

# **U**SER MANUAL

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## ***Reachforks®***

***Double Range - 32B TFQ***

***Slim Range - 27B, 37B TFF***

***Number 6926042-R2***



**KOOI**

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## Definitions

**Warning:**

Text blocks marked by a “Warning” icon (as shown on the left) and starting with the text “**Warning:**” provide information on actions which may result in serious injury.

**Caution:**

Text blocks marked by a “Caution” icon (as shown on the left) and starting with the text “**Caution:**” provide information on actions which may result in damage to the Reachforks, parts of the Reachforks or goods.

“*Only applies to:*” texts (italics) indicate that a text only applies to a certain situation or certain type of Reachforks.

## Note

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## Quality Standards/Norms and Directives

Cascade KOOI complies with the following quality standards: ISO 9001

Reachforks comply with the following norms/directives:

- ISO 13284 – Fork Arm Extensions and Telescopic Fork Arms;
- ISO 4406 – Hydraulic Fluid Power – Fluids – Method for Coding the Level of Contamination by Solid Particles
- ISO 2328 – Forklift Trucks – Hook-On Type Fork Arms and Fork Arm Carriages
- CE (2006/42/EC) – Machinery Directive
- ISO-FDIS-ISO 3834-2 – Quality Requirements for Fusion Welding of Metallic Materials – Part 2: Comprehensive Quality Requirements
- CE (2014/43/EG) – ATEX (**only applies to forks with an ATEX name plate!**)

Reachforks are randomly subjected to dynamic testing in accordance with ISO 2330.



**Warning:**

Do not ride on the Reachforks or on the load.



**Warning:**

Do not walk or stand under the Reachforks.



**Warning:**

Do not reach through the mast of the forklift truck.



**Warning:**

Do not load the Reachforks beyond the limits of the lifting capacities and load center stipulated by the manufacturer.



**Warning:**

Do not weld anything onto the Reachforks without the express permission of the supplier. Welding carried out without permission shall void any warranty.



**Warning:**

Do not use faulty Reachforks before they have been either professionally repaired or replaced.



**Warning:**

Do not carry out maintenance work on the Reachforks while there is pressure in the hydraulic system (remove key from forklift ignition switch).



**Warning:**

Do not place limbs between pallet stops and the inner fork (vertical section) of the Reachforks. If the load shifts, limbs can become trapped which can result in serious injury.



**Warning:**

Do not use the Reachforks in areas where the temperature is below -30°C (-22°F) unless otherwise agreed with the manufacturer.



**Caution:**

When leaving the forklift the engine must be switched off and the handbrake applied.



**Caution:**

Bear in mind the space above and beneath the Reachforks.



**Caution:**

The load must be distributed as evenly as possible on the Reachforks.



**Caution:**

Retract the (loaded) Reachforks as soon as possible.



**Caution:**

If possible, retract the Reachforks before driving.











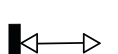


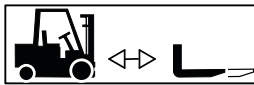


**Caution:**

Always drive with the Reachforks in the lowest possible position.

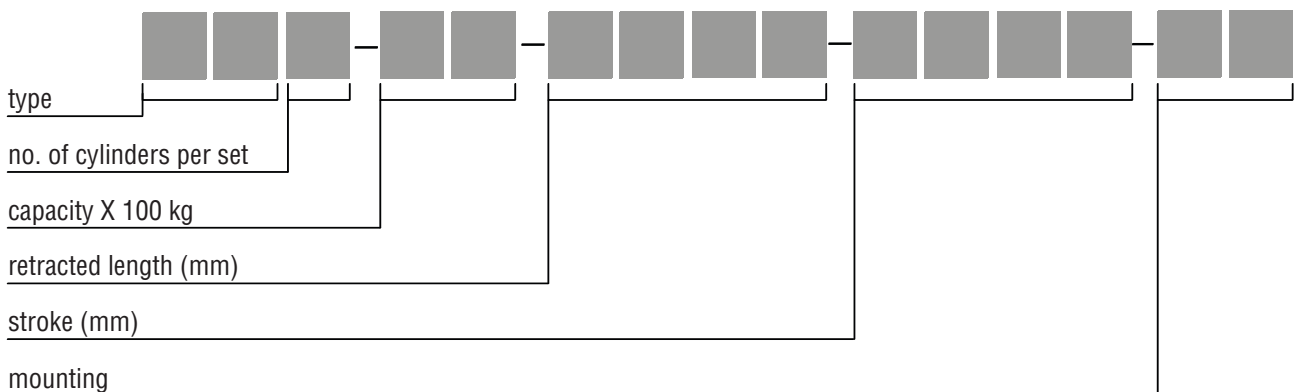
# Identification

Type plate legend:

	Type Description		Weight
	Serial Number		Max. Capacity on Retracted Load Center
	Retracted Center of Gravity		Max. Capacity on Extended Load Center
	Extended Center of Gravity		Maximum Allowed Oil Pressure
	Retracted Load Center		Production Year
	Extended Load Center		Extra Information
			

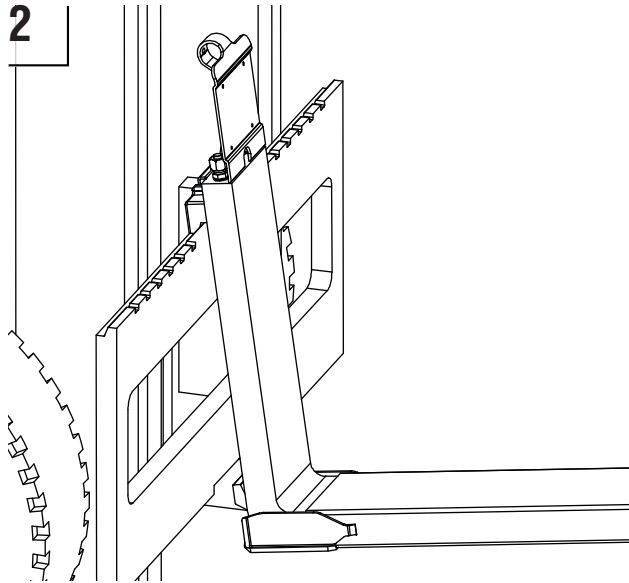
**Warning:** Never exceed the maximum truck capacity as seen on the truck type plate. Rated capacity of both truck and attachment is the responsibility of the original truck manufacturer and may be less than the capacity shown on the attachments type plate.

Mounting type description of Reachforks:

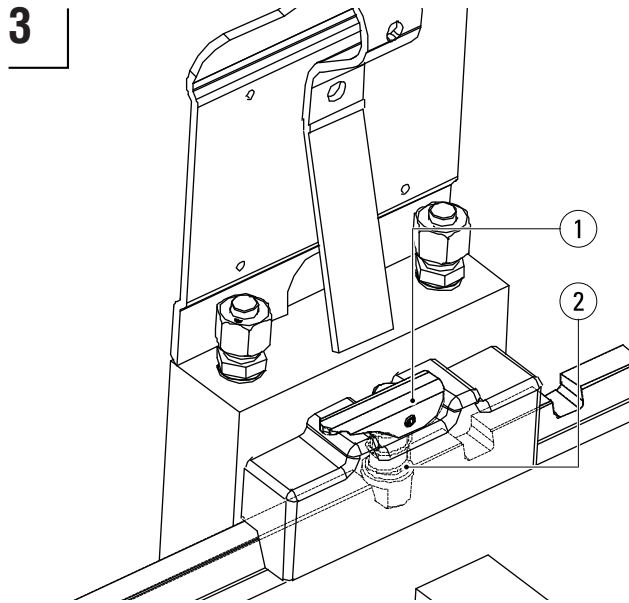


# Assembly

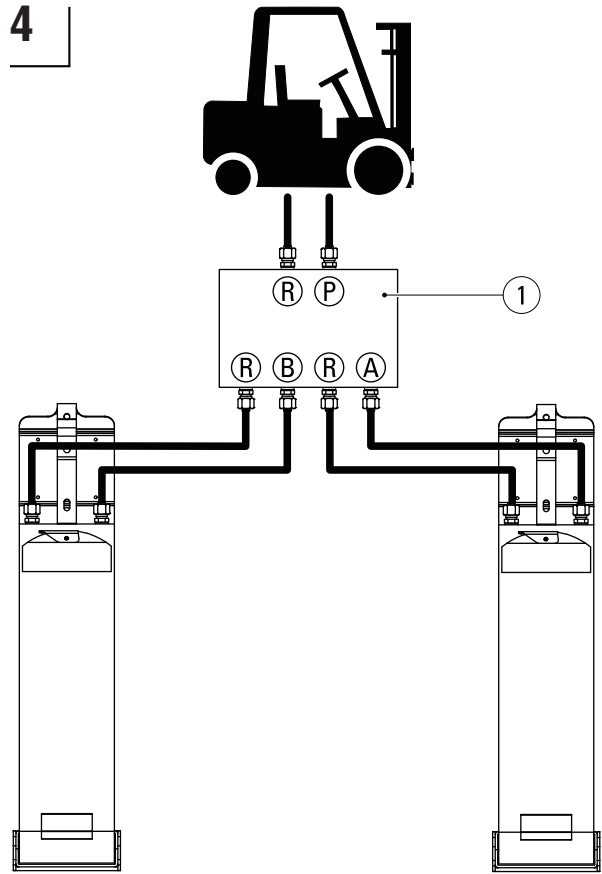
**1** The Reachforks type plates are stamped with an 'L' and an 'R'. Mount the Reachforks on the left (L) and right (R) as viewed from the forklift operator's seat.



Slide the Reachforks onto the carriage plate.



Make sure that each of the Reachfork locking pins (2) drops into one of the notches on the carriage plate. Use catch (1) before operating.



Connect the Reachforks to the hydraulic system via the flow divider (1).

Type Reachforks	Recommended oil flow	Recommended hose diameter	Maximum operating pressure	Connection
All types	8-25 (L/min) 2.1-6.6 (gal/min)	1/4"	250 bar (3626 psi)	8L / 7/16" JIC (USA) / 9/16" (USA)

**5**

- Slide the Reachforks in and out 10x.
- Tilt the forklift mast back and forth a few times.
- Slide the Reachforks in and out 10x again.

Check that hydraulic hoses are unobstructed and that there are no oil leakages.








# Working with Reachforks

The Reachforks are connected via flow divider that enables both forks to slide in and out simultaneously. The accuracy of the flow divider allows a maximum length discrepancy of 4% while sliding Reachforks in and out.

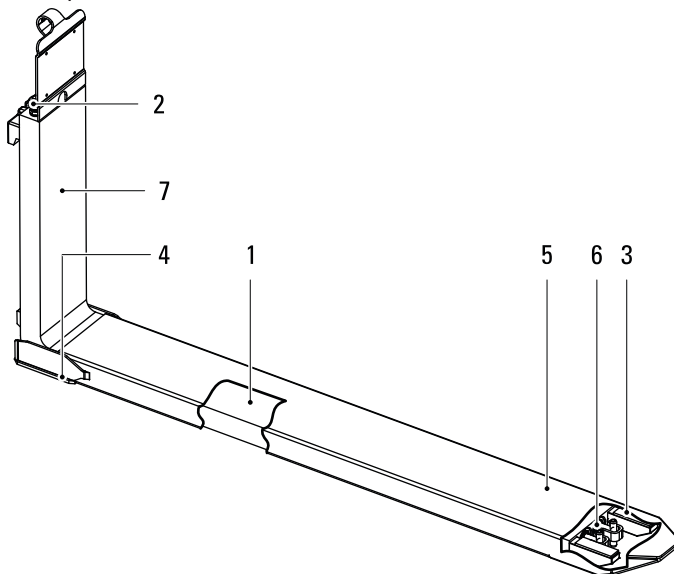
To minimize wear, avoid allowing the Reachforks to come in contact with the ground during operation. In order to reduce wear:

- The manufacturer can weld a wear-resistant plate under the sleeve which can be replaced when worn out.
- The chains in the forklift mast can be shortened so that the Reachforks cannot reach the ground.

## Maintenance Schedule

N°	Description	Weekly	Monthly	6 months or every 1000 hours	Annually or every 2000 hours
1.	Grease the underside and topside of the inner fork				
2.	Check inner fork for leaks				
3.	Check wear strips for any sign of wear*				
4.	Check sleeve for signs of wear, especially the heel side (REE/REEN type also wear plate)				
5.	Check for and remove any dirt in the sleeve				
6.	Check for any cylinder head leaks				
7.	Check inner forks in accordance with ISO 5057* standards				

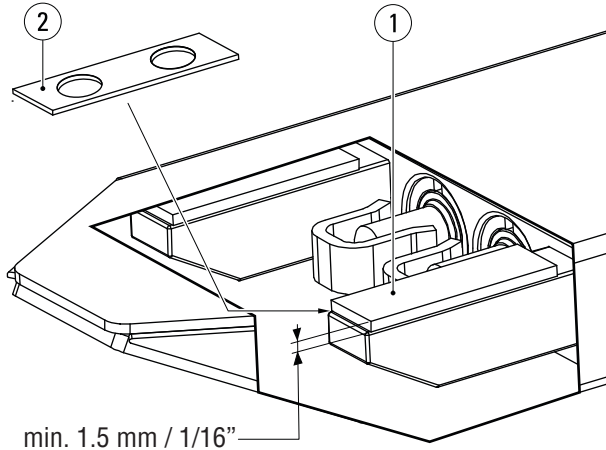
\*See chapter on 'Wear'.



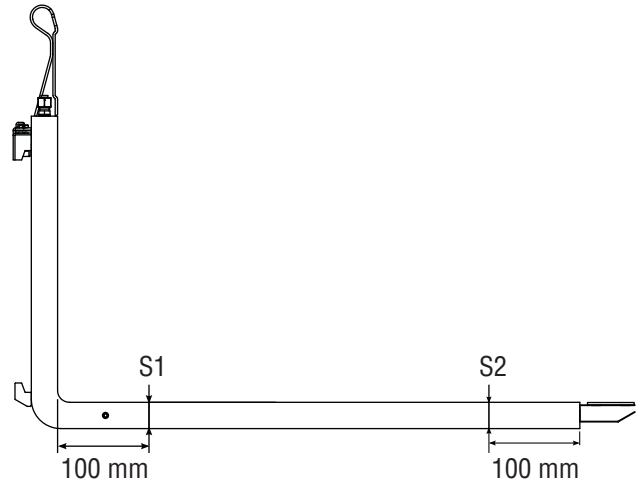
### Notes on 'Maintenance Schedule'

- Recommended lubricating grease: Novatex EP2 (point 1).
- In the event of leakage, immediately remove the forks from the forklift and contact your supplier (point 2).
- If defects are detected, solve the problem / replace parts before proceeding to work with the Reachforks.
- See chapter on 'Instructions for Replacement of Sleeve' and 'Instructions for Replacement of Hydraulic Parts' for further explanation about replacing parts and required tools.

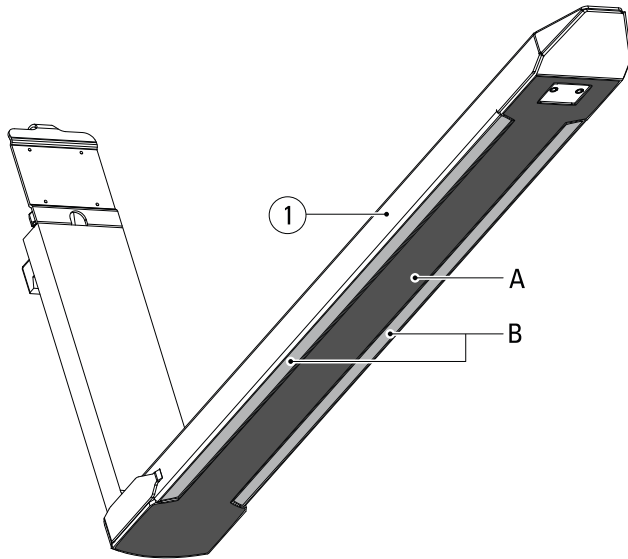
# Wear



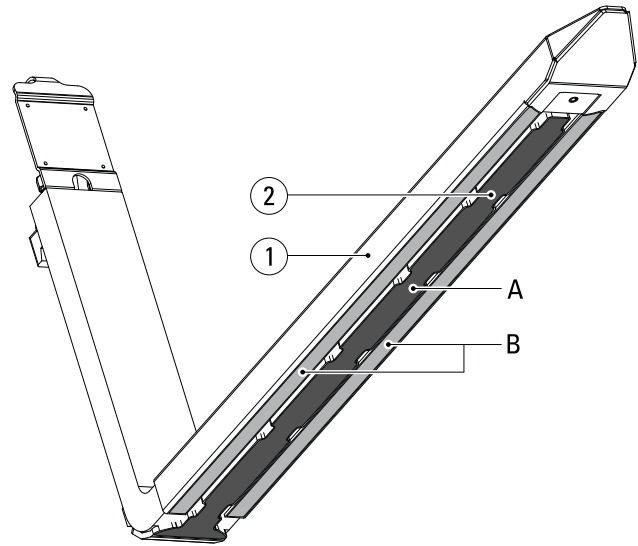
The thickness of Wear Strips (1) may not be less than 1.5 mm (1/16"). When Wear Strips (1) have worn to this thickness, replace them or fill with spacers (2) (Art. N° RE0092002). See point 3 of the Maintenance Schedule.



The inner fork must be replaced when S1 is 5% thinner than S2. See point 7 of the Maintenance Schedule.



When surface A (dark grey, integrated wear plate) is worn to the extent that it is level with or below surface B (light grey), then the sleeve (1) must be replaced or fitted with a welded-on wear plate. For more information about welded-on wear plates, please contact your fork supplier. See point 4 of the Maintenance Schedule.



*Applies only to: Reachforks type REE and REEN;* When surface A (dark grey, integrated wear plate) is worn to the extent that it is level with or below surface B (light grey), then the sleeve (2) must be replaced. If there are signs of wear in the lower side of the sleeve (2) then it must be replaced. See point 4 of the Maintenance Schedule.



### Caution:

The sleeves must be removed from the Reachforks before welding work can proceed. Pistons, piston rods and cylinder heads must be removed before welding is carried out in the inner fork.

### Wear Plate Welding Data:

- Process: MAG (135), 210A, 28 VDC
- Weld type: fillet weld a4, 1 layer
- Cleaning: brush
- Wire: 1 mm, EN 12534 / Mn3Ni1CrMo
- Shielding gas: 80% Ar / 20% CO<sub>2</sub>, 15-16 L/min
- Weld in wear-plate grooves



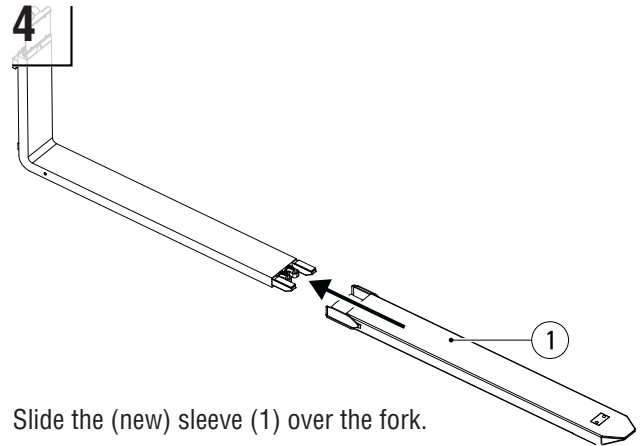
# Instructions for Replacement of Sleeve

- 1** Position the Reachforks at hip height, tilt the mast of the forklift slightly forward and remove the key from the ignition switch of the forklift.

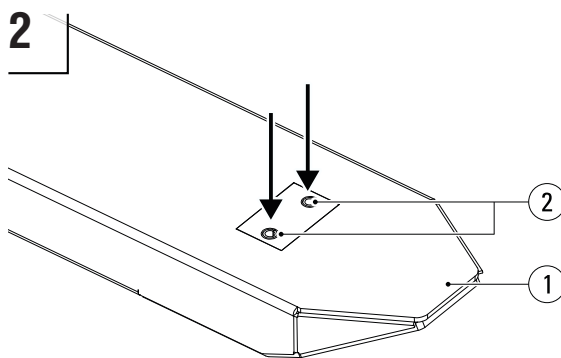


**Warning:**

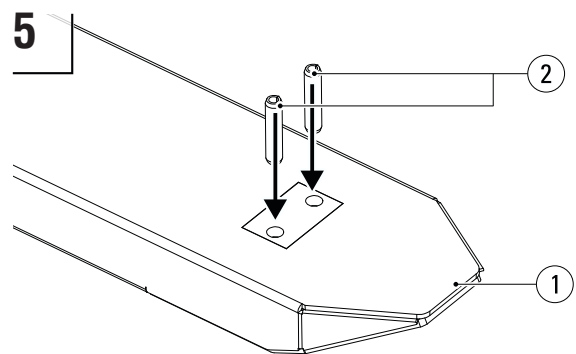
Do not carry out maintenance work on the Reachforks while there is pressure in the hydraulic system (remove key from forklift ignition switch).



Slide the (new) sleeve (1) over the fork.



Tap the spring pins (2) out of the sleeve (1).  
**Tools required:** Hammer, punch Ø10



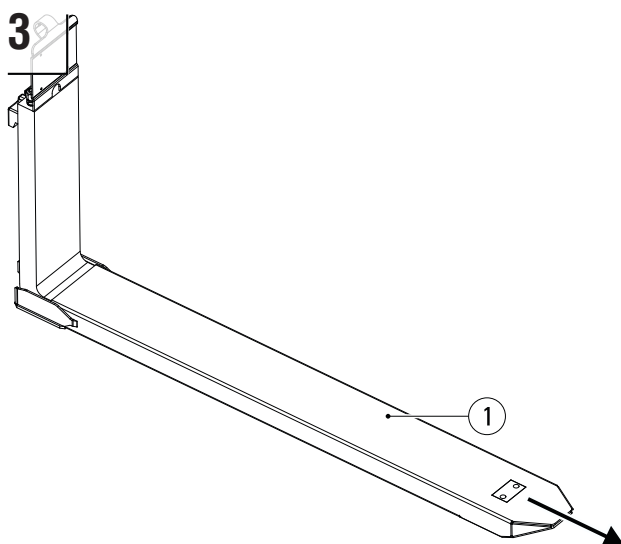
Tap the spring pin(s) (2) into the (new) sleeve (1).



**Caution:**

Ensure that the holes in the sleeve (1) are aligned with the opening in the bracket(s) that are welded onto the piston rod(s). DO NOT tap the spring pin onto the bracket or piston rod!

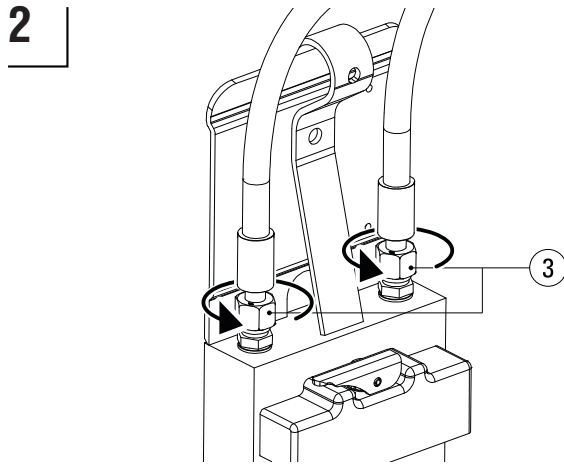
**Tools required:** Hammer.



Pull the sleeve (1) off the fork.

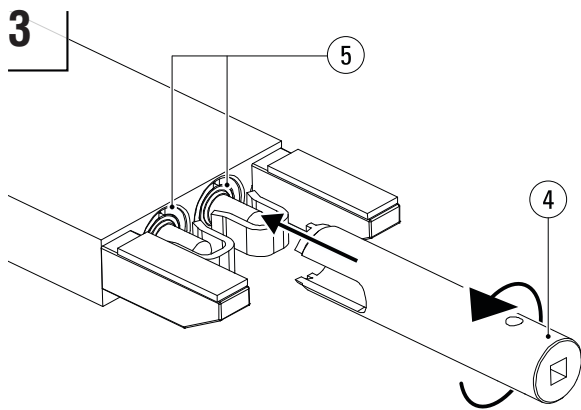
# Replacement of Hydraulic Parts

**1** Follow steps 1 to 3 in chapter on 'Instructions for Replacement of Sleeve'.



Loosen the hose connectors (3) slightly so that the pistons do not create a vacuum when removing the hydraulic parts.

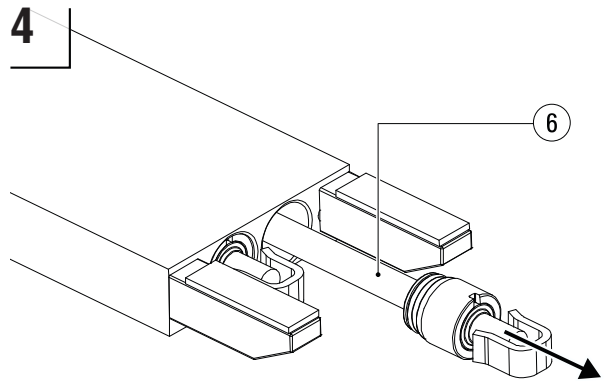
**Tools required:** Open-ended spanner 17.



Place a drip tray below the fork. Unscrew the cylinder head(s) (5) using a cylinder head spanner (4) and a ratchet.

**Tools required:** Cylinder head spanner, 1/2" ratchet.

\*Cylinder head spanners are only available from Cascade KOOL (Art. N° RE0058034).

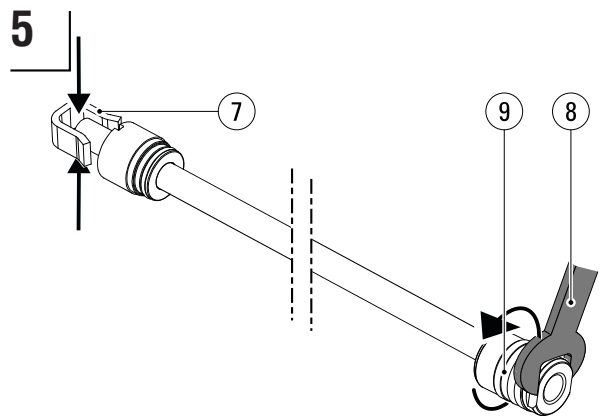


Pull the entire hydraulics set (6) consisting of the piston, cylinder head and piston rod out of the fork.



**Caution:**

Take care with the surface of the piston rod. Even minor damage to surface can cause leaks.



Clamp the piston rod at the rod end (7), not on the piston rod itself to prevent damage (see step 4 in this chapter). Use a size 19 or 24 (8) open-ended spanner to loosen the piston (9). If the piston cannot be loosened, heat the piston with a burner.

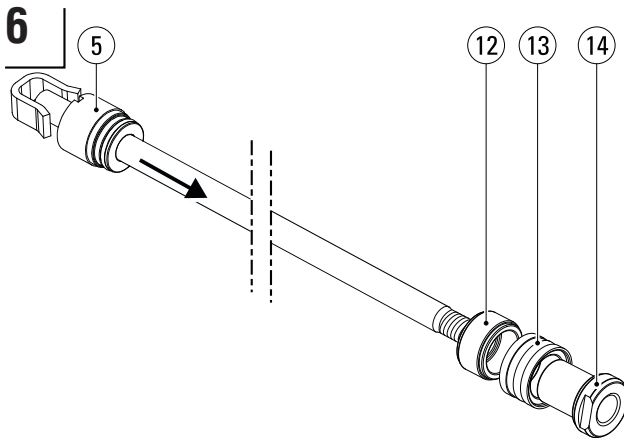
**Tools required:** Open-ended spanner 19 or 24, clamp.

**Note:** When heating the piston with a burner, it must be replaced due to the damage to the seals caused by heating.

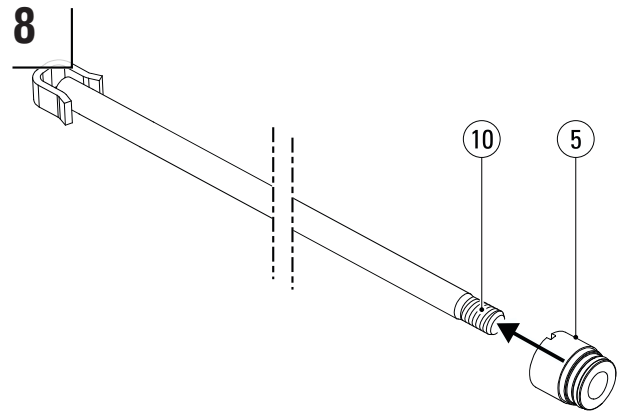


**Warning:**

Do not use a burner in an area not equipped/ intended for this purpose because of fire hazard.



When the piston section 1 (14) has been removed the piston seal (13) can be replaced if necessary. When piston section 2 (12) is also removed, the cylinder head (5) can be removed, should it need to be replaced.

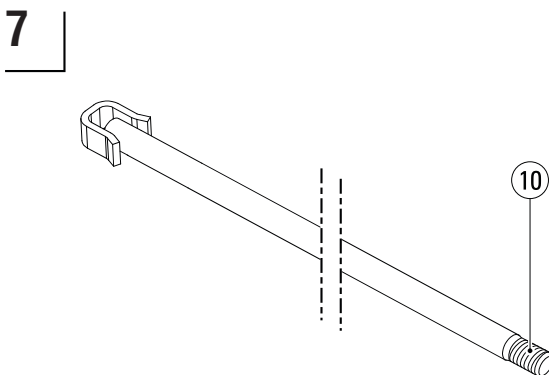


Slide the (new) cylinder head (5) onto the piston rod (10).



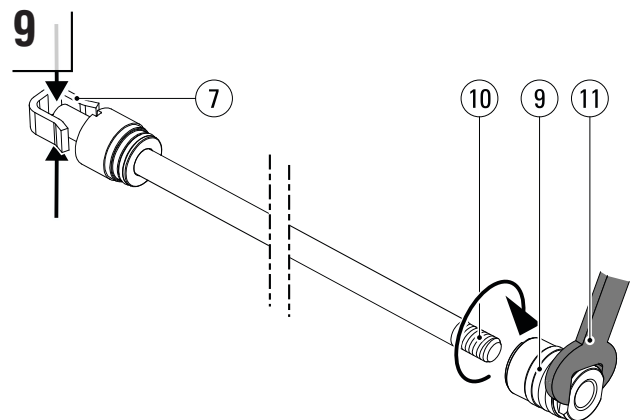
**Caution:**

Do not damage the cylinder head seals (5) during assembly as this can result in leakage. Pay particular attention when the sliding cylinder head (5) over the thread (10) of the piston rod.



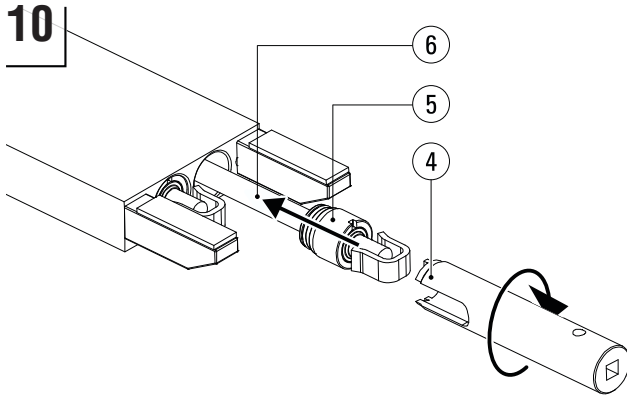
Remove remaining adhesive residue from the piston rod thread (10), then clean the piston rod and thread (10) using Loctite 7063.

**Tools required:** Loctite 7063.



Apply Loctite 270 to the thread (10) of the piston rod<sup>1</sup>. Clamp the piston rod at the rod end (7), not on the piston rod itself to prevent damage (see step 4 in this chapter). Clean the piston thread with Loctite 7063<sup>1</sup>. Use a torque wrench 19 or 24 (11) to tighten the piston (9) onto the piston rod (10) to a torque of 70 Nm.

**Tools required:** Loctite 270, Loctite 7063, torque wrench 19 or 24.



Smear Copaslip<sup>2</sup> onto the thread of the cylinder head (5). Line up the hydraulic set (6) with the cylinder and use a hammer to tap it carefully into the bore. Screw the cylinder head tight using the cylinder head spanner (4) and a torque wrench. See table below for torque values.

**Tools required:** Hammer, Copaslip<sup>2</sup>, cylinder head spanner\*, 1/2" torque wrench.

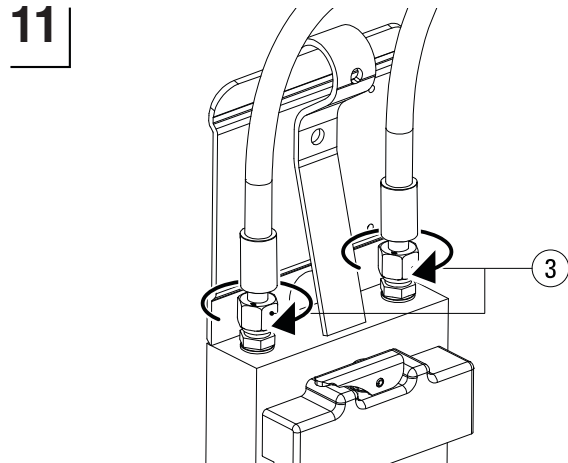
Cylinder diameter (mm)	Torque (Nm)
25	60
30	60
35	80

\*Cylinder head spanners are only available from Cascade KOOI (Art. N° RE0058034).



**Caution:**

Do not damage the piston or cylinder head seals during assembly as this can result in leakage.



Screw the hose connectors (3) tight.

**Tools required:** Open-ended spanner 22.

**12** Follow steps 4 to 5 in chapter on 'Instructions for Replacement of Sleeve'.

**13** Finally, follow step 5 of the chapter on 'Assembly'.

<sup>1</sup> See [www.loctite.com](http://www.loctite.com)

<sup>2</sup> See [www.kroon-oil.com](http://www.kroon-oil.com)

## Troubleshooting

Observation	Symptom	Possible Cause	Possible Solution
Oil leak	Oil leak between cylinder head and piston rod	Bent piston rod	Replace piston rod and cylinder head
		Scratched/damaged piston rod	
	Oil leak between cylinder head and fork blade.	Leaking piston seal	Replace cylinder head
		Leaking O-Ring	Replace cylinder head
Oil leak at connector	Oil leak at connector	Leaking copper ring	Replace copper ring
		Loose connector	Tighten connector
	Forks leaking oil	One or both Reachforks are cracked	Remove Reachforks from carriage immediately and contact supplier.

Forks moving unevenly (more than 4%)	Forks not moving in unison	A piston seal is leaking	Replace the piston with the leaking seal
		The hydraulic hoses have been wrongly connected	Connect the hoses as indicated in chapter on 'Assembly'
		The length of the piston rods is unequal	Install piston rods of equal length
		Flow of hydraulic oil is not between 8-25 L/min	Please contact your supplier.
		Dirt in the sleeve(s)	Dismantle sleeve and remove dirt
	One or both sleeves move without being operated	Flow divider is damaged	Replace flow divider
		The control valve is leaking	Inform your forklift supplier.
		There is air in the hydraulic system	Bleed the system
		A piston seal is leaking	Replace the piston with the leaking seal
		One sleeve remains stationary during retraction then suddenly retracts quickly One of the sleeves fails to retract	Clamping bush(es) broken
Difference in length between the sleeves	Stroke length difference	Piston rods are not same length.	Please contact your supplier.
		Loose piston	Dismantle outer fork, remove hydraulic set from fork and tighten piston (70 Nm).
Difference in height between forks	One fork point hangs lower than the other	One of the Reachforks has been permanently deformed as a result of overloading.	Remove Reachforks from carriage immediately and contact supplier.
		One of the Reachforks is not hanging on the carriage plate	Hang the Reachforks properly onto the carriage plate (check locking mechanism)
		Carriage plate is not completely horizontal	Please do contact your forklift truck supplier.
		The forks do not match (forks belong to different sets)	Check serial N <sup>o</sup> s.
	Excessive play between fork blade and sleeve	Wear strips on one Reachforks are more worn than the other	Replace wear strips
		Wear strips worn out	Replace sleeves
		Sleeves worn out	Replace sleeves

**Do you have questions you need answered right now?** Call your nearest Cascade KOOI Service Department. Visit us online at [www.cascorp.com](http://www.cascorp.com)

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