



TA 1300-0006

Technical Instruction

Main bearing cap lowering device for type 6 engines



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| | | |
|-----|--|----|
| 1 | Scope | 1 |
| 2 | Purpose..... | 1 |
| 3 | Safety information..... | 2 |
| 4 | Required tools, equipment and materials..... | 2 |
| 5 | Additional information..... | 3 |
| 6 | General view | 4 |
| 7 | Variations of the lowering device | 4 |
| 7.1 | Lowering device for type 6 engines | 4 |
| 7.2 | Lowering device for J624 | 5 |
| 8 | Modifying the lowering device for type 6 and J624 engines..... | 6 |
| 8.1 | Changing the adapter plate..... | 6 |
| 8.2 | Adapting the lever arm | 7 |
| 9 | Using the lowering device..... | 11 |
| 10 | Revision code..... | 13 |

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1 Scope

This Technical Instruction [TA] applies to the following product:

- Main bearing cap lowering device, part no. 9027878, for type 6 and J624 engines

2 Purpose

This Technical Instruction [TA] describes how to assemble and use the "Main bearing cap lowering device".

3 Safety information

⚠ WARNING

**Danger from unauthorised restarting**

Serious injuries such as cutting, crushing, severing or shearing of body parts due to unintentional contact with rotating or moving machine parts.

- Shut down the engine as described in TA 1100-0105.
- Secure the engine against unauthorised restarting in accordance with TA 2300-0010.



⚠ ATTENTION

**Danger of crushing!**

Danger of hand injuries!

- Proceed carefully and with caution when performing the next steps.

NOTE

**Visually inspect the tool.**

Despite continuous quality controls and careful handling, faults or damage may occur.

Before using the tool, check every time for:

- **Completeness**
- **Visible damage** on the surfaces or welds that can adversely affect operation
- **Trouble-free operation**
- **Correct assembly** and correct installation

4 Required tools, equipment and materials

All the standard tools are included in **TA 1310-0011** – Standard tool catalogue.

⚠ WARNING

**Danger to persons if special tools are handled incorrectly!**



If the work involves special tools, training may have to be given before the tools are used.

- Pay attention to TA 1310-0010-x – Special tools catalogue.
- Only authorised specialist personnel may operate the equipment.

All special tools are included in **TA 1310-0010-x** Special tools catalogue.

Please inform us if you use tools and equipment different to those on the list.

Tools and aids required for the following work are listed below.

| Part number | Designation | Note | Illustration |
|--|---|---|--|
| <ul style="list-style-type: none"> Only use conventional tested workshop tools. | | | |
| 1237369 | Standard tools for service technicians (EMER) | Case with mechanical hand tools and foam inserts For details see TA 1310-0011 |  Illustration for information only |
| 9027878 | Main bearing cap lowering device | Simplifies lowering or lifting the main bearing cap into or out of the crankcase. |  |

5 Additional information



The lowering device is required for replacing the crankshaft main bearings.

The lowering device is a special tool for safely lowering and lifting the crankshaft main bearing caps.



Lowering device mounted on the crankshaft (left) and supporting the main bearing cap (right)

Relevant documents:



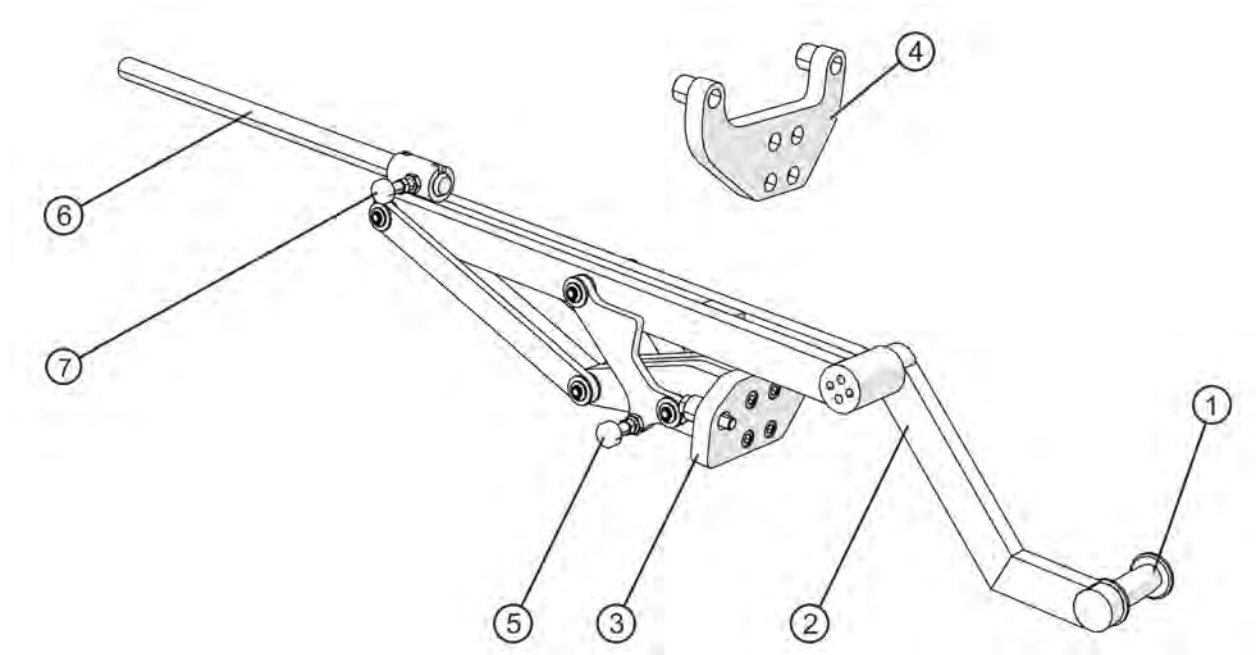
TA 1100-0105 - Engine shut-down

TA 1310-0010 - Special tools catalogue

TA 1310-0011 - Standard tool catalogue

TA 2300-0010 - Guidelines for using the LOTO kit

6 General view



General view of the main bearing cap lowering device (for information only)

| | |
|---|-------------------------------------|
| ① | Support roller for main bearing cap |
| ② | Lever arm |
| ③ | J624 adapter plate |
| ④ | Type 6 adapter plate |
| ⑤ | Locking pin for lifting |
| ⑥ | Hand lever |
| ⑦ | Hand lever locking pin |



Adjustments to the lowering device are necessary for type 6 and J624 engines.

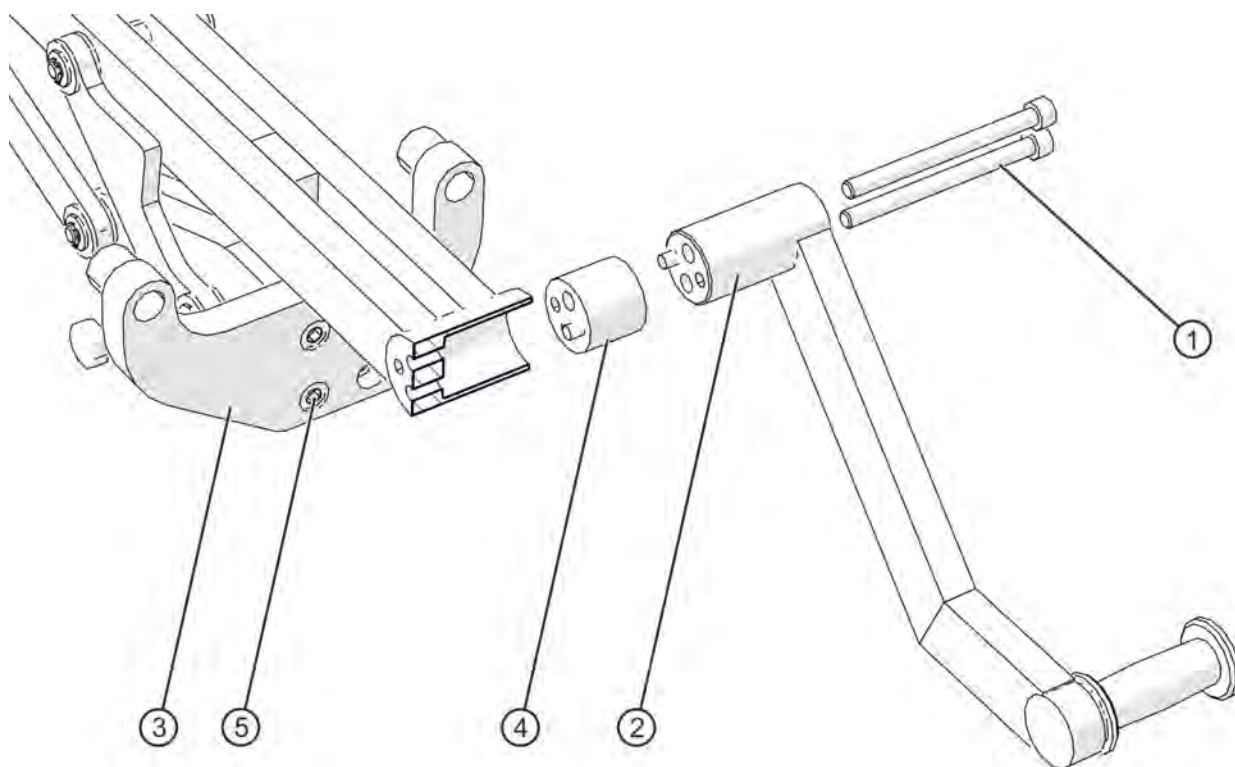
See Chapter ⇒ Variations of the lowering device.

7 Variations of the lowering device

The lowering device must be modified by fitting the correct adapter plate depending on the engine type, namely adapter plate ③ for J624 engines and adapter plate ④ for type 6 engines, and the correct lever arm ② must be used as well.

7.1 Lowering device for type 6 engines

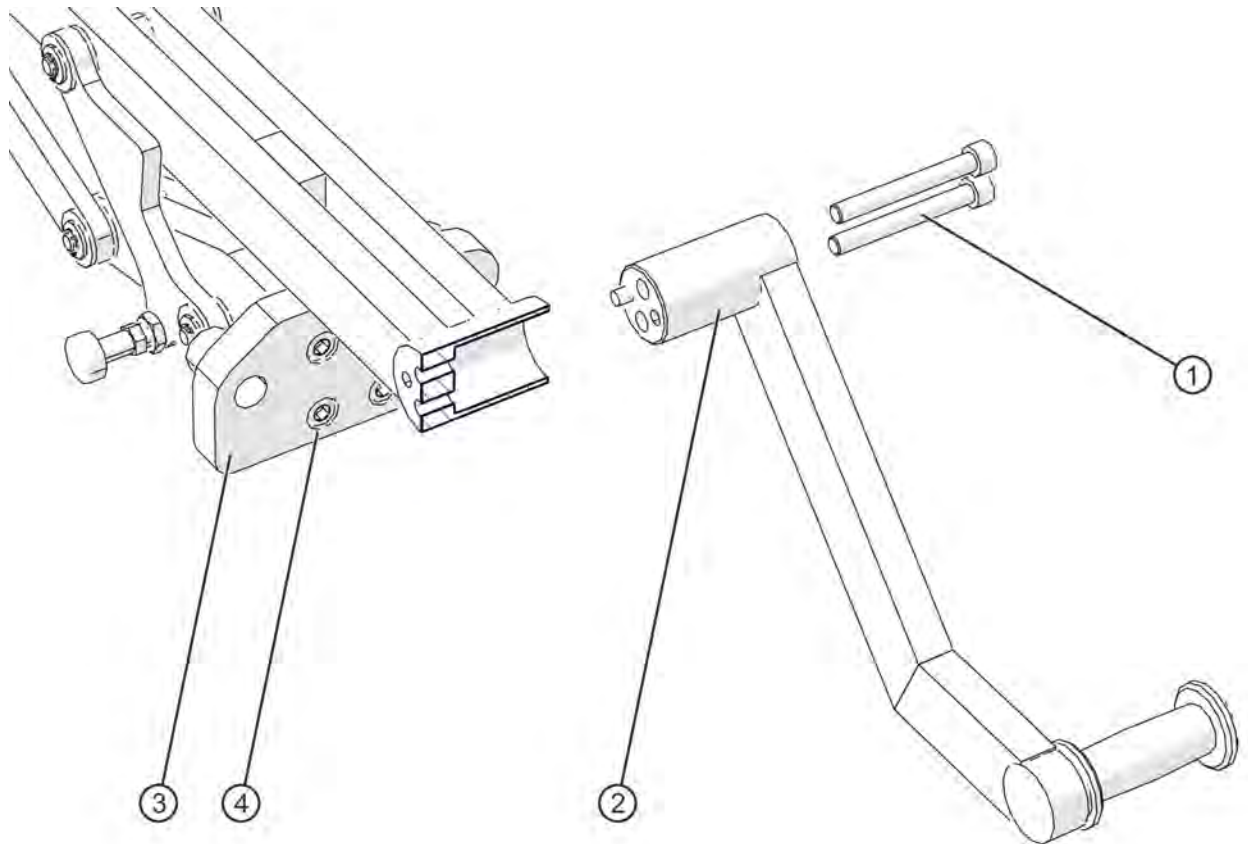
The following lowering device components are required when using the device on type 6 engines:

*Lowering device version for type 6 engines*

| | |
|---|---|
| ① | Bolts for the pivot pin (2 off M10 x 120 hexagonal socket-head bolts) |
| ② | Lever arm |
| ③ | Type 6 adapter plate |
| ④ | Distance piece (type 6 engines only) |
| ⑤ | Adapter plate mounting screws (4 off) |

7.2 Lowering device for J624

The following lowering device components are required when using the device on J624 engines:



Lowering device version for J624 engines

| | |
|---|--|
| ① | Bolts for the pivot pin (2 off M10 x 80 hexagonal socket-head bolts) |
| ② | Lever arm |
| ③ | J624 adapter plate |
| ④ | Adapter plate mounting screws (4 off) |

8 Modifying the lowering device for type 6 and J624 engines

8.1 Changing the adapter plate

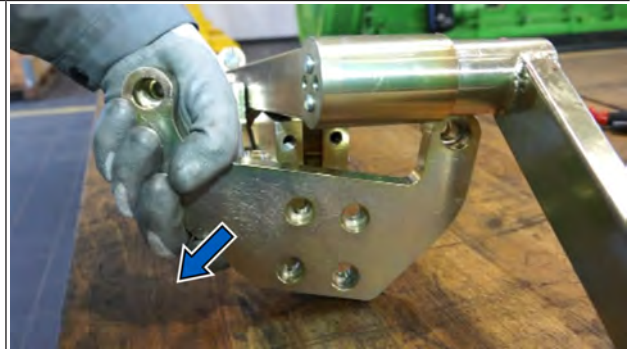
- Undo the adapter plate mounting screws. (4 off)



The illustration shows an adapter plate for type 6 engines



- Remove the adapter plate.



- Fit and screw on the type 6 or J624 adapter plate.



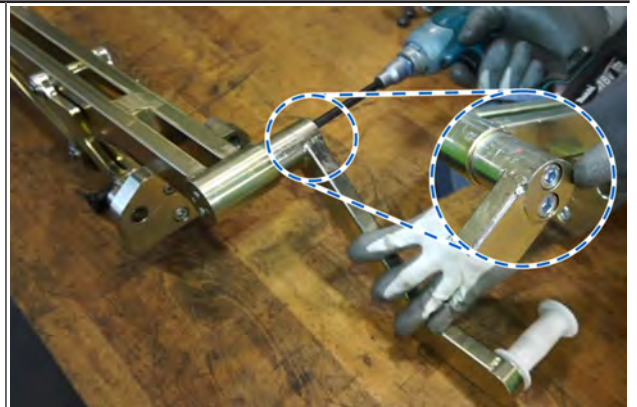
The illustration shows the adapter plate for J624 engines.



8.2 Adapting the lever arm

Remove the lever arm:

- Undo the lever arm bolts. (2 off)



- Remove the lever arm from the sleeve.



- If stuck, drive out the lever arm and/or distance piece with a pin punch.

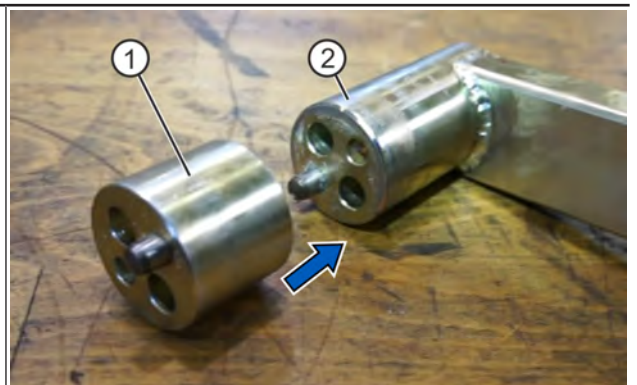


Mounting the lever arm for type 6 engines:



See the chapter ⇒ Lowering device for type 6 engines for the installation diagram.

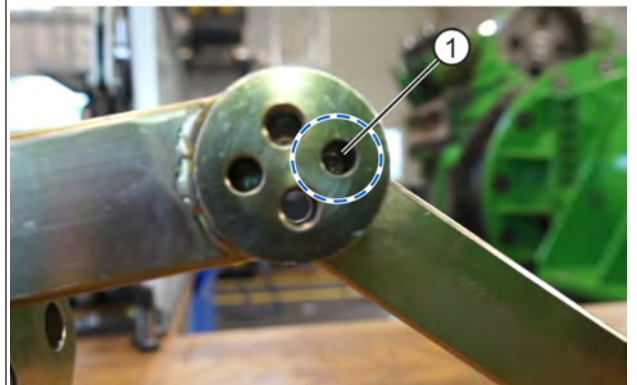
- Align the distance piece ① and lever arm ② with dowel pin to each other.



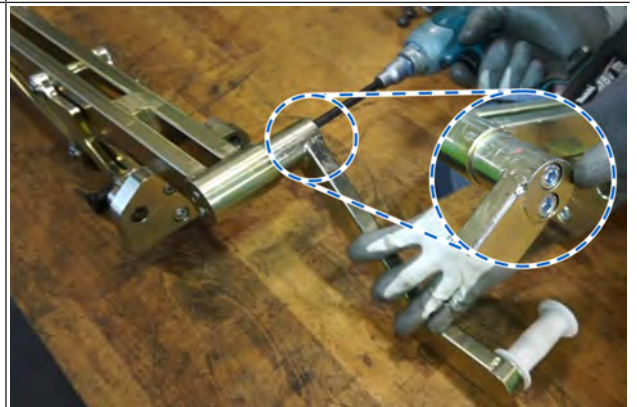
- Insert the distance piece and lever arm in the sleeve.



- The dowel pin ① of the distance piece must engage in the bore in the sleeve end face.

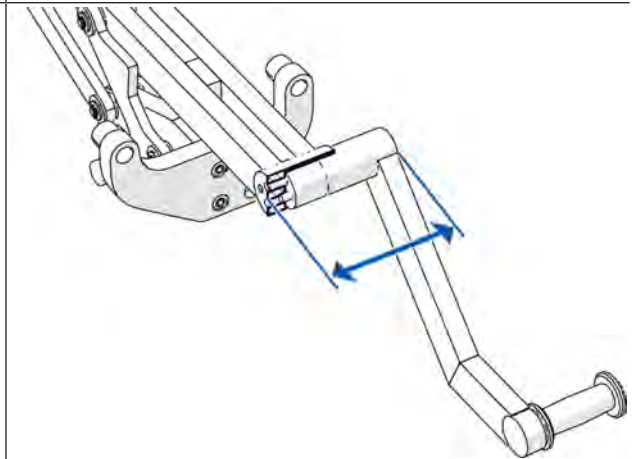


- Screw the lever arm in place. (2 off)



- Check the spacing of the articulated unit when the lever arm is mounted on type 6 engines.

Design offset: 128 mm



Mounting the lever arm for J624 engines:

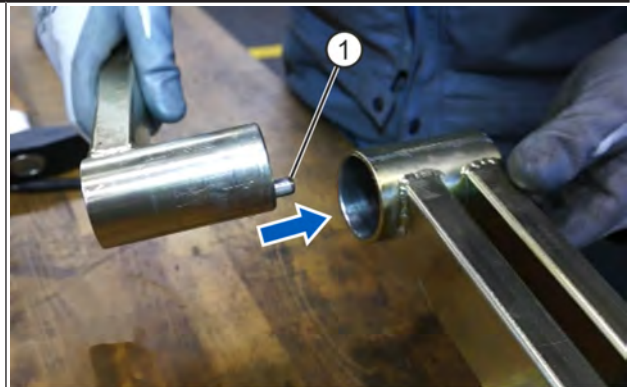


See the chapter ⇒ Lowering device for J624 for the installation diagram.

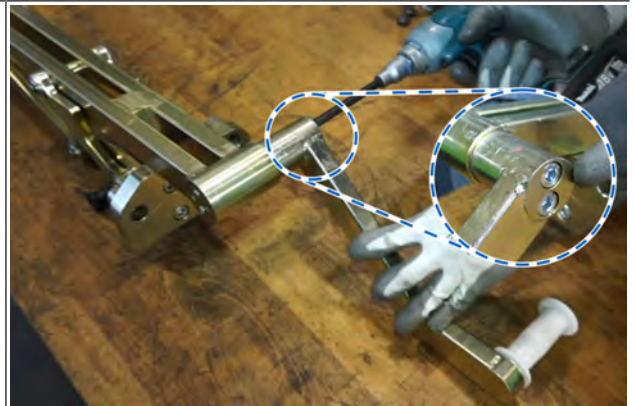
- Insert the lever arm in the sleeve.



- The dowel pin ① of the lever arm must engage in the bore in the sleeve end face.

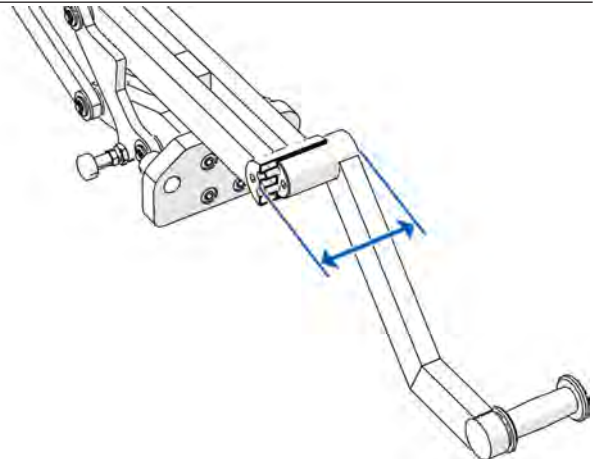


- Screw the lever arm in place. (2 off)



- Check the pivot unit offset when the lever arm is mounted on a J624 engine.

Design offset: 95 mm



9 Using the lowering device

⚠ WARNING**Personal injury**

When carrying out the following work it is essential to observe the chapter *Safety instructions*.

- Wear personal protective equipment and observe TA 2300-0001 and TA 2300-0005.

Mounting the lowering device:

- Carefully position the lowering device through the inspection hole with the support roller under the main bearing cap.



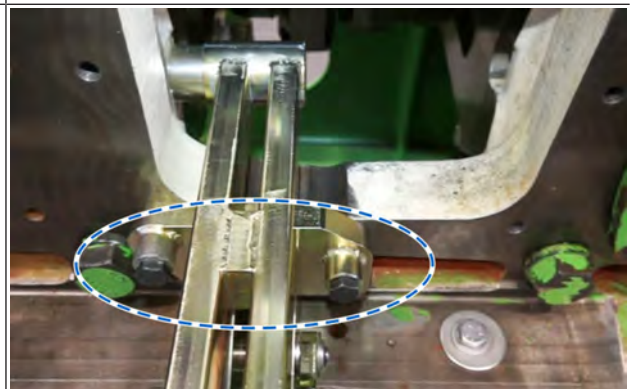
- Bolt the lowering device to the crankcase. (2 off)



The support roller must be located below the main bearing cap.



Illustration shows the lowering device for J624 engines



Lowering and lifting the main bearing cap with the lowering device:

NOTE**Don't forget the weight of the main bearing cap!**

When the bolts holding the main bearing cap are removed, the cap will press down on the lowering device due to its own weight.

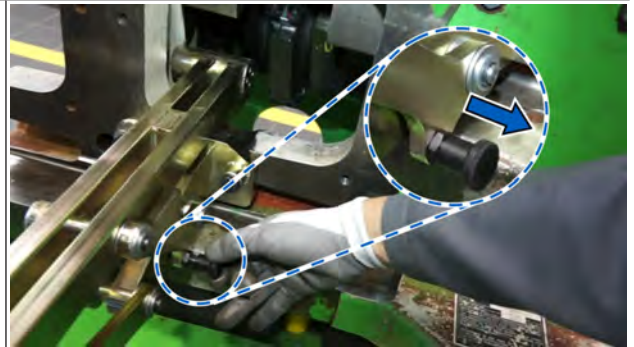
- Always secure the lowering device with locking pins in both the lowered and raised positions!

⚠ ATTENTION**Danger of crushing due to the scissor movement of the lowering device when lowering and lifting!**

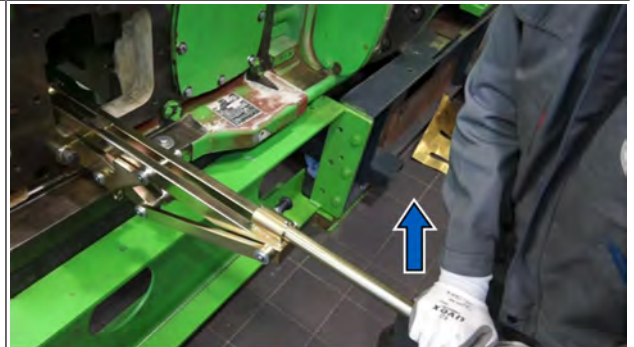
Danger of hand injuries.

- Use both hands to operate the lowering device during lowering and lifting.
- Do not reach into the scissor zone of the lowering device.
- Work carefully.

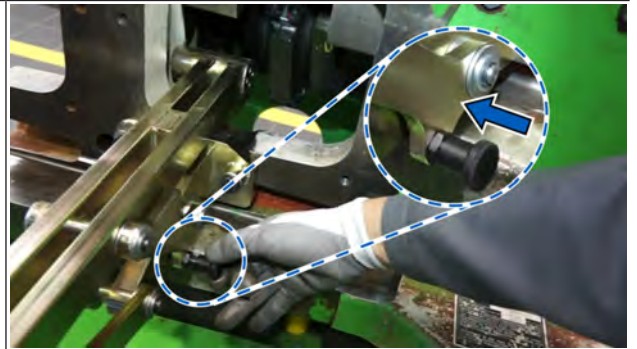
- Remove the locking pins.



- Lift or lower the main bearing cap by moving the lowering device upwards or downwards.



- Insert the locking pins in the lowered or raised position.

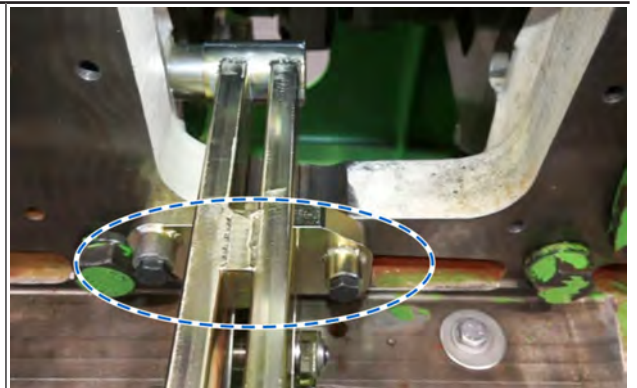


Removing the lowering device:

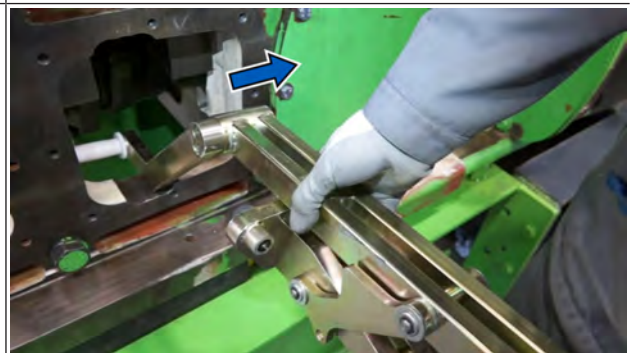
- Undo the bolts holding the lowering device to the crankcase. (2 off)



Illustration shows the lowering device for J624 engines



- Carefully remove the lowering device from the crankcase.



10 Revision code

Revision history

| Index | Date | Description / Revision summary | Expert Auditor |
|-------|------------|--------------------------------|-----------------------------------|
| 1 | 21.05.2019 | Erstausgabe / First issue | Dengg J. / Rott M. Winterle H. |

