

USER MANUAL

Reachforks®

Single Range - 20B, 30B, 35B TFT

Double Range - 25B, 35B, 45B, 58B TFQ

Extension Range - 20B, 30B TFE

Manual Number 6921320-R3



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

Cascade-KOOI REACHFORKS® comply with the following norms/directives:

- ISO 13284 – Fork Arm Extensions and REACHFORKS® 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/EC) – ATEX (**only applies to forks with an ATEX name plate!**)

Cascade-KOOI REACHFORKS® are randomly subjected to dynamic testing in accordance with ISO 2330.

Safety



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 centre 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 lift truck, 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

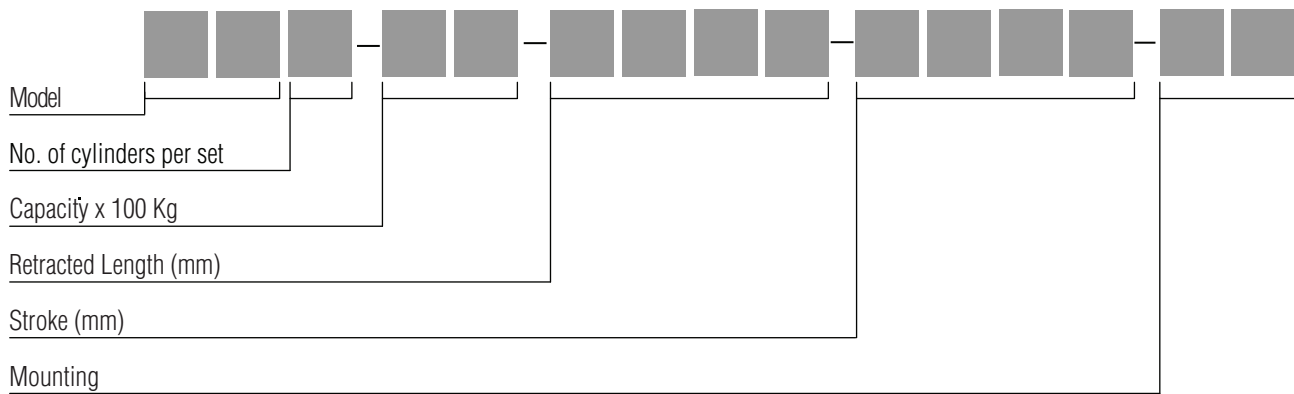
Nameplate legend:

	Unit 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



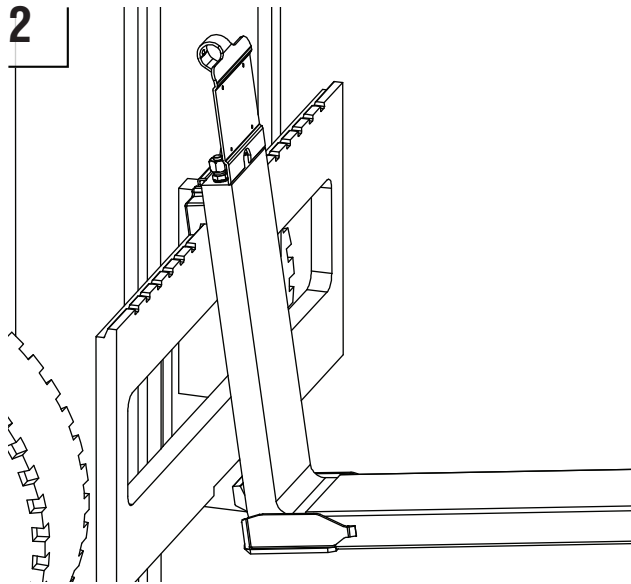
Warning: Never exceed the maximum truck capacity as seen on the truck nameplate. Rated capacity of both truck and attachment is the responsibility of the original truck manufacturer and may be less than the capacity shown on the attachments nameplate.

Unit description of REACHFORKS®

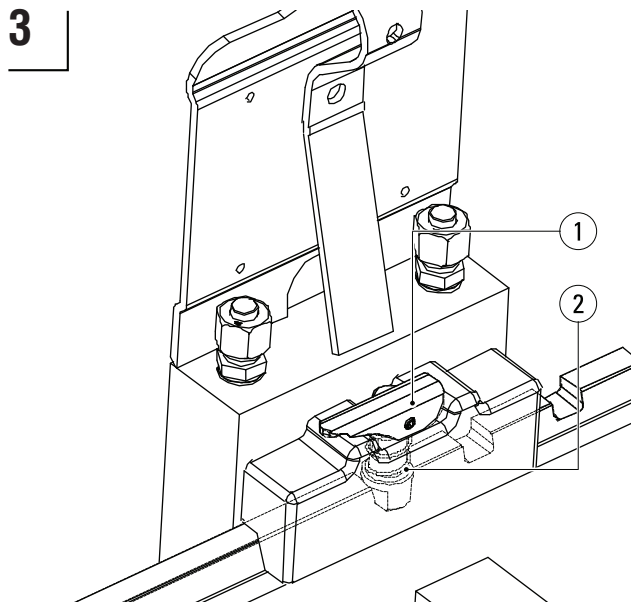


Assembly

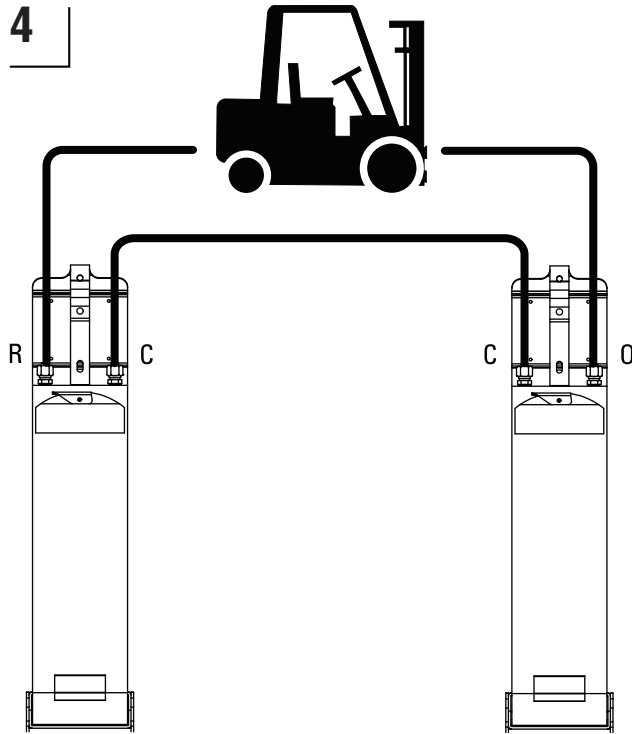
1 The REACHFORKS® nameplates are stamped with an 'L' and an 'R'. Mount the REACHFORKS® on the left (L) and right (R) as viewed from the forklift operator's seat.



Slide the REACHFORKS® onto the carriage bar.



Make sure that each of the REACHFORKS® locking knob (2) engage one of the notches on the carriage. Use catch (1) before operating.



Connect the REACHFORKS® to the hydraulic system.

Cascade-KOOI REACHFORKS® Model	Recommended oil flow	Recommended hose diameter	Maximum operating pressure	Connection
Single Range - 20B, 30B, 35B	7,5-12,5 (L/min)			12L / 7/16"
Extension Range - 20B, 30B	2-3.3 (gal/min)	3/8"	250 bar (3626 psi)	JIC (USA)
Double Range - 25B, 35B, 45B, 48B	12,5-20,5 (L/min) 3,3-5.3 (gal/min)			/ 9/16" (USA)

5 Bleed the hydraulic system:

- Tilt the forklift truck mast forwards and backwards several times.
- Tilt the forklift mast forwards and slide the REACHFORKS® in. Operate the lever for about 30 seconds so that the REACHFORKS® remain retracted and they flushed
- Extend and retract the REACHFORKS® several times.

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








Working with REACHFORKS®

The Cascade-KOOI REACHFORKS®, feature an integrated synchronizing system that enables both forks to extend and retract simultaneously. However, should the REACHFORKS® fail to operate simultaneously, slide the REACHFORKS® fully in and, while the sleeves are in the retracted position, operate the valve for another ± 10 seconds. This gives the hydraulic system a chance to reset both sleeves in their rearmost position.

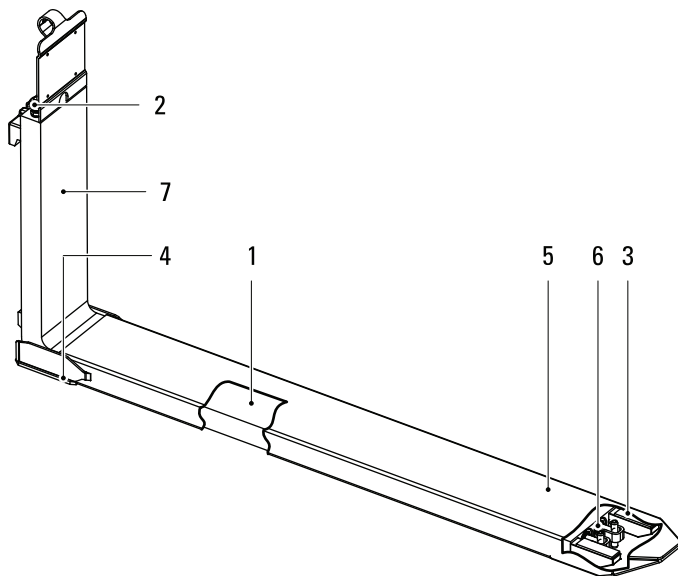
To minimise wear, avoid allowing the REACHFORKS® to come in contact with the ground during operation. In order to reduce wear:

- 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

Nº	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*				
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				

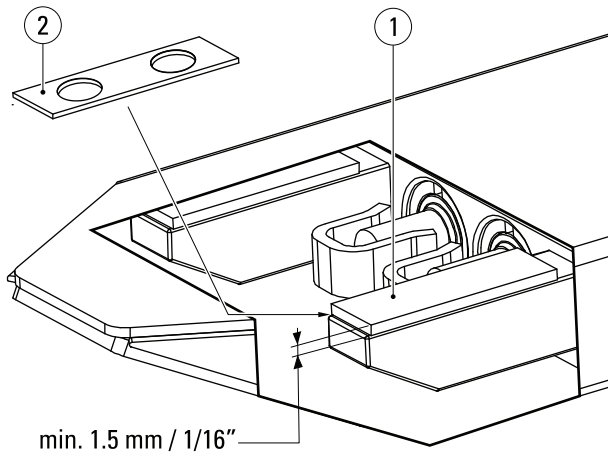
*See chapter on 'Wear'.



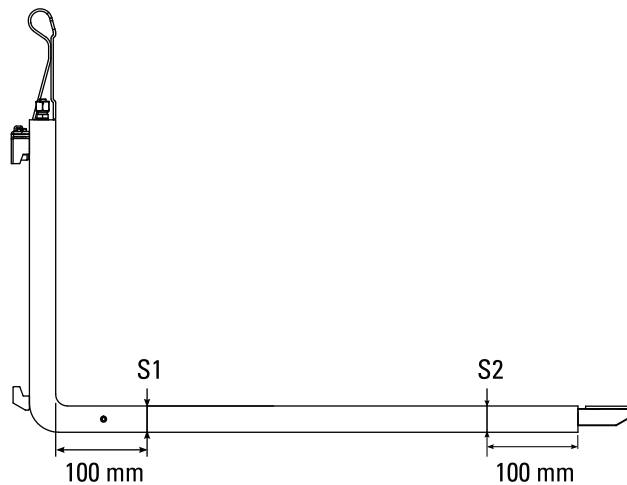
Notes on 'Maintenance Schedule'

- 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.

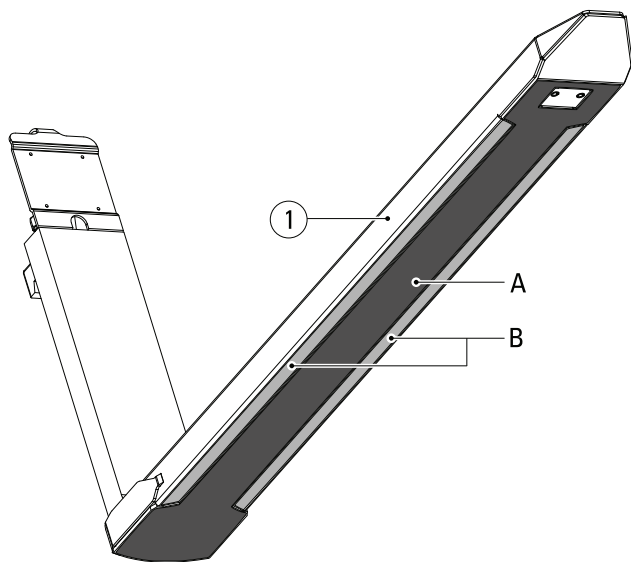
Wear



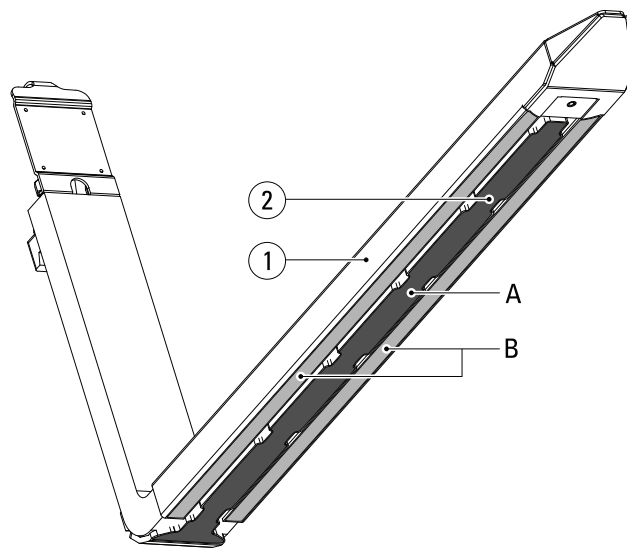
The thickness of Wear Strips (1) may not be less than 1.5 mm (1/16"). When Wear Strips (1) have worn to this thickness, replace them or fill with spacers (2) (Art. N° RE0092002). See point 3 of the Maintenance Schedule.



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 some Cascade-KOOI types;
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.

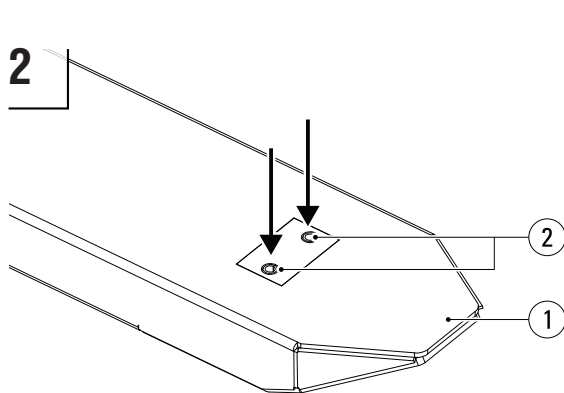
Wear Plate Welding Data:

- 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% CO₂, 15-16 L/min
- Weld in wear-plate grooves

Instructions for Replacement of Sleeve

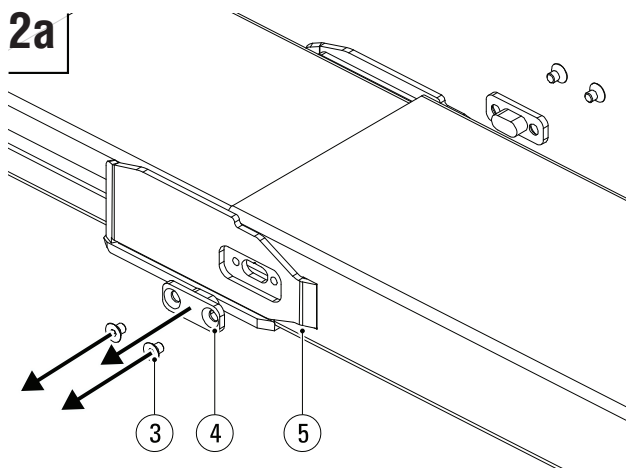
- 1 Position the REACHFORKS® at hip height, tilt the mast of the forklift slightly forward and remove the key from the ignition switch of the forklift.

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



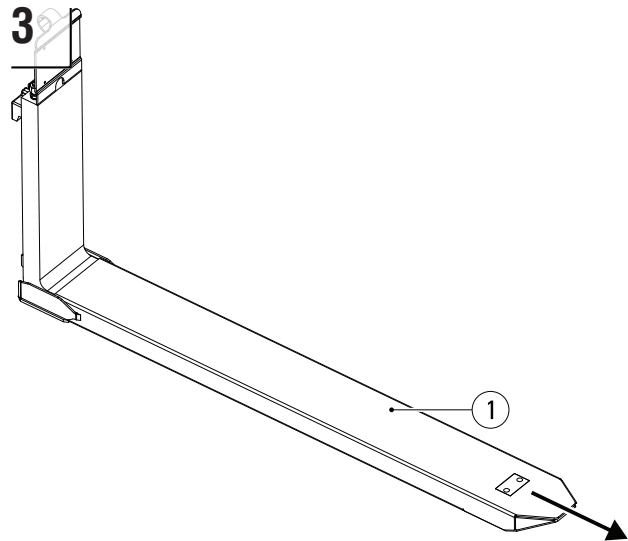
Tap the spring pins (2) out of the sleeve (1).

Tools required: Hammer, punch Ø10

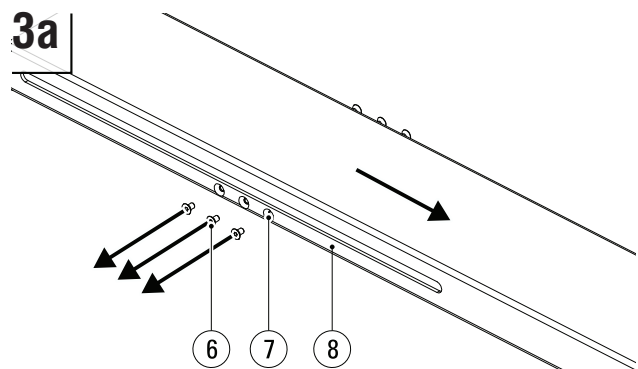


Applies to some REACHFORKS® models:
Unscrew the screws (3) and remove the stops (4) from the outer sleeve (5) (on both sides of the sleeve).

Tools required: Allen key 4.

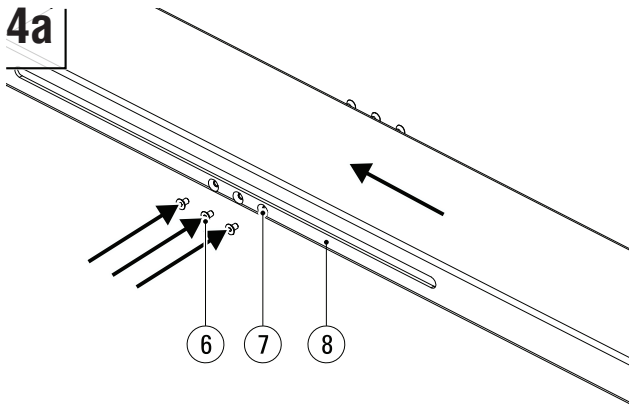


Pull the sleeve (1) off the fork.

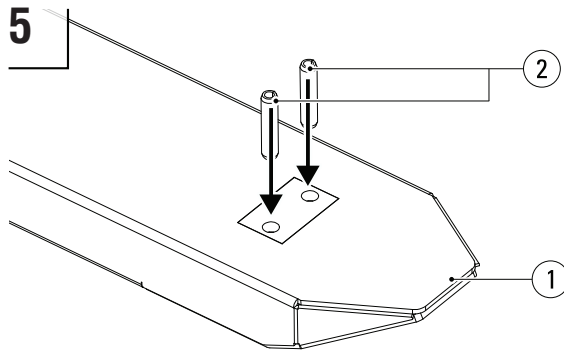


Applies to some REACHFORKS® models:
Unscrew the screws (6) (on both sides) from the stops (7) and remove the inner sleeve.

Tools required: Allen key 4.



Applies to some REACHFORKS® models
 Slide the (new) inner sleeve (8) onto the fork. Tighten the screws (6) (on both sides in the stops (7)). Lock the screws (6) with Loctite 270¹.
Tools required: Allen key 4, Loctite 270¹.

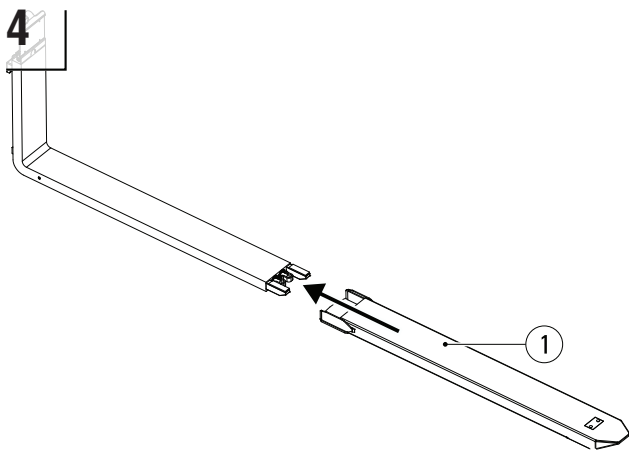


Tap the spring pin(s) (2) into the (new) sleeve (1).

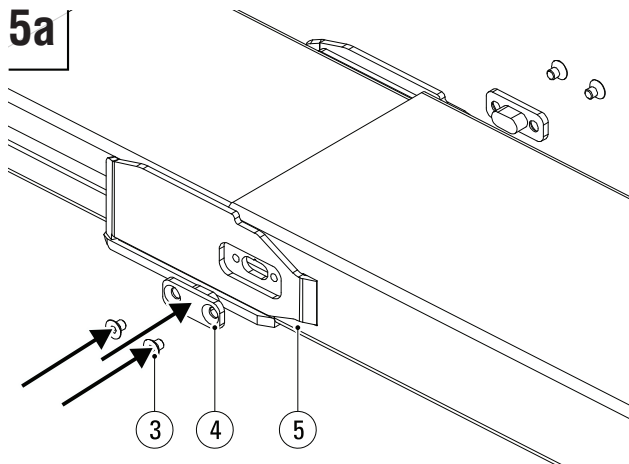


Caution:
 Ensure that the holes in the sleeve (1) are aligned with the opening in the bracket(s) that are welded onto the piston rod(s). DO NOT tap the spring pin onto the bracket or piston rod!

Tools required: Hammer.



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

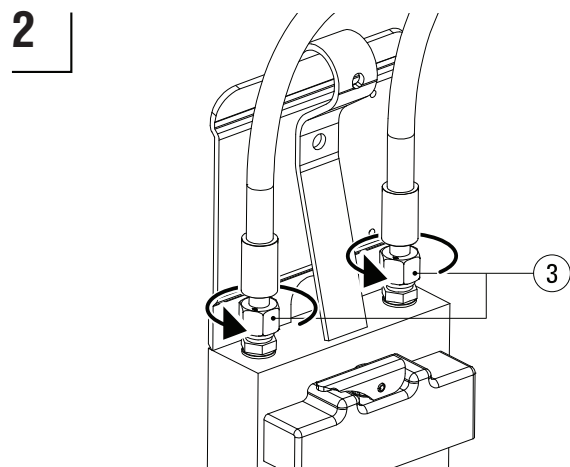


Applies to some REACHFORKS® models
 Place the stops (4) in the outer sleeve (5). Tighten the screws (3) (on both sides of the sleeve). Lock the screws (3) with Loctite 270¹.
Tools required: Allen key 4, Loctite 270¹.

¹ See www.loctite.com

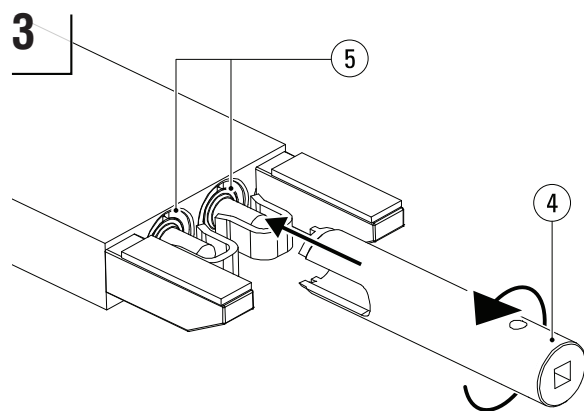
Replacement of Hydraulic Parts

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.

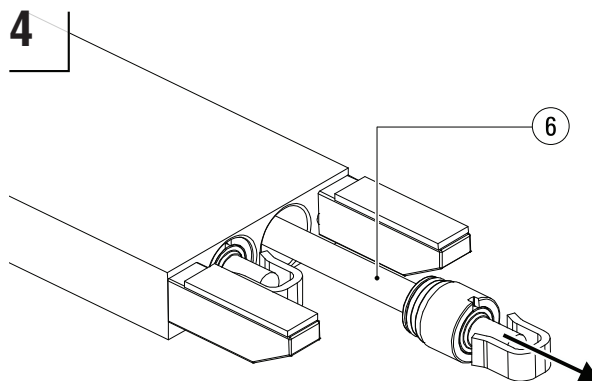
Tools required: Open-ended spanner 22.



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-KOOI (Part No. 6927855).

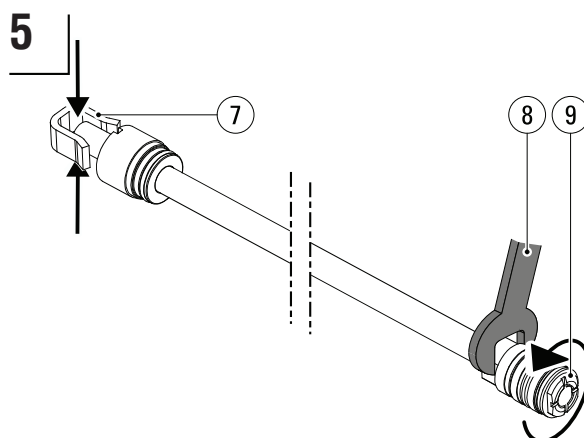


Pull the entire hydraulics set (6) consisting of the piston, cylinder head and piston rod out of the fork.



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 24 (8) open-ended spanner to loosen the piston (9). If the piston cannot be loosened, heat the piston with a burner.

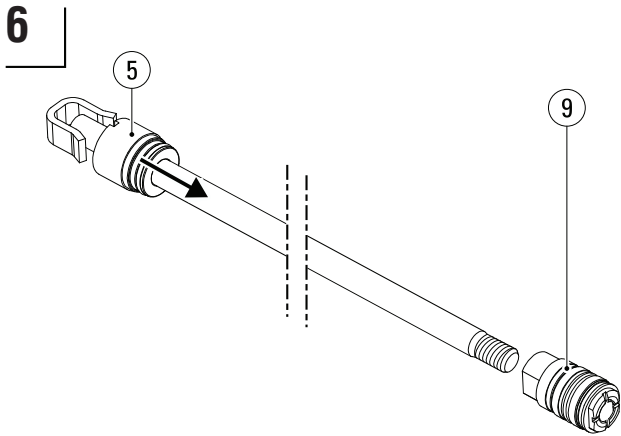
Tools required: Open-ended spanner 24, clamp.

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

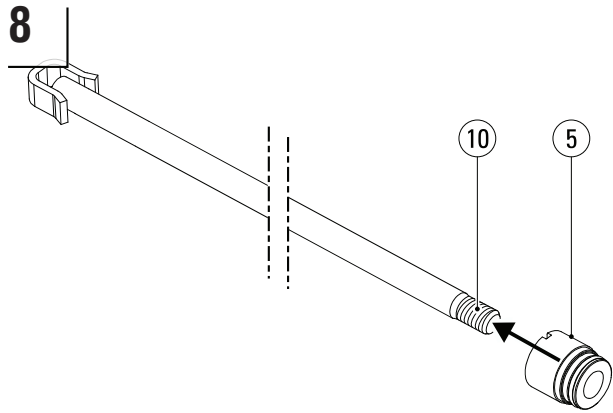


Warning:

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



When piston (9) is removed, the cylinder head (5) can be removed, should it need to be replaced.



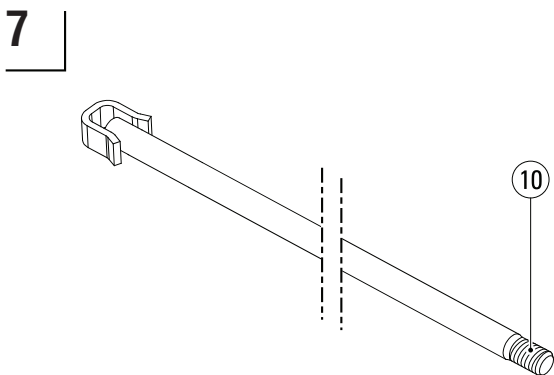
Slide the (new) cylinder head (5) onto the piston rod (10).



Caution:

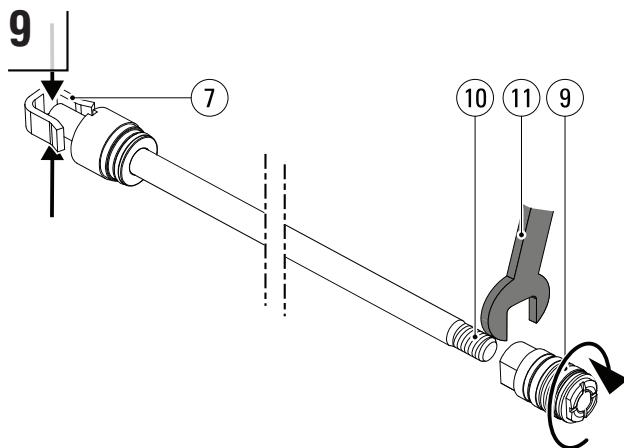
Do not damage the cylinder head seals (5) during assembly as this can result in leakage.

Pay particular attention when the sliding cylinder head (5) over the thread (10) of the piston rod.



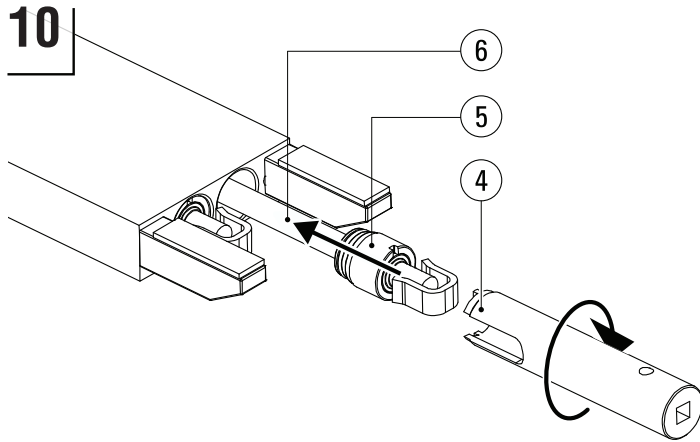
Remove remaining adhesive residue from the piston rod thread (10), then clean the piston rod and thread (10) using Loctite 7063¹.

Tools required: Loctite 7063¹.



Apply Loctite 270 to the thread (10) of the piston rod¹. 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 7063¹. Use a torque wrench 24 (11) to tighten the piston (9) onto the piston rod (10) to a torque of 100 Nm.

Tools required: Loctite 270¹. Loctite 7063¹. torque wrench 24.



Smear Copaslip² 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, Copaslip², cylinder head spanner*, 1/2" ratchet.

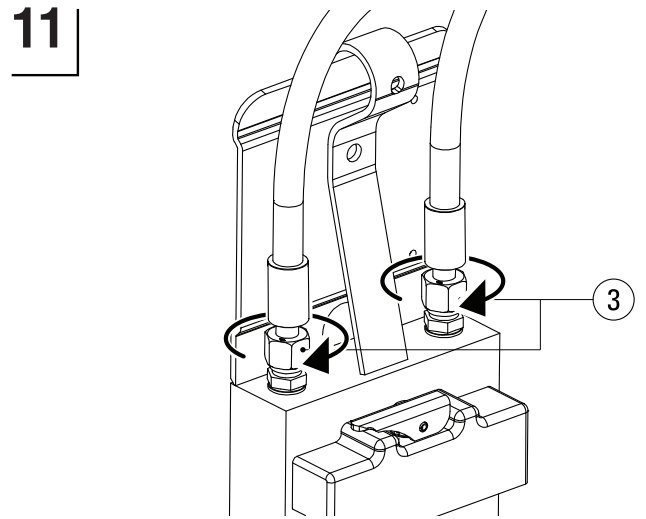
Cylinder diameter (mm)	Torque (Nm)
30	60
35	80
40	90

*Cylinder head spanners are only available from Cascade-KOOI (Part No. 692785).



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'.

¹ See www.loctite.com

² See 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	
		Leaking piston seal	Replace cylinder head
	Oil leak between cylinder head and fork blade.	Leaking O-Ring	Replace cylinder head
	Oil leak at connector	Leaking copper ring Loose connector	Replace copper ring Tighten connector
	Forks leaking oil	One or both REACHFORKS® are cracked	Remove REACHFORKS® from carriage immediately and contact supplier
Forks not moving in unison	Right sleeve extends faster than left one. When the right-hand fork has reached its limit, the left one stops approx. half way.	The left and right REACHFORKS® have been mounted the wrong way round	Swap the left and right REACHFORKS® around and connect the hoses correctly
	The left sleeve reaches its end position first. When the left sleeve is at its end position, the right one reaches 3/4 of its stroke	REACHFORKS® have been connected the wrong way round	Connect the REACHFORKS® as indicated in the instructions in the chapter on 'Assembly'
	Sleeves not moving in unison	A piston seal is leaking	Replace the piston with the leaking seal
	Left or right sleeve extends without operating lever being used.	Air in hydraulic system	Follow step 5 of the chapter on 'Assembly'
Forks not moving in unison	Difference in stroke length becomes increasingly great and one sleeve fails to retract fully.	Pistons cannot return to their rear position meaning the REACHFORKS® hydraulic system cannot be flushed and reset	Slide the sleeves in fully and operate the lever for another 30 sec. (in the same direction as when retracting)
			Check that the rear of the sleeve(s) does not come into contact with the carriage bar. If so, please contact your supplier
		Dismantle sleeves and remove any dirt that has accumulated in the front ends.	
	One or both sleeves move without being operated	Leak in the forklift's control valve	Inform your forklift supplier.
	One sleeve remains stationary when retracting and then suddenly retracts quickly	Spring pin(s) broken	Replace the spring pin(s)
One of the sleeves fails to retract			

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 (100 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 numbers.
		Wear strips on one REACHFORKS® are more worn than the other.	Replace wear strips
	Excessive play between fork blade and sleeve	Wear strips worn out 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

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