

**SIDE SHIFTER MODEL HN
SPOSTAMENTO LATERALE MOD.HN
DEPLACEMENT LATERAL MOD.HN
SEITENSCHIEBER TYP.HN
DESPLAZADOR LATERAL MOD.HN**



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INTRODUCTION

This service manual includes fitting instructions, periodic maintenance, possible failures and the list of spare parts for side-shifters model HN. All instructions include metric and US measurements. The instructions in this service manual do not replace any existing legislation in force in connection with Safety or Industrial Injury, this is the responsibility of the truck user. Refer to the truck manual or contact the truck dealer for any additional information if required. The user company must check that all the instructions for use are followed, and that all personnel are aware of the maintenance and usage of the side-shifter as required.

The side-shifter has been designed and manufactured following basic safety requirements, it is the responsibility of the user to check the rating plates both on the truck and the side shifter to ensure safety of use.

1 FITTING

1.1 Lift truck requirements

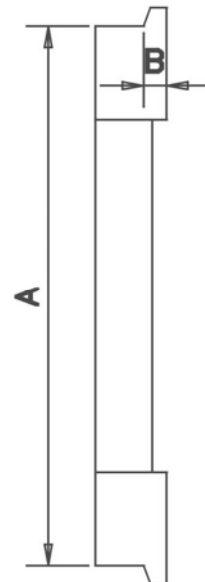
1.1.1. Feeding pressure

70 bar – 1000 psi average working pressure
230 bar – 3200 psi max working pressure

1.1.2. Oil flow

4 l/min – 1 GPM min
7,5 l/min – 2 GPM recommended

1.1.3. Lift truck carriage dimensions



Pict.01

	Dimension A		Dimension B	
	min.	max	min.	max
Class II	380 mm 14.96 in	381 mm 15 in	15 mm 0.59 in	16 mm 0.63 in
Class III	474,5 mm 18.68 in	476 mm 18.74 in	20,5 mm 0.82 in	21,5 mm 0.85 in

WARNING: Before fitting the side-shift clean the lift truck carriage and check that it is free from damage or grooves.

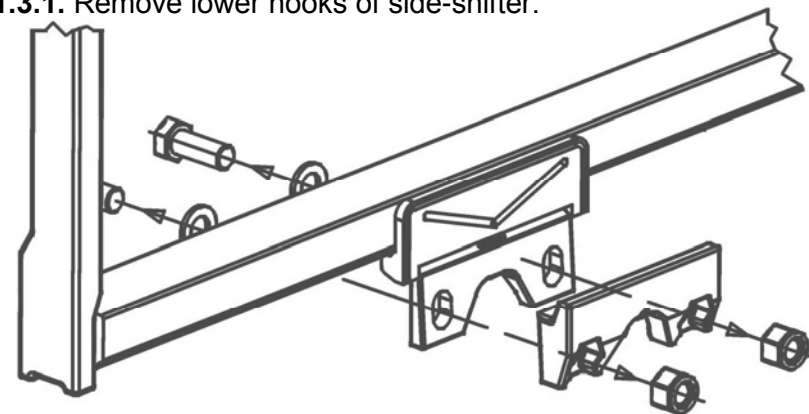
1.2. Recommended hydraulic circuit

1.2.1. The attachment requires an independent control and 2 feeding hoses having a minimum diameter of 6 mm (1/4).

IMPORTANT: all pads are pre-greased by Manufacturer.

1.3. Side-shift fitting

1.3.1. Remove lower hooks of side-shifter.



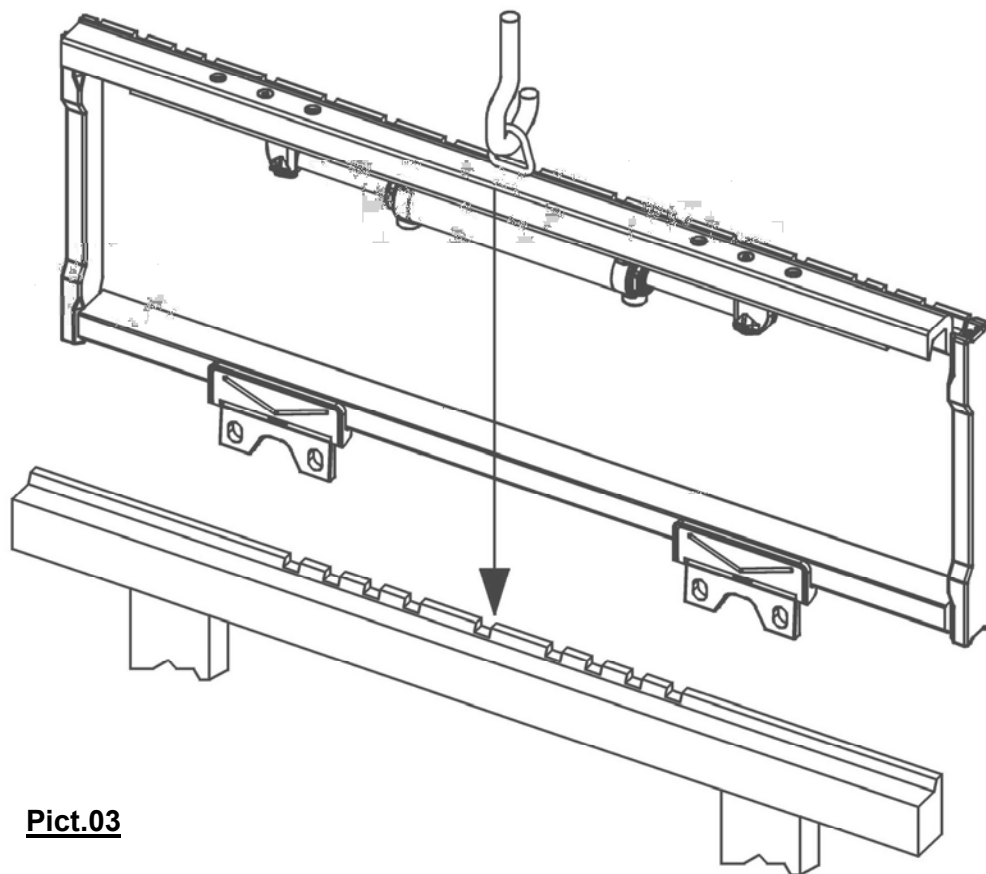
Pict.02

1.3.2. Fit the side shift in such a way that fixing peg of cylinder support enters in the central notch of lift truck carriage.

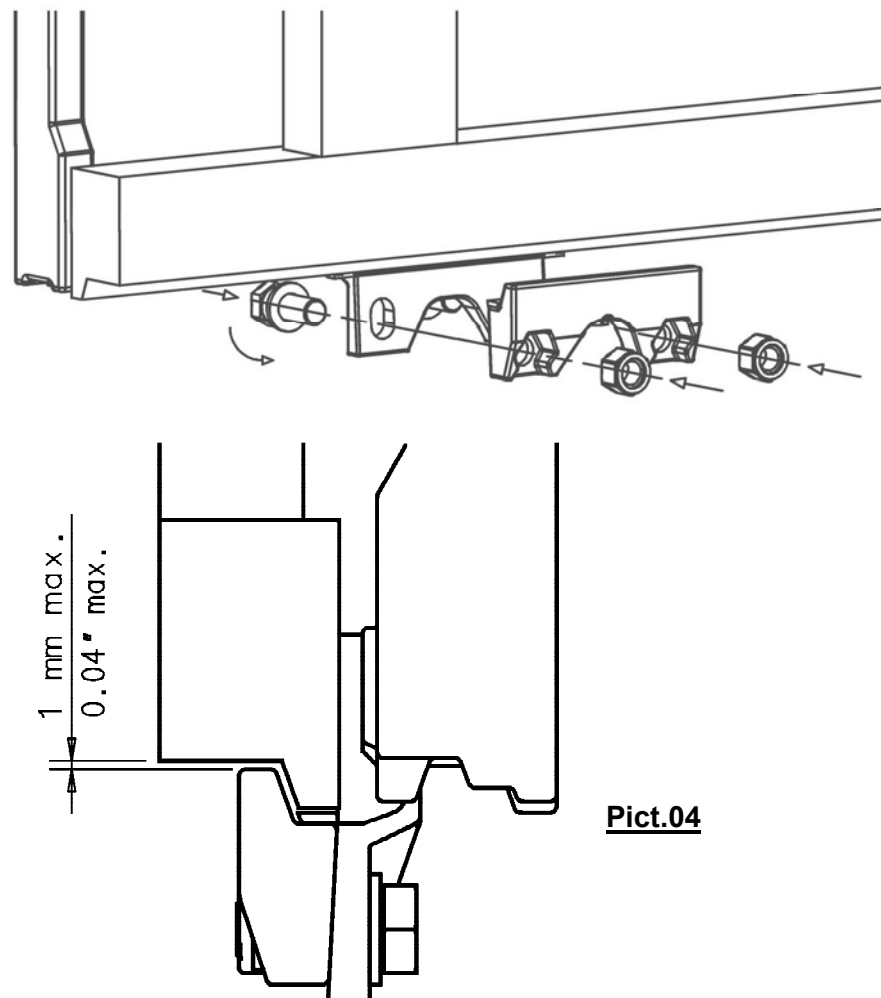
1.3.3. Re-install the lower hooks with the requested clearance. Tighten the screws with the requested torque:

314 Nm - 233 ft-lbs for class II (min. 240Nm-180 ft-lbs)

461 Nm - 342 ft-lbs for class III (min 300Nm-220 ft-lbs)

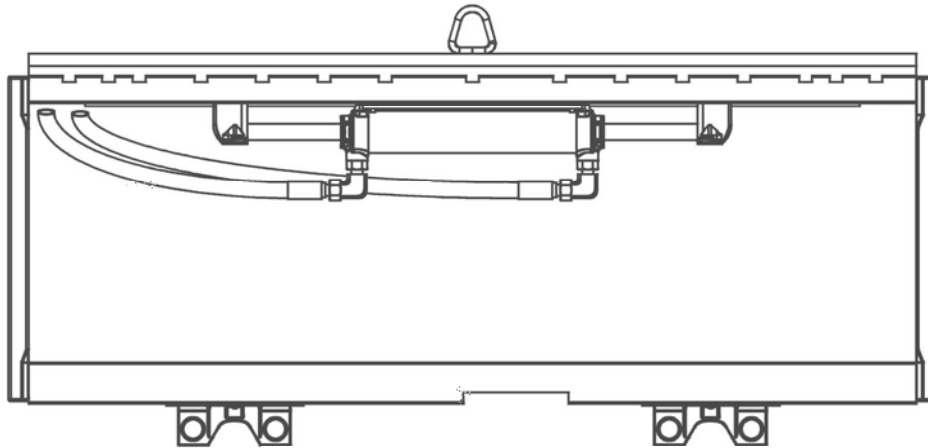


Pict.03



Pict.04

1.3.4. Fit the hoses.



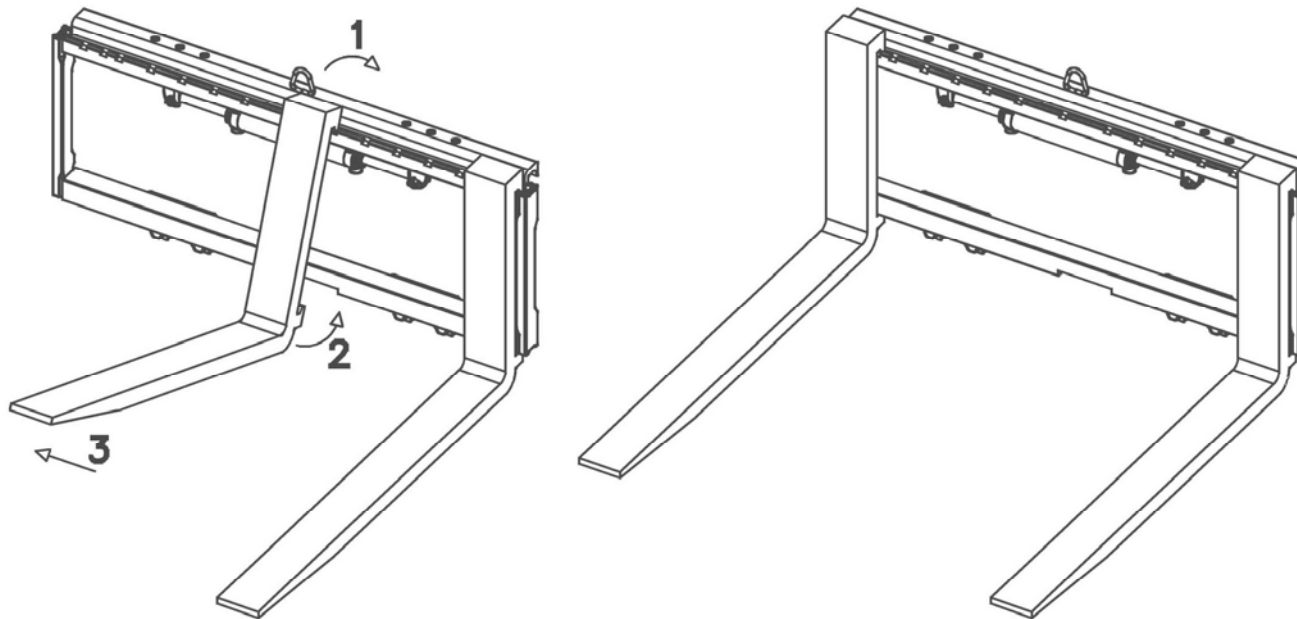
Pict.05

IMPORTANT: After the installation of the side-shift check the correctness of procedure by side-shifting 5 times without the load first and then with load.

Make sure the Fork Locking Pin is located in the Upper Side Shift Bar notch at all times.

WARNING: if the fork/locking pin is not fully engaged, the fork could become unintentionally disengaged.

1.3.5 Fit the forks



Pict.06

2 PERIODIC MAINTENANCE

2.1 500 hours

Lubricate with grease the lower bar of forklift carriage in the area where pads slide. Check the position and tightness of the screws of the lower hooks, as per point 1.3.3.

If the case of slackened screws, or if the lower hook position is outside the maximum quota, adjust the position and tighten as per point 1.3.3.

2.2 1000 hours

Check thickness of upper pads; if it is lower than 4 mm (0.16 in) replace them as stated in section 4.2

Check thickness of lower pads. If lower than 5 mm (0.2 in) replace them as stated in section 4.2

Perform all the operations in point 2.1.

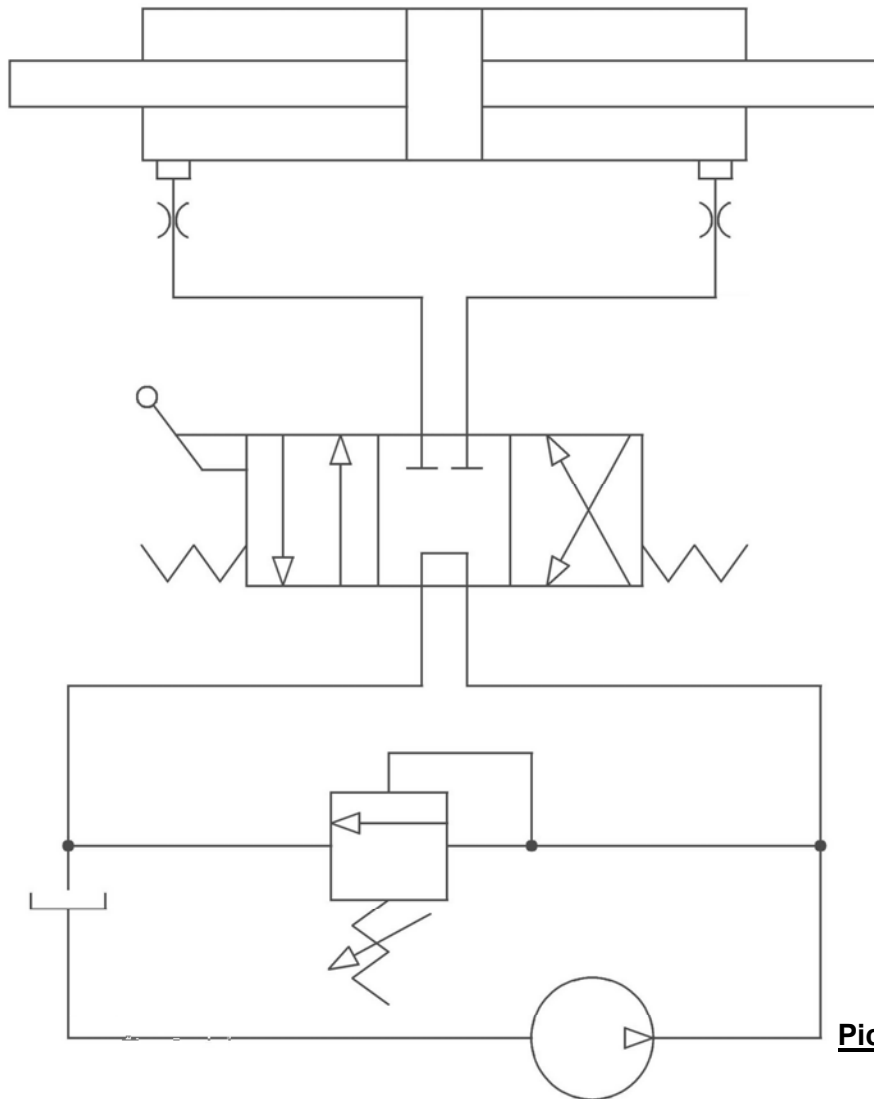
2.3 2000 hours

Replace pads as stated in section 4.2 .

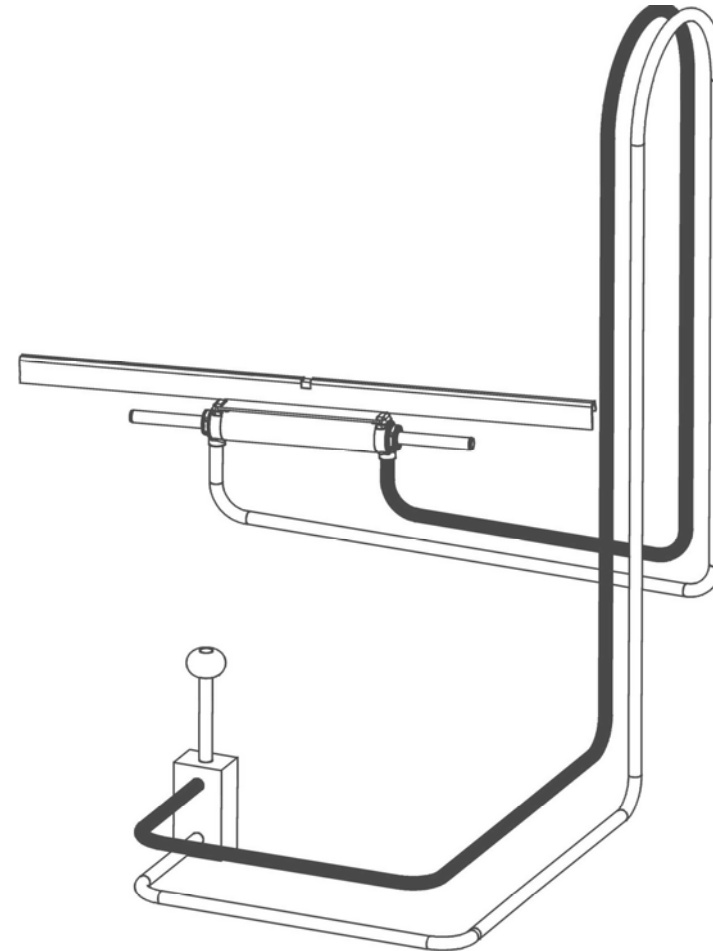
During this operations, replace the lock nuts for the tightening of lower hooks.

Perform all the operations in point 2.1.

3 HYDRAULIC CIRCUIT



Pict.07

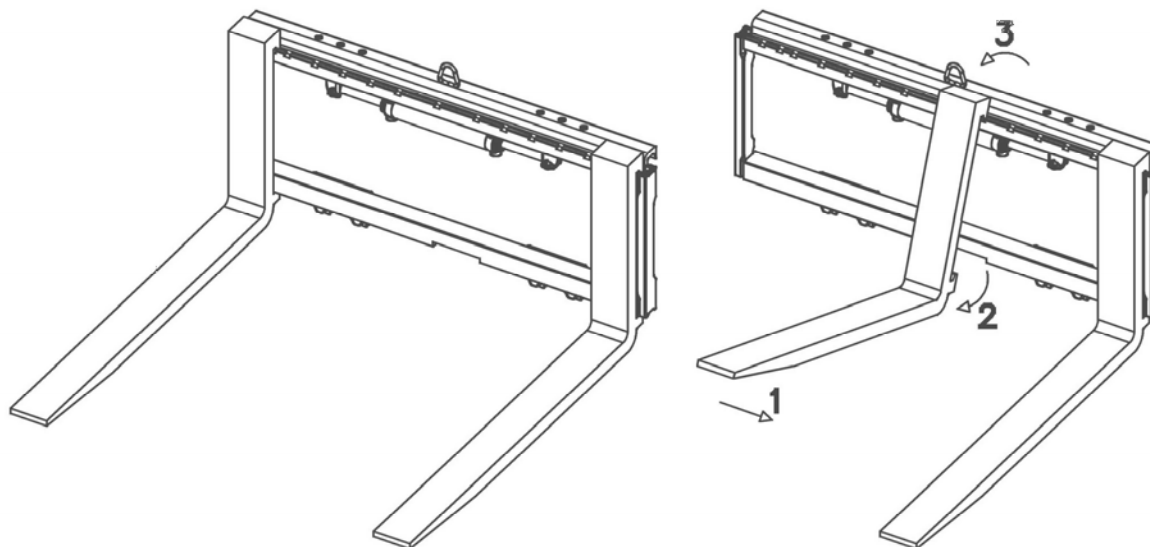


Pict.08

4 EXTRAORDINARY MAINTENANCE

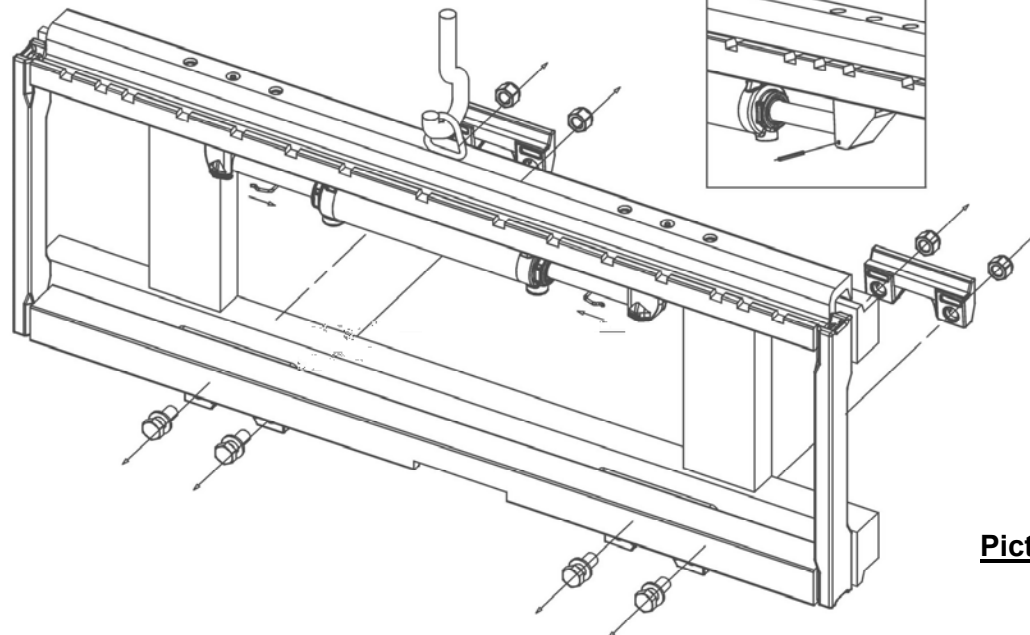
4.1 Side shift removal

4.1.1 Remove the forks.



Pict.09

4.1.2 Remove the lower hooks. On the class II side shift, remove the split pins locking the cylinder on the mobile frame as shown in the drawing. For the class III cylinder (capacity 4900 daN-10,000 lbs) remove the pins locking the cylinder to mobile frame, as shown in the details.



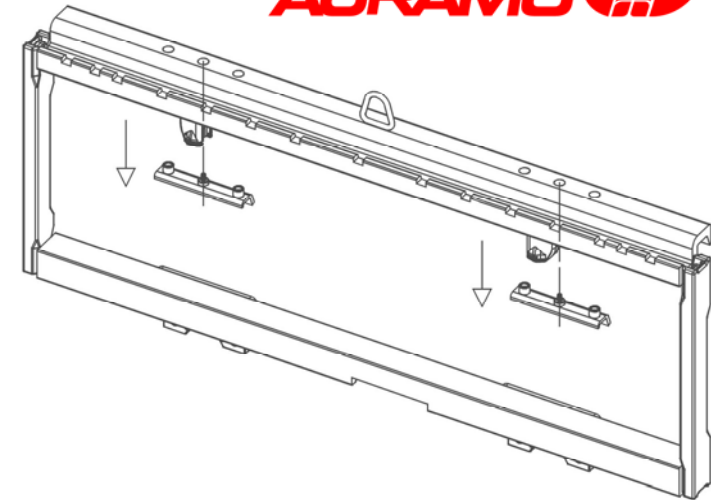
Pict.10

4.1.3 Dismantle the mobile frame from lift truck carriage by means of a hook with a minimum capacity of 450 daN (992 lbs)

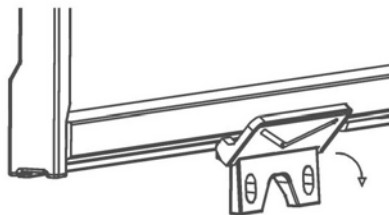
4.2 Pads replacement

4.2.1 Execute the operations of section 4.1

4.2.2 Remove the upper pads as shown. Replace it with a new one, taking care that the locating studs of the pad properly fit in the locating holes on the mobile frame. Lubricate with high quality grease.



4.2.3 Remove lower pads with a rotating movement according to the sketch. Fit new pads and lubricate with high quality grease.



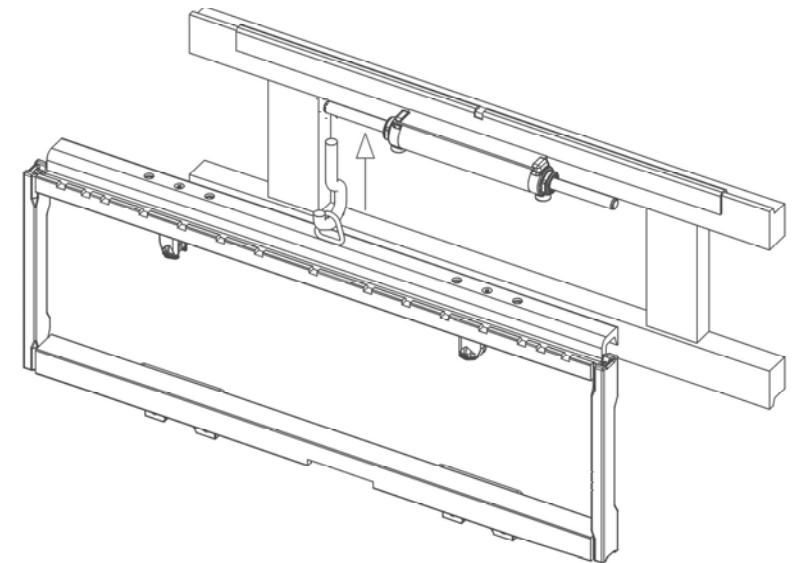
Pict.11

4.2.4 Execute operations as per section 1.3

4.3 Dismantling the cylinder

4.3.1 Execute the operations as per section 4.1

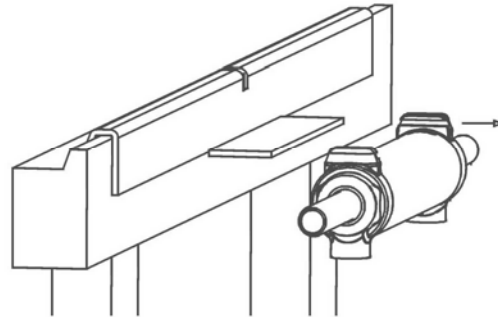
4.3.2 Dismantle hoses.



Pict.12

WARNING: Before working on any of the hydraulic components, relieve circuit pressure by actuating the side shift control lever in both directions when forklift is switched off.

4.3.3 Remove cylinder from fixed support.



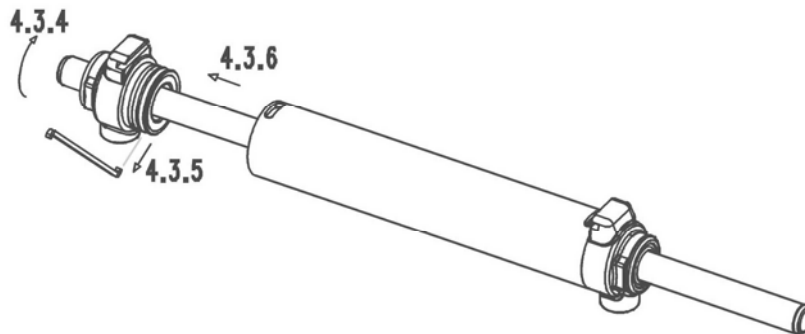
quence.

Pict.13

4.3.4 Secure the cylinder body and rotate with a wrench until the locking ring comes out.

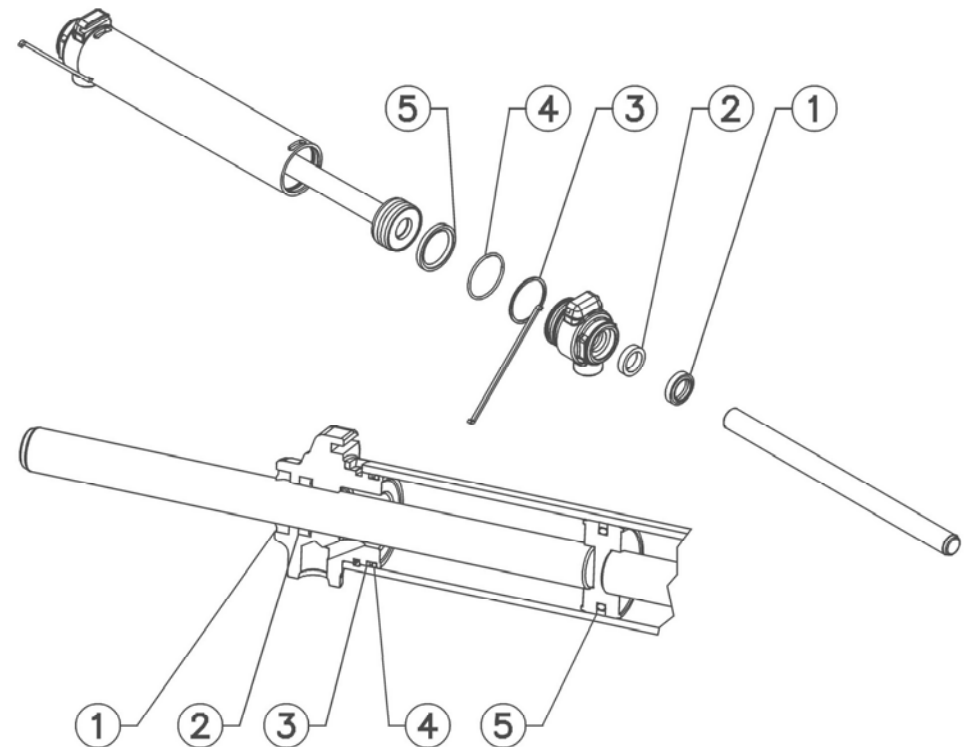
4.3.5 Remove the locking ring.

4.3.6 Unthread the cap.



Pict.14

4.3.7 To reassemble the cylinder follow the same instructions in reverse.



Pict.15

WARNING: When fitting new seals, follow the correct fitting se-

5 USAGE INSTRUCTIONS



A side shift is an attachment allowing the forks to side shifted for easy load handling. It is necessary to check that the weight and load centre of gravity is not higher than data marked on data plate, any increase of centre of gravity in comparison to side-shift carriage must be related to a proportional reduction of the load weight. The Lift Truck forks must be locked into the upper side shift bar notches (dowel pin on forks in a machined notch) before the truck is operated.

Operate maintenance actions with the lift truck turned off and after relieving pressure in the hydraulic circuit, by actuating the side-shift control lever in both directions.

5.1 Test and suggestion

1. Check that the load and the load centre of gravity are not higher than the data stated on the label. If the load centre is increased (due to its higher dimension) it is necessary to proportionally reduce the load weight, in order not to overcome the tipping momentum.
2. Make sure that the load unit is steady, even in a breaking or sagging situation
3. Take on the load as centred as possible.
4. Hold the load in a slightly lifted position (also to have the best visibility), to reach the best truck stability during the manoeuvres.
5. Gently action the side shifting lever, in order to avoid "water hammer" on the hydraulic circuit and not to jeopardise the truck stability at higher lifting.
6. Adjust handling speed according to load nature and stability, considering also difficulties due to overall sizes and available room.
7. Pay attention to sloping ramps and round level differences that jeopardise lift truck stability.

5.2 Operations and actions to avoid

- lifting a load on a single fork;
- move goods by pushing with the side-shifter;
- execute the side-shifting stroke when the lift truck is turning;
- lift an unstable load;
- stand in the operating area of the side-shift;

- carry persons on the forks or on side-shift;
- utilize the equipment when there is a deformation of the structure or, any malfunction;
- fit the forks on side-shifter without locating the pin in a notch on the upper bar;
- utilize the equipment for purposes different from those for which it was designed.

6 FAILURES AND CORRECTIVE ACTIONS

6.1 No side-shifting

1. check that the feeding pressure conforms to requirements of point 1.1.1 and that the oil flow conforms to point 1.1.2;
2. check that the mobile frame has not been deformed;
3. check that clearance between lower hook and bar of truck carriage is correct (point 1.3.3);
4. check that there are no oil leaks from hydraulic circuit or from the cylinder.
5. check that the pads are correctly lubricated.

6.2 Very slow side-shifting

1. carry out all the checks in section 6.1;
2. check oil level in the lift truck tank;
3. check pad wear section 4.2.

6.3 Irregular side-shifting

1. check that there is no air in the hydraulic circuit;
2. check pads wear section 4.2.

7 WARRANTY

Bolzoni Auramo S.p.A guarantees all its products for 12 months or 2000 work hours (whichever comes first) beginning from delivery date. If the products are used for more than 8 hours per day, warranty period decreases proportionally. Warranty is limited ex works BOLZONI S.p.A. to replacement of those parts that the firm acknowledges are defective because of material or manufacturing failure and does not include labour or travelling expenses for the replacement of such parts.

It is also agreed that the warranty acknowledgement is not valid if the attachment failure is due to incorrect use of the product, if mounting instructions have not been followed, or if original parts have not been used on the BOLZONI S.p.A. attachment.

BOLZONI S.p.A. does not guarantee its products for uses that are not provided on the labels or in the service manuals.

All BOLZONI S.p.A. attachments are insured for third party injuries due to defective parts to incorrect functioning of the attachment; all the injuries caused by incorrect or inappropriate use of the attachments are excluded.

8 RECYCLING

Mobile frame	Steel
Lower hooks	Cast Iron
Pads	Nylon
Paint	Synthetic enamel
Cylinder	Steel
Hydraulic oil	Recycle according to local directives