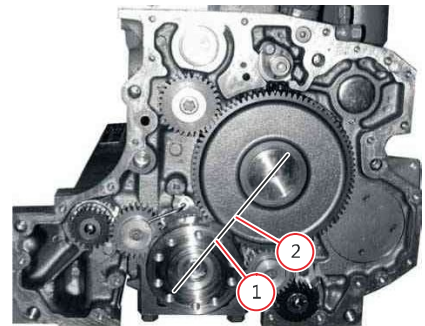
### Removing counterweight shafts

- Disassemble the gear case cover.  
See para.
- Bring cylinder piston 1 to top dead centre.



#### NOTE

The mark (1) on the flange of the crankshaft must line up with the reference mark (2).

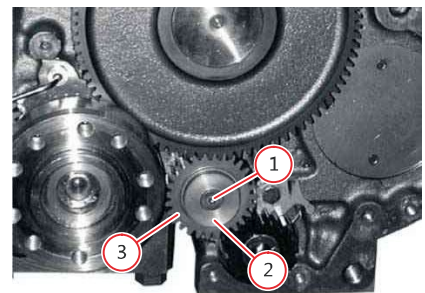


© 366522



1.

- Remove screw (1).
- Remove washer (2).
- Remove the intermediate wheel (3).
- Remove the bearing pin.

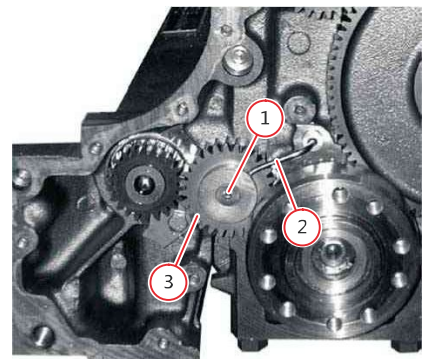


© 466059



2.

- Remove screw (1).
- Remove lube oil pipe (2).
- Remove the intermediate wheel (3).
- Remove the bearing pin.



© 466069



3.

- Remove screws (1).
- Remove the shims (2).

Thank you so much for reading.  
Please click the “Buy Now!”  
button below to download the  
complete manual.



After you pay.

You can download the most  
perfect and complete manual in  
the world immediately.

Our support email:

[ebooklibonline@outlook.com](mailto:ebooklibonline@outlook.com)