



ATiB MATERIAL
HANDLING

USE AND MAINTENANCE MANUAL

FORK POSITIONER

TYPE 598 | 599

TABLE OF CONTENTS

FORK POSITIONER TYPE 598 | 599



**READ THIS USE AND MAINTENANCE MANUAL CAREFULLY BEFORE
COMMISSIONING THE MACHINE**

| | | |
|----------|--|-----------|
| 1 | SAFETY REGULATIONS FOR THE OPERATOR..... | 3 |
| 2 | INTRODUCTION..... | 4 |
| 2.1 | Use and Storage of the Manual..... | 4 |
| 2.2 | Equipment Description..... | 5 |
| 3 | INSTALLATION..... | 9 |
| 3.1 | Installation Procedure..... | 10 |
| 3.1.1 | Equipment Installation - TYPE 598..... | 10 |
| 3.1.2 | Equipment Installation - TYPE 599..... | 13 |
| 3.2 | Fitting the Forks – With Pockets..... | 16 |
| 3.3 | Securing the Forks..... | 17 |
| 3.3.1 | Securing the Forks - “R” Cotter Pin Version..... | 17 |
| 3.3.2 | Securing the Forks - Split Cotter Pin Version..... | 18 |
| 3.3.3 | Securing the Forks - Lower Coupling version..... | 19 |
| 4 | HYDRAULIC SYSTEM..... | 20 |
| 4.1 | Hydraulic System - TYPE 598..... | 20 |
| 4.2 | Hydraulic System - TYPE 599..... | 21 |
| 5 | RULES GOVERNING USE..... | 22 |
| 5.1 | Handling Loads..... | 25 |
| 6 | PERIODIC MAINTENANCE..... | 26 |
| 6.1 | Maintenance Every 100 Hours..... | 26 |
| 6.2 | Maintenance Every 300 Hours..... | 26 |
| 6.3 | Maintenance Every 1000 Hours..... | 27 |
| 6.4 | Maintenance Every 2000 Hours..... | 27 |
| 7 | DISASSEMBLY PROCEDURE..... | 28 |
| 7.1 | Disassembling the Equipment..... | 28 |

| | | |
|----------|---|-----------|
| 7.2 | Disassembling the forks..... | 29 |
| 7.3 | Disassembling the Pocket / Welded Forks | 30 |
| 7.4 | Removing the Sideshift Cylinder from the Equipment | 31 |
| 7.4.1 | Disassembling and Reassembling the Sideshift Cylinder | 32 |
| 7.5 | Removing the Fork Cylinders from the Equipment..... | 33 |
| 7.5.1 | Disassembling the Fork Cylinders | 34 |
| 8 | TROUBLESHOOTING | 35 |
| 8.1 | Probable Faults and Solutions..... | 35 |
| 8.2 | Lubrication | 36 |

1 SAFETY REGULATIONS FOR THE OPERATOR



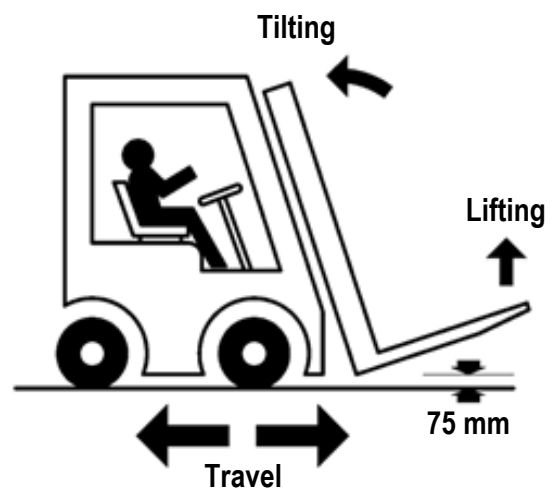
Do not transport passengers



Do not cross the upright



Do not stand under the load



2 INTRODUCTION

2.1 Use and Storage of the Manual

This "Use and Instruction Manual" (hereinafter referred to as the Manual) is issued together with the A.T.I.B. equipment. - FORK POSITIONER TYPE 598 | 599 in accordance with DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17/05/2006 and subsequent additions.

The following indications are essential for correct use of the equipment and must be brought to the attention of the personnel assigned to installation, use, maintenance and repair.

This Manual must be considered an integral part of the equipment and must be kept until it is dismantled in an accessible, protected and dry place and must be available for quick reference.

In the event of loss and/or damage, the user can request a copy from the manufacturer.

The manufacturer reserves the right to modify this manual without prior notice and without the obligation to update previously distributed copies.

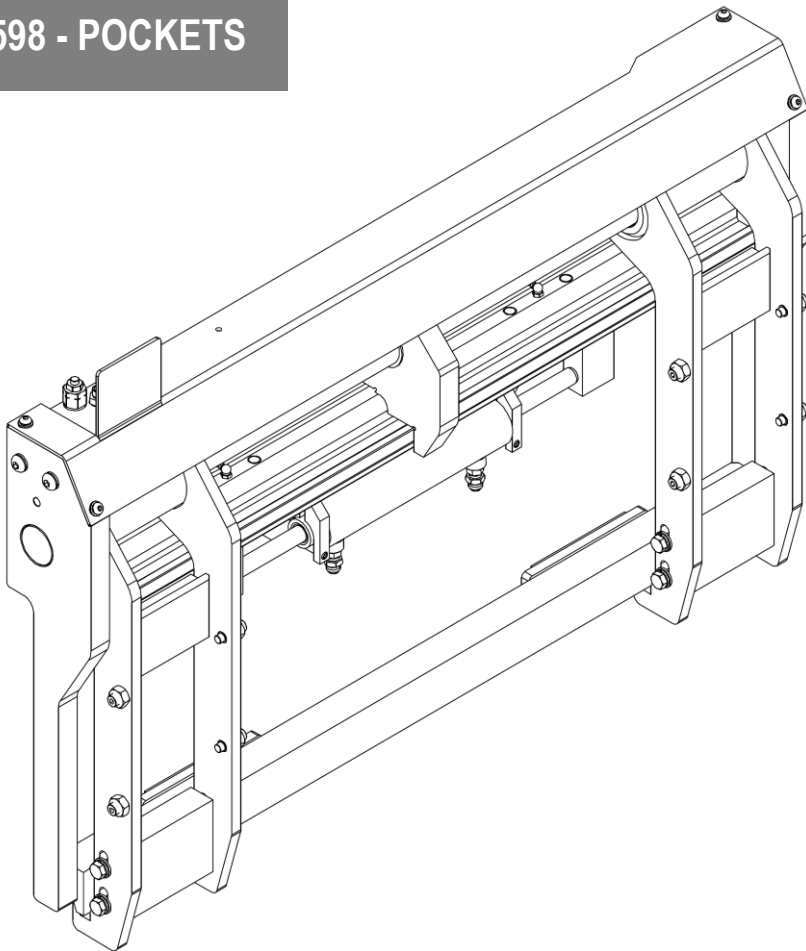
The manufacturer is exempted from any responsibility in the event of:

- Improper use of equipment;
- Use of equipment by untrained personnel;
- Use contrary to any national or international regulations;
- Inadequate scheduled maintenance;
- Unauthorised intervention or modification;
- Use of non-original and/or non-model specific spare parts;
- Full or partial non-compliance with instructions;
- Exceptional events.

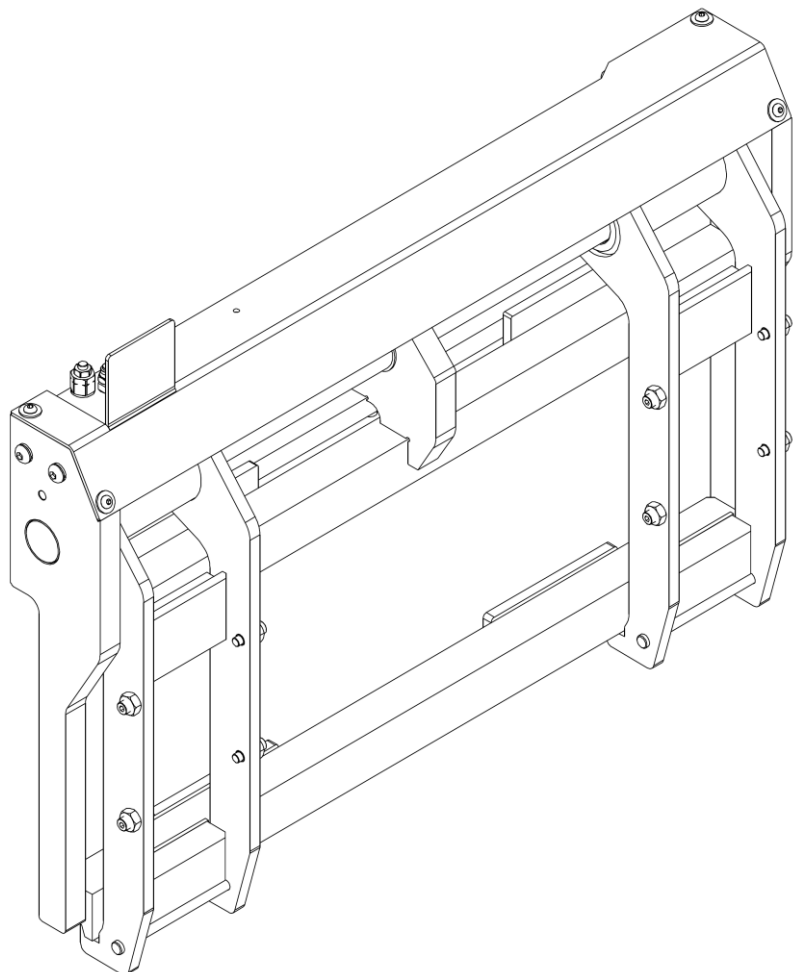
**The nominal capacity of the forklift truck/equipment combination has been set by the original manufacturer of the forklift truck and may be less than that indicated on the equipment plate.
Consult forklift truck plate (Directive 2006/42/EC).**

2.2 Equipment Description

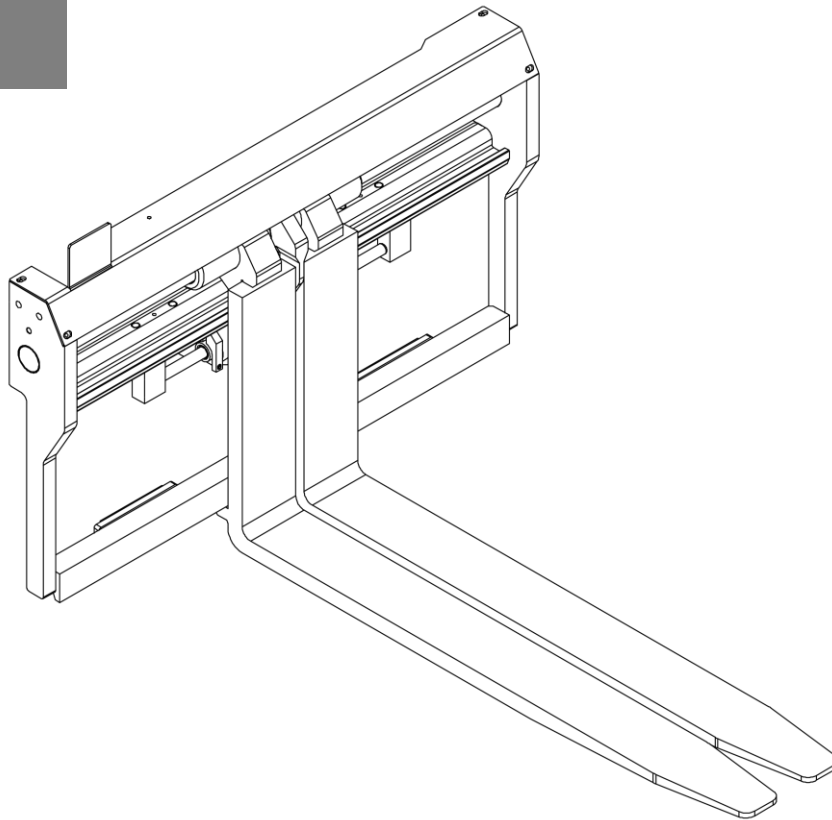
TYPE 598 - POCKETS



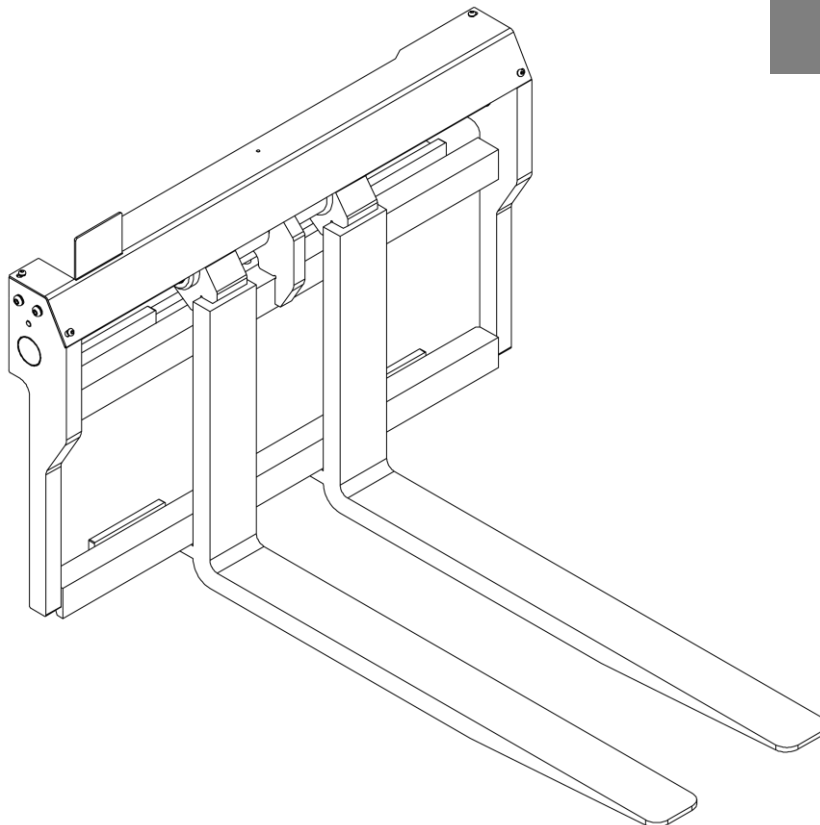
TYPE 599 - POCKETS



**TYPE 598 - WELDED
FORKS**



**TYPE 599 - WELDED
FORKS**



All the A.T.I.B. equipment – FORK POSITIONER TYPE 598 | 599 are identified by means of an adhesive plate (see *Table 1*) located on the equipment (see *Figure 1*), always refer to the serial number.

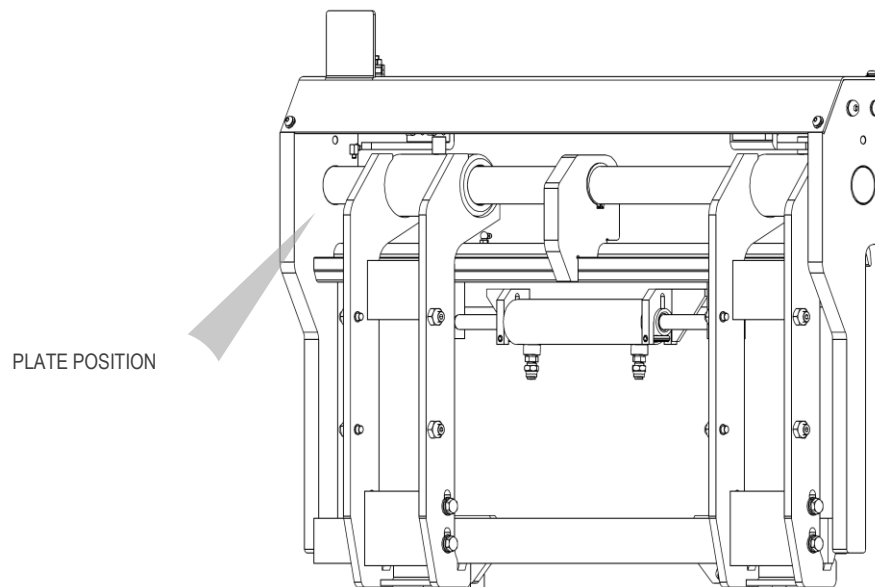


Figure 1



| | | | | |
|--|---|-------|---|--|
| 1. TIPO / TYPE | 8. PORTATA NOMINALE / NOMINAL CAPACITY | kg/mm | 11. COPPIA MAX / MAX. TORQUE | daNm |
| 2. CODICE / CODE | 9. PORTATA IN SERRAGGIO / CLAMPING CAPACITY | kg/mm |   | A.T.I.B. S.r.l. Via Quinzanese snc, 25020 Dello (BS) - ITALY +39 030 9771711 info@atib.com - atib.com |
| 3. MATRICOLA N° / SERIAL N° | | | | |
| 4. ANNO DI COSTRUZIONE / YEAR OF MANUFACTURE | 10. PRESSIONE MAX. DI ESERCIZIO / MAX. OPERATING PRESSURE | bar | | |
| 5. PESO / WEIGHT | NOTE: OSSERVARE I LIMITI DI PORTATA DELL'INSIEME CARRELLO CON ATTREZZATURA / WARNING: OBSERVE THE NOMINAL CAPACITY OF TRUCK AND ATTACHMENT COMBINED | | | |
| 6. SPESSORE / THICKNESS | | | | |
| 7. CENTRO DI GRAVITÀ / CENTER OF GRAVITY | | | | |

Table 1

1. **TYPE**
Indicates equipment model as shown in the catalogue.
2. **CODE**
Indicates the equipment ordering code.
3. **SERIAL N°**
It progressively identifies the individual equipment.
If the plate is missing or damaged, refer to the serial number, which is always stamped on the equipment.
4. **YEAR OF MANUFACTURE**
Indicates the year of manufacture.
5. **WEIGHT**
Indicates the weight of the equipment in kg.
6. **THICKNESS**
Indicates the thickness of the equipment in mm.
7. **CENTRE OF GRAVITY**
Indicates the distance in mm of the CG centre of gravity of the equipment from the support plane of the fork-holder plate.
8. **NOMINAL CAPACITY**
Indicates the maximum load applicable to the lifting equipment and the maximum centre of gravity of the load itself.
9. **CLAMPING CAPACITY**
Not applicable to this equipment.
10. **MAX. OPERATING PRESSURE**
Indicates the maximum pressure expressed in bar at which the equipment can work.
11. **MAX. TORQUE**
Not applicable to this equipment.

The A.T.I.B. equipment - FORK POSITIONER TYPE 598 | 599 has been conceived, designed and manufactured to allow continuous, synchronised motion of the forks.

The equipment is able to perform the following functions:

- **SISS (SEMI-INTEGRAL SIDESHIFT):** semi-integral sideshift motion between the parts attached to the fork carriage and those attached to the lifting equipment is carried out by means of a hydraulic cylinder (598);
- **Fork centre distance adjustment:** the relative motion of adjusting the fork centre distance is achieved by means of two hydraulic cylinders that act directly on the forks themselves or on their pockets.

This equipment must be fitted between the truck's fork carriage and the forks, connected via two hydraulic circuits to the distributor.

Fork carriage coupling components are manufactured in accordance with ISO 2328.

3 INSTALLATION

Checking the Nominal Capacity of the Equipment

To check the nominal capacity of the equipment, refer to the equipment plate (See *Table 1* on page 7).



Ensure that the driver of the forklift truck is aware of the maximum capacity of the equipment so that they do NOT constitute a hazard to themselves or to persons working in proximity.

The forklift truck manufacturer is responsible for calculating the residual load capacity of the truck/equipment combination.

Checking the Operating Pressure and Oil Flow Rate

A.T.I.B. recommends observing the hydraulic flow rates and operating pressures provided in *Table 2*, to optimise operation of the equipment and avoid issues during work or commissioning. Values are for indicative purposes only and may vary depending on the equipment.

| TYPE and ISO | FLOW RATE (l/min) | | | Operating pressure Maximum (Bar) |
|--------------|-------------------|---------|-------------|-------------------------------------|
| | minimum | maximum | recommended | |
| 598 ISO II | 5 | 15 | 10 | 110 |
| 598 ISO III | 10 | 20 | 15 | 110 |
| 598 ISO IV | 10 | 20 | 15 | 110 |
| 599 ISO II | 5 | 15 | 10 | 110 |
| 599 ISO III | 10 | 20 | 15 | 110 |
| 599 ISO IV | 10 | 20 | 10 | 110 |

Table 2



OBSERVE THE INDICATED MAXIMUM OPERATING PRESSURES

3.1 Installation Procedure

3.1.1 Equipment Installation - TYPE 598

TYPE 598

1. Prior to installation, check the condition of the fork carriage, ensuring that the lower profile is smooth which may otherwise affect the sliding of the lower pads.
2. In addition, ensure that the fork carriage profiles are not deformed in order to facilitate good coupling with the sideshift equipment.
3. Check the condition of the pipes, replacing those in a poor condition.
4. Obtain dual coupling **A** (with the associated cylinder) and position it on the upper profile of the fork carriage, taking care to engage the centring pin **B** in its central notch (see *Figure 2*).

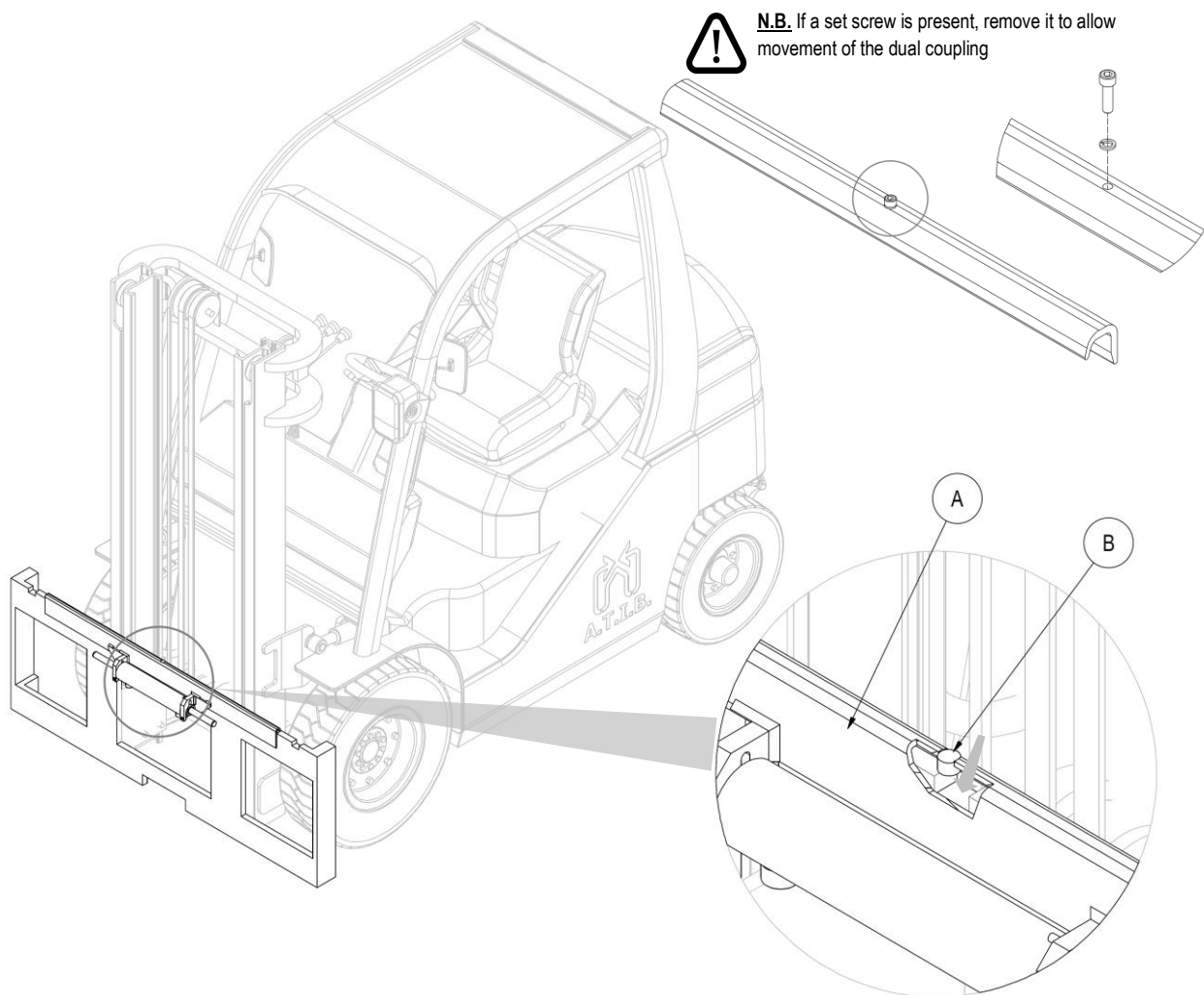


Figure 2

- Remove the lower couplings from the equipment and grease the gibs (see *Figure 3*).

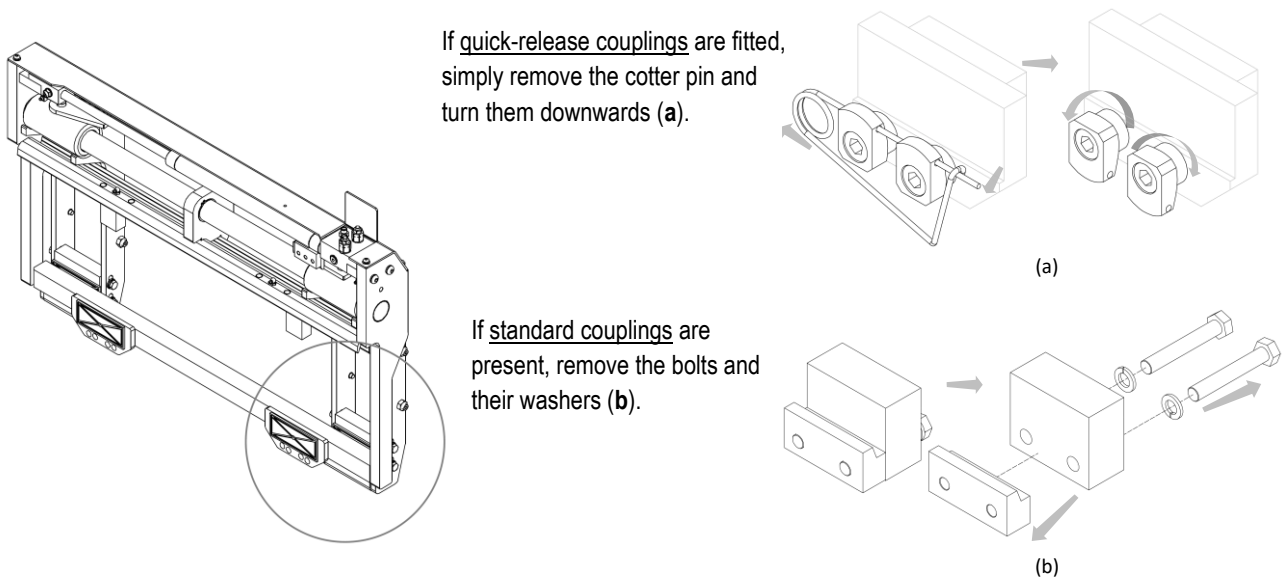


Figure 3

- Only swivel eyebolts can be used for handling, which must be screwed into the holes provided on the sides (see detail *Figure 4*).
For this purpose, straps or chains must be used that are suitably sized for the weight of the equipment as indicated on the plate (see *Figure 1* and *Table 1* on page 7).
- Hook on the equipment by the eyebolts and use an overhead crane or hoist of sufficient capacity to place it on the double coupling, taking care to position it correctly (see *Figure 4*).

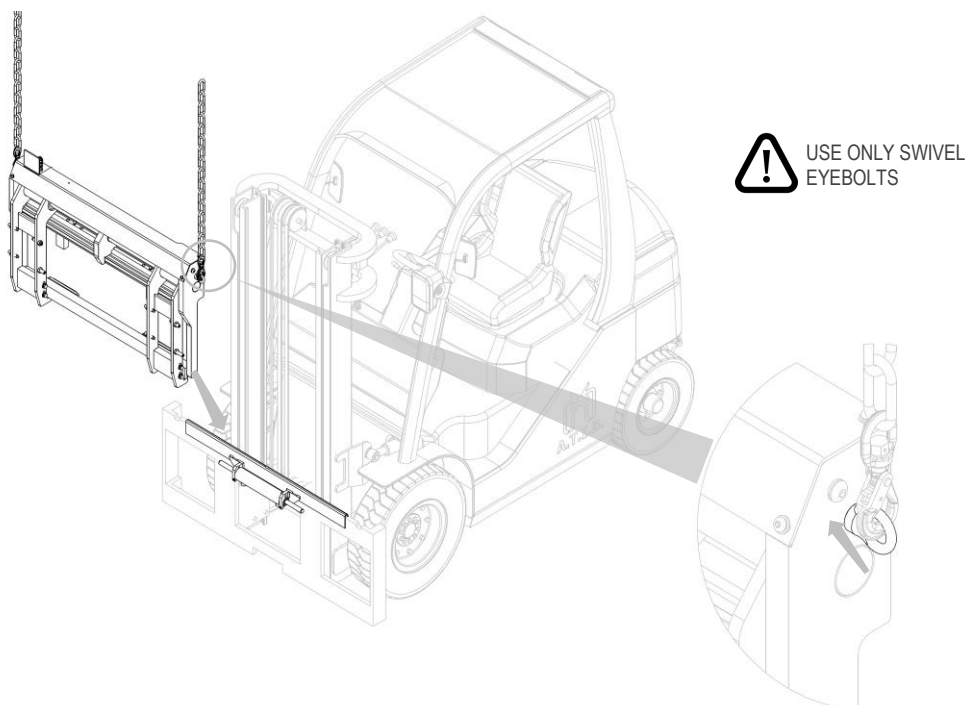


Figure 4

8. Screw on the 2 lower couplings **G** in such a way that their bodies also remains coupled to the lower part of the fork carriage **P** (with max. clearance of 1.5 mm, see *Figure 5*), tightening with the torque indicated in *Table 3*.

| CLASS | THREAD | TIGHTENING TORQUE |
|---------|--------|-------------------|
| ISO II | M12 | 90 Nm |
| ISO III | M14 | 140 Nm |
| ISO IV | M16 | 220 Nm |

Table 3

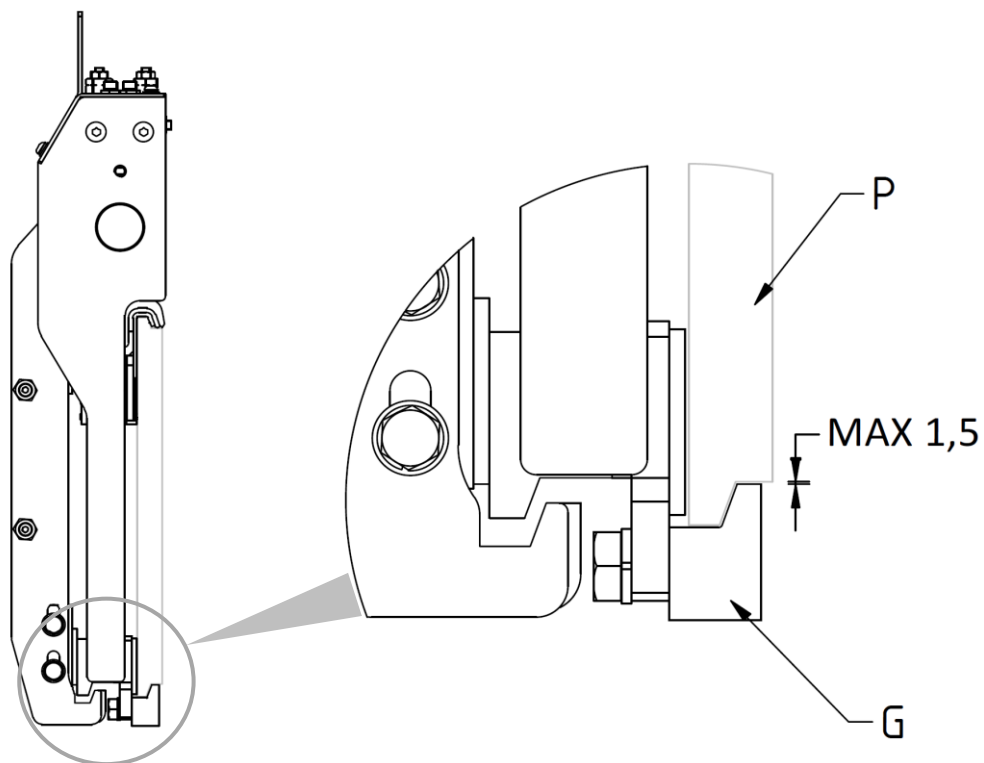


Figure 5

9. Lubricate contact surfaces.
10. Fit the forks.
11. Connect the hydraulic circuit, ensuring that the operating pressure of the lines is greater than or equal to that indicated on the rating plate (see *Figure 1* and *Table 1* on page 7).

3.1.2 Equipment Installation - TYPE 599

TYPE 599

1. Prior to installation, check the condition of the fork carriage, ensuring that the lower profile is smooth.
2. Also make sure that the profiles of the fork-holder plate are not deformed, in order to ensure good coupling with the equipment.
3. Check the condition of the pipes, replacing those in a poor condition.
4. Remove the lower couplings from the equipment (see *Figure 6*).

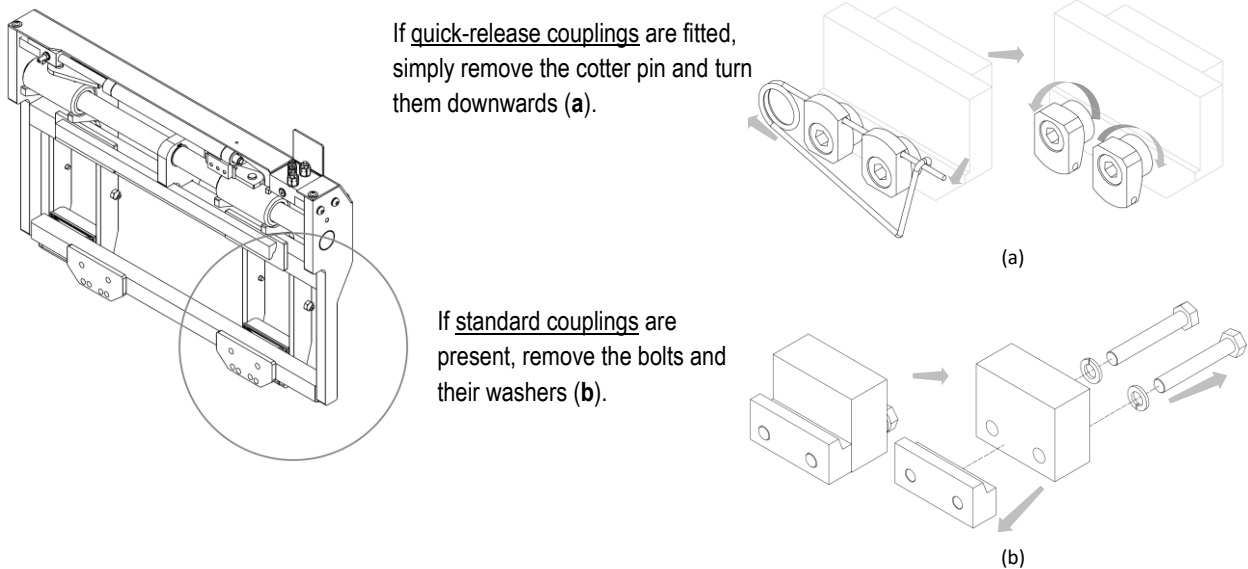


Figure 6

5. Only swivel eyebolts can be used for handling, which must be screwed into the holes provided on the sides (see detail *Figure 7*).
For this purpose, straps or chains must be used that are suitably sized for the weight of the equipment as indicated on the plate (see *Figure 1* and *Table 1* on page 7).

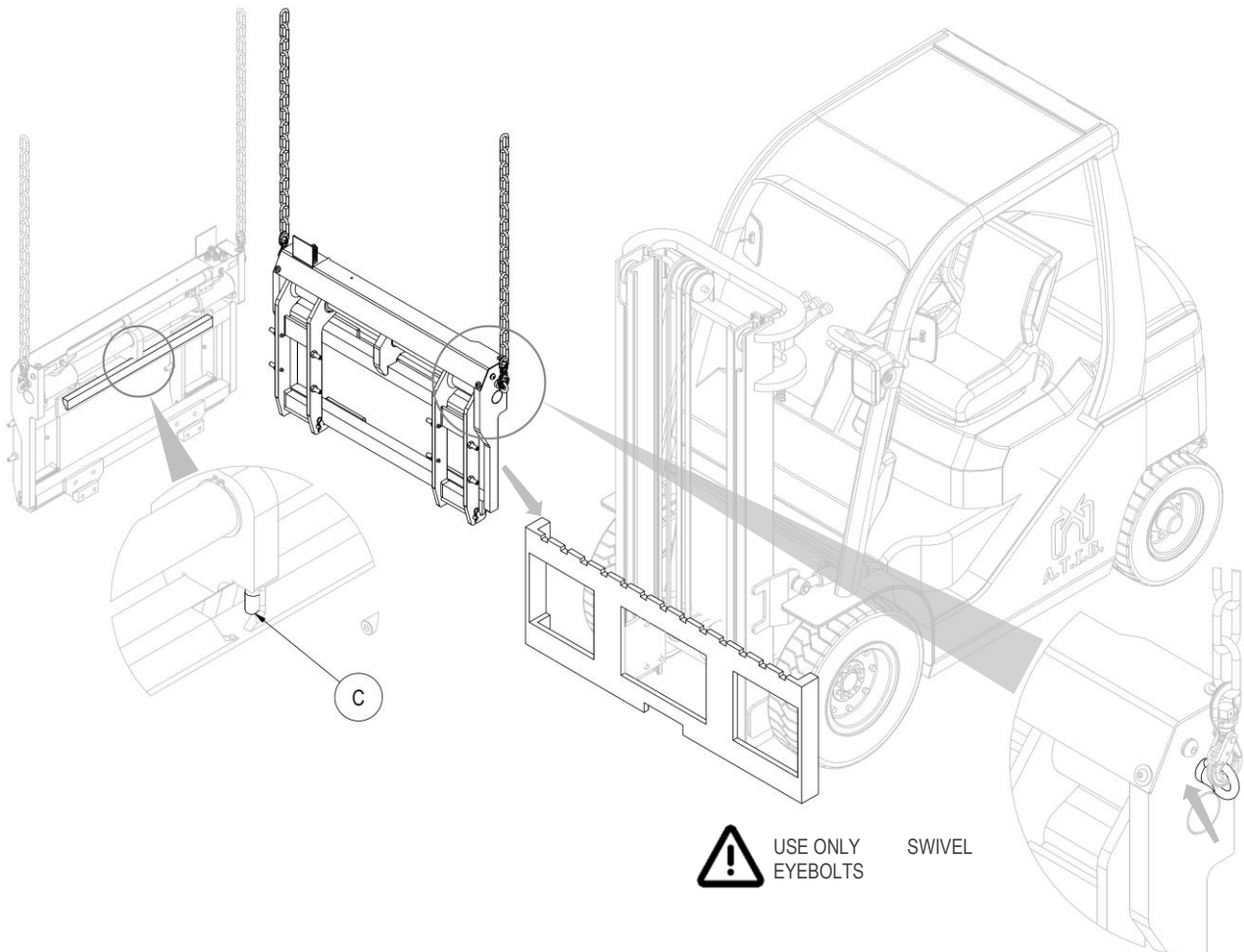


Figure 7

6. Then hook on the equipment by the eyebolts and use an overhead crane or hoist of sufficient capacity to position it on the fork carriage, taking care to fit the centring pin. **C** in its central notch (see detail *Figure 7*).

7. Screw on the 2 lower couplings **G** in such a way that their bodies also remains coupled to the lower part of the fork carriage **P** (with max. clearance of 1.5 mm, see *Figure 8*), tightening with the torque indicated in *Table 4*.

| CLASS | THREAD | TIGHTENING TORQUE |
|---------|--------|-------------------|
| ISO II | M12 | 90 Nm |
| ISO III | M14 | 140 Nm |
| ISO IV | M16 | 220 Nm |

Table 4

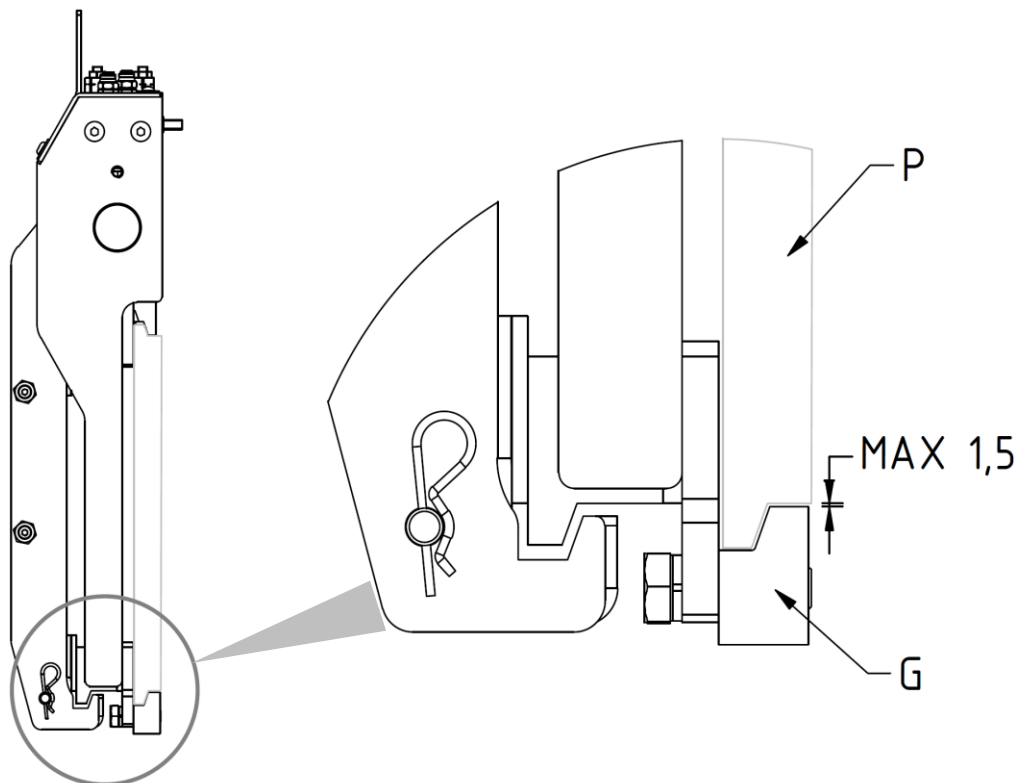


Figure 8

8. Lubricate contact surfaces.
9. Fit the forks.
10. Connect the hydraulic circuit, ensuring that the operating pressure of the lines is greater than or equal to that indicated on the rating plate (see *Figure 1* and *Table 1* on page 7).

3.2 Fitting the Forks – With Pockets

1. Attach the forks, after unscrewing the fork stops on the pockets and removing the lower pins (see Point Securing the Forks) that secure the forks (see Figure 9).

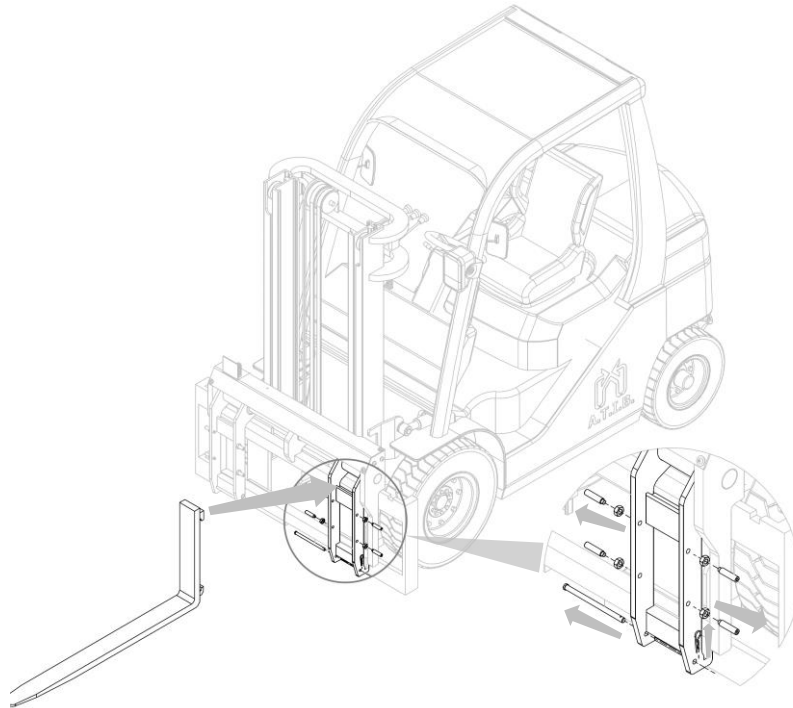


Figure 9

2. Insert the forks, tighten the fork stops on the side of the pockets and reposition the lower pins (see Point Securing the Forks) that secure the forks (see Figure 10).

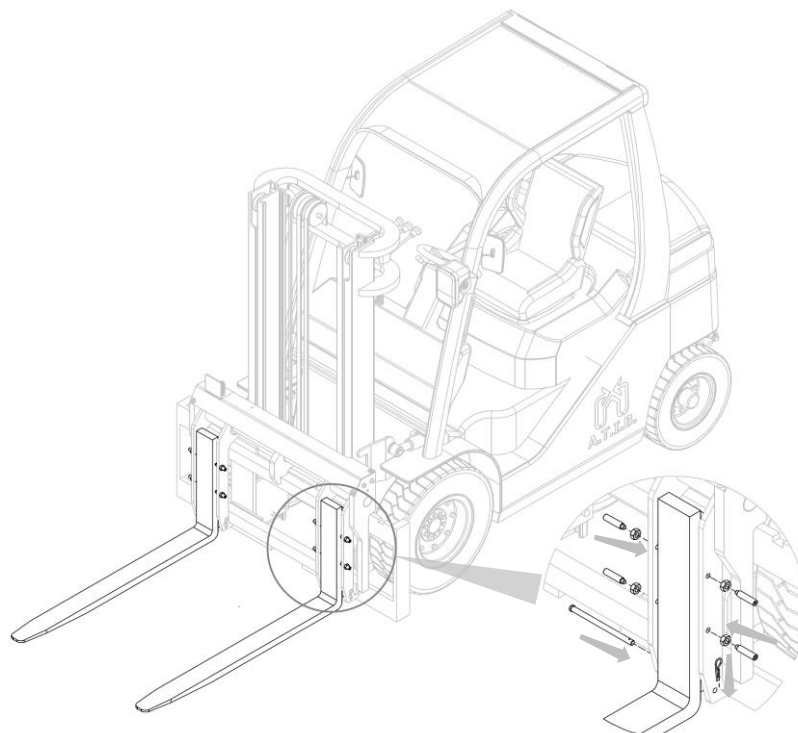


Figure 10

3.3 Securing the Forks

3.3.1 Securing the Forks - "R" Cotter Pin Version

R COTTER PIN

1. Insert the fastening pins of the lower fork couplings and check that fork coupling is locked by the pin itself (see *Figure 11, a*).
2. Insert the safety cotter pin into the hole in the pin and ensure that it is secure (see *Figure 11 ,b*).
3. Repeat the procedure for the other fork.
4. Check that the safety cotter pins are present on both forks and correctly positioned before beginning handling operations (see *Figure 11, c*).

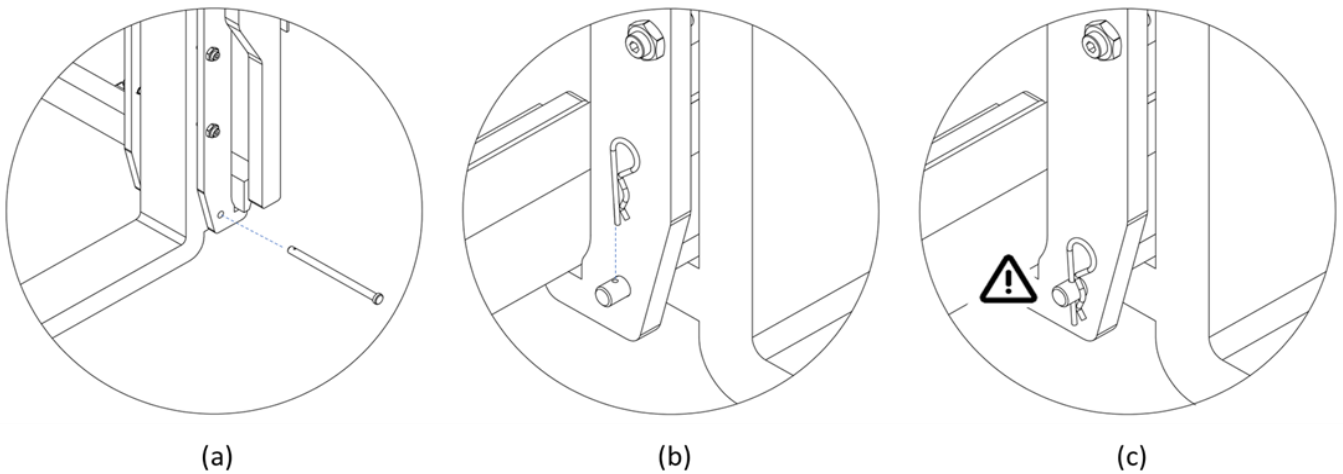


Figure 11

3.3.2 Securing the Forks - Split Cotter Pin Version

SPLIT COTTER PIN

1. Insert the fastening pins of the lower fork couplings and check that fork coupling is locked by the pin itself (see *Figure 12, a*).
2. Insert the safety cotter pin into the holes on both sides of the pin (see *Figure 12, b*).
3. Using pliers, bend one of the 2 sides of both cotter pins and ensure that they cannot escape (*Figure 12, c*).
4. Repeat the procedure for the other fork.

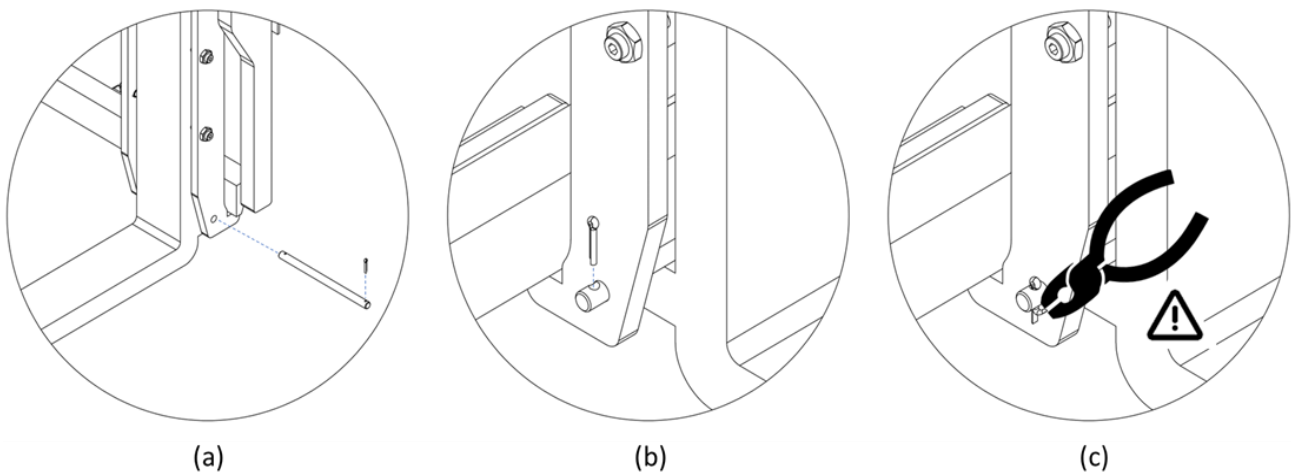


Figure 12

3.3.3 Securing the Forks - Lower Coupling version

LOWER COUPLING

1. Loosen the side bolts of the lower fork coupling so that it can be moved to the upper extremity of the slot. Keep it in this position until the fork is fitted (see *Figure 13, a*).
2. Position the fork (see *Figure 13, b*).
3. Return the coupling to its original position and tighten the bolts that secure it in place (see *Figure 13, c*).
4. Repeat the procedure for the other fork.

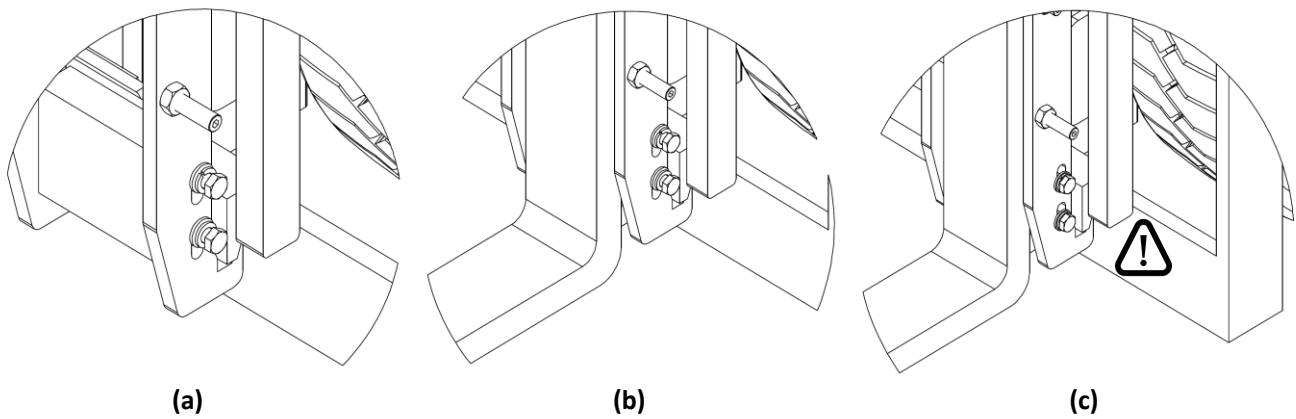


Figure 13

4 HYDRAULIC SYSTEM

4.1 Hydraulic System - TYPE 598

TYPE 598

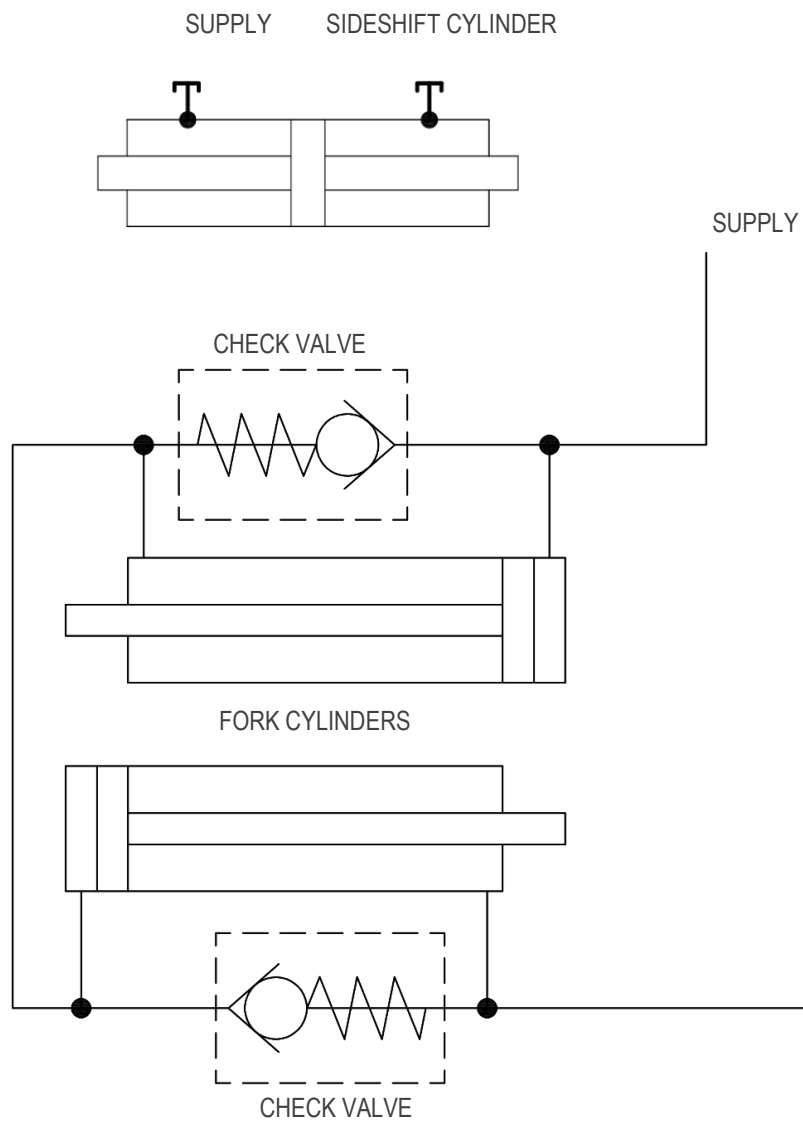


Figure 14

4.2 Hydraulic System - TYPE 599

TYPE 599

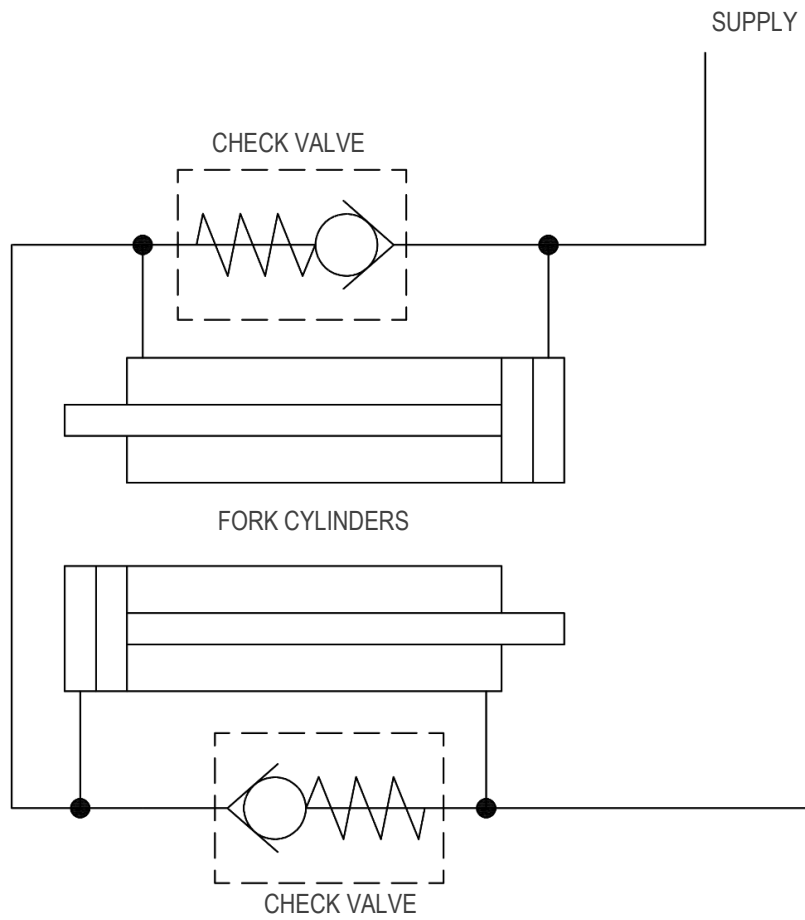


Figure 15

5 RULES GOVERNING USE

Before using the equipment, check the tightness of the piping and the correctness of assembly and also the connection by performing a dozen preliminary operations.

The following instructions must be followed when using the equipment:

1. Observe the capacity limits of the equipment.
2. Do not operate the equipment when persons or animals are within range of the forklift truck.
3. Do not attempt to lift loads by clamping them between the two forks.
4. Do not attempt to move loads sideways by dragging them across the floor.
5. Do not exceed the maximum pressure indicated on the rating plate.
6. Operate the equipment from the forklift truck driver's seat using only a single operator.
7. Operate the control lever gently, avoiding water hammer as far as possible.
8. All operations relating to installation, use and maintenance must be carried out by specialist personnel using suitable equipment for the type of work to be carried out.
9. Carry out maintenance and/or repairs with the forklift truck stationary and the hydraulic circuit inactive, using appropriate means of protection (gloves, safety shoes, etc.).
10. Only operate cylinder rods when they are correctly fitted on the equipment;
The rods may otherwise be ejected at great speed by the elevated oil pressures.

The weighted sound pressure level is less than 70 dB (A).

If the equipment is subject to slight errors in the synchronisation of movement between the two forks, operator intervention is required to nullify the displacement differences, which will increment over time.

The operator simply needs to hold one of the two forks at the end of the opening or closing stroke for the time required for the other fork to recoup the accumulated difference in displacement.

All A.T.I.B. equipment is designed and manufactured with a load positioned (with respect to its centre of gravity) at a certain distance from the vertical plane of the fork.

If the distance of the centre of gravity from the vertical part of the fork needs to be increased, the weight of the load must be reduced.

In this case, consult the chart shown in *Figure 16* where, as the distance from the centre of gravity increases (x-axis line), a multiplicative factor is included for load reduction purposes (y-axis line).

The multiplicative factor, obtained on the basis of the desired centre of gravity position, will be multiplied with the nominal capacity of the equipment. The product of this multiplication will be the actual transportable load.

The continuous line is to be considered for equipment declared with a 500mm centre of gravity load.

The dashed line is to be used for equipment declared with a 600mm centre of gravity load.

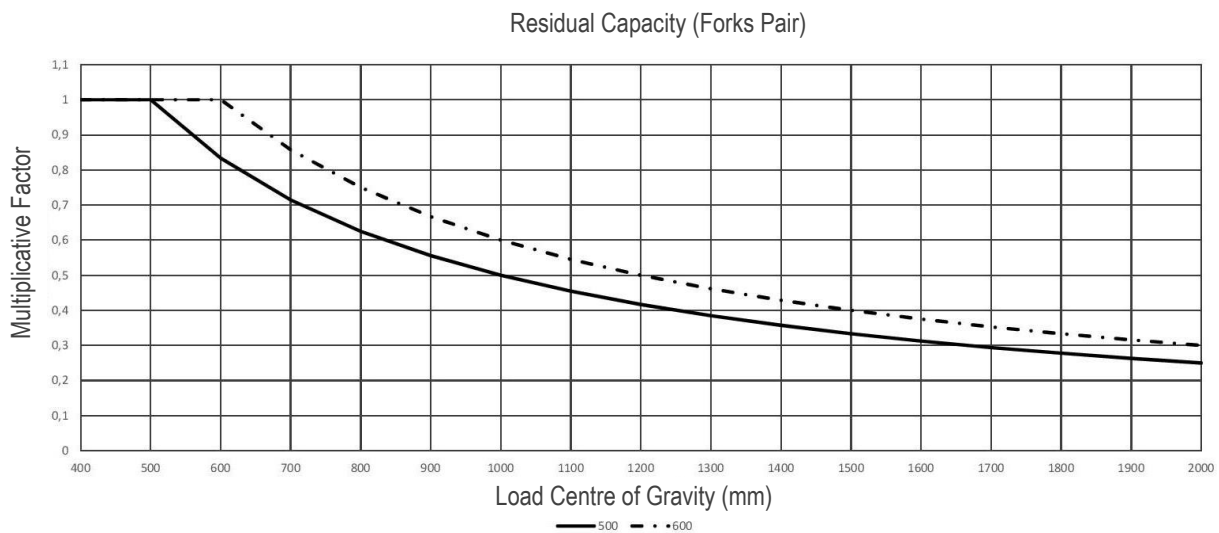


Figure 16

NOTE: calculations are valid only for “stable” loads. Contact the manufacturer for transporting liquid containers.



The attainable sideshift may compromise the stability of the forklift truck.



It is advisable to consult the manufacturer of the forklift truck to check the residual capacity of the forklift truck-equipment assembly.



The condition of the road surface, the speed at which the load is handled and the elevation may all affect the load's grip, which must be taken into account on a case-by-case basis.



Displacing the load whilst in motion is prohibited.
Handling the load with the mast raised off the ground is only permitted when returning the load to the centre of the mast.

The nominal capacity of the forklift truck/equipment combination is established by the original manufacturer of the forklift truck and may be less than that indicated on the equipment plate.

Consult forklift truck plate (Directive 2006/42/EC).

5.1 Handling Loads

The minimum transportable dimensions must be larger than the minimum opening. Depending on the load to be transported, this difference may vary and must be evaluated on a case by case basis by the operator.



Avoid handling and/or sideshift of the forklift truck/equipment with a load that is excessively high off the ground, as this may affect its stability.



Avoid displacing/handling unstable loads.



Avoid displacing/handling loads.

6 PERIODIC MAINTENANCE

Failure to comply with the rules and intervals established for maintenance will compromise the correct operation of the equipment and will void the conditions of the warranty.

All maintenance operations must be carried out with the forklift truck stationary and the hydraulic circuit disconnected and depressurised. The entire maintenance area must be barricaded using regulation protection devices and, if the cylinders require disassembly, a tray or container must be provided to catch the oil present in the cylinder.

To prevent issues when using the equipment, A.T.I.B. recommends changing the hydraulic oil and filters regularly and keeping the system as clean as possible during maintenance operations.

ATTENTION

Hydraulic parts may be very hot. Use suitable protective equipment.

Watch out for leakage. High-pressure oil can injure eyes and skin. Wear protective eyewear that includes side shields.

Do not remove valves, lines or other potentially pressurised parts when this is active.

6.1 Maintenance Every 100 Hours

1. Check the condition of the hydraulic connections (lines and fittings), replacing worn parts if necessary.
2. Check tightening torque of the bolts of the lower retaining couplings of the equipment, ensuring that it is as indicated in *Table 3* (page 12) and in *Table 4* (page 15) and, if necessary, adjust the bolts holding them in place.
3. Check clearance between the lower part of the fork carriage and the lower equipment couplings, ensuring that it is as shown in *Figure 5* (page 12) and in *Figure 8* (page 15) and, if necessary, adjust the bolts holding them in place.
4. Check that the fork locking bolts are correctly tightened. If necessary, tighten.
5. Clean and lubricate all sliding parts (see *Figure 25* on page 36).

6.2 Maintenance Every 300 Hours

1. Check condition of bushes and sliding gibs. If excessively worn component are detected, A.T.I.B. recommends replacing the entire component assembly in question.
2. Carry out the additional operations listed in the previous point (Point 6.1).

6.3 Maintenance Every 1000 Hours

1. Check condition of bushes and sliding gibs. If excessively worn component are detected, A.T.I.B. recommends replacing the entire component assembly in question.
2. Check condition of sliding axis, ensuring that it is not scratched or deformed in any way.
3. Carry out the additional operations listed in the previous points (Points 6.1 and 6.2).

6.4 Maintenance Every 2000 Hours

1. Carry out a thorough inspection of the equipment. If possible, this should be carried out by qualified personnel who are able to identify any issues that may compromise the safety and efficiency of the equipment. There may be a number of defects, such as the following:
 - Check condition of all equipment components (cylinders, couplings, seals, fittings, grease nipples, etc.) to ensure that they are in good condition and replace any worn parts.
 - Check condition of sliding and working surfaces and replace if damaged.

For further potential issues (and their solutions), refer additionally to *Table 5* on page 35

2. Disassemble cylinders and check condition of piston rods and seals. If a damaged or excessively worn seal is detected, it is always advisable to replace the entire seal assembly.
3. Replace seals in the event of oil leakage and replace rods if they are scratched (cylinders should always be tested when inserted into the equipment to prevent sudden ejection of rods).
4. Carry out the additional operations listed in the previous points (Points 6.1, 6.2 and 6.3).

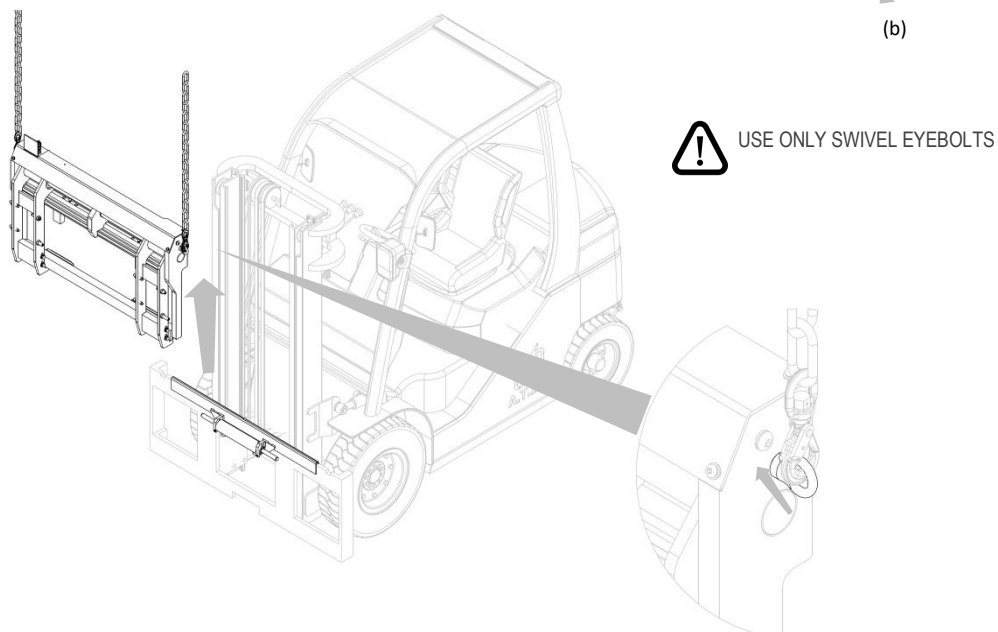
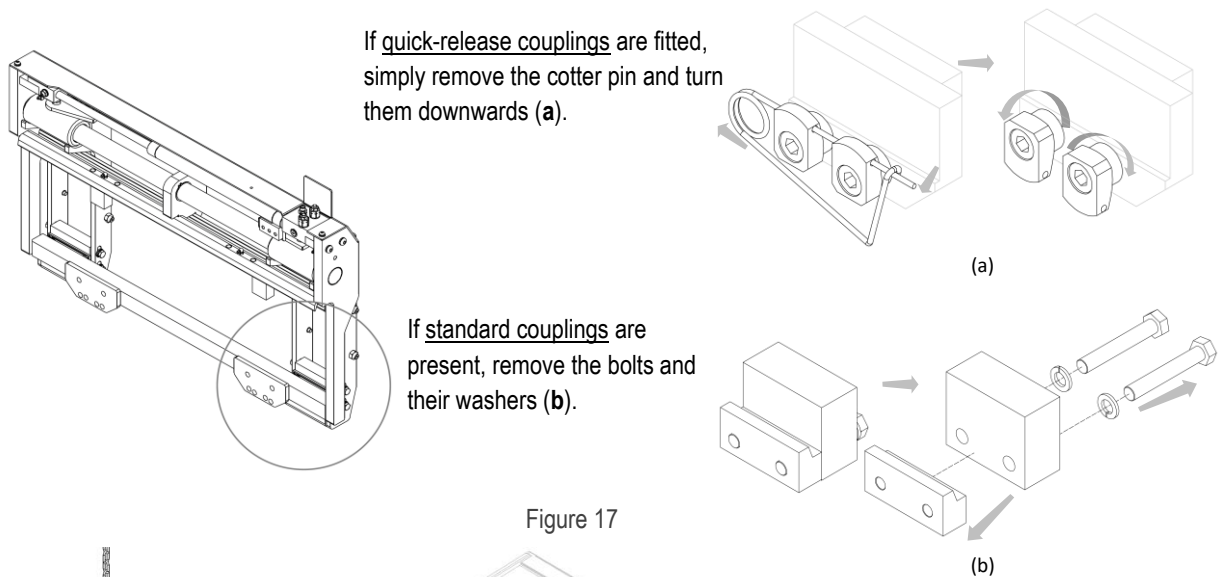
N.B. Reduce intervals in the event of use under particularly harsh conditions

7 DISASSEMBLY PROCEDURE

All maintenance operations must be carried out with the forklift truck stationary and the hydraulic circuit disconnected and depressurised. The entire maintenance area must be barricaded using regulation protection devices and, if the cylinders require disassembly, a tray or container must be provided to catch the oil present in the cylinder.

7.1 Disassembling the Equipment

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Remove lower couplings from the assembly (see Figure 17).
3. Only swivel eyebolts can be used for handling, which must be screwed into the holes provided on the sides (see detail Figure 18);
For this purpose, appropriately sized straps/chains must be used based on the weight of the equipment indicated on the plate.
4. Then lift the equipment and remove it from the forklift truck (see Figure 18).



7.2 Disassembling the forks

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Remove the forks after unscrewing the fork stops and removing the lower pins (see *Figure 19*).

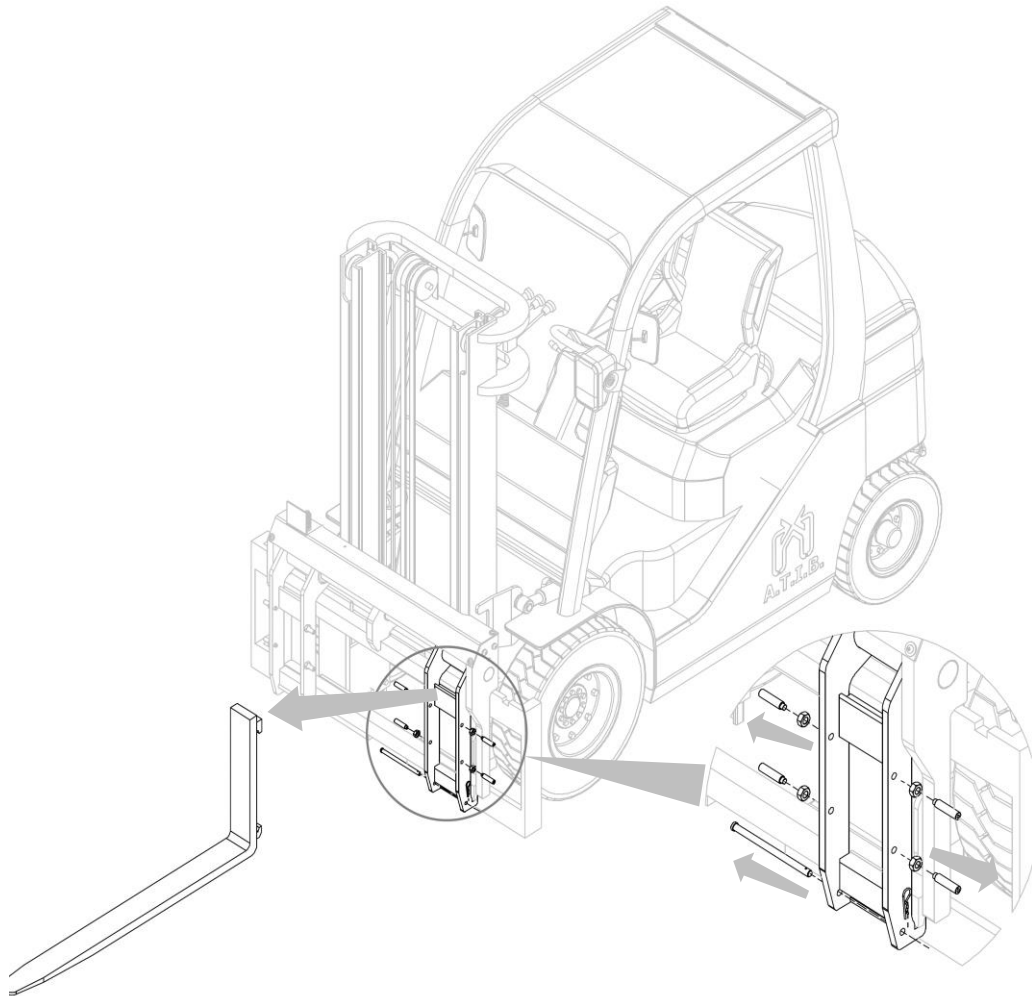


Figure 19

7.3 Disassembling the Pocket / Welded Forks

1. Open the forks fully.
2. Release the pressure from the hydraulic system and disconnect the lines.
3. Remove bolts **A** and plate **B**.
4. Remove snap rings **C** that secure the cylinders.
5. Remove/extract the cylinders.
6. Loosen snap ring **D** that secures the bar and remove it from its housing, positioning it at a sufficient distance to be able to remove the pocket on the same side (see *Figure 20*).
7. Using a rubber mallet, gently drive out bar **E** (see *Figure 20*).
8. Carefully remove pocket **F** (see *Figure 20*).
9. Repeat the procedure for the other pocket.

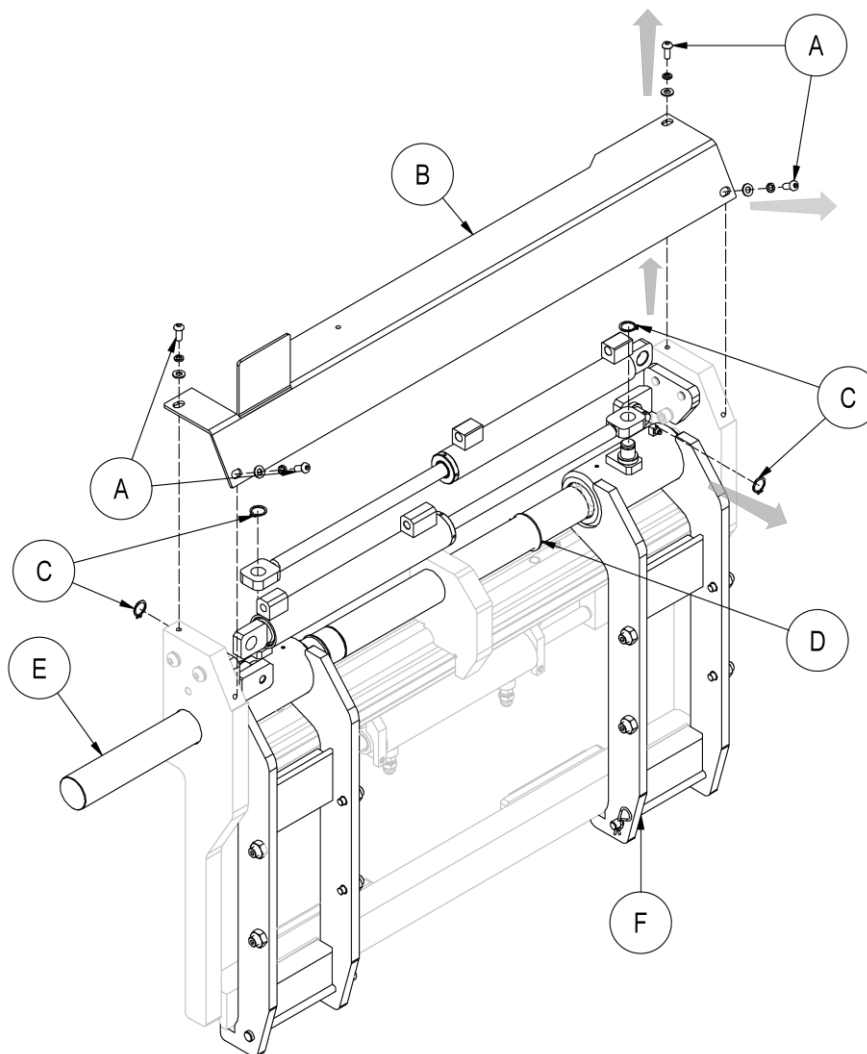


Figure 20

7.4 Removing the Sideshift Cylinder from the Equipment

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Remove spring pins **A** and remove the cylinder from its housing (see *Figure 21*).
N.B. Bolts or washers may be present to secure the cylinder.

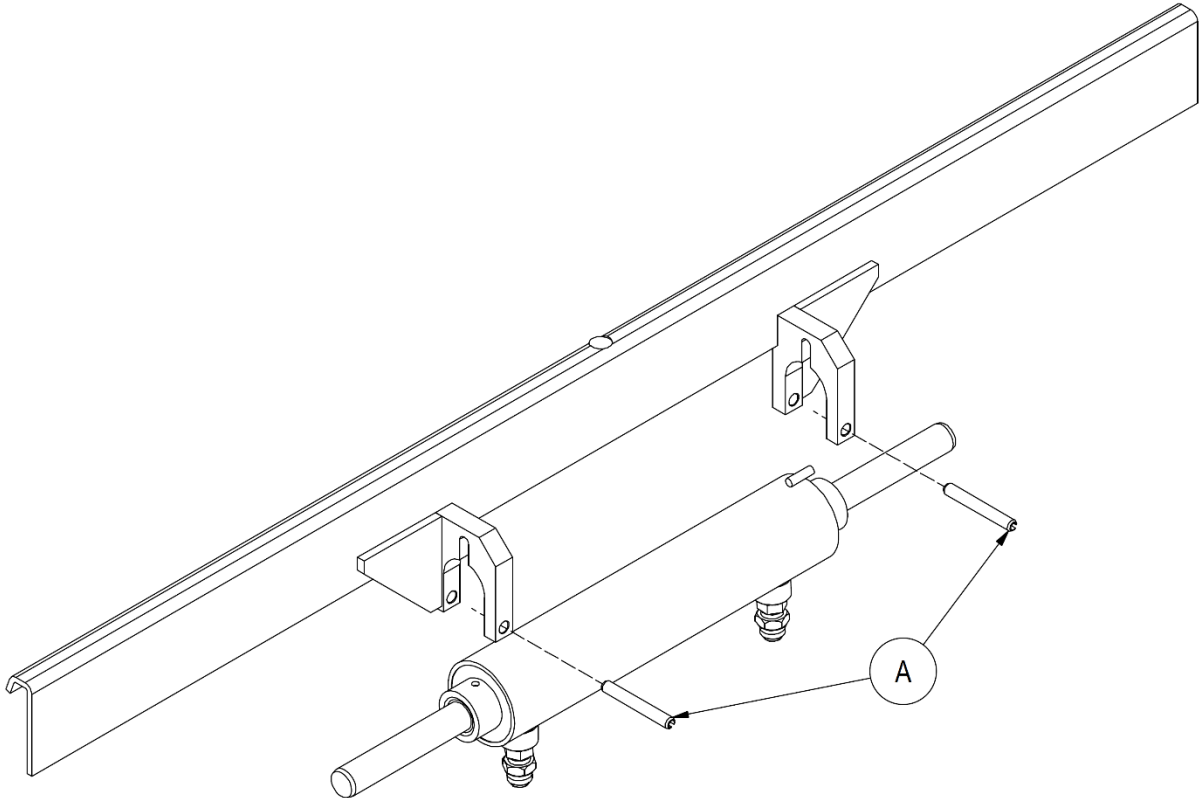


Figure 21

7.4.1 Disassembling and Reassembling the Sideshift Cylinder

If the entire cylinder needs to be replaced, reassemble following the instructions listed in reverse order. If any cylinder components need to be replaced, proceed as indicated below:

1. Clamp the cylinder body in a vice using soft jaws (taking care not to deform the liner).
2. If only the rods need to be replaced, simply remove them from the cylinder cap.
z
3. Use a C-hook spanner to remove the cap.
4. If the cap will not unscrew, slightly heat the area of the thread in question to facilitate unscrewing.
5. Replace damaged parts and reassemble by repeating the above steps in reverse order, taking care to relock the cylinder cap using medium strength threadlocker.
6. If a damaged seal is found, it is advisable to replace the entire seal assembly.

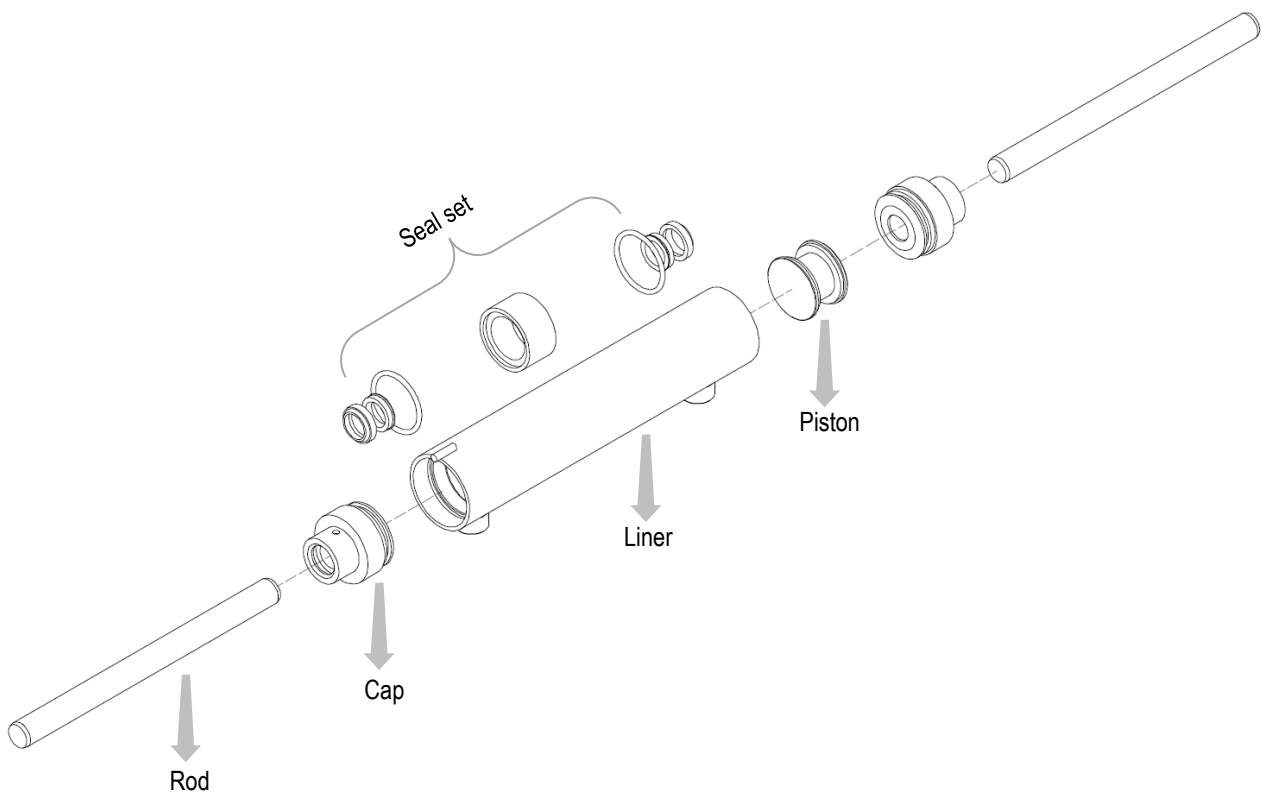


Figure 22

7.5 Removing the Fork Cylinders from the Equipment

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Remove bolts **A** and plate **B**.
3. Remove snap rings **C** that secure the cylinders.
4. Remove/extract the cylinders.
5. Use *Figure 23* as a guide.

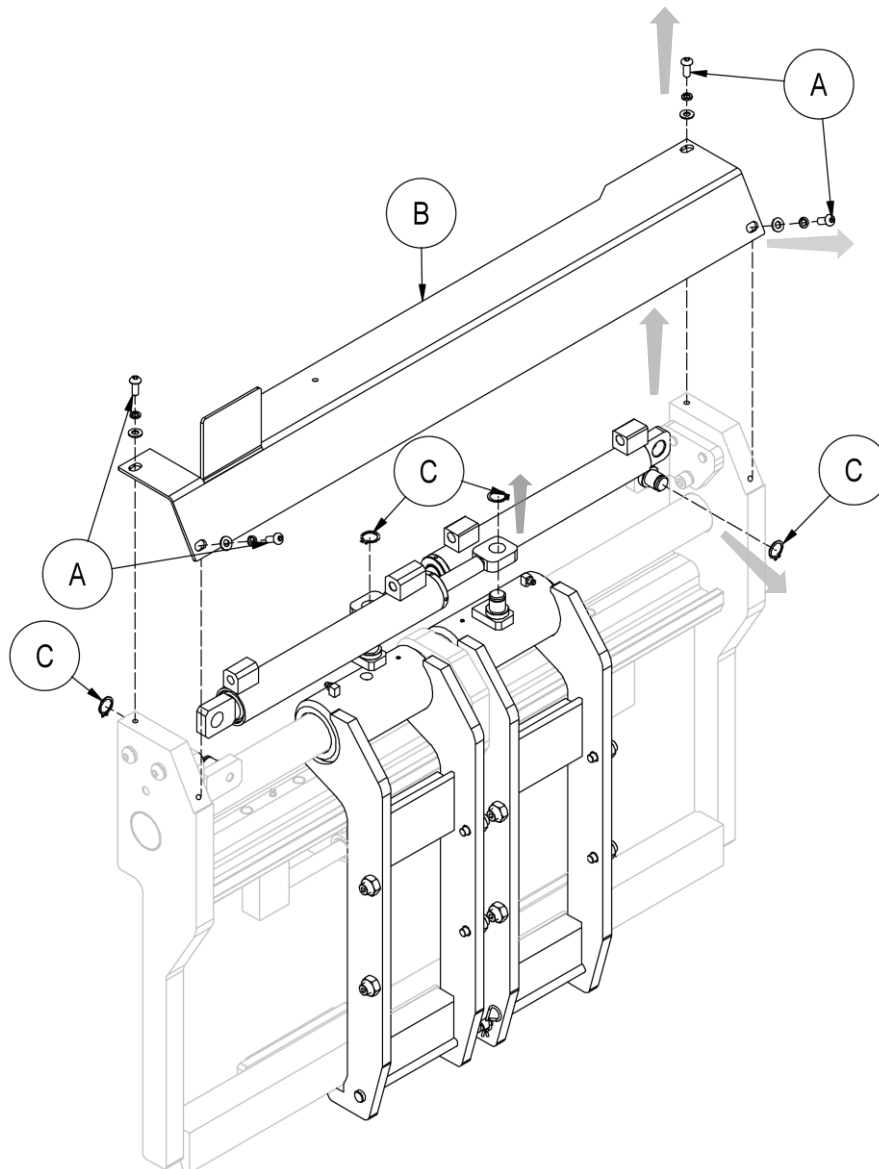


Figure 23

7.5.1 Disassembling the Fork Cylinders

If the entire cylinder needs to be replaced, reassemble following the instructions listed in the previous point. If any cylinder components need to be replaced, proceed as indicated below:

1. Clamp the cylinder body in a vice using soft jaws (taking care not to deform the liner).
2. Use a C-hook spanner to remove cap **T**.
3. If the cap will not unscrew, slightly heat the area of the thread in question to facilitate unscrewing.
4. Unscrew rod **S**.
5. Disassemble/separate the rest of the components and seals (this will be easy and rather intuitive at this stage).
6. Replace damaged parts and reassemble by repeating the above steps in reverse order, taking care to relock the cylinder cap using medium strength threadlocker.
7. If a damaged seal is found, it is advisable to replace the entire seal assembly.
8. Use *Figure 24 as a guide*.

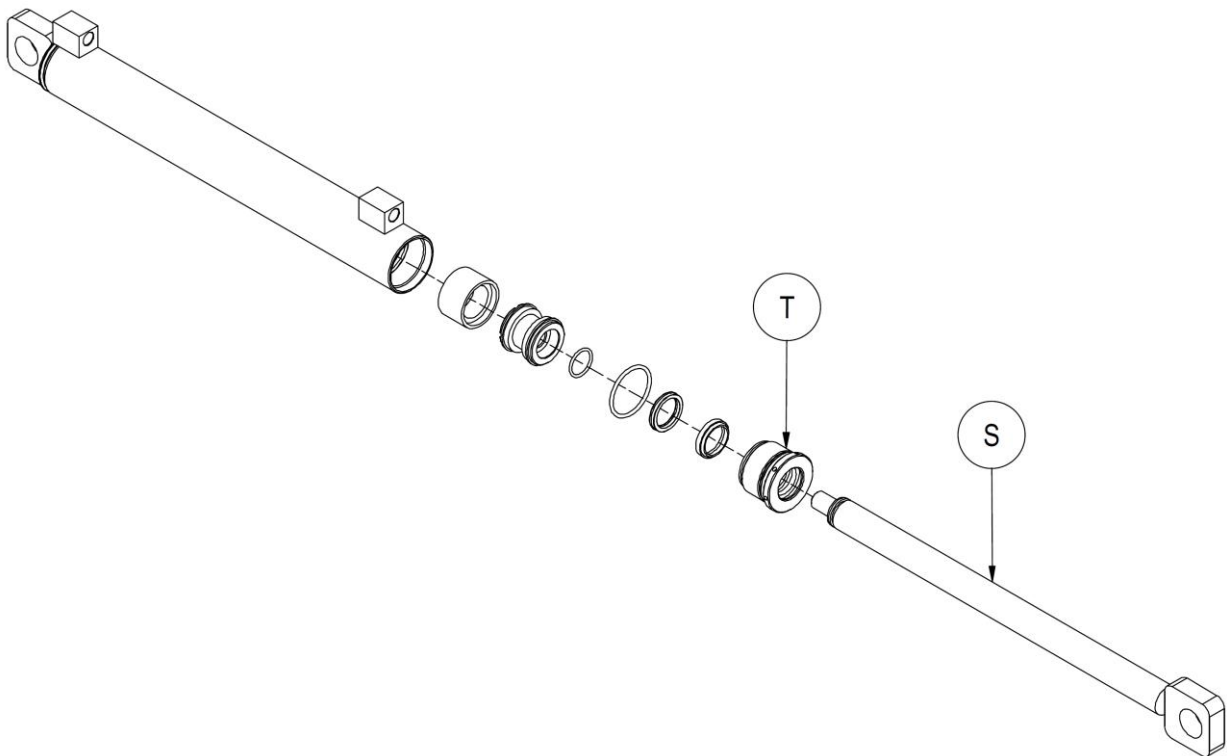


Figure 24

8 TROUBLESHOOTING

8.1 Probable Faults and Solutions

| FAULT | CAUSE | SOLUTION |
|--------------------------|---|--|
| Insufficient force | Calibration of the maximum pressure valve too low | Increase the pressure without exceeding the maximum limit |
| | Insufficient pressure | Contact the forklift truck manufacturer |
| | Worn pump | Replace it |
| | Worn cylinder seals | Replace them |
| Pressure drop | No oil in the tank | Fill up |
| | Oil leakage through pipes and fittings | Tighten the fittings or replace them |
| Slow opening and closing | Oil leakage from the cylinders | Replace the seals or, if necessary, the cylinders |
| | Low oil flow rate | Check the tank level and/or the pump |
| | | Constrictions in the system: search for them and remove them |
| | Insufficient pressure | Adjust the calibration of the maximum pressure valve |
| | Mechanical deformations of some parts | Repair or replace |
| | Worn cylinder seals | Replace them |
| No oil in the tank | Fill up | |
| Erratic displacement | Air in hydraulic system | Purge system |
| | Worn gibs or sliding rollers | Replace |
| | Excessive friction between sliding parts | Clean and grease sliding parts |
| | Worn cylinder seals | Replace them |
| | No oil in the tank | Fill up |

Table 5

For further issues, contact A.T.I.B. S.r.l.

8.2 Lubrication

Clean and lubricate all sliding surfaces:

- Lubricate the fork sleeves using the grease nipples;
- Grease sliding gibs;
- Lubricate the dual coupling using the grease nipples.

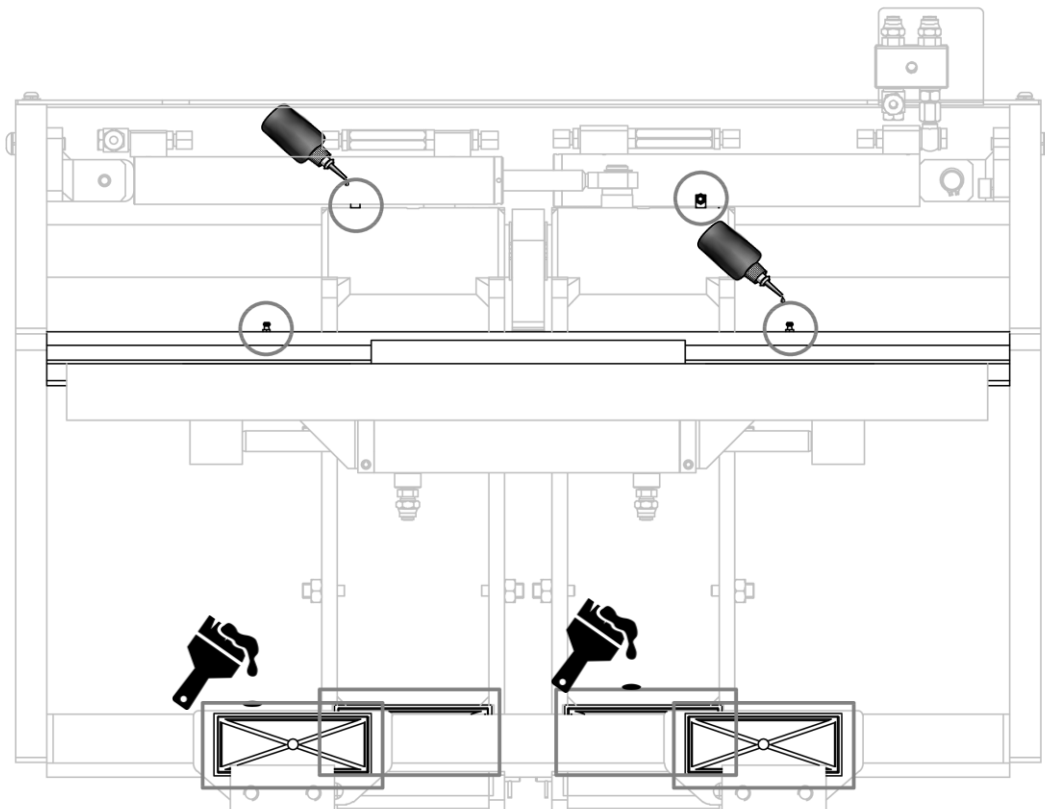


Figure 25

A.T.I.B. S.r.l.
Via Quinzanese snc, 25020 Dello (BS) - ITALY

+39 030 977 17 11

info@atib.com

atib.com

