USER MANUAL

Reachforks®

Double Range - 17B TFQ

For Crown TSP, Very Narrow Aisle Trucks

Number 6945971

Table of Contents

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 Cascade KOOI Reachforks®, parts of the Cascade KOOI Reachforks® or goods.

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

Note

The information in this manual is provided without any form of guarantee. Under no circumstances shall Cascade KOOI be held liable for accidents or damages arising from the use of this manual.

Please note that information in this manual may be changed at any time without prior notice and that it may contain technical inaccuracies and typing errors. Cascade KOOI makes every effort to avoid errors in this manual, but cannot guarantee this. Please let us know if you encounter any typing errors or technical inaccuracies, or if you have any suggestions.

Other trade or product names used in this manual, but not mentioned here, are the trademarks of their respective holders

Quality Standards/Norms and Directives

Cascade KOOI complies with the following quality standards: ISO 9001

Cascade KOOI complies 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
- CE (2006/42/EC) – Machinery Directive
- ISO 3834-2 Quality Requirements for Fusion Welding of Metalic Materials - Part2: Compressive Quality Requirements

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

Safety

Warning:
Do not ride on the Cascade KOOI Reachforks® or on the load.

Warning:
Do no walk or stand under the Cascade KOOI Reachforks®.

Warning:
Do not reach through the mast of the forklift truck.

Warning:
Do not load the Cascade KOOI Reachforks® beyond the limits of the lifting capacities and load centre stipulated by the manufacturer.

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

Warning:
Do not use faulty Cascade KOOI Reachforks® before they have been either professionally repaired or replaced.

Warning:
Do not carry out maintenance work on the Cascade KOOI Reachforks® whilst 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 Cascade KOOI Reachforks®. If the load shifts, limbs can become trapped which can result in serious injury.

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

Warning:
Do not clamp the load when the sleeves are extended.

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

Caution:
Bear in mind the space above and beneath the Cascade KOOI Reachforks®.

Caution:
The load must be distributed as evenly as pos-sible on the Cascade KOOI Reachforks® and may consist of one or multiple pallets.

Caution:
Retract the Cascade KOOI Reachforks® as soon as possible.

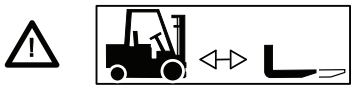
Caution:
If possible, retract the Cascade KOOI Reachforks® before driving.

Caution:
Always drive with the Cascade KOOI Reachforks® in the lowest possible position.

Identification

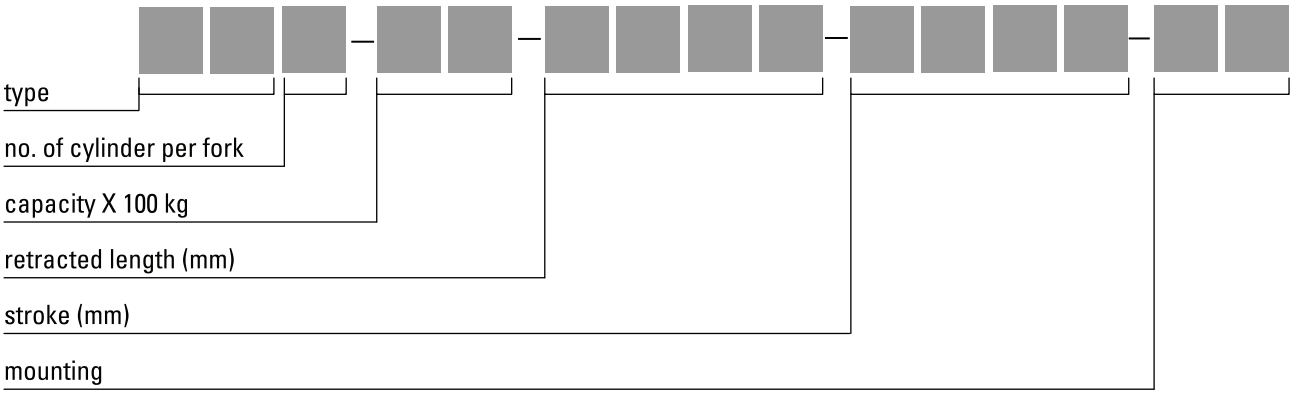
Type plate legend:

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 truck manufacturer and may be less than the capacity shown on the attachment type plate.

Mounting type description of Cascade KOOI Reachforks®:



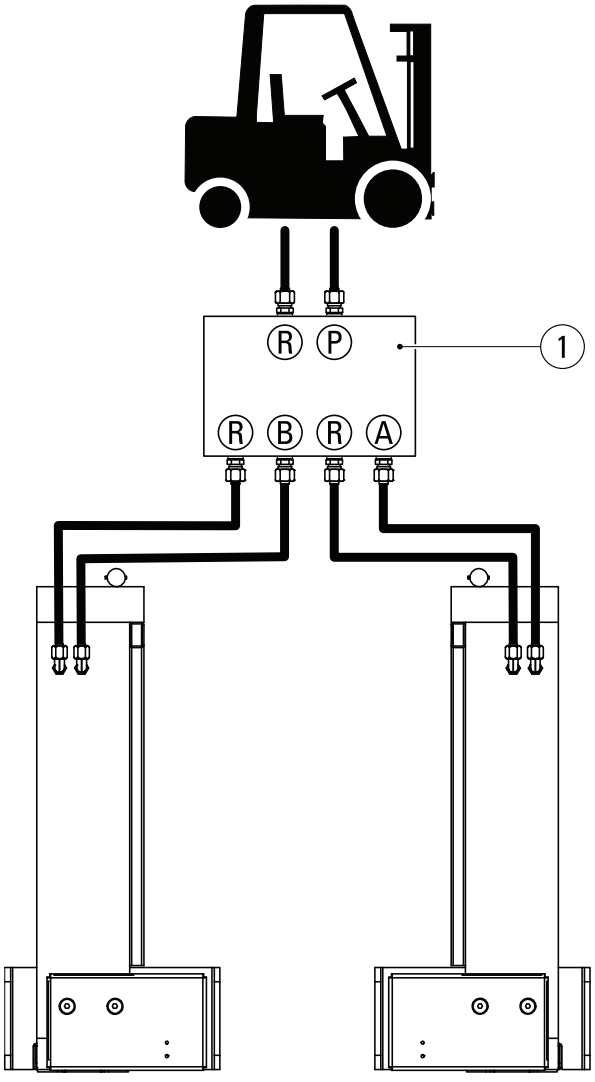
Assembly

1 Placement of forks

For assembly instructions, see the manual of the forklift or attachment.

2 Connecting of hydraulics

Connect the Cascade KOOI Reachforks to the hydraulic system via the flow divider (1, see figure below).



3 Bleed the hydraulic system

Perform the following actions:

- Tilt the forklift truck mast forwards and backwards several times.
- Tilt the forklift mast forwards and slide the Cascade KOOI Reachforks ® in.
- Extend and retract the Cascade KOOI Reachforks® several times.
- Check if hydraulic hoses are unobstructed and that there are no oil leakages.

Type Cascade KOOI Reachforks®	Recommended oil flow	Recommended hose diameter	Maximum operating pressure	Connection
17B	7,5-12,5 (L/min) 2-3.3 (gal/min)	3/8 in.	250 bar (3626 psi)	12L / 10L / 8L / 7/16 in. JIC (USA) / 9/16 in. (USA)

Working with Cascade KOOI REACHFORKS®

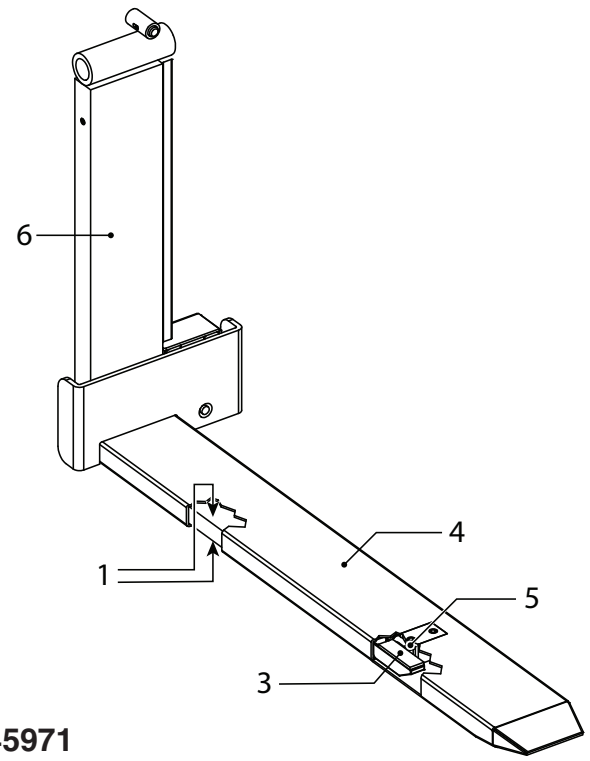
For operating instructions, see the manual of the forklift or attachment.

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

- The chains in the forklift mast can be shortened so that the Cascade KOOI Reachforks® cannot reach the ground.
- The manufacturer can replace the wear-resistant plate under the sleeve when worn out.

Maintenance Schedule

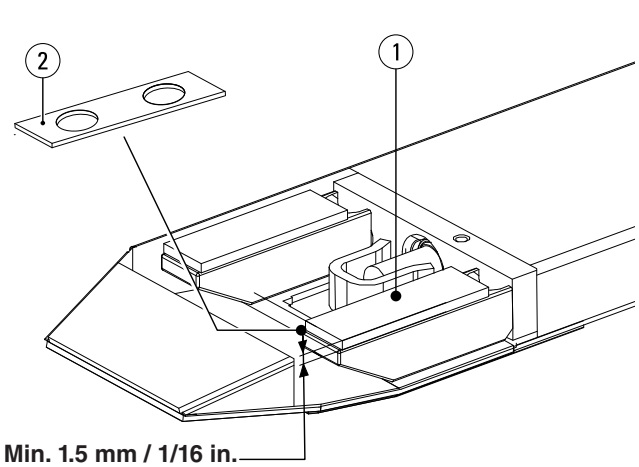
Nº	Description	Weekly	Monthly	6 months or every 1000 hours	Annually or every 2000 hours
1.	Grease the underside and topside of the inner fork		✓		
2.	Check inner fork for leaks	✓			
3.	Check wear strips for any sign of wear			✓	
4.	Check for and remove any dirt in the sleeve			✓	
5.	Check for any cylinder head leaks			✓	
6.	Check inner forks in accordance with ISO 5057 standards				✓



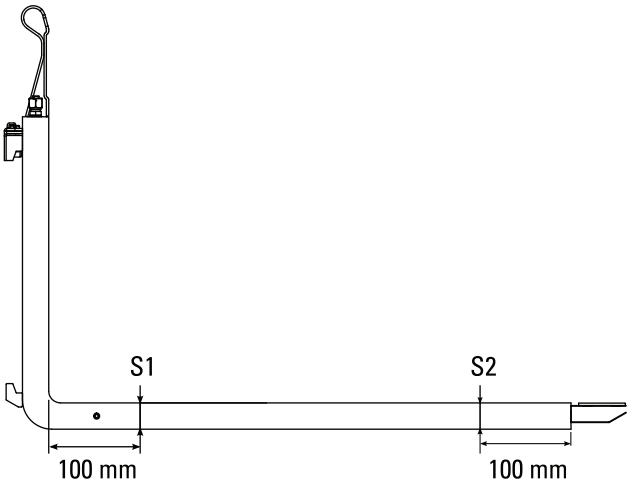
Notes on 'Maintenance Schedule'

- Recommended lubricating grease: Nova - tex 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 Cascade KOOI Reachforks®.
- See chapter on 'Instructions for Re - placement of Sleeve' and 'Instructions for Replacement of Hydraulic Parts' for further explanation about replacing parts and required tools.

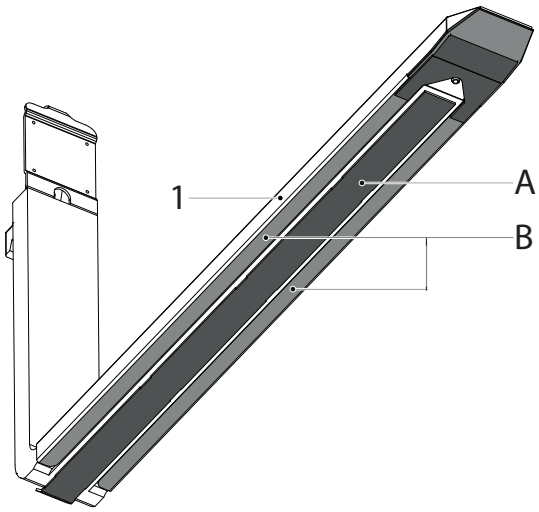
Wear



The thickness of Wear Strips (1) may not be less than 1.5 mm (1/16 in.). When Wear Strips (1) have worn to this thickness, replace them or fill with spacers (2). 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 Manual.

Caution:
The sleeves must be removed from Cascade KOOI Reachforks® before welding work can proceed.
Pistons, piston rods and cyclinder heads must be removed before welding is carried out at the inner fork.

Instructions for Replacement of Sleeve

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

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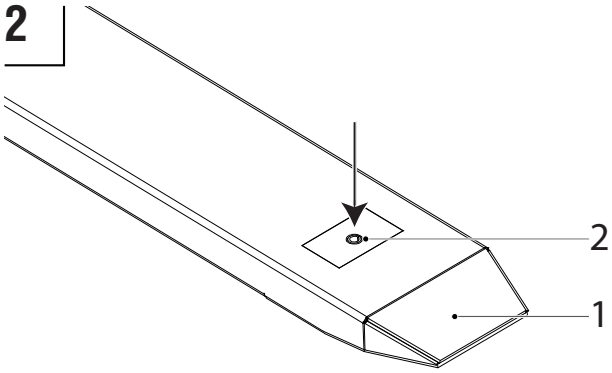
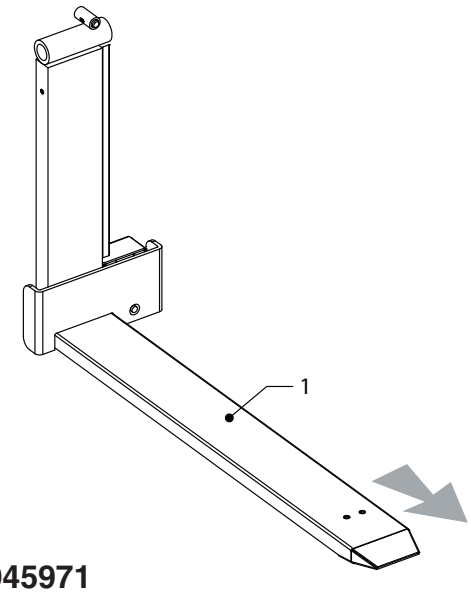
Warning:
Do not carry out maintenance work on the Cascade KOOI Reachforks® while there is pressure in the hydraulic system (remove key from forklift ignition switch).

2

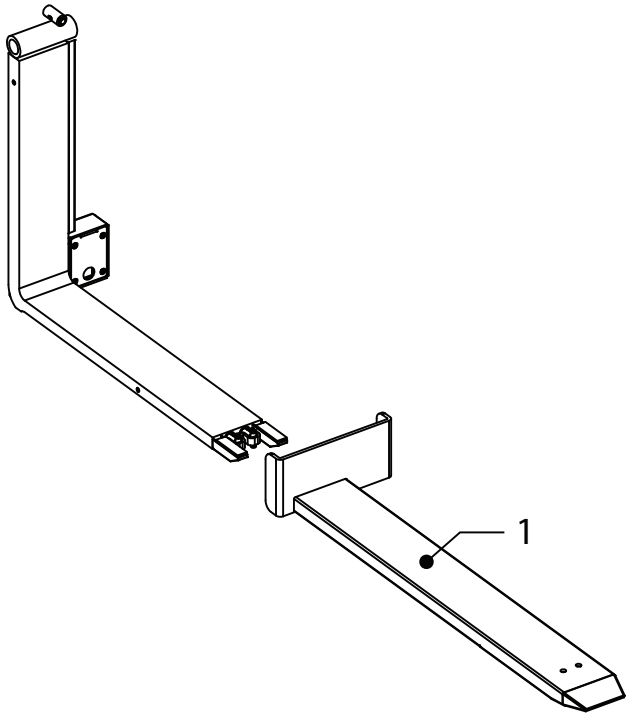


Tap the clamping bush (2) out of the sleeve (1).
Tools required: Hammer, punch Ø10.

3 Pull the sleeve (1) off the fork.



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



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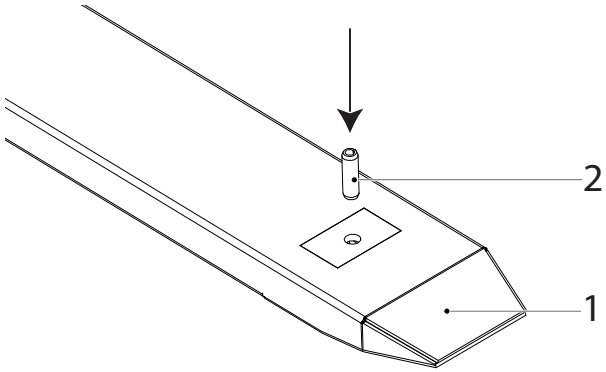


Tap the clamping bush(es) (2) into the (new) sleeve (1).
Tools required: Hammer

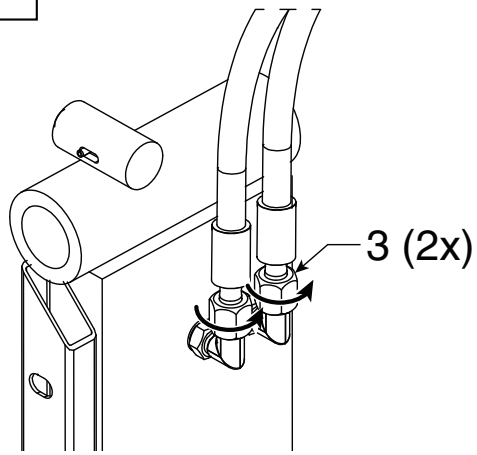
Caution:
Ensure that the holes in the sleeve (1) are aligned with the opening in the bracket(s) that are welded onto the piston rod(s). DO NOT tap the clamping bush onto the bracket or piston rod!

Replacement of Hydraulic Parts

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

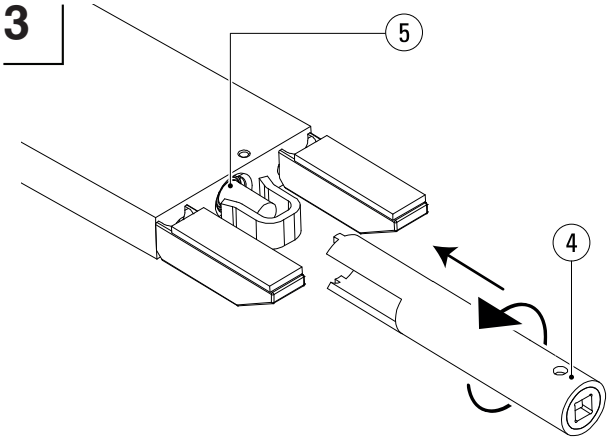
Warning:
Do not carry out maintenance work on the Cascade KOOI Reachforks® whilst there is pressure in the hydraulic system (remove key from forklift ignition switch).

2



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 size 19.

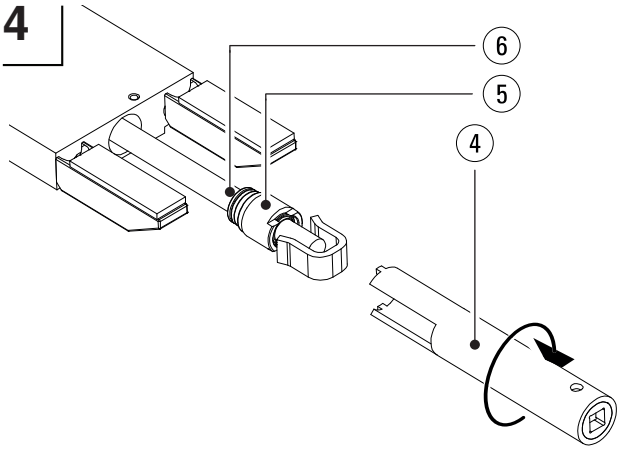
3



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 in. ratchet.

*Cylinder head spanners are only available from Cascade KOOI.

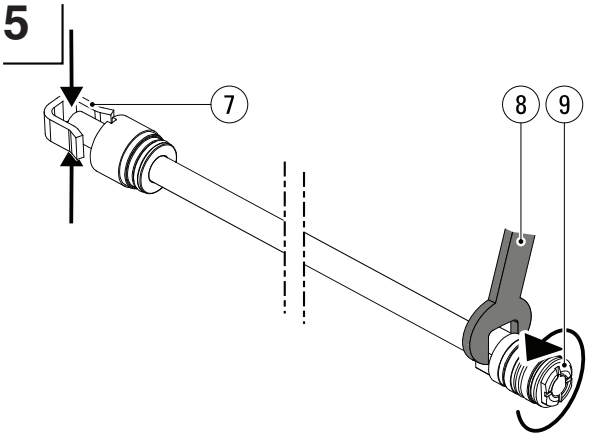
4



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. Minor damage to surface can cause leaks.

5



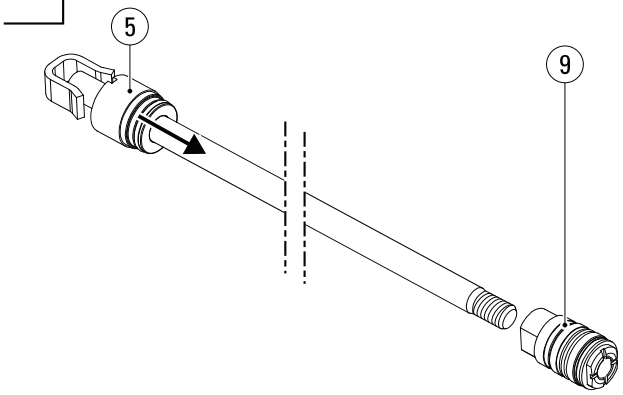
Clamp the piston rod at the rod end (7), not on the piston rod itself to prevent damage (see step 4 in this chapter). Use a size 19 (8) open-ended spanner to loosen the piston (9). If the piston cannot be loosened, heat the piston with a burner.

Tools required: Open-ended spanner size 19, clamp.

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

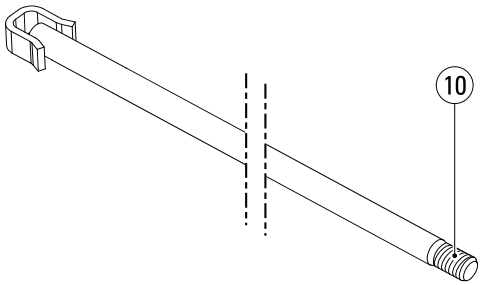
Warning:
Do not use a burner in an area not equipped/ intended for this purpose because of fire hazard.

6



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

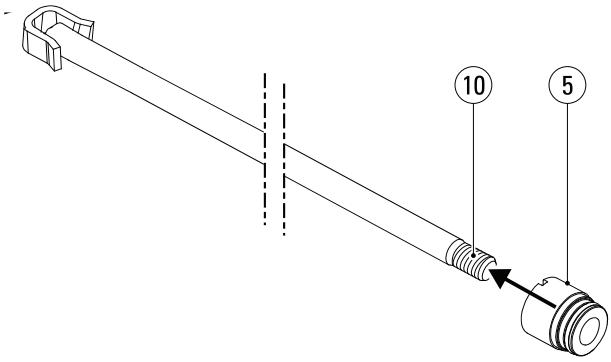
7



Remove remaining adhesive from the piston rod thread (10), then clean the piston rod and thread (10) using Loctite 7063.[1]

Tools required: Loctite 7063[1]

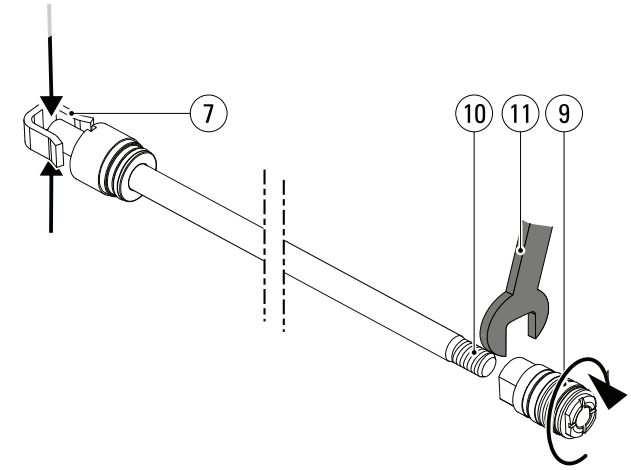
8



Slide the (new) cyclinder 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 whe sliding the cyclinder head (5) over the thread (10) of the piston rod.

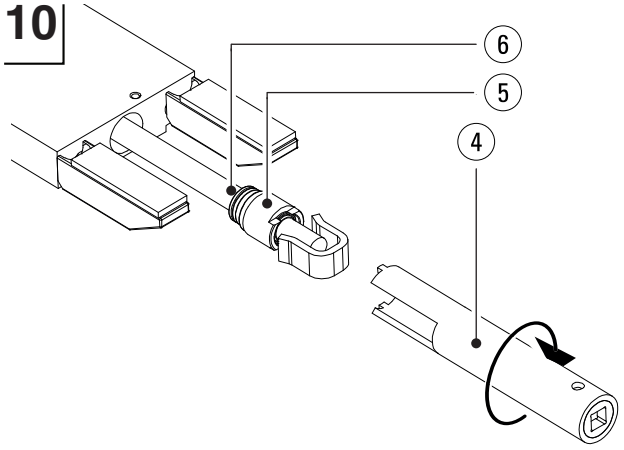
9



Apply loctite 270 to the thread (10) of the piston rod. 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.[1] Use a torque wrench 19 (11) to tighten the piston (9) onto the piston rod (10) to a torque of 40 Nm.

Tools required: Loctite 270[1], Loctite 7063, torque wrench 19.

10



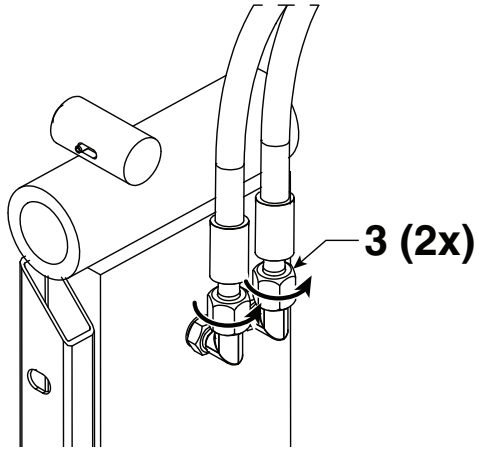
Smear Copaslip[2] onto the thread of the cylinder head (5). Line up the hydraulic set (6) with the cylinder and use a hammer to tap it carefully into the bore. Screw the cyclinder head tight using the cyclinder head spanner (4) and a torque wrench. See table below for torque value.
Tools required: Hammer, Copaslip[2], cylinder head spanner*, 1/2 ratchet.

Cylinder diameter (mm)	Torque (Nm)
25	30

*Cylinder head spanners are only available from Cascade KOOI.

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

11



Screw the hose connectors (3) tight.
Tools required: Open-ended spanner 22.

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

13 Finally, follow step 5 of the Assembly chapter.

[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 O-ring
	Oil leak at connector	Leaking copper ring	Replace copper ring
		Loose connector	Tighten connector
	Forks leaking oil	One or both Cascade KOOI Reachforks® are cracked	Remove Cascade KOOI Reachforks® from carriage immediately and contact supplier.
Forks not moving in unison	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'
Difference in length be tween 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 (40 Nm)
Difference in height be tween forks	One fork point hangs lower than the other	One of the Cascade KOOI Reachforks® has been permanently deformed as a result of overloading.	Remove Cascade KOOI-Reachforks® from carriage immediately and contact supplier
		Suspension axle is not completely horizontal	Please do contact your forklift truck supplier.
		The forks do not match (forks belong to different sets)	Check serial N°s.
		Wear strips on one Cascade KOOI Reachfork® 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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