ATIB MATERIAL HANDLING

USE AND MAINTENANCE MANUAL

PUSH-PULL WITH SHEET RETENTION TYPE 505 | FORK MOUNTED
PUSH-PULL WITH SHEET RETENTION TYPE 505I |

LOAD PUSH TYPE 490

I-D02-01-46 - Rev.3

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PUSH-PULL WITH SHEET RETENTION TYPE 505 | FORK MOUNTED PUSH-PULL WITH SHEET RETENTION TYPE 505I | LOAD PUSH TYPE 490

⚠ ATTENTION ⚠

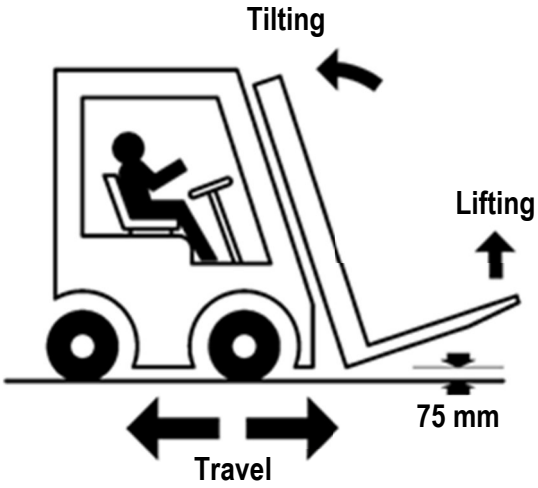
READ THIS USE AND MAINTENANCE MANUAL CAREFULLY BEFORE COMMISSIONING THE MACHINE

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. – "PUSH-PULL WITH SHEET RETENTION TYPE 505 | FORK MOUNTED PUSH-PULL WITH SHEET RETENTION TYPE 505I | LOAD PUSH TYPE 490" in accordance with DIRECTIVE 2006/42/EC of the European Parliament and of the Council of 17/05/2006 and the following 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.

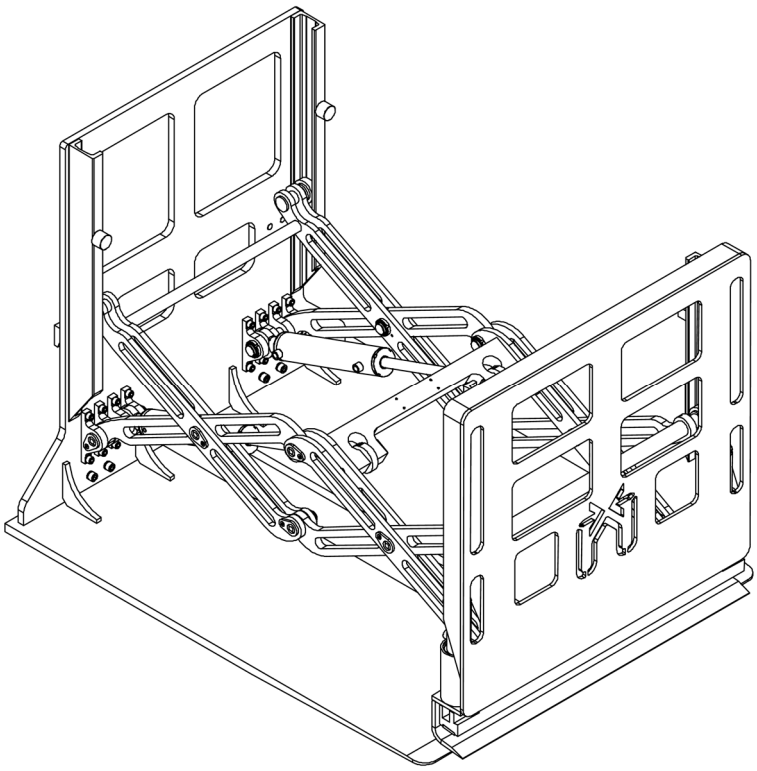
The manufacturer is exempted from any responsibility in the event of:

- 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.

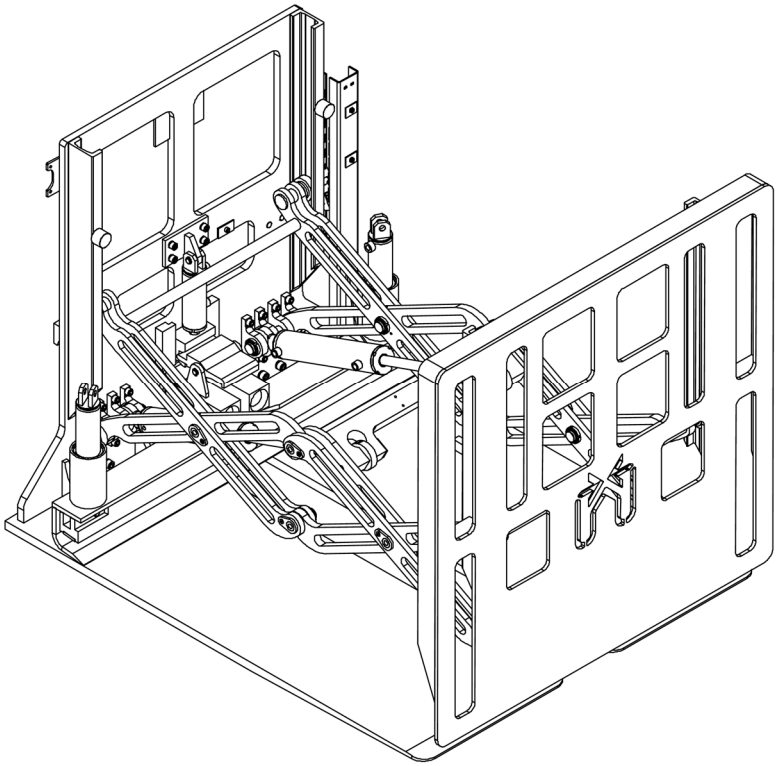
The nominal capacity of the forklift truck/equipment combination has been set by the original manufacturer of the forklift truck and may be less than that indicated on the equipment plate.
Consult forklift truck plate (Directive 2006/42/EC).

2.2 Equipment Description

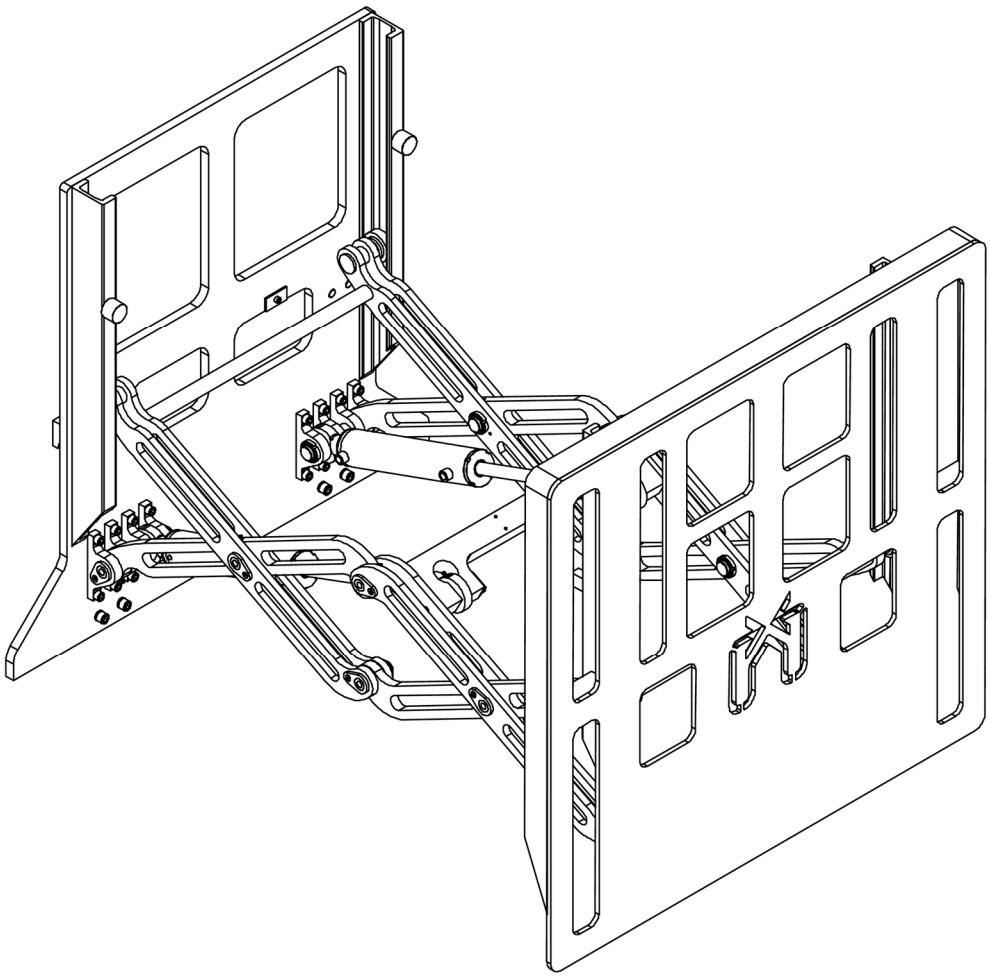
505/505i



505/505i WITH SHEET RETENTION



490



All the A.T.I.B. equipment – "PUSH-PULL WITH SHEET RETENTION TYPE 505 | FORK MOUNTED PUSH-PULL WITH SHEET RETENTION TYPE 505I | LOAD PUSH TYPE 490" is identified by means of an adhesive plate (see *Table 1*) positioned on the equipment (see *Figure 1*, the position of the plate may vary depending on the equipment). Always refer to the serial number.

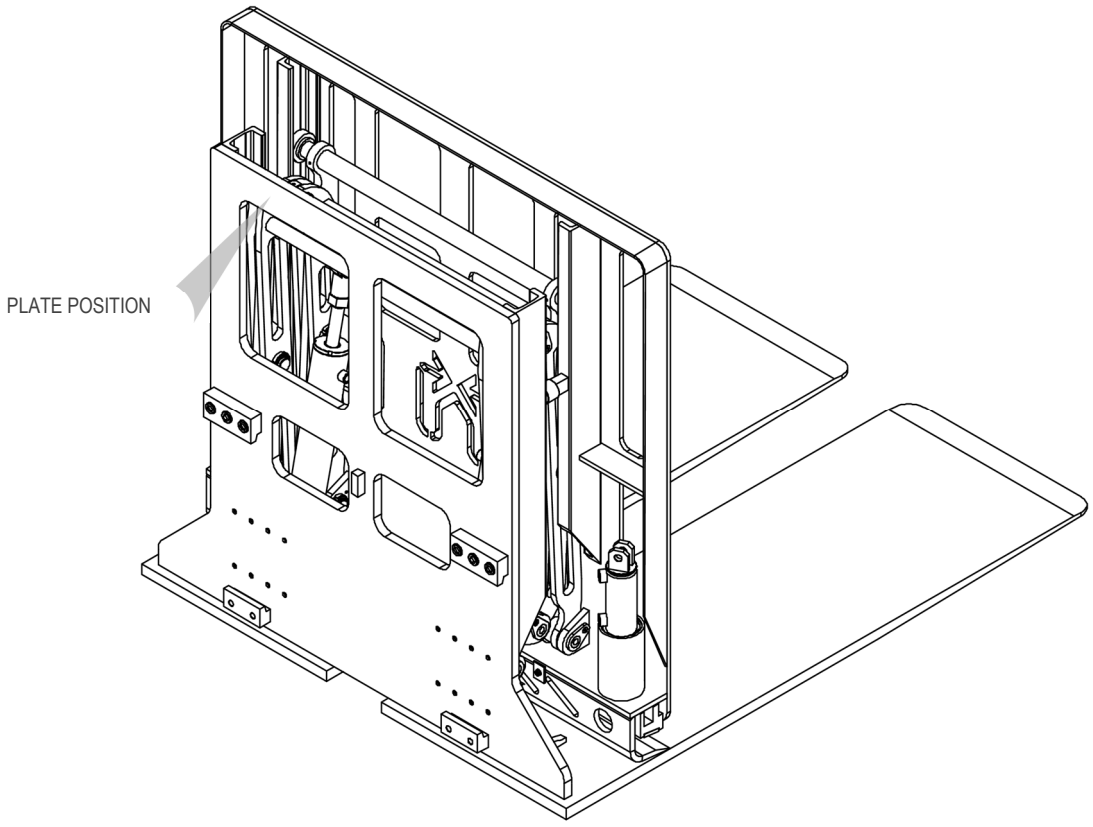


Figure 1

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. CE	
3. MATRICOLA N° / SERIAL N°				
4. ANNO DI COSTRUZIONE / YEAR OF MANUFACTURE	**10. PRESSIONE MAX. DI ESERCIZIO / MAX. OPERATING PRESSURE**	**bar**	**A.T.I.B. S.r.l.** Via Quinzanese snc, 25020 Dello (BS) - ITALY +39 030 9771711 info@atib.com - **atib.com**	
5. PESO / WEIGHT				
6. SPESSORE / THICKNESS	**NOTE: OSSERVARE I LIMITI DI PORTATA DELL'INSIEME CARRELLO CON ATTREZZATURA / WARNING: OBSERVE THE NOMINAL CAPACITY OF TRUCK AND ATTACHMENT COMBINED**			
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.
   In the event that the plate is missing/damaged, or for any information, always refer to the serial number.

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 – "PUSH-PULL TYPE 505 – 505i" has been conceived, designed and constructed to allow the handling of non-palletised goods, allowing the expulsion of the load by pushing and also allowing the recovery (optional) or expulsion of the sheets on which the load is placed.

The A.T.I.B. equipment – "LOAD PUSH TYPE 490" has been conceived, designed and constructed to allow the positioning/movement of non-palletised goods with double depth.

This equipment must be applied to the forklift truck carriage or directly to the forks (for the fork mounted 505i version) and connected to the distributor via a hydraulic circuit.

The equipment performs the following function:

- Load ejection: the movement to eject loads is carried out by means of hydraulic cylinders applied to a mechanical pantograph kinematics.
- Sheet pick-up: the relative sheet retention movement is carried out by means of hydraulic cylinders that act directly on the special sheet crushing blade.
- Mobile structure lock - blade: the blocking of the movement of the structure/sheet crushing blade is carried out (in versions with retention) by means of a hydraulic cylinder that acts directly on the appropriate hook.

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 clamp, consult the plate on the clamp itself (See *Table 1* on page *7*).

⚠ ATTENTION ⚠

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 the 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	
505 [all]	15	30	20	175
505i [all]	15	30	20	175
490 [1500kg.]	15	30	20	175
490 [2500kg.]	20	40	30	175

Table 2

⚠ ATTENTION!! ⚠

OBSERVE THE INDICATED MAXIMUM OPERATING PRESSURES

3.1 Installation Procedure

STANDARD

3.1.1 Installing the Equipment - Standard/Hooked

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 2*).

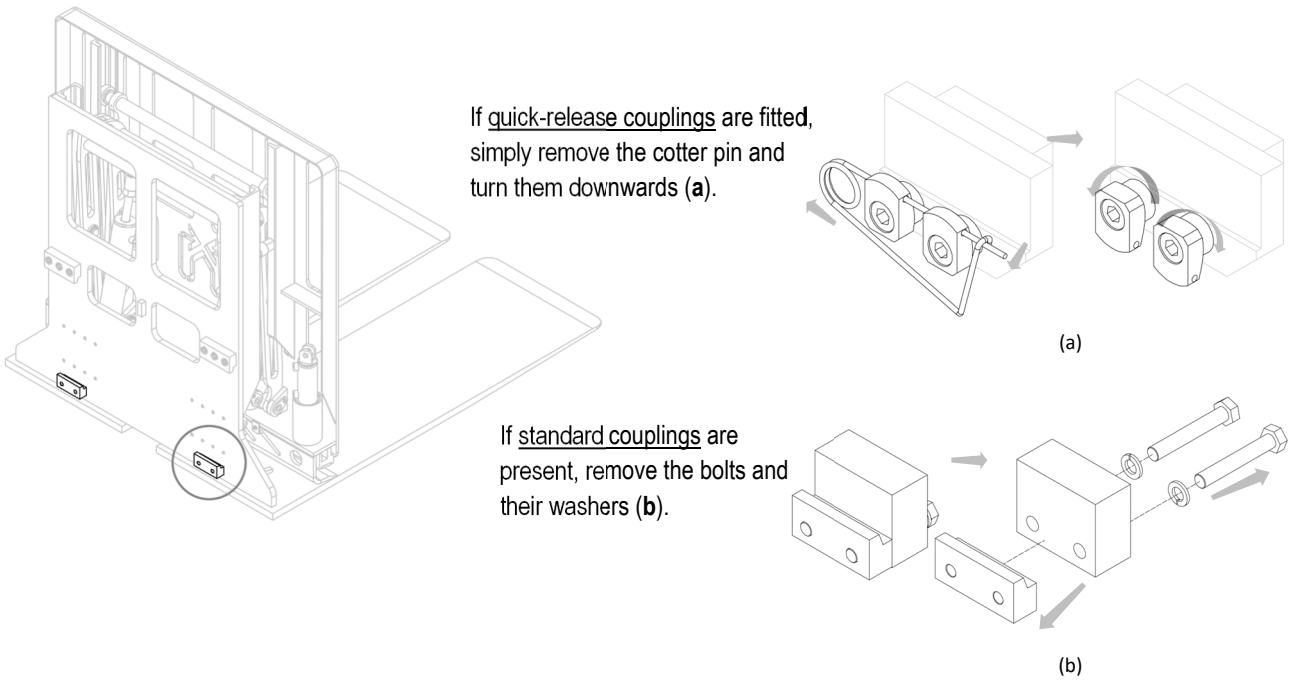


Figure 2

5. For handling, use belts or chains appropriately sized with regard to the weight of the equipment indicated on the plate (see *Figure 1* and *Table 1* on page *7*).

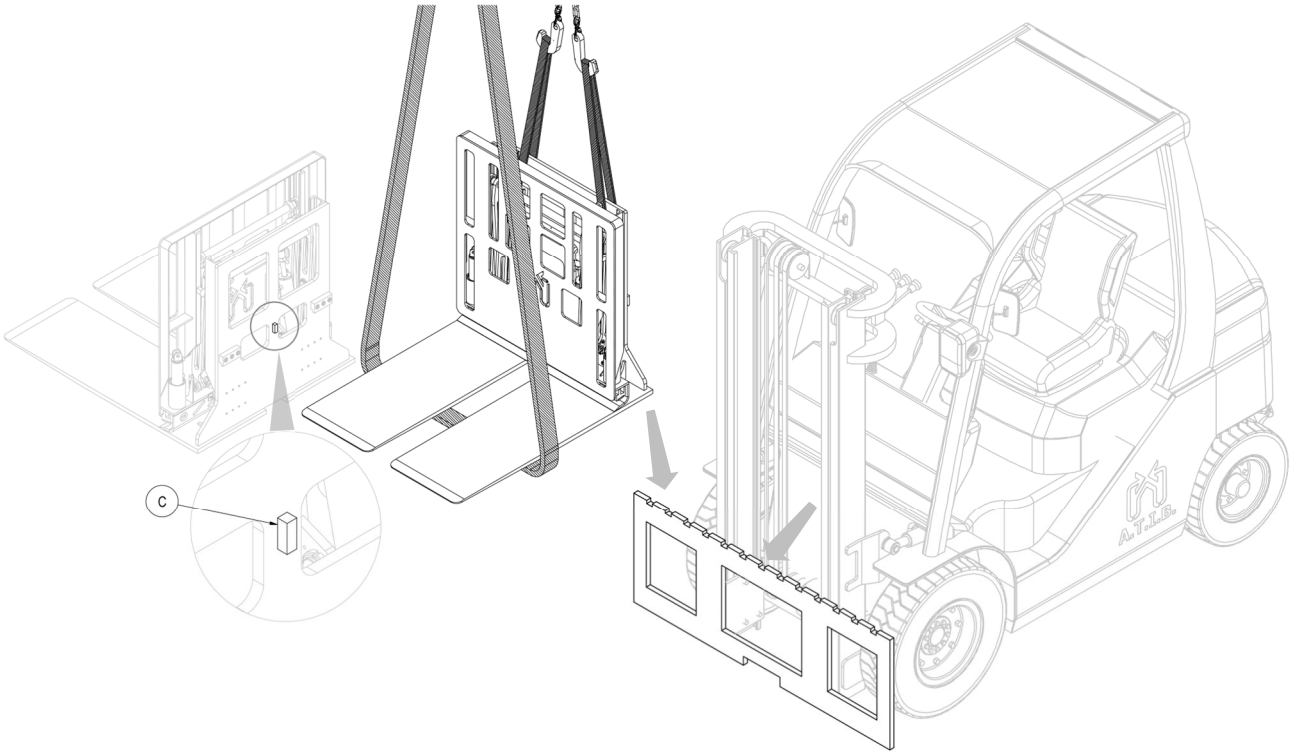


Figure 3

6. With an overhead crane or a hoist of sufficient capacity, place the equipment on the fork carriage plate, taking care to engage the centring pin **C** in its central notch (see *Figure 3*).

7. Tighten the 2 lower couplings **G** so that the body of the couplings remains coupled to the lower fork carriage plate **P** (with max. 1.5mm clearance, see detail *Figure 4*), tightening with the torque indicated in *Table 3*.

CLASS	THREAD	TIGHTENING TORQUE
ISO II	**M12**	**90 Nm**
ISO III	**M14**	**140 Nm**

Table 3

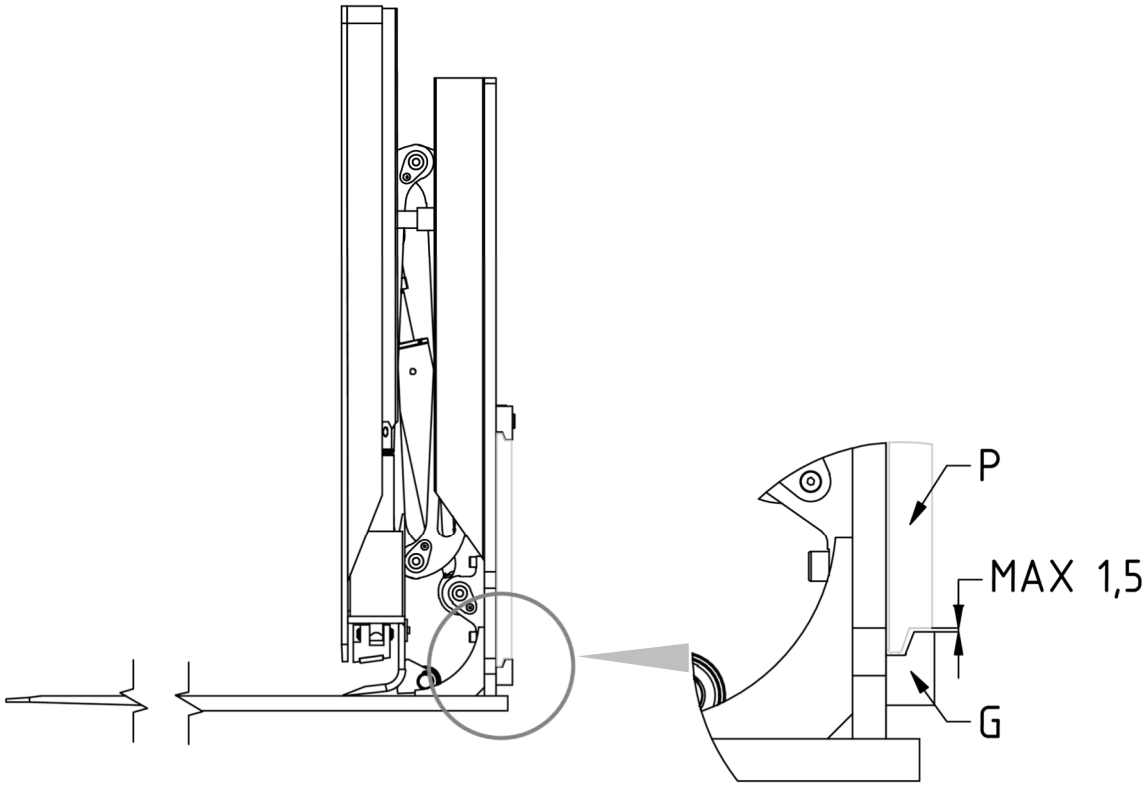


Figure 4

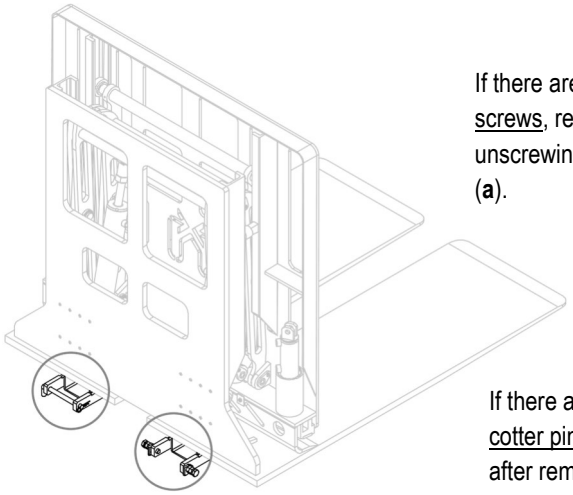
8. Lubricate the contact/sliding surfaces (see *Lubrication* chapter on page *47*).

9. Connect the hydraulic circuit, making sure that the operating pressure of the lines is greater than or equal to that indicated on the identification plate (see *Figure 1* and *Table 1* on page *7)*.

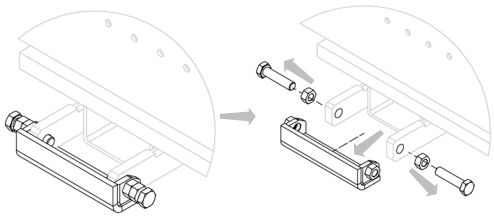
3.1.2 Installing the Equipment - 505i - Fork mounted

505i

1. Prior to installation, check the condition of the forks, making sure that the profiles are smooth.
2. In addition, ensure that the profiles are not deformed, in order to facilitate good coupling with the equipment.
3. Check the condition of the pipes, replacing those in a poor condition.
4. Remove the fork stops from the equipment (see *Figure 5*).

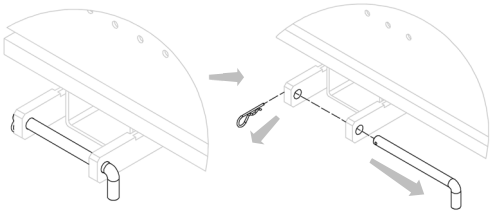


If there are fork stops with screws, remove them after unscrewing the relative screws (**a**).



(a)

If there are fork stops with cotter pin, remove the pins after removing the corresponding cotter pins (**b**).



(b)

Figure 5

5. Fork the equipment (see *Figure 6* and *Figure 7*).

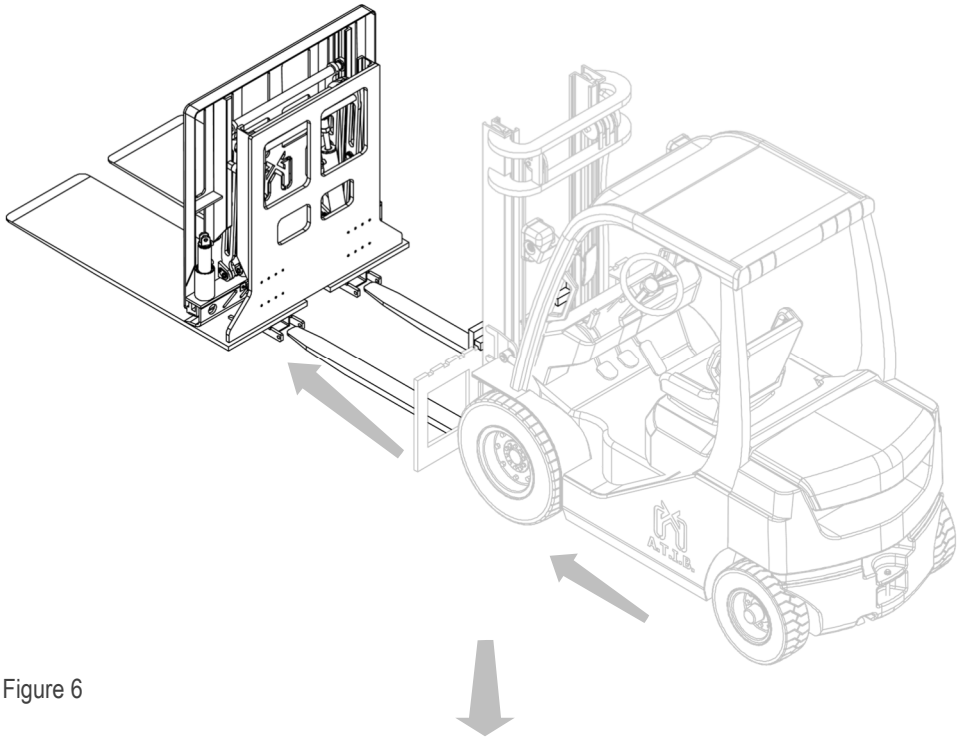


Figure 6

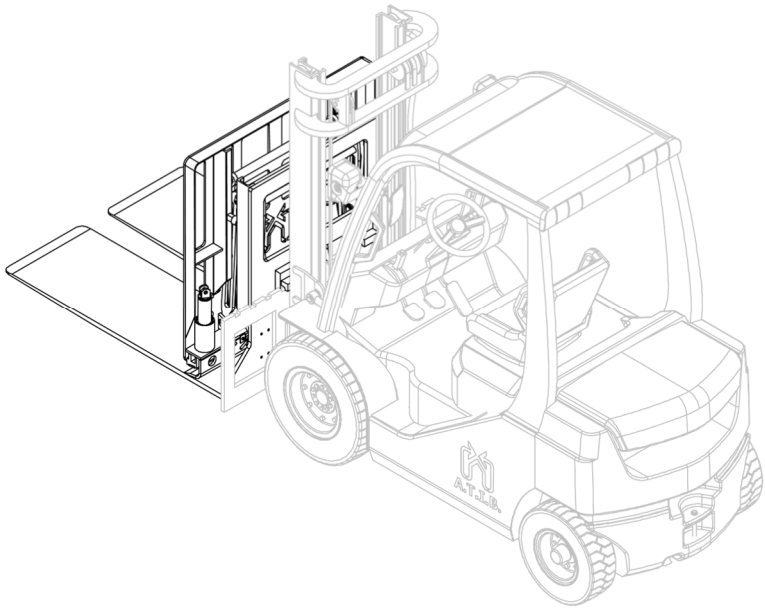
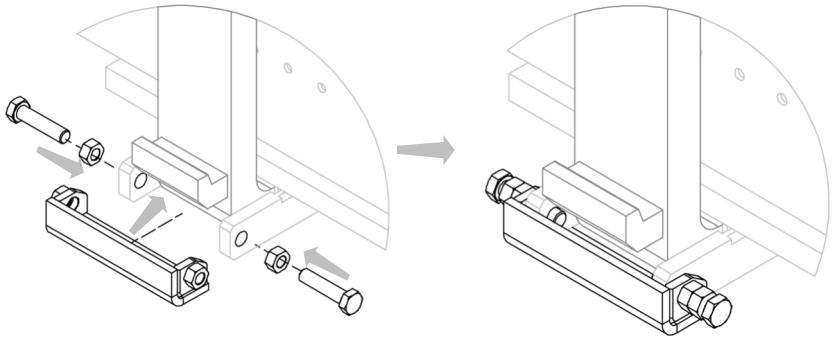


Figure 7

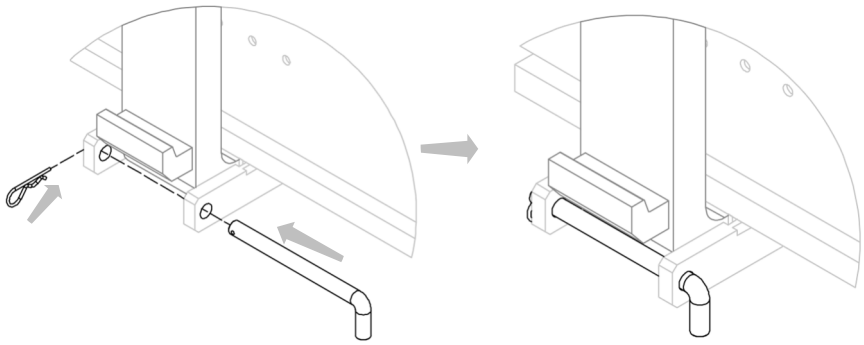
6. Close the fork stops (see *Figure 8*).

If there are fork stops with screws, install them using the relative screws (**a**).



(a)

If there are fork stops with cotter pins, insert the pins and fix them with the relative cotter pins (**b**).



(b)

Figure 8

7. Lubricate the contact/sliding surfaces (see *Lubrication* chapter on page *47*).

8. Connect the hydraulic circuit, making sure that the operating pressure of the lines is greater than or equal to that indicated on the identification plate (see *Figure 1* and *Table 1* on page *7)*.

4 HYDRAULIC SYSTEM

4.1 Hydraulic System - Standard

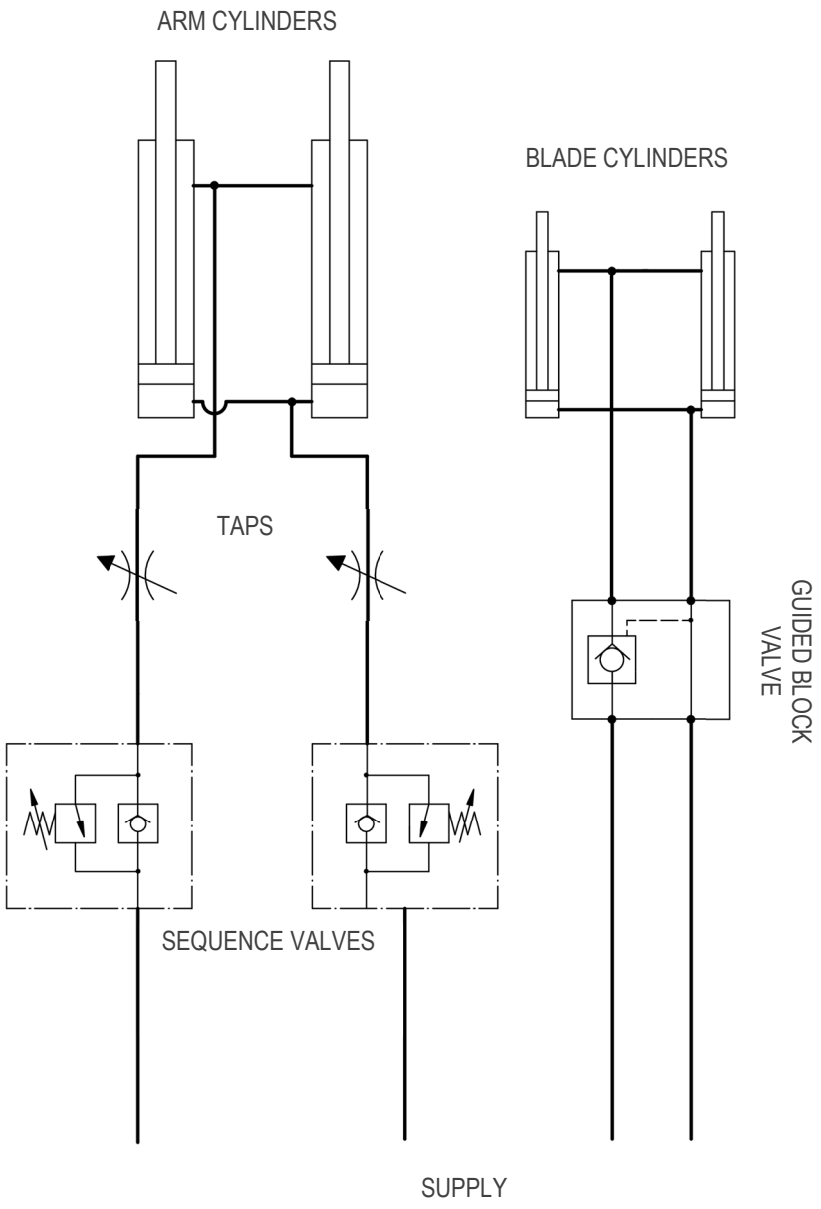


Figure 9

4.2 Hydraulic System - With Sheet Retention

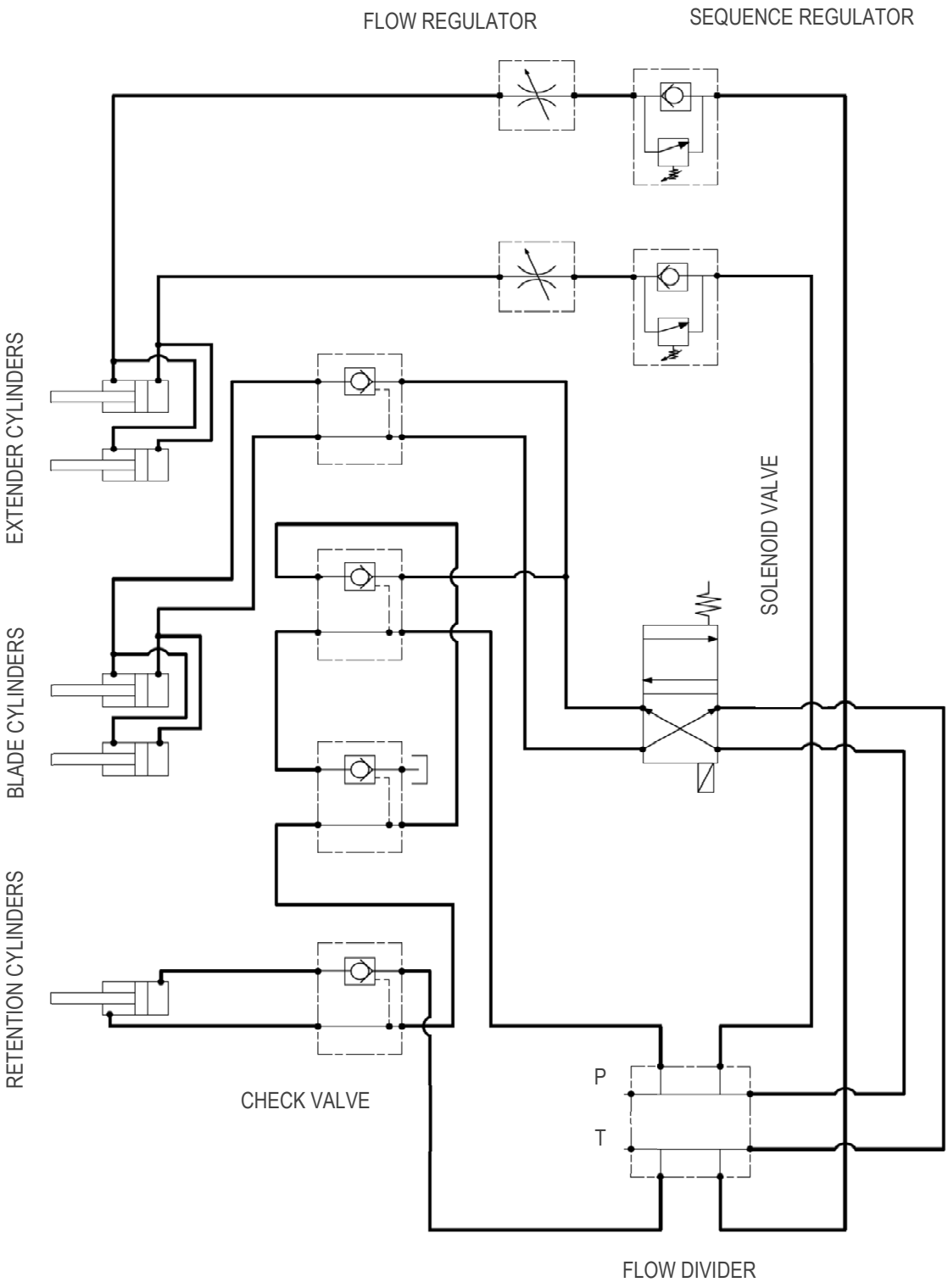


Figure 10

4.3 Hydraulic System - TYPE 490

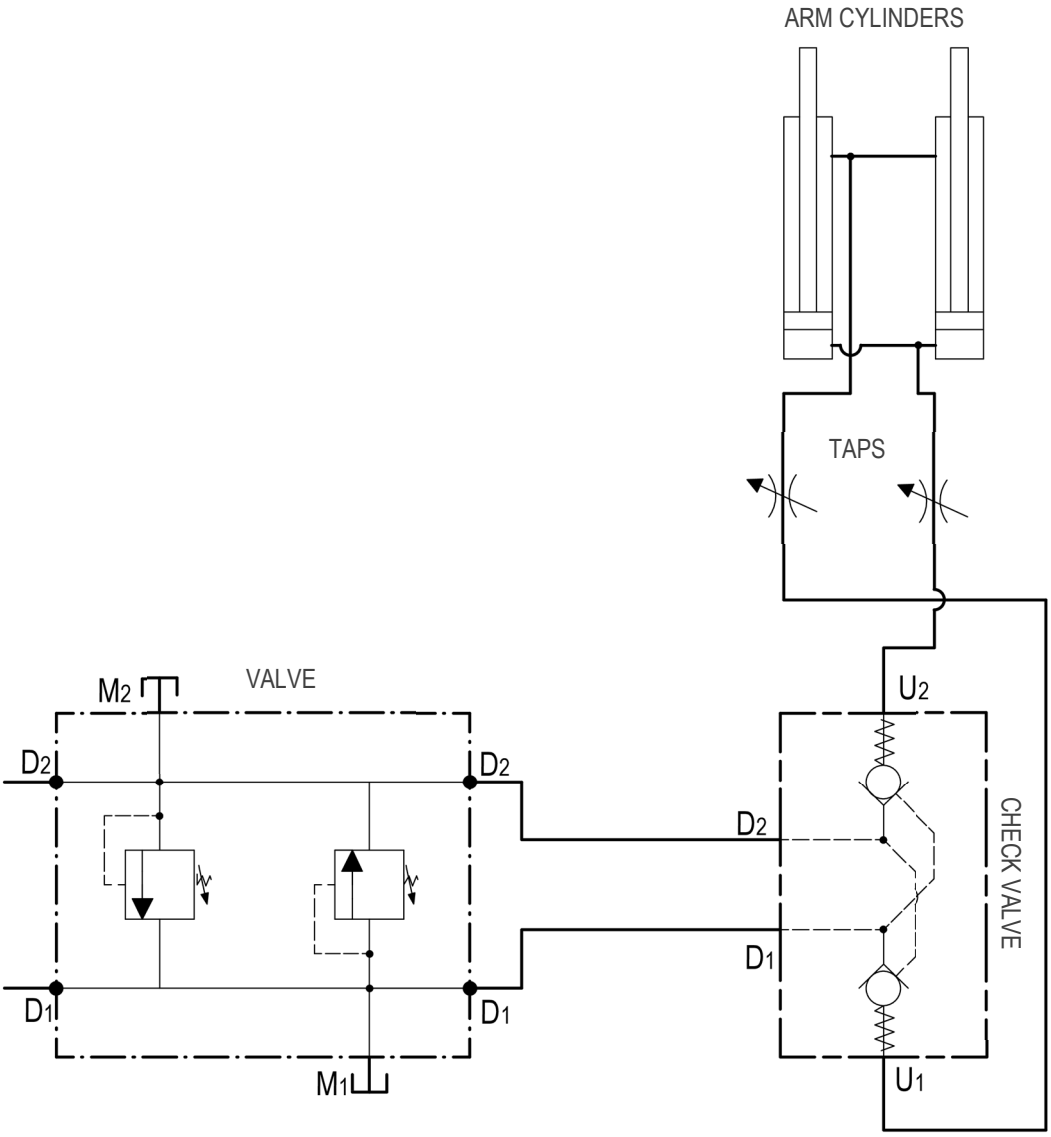


Figure 11

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 move loads sideways by dragging them across the floor.
4. Do not exceed the maximum pressure indicated on the rating plate.
5. Operate the equipment from the forklift truck driver's seat using only a single operator.
6. Operate the control lever gently, avoiding water hammer as far as possible.
7. 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.
8. 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.).
9. 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).

All ATIB equipment is designed and manufactured according to 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 12*, 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.

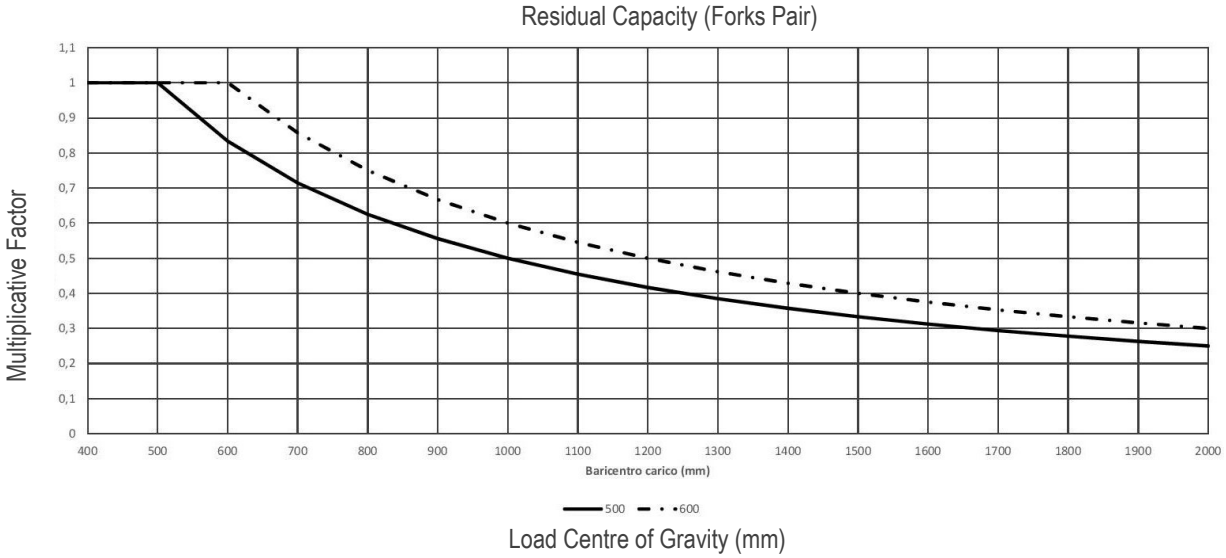


Figure 12

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

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 with an uncentred centre of gravity.

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 the tightening torque of the bolts of the lower retaining hooks of the equipment, ensuring that it is as indicated in *Table 3* (page *13*) and, if necessary, adjust the bolts holding them in place.
3. Check the correct locking of the fork stops.
4. Check the clearance between the lower part of the fork carriage plate and the lower equipment couplings, checking that it is as shown in *Figure 4* (page *13*) and, if necessary, tighten the screws that support them.
5. Clean and lubricate all sliding parts (see *Figure 33* on page *47* and *Figure 34* and *Figure 35* on page *48).*

6.2 Maintenance Every 300 Hours

1. Check the condition of the components on the structure - sheet crushing blade, and, if any component (bearings, rubber, etc.) is excessively worn, replace it.
2. Check the screws of the arm and cylinder supports are correctly tightened, and, if necessary, tighten them in a suitable way.
3. Carry out the additional operations listed in the previous point (point *6.1*).

6.3 Maintenance Every 1000 Hours

1. Check the condition of the bushes on the arm pins and, if any component is excessively worn, replace it.
2. 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 the condition of all equipment components (cylinders, couplings, seals, bearings, couplings, etc.) to ensure that they are in good condition and replace any worn parts.

   - Check the condition of sliding and working surfaces and replace/repair if damaged.

   For further possible problems (and related solutions) refer to *Table 4* on page *46*.
2. Dismantle cylinders and check condition of piston rods and seals. If a damaged or excessively worn seal is detected, A.T.I.B. recommends replacing 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 Removing the Equipment from the Forklift Truck

STANDARD

7.1.1 Removing the Equipment - Standard/Hooked

1. Release the pressure from the hydraulic system.
2. Remove the lower couplings from the structure (see *Figure 2* on page *11)*.
3. For handling, use straps/chains that are suitably sized in relation to the weight of the equipment as indicated on the plate.
4. Then lift the equipment with an overhead crane or hoist of sufficient capacity and remove it from the forklift (see *Figure 3 on page 12*).

505i

7.1.2 Removing the Equipment - 505i - Fork mounted

1. Release the pressure from the hydraulic system.
2. Remove the fork stops (see *Figure 5* on page *14*).
3. With the equipment supported or sufficiently raised, reverse the forklift truck and remove it from the forks.

N.B. Obviously, for space reasons, the following operations must be carried out with the equipment in the "open position".

7.2 Disassembling the Sheet Clamping Unit

CYLINDERS

7.2.1 Removing the Cylinders

1. Release the pressure from the hydraulic system and disconnect the lines.

2. Remove the snap rings that hold the cylinders (see *Figure 13*).

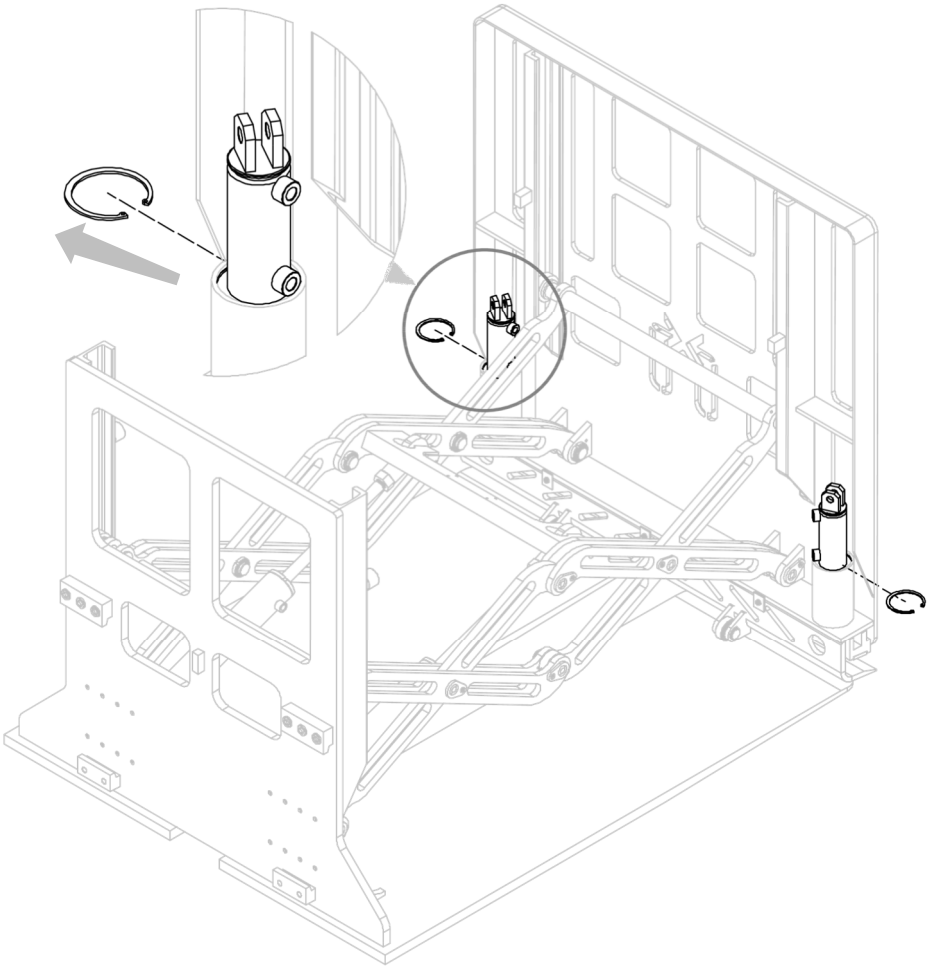


Figure 13

3. Unscrew the rods from the relative blade thrust pins and remove the cylinders (*Figure 14*).

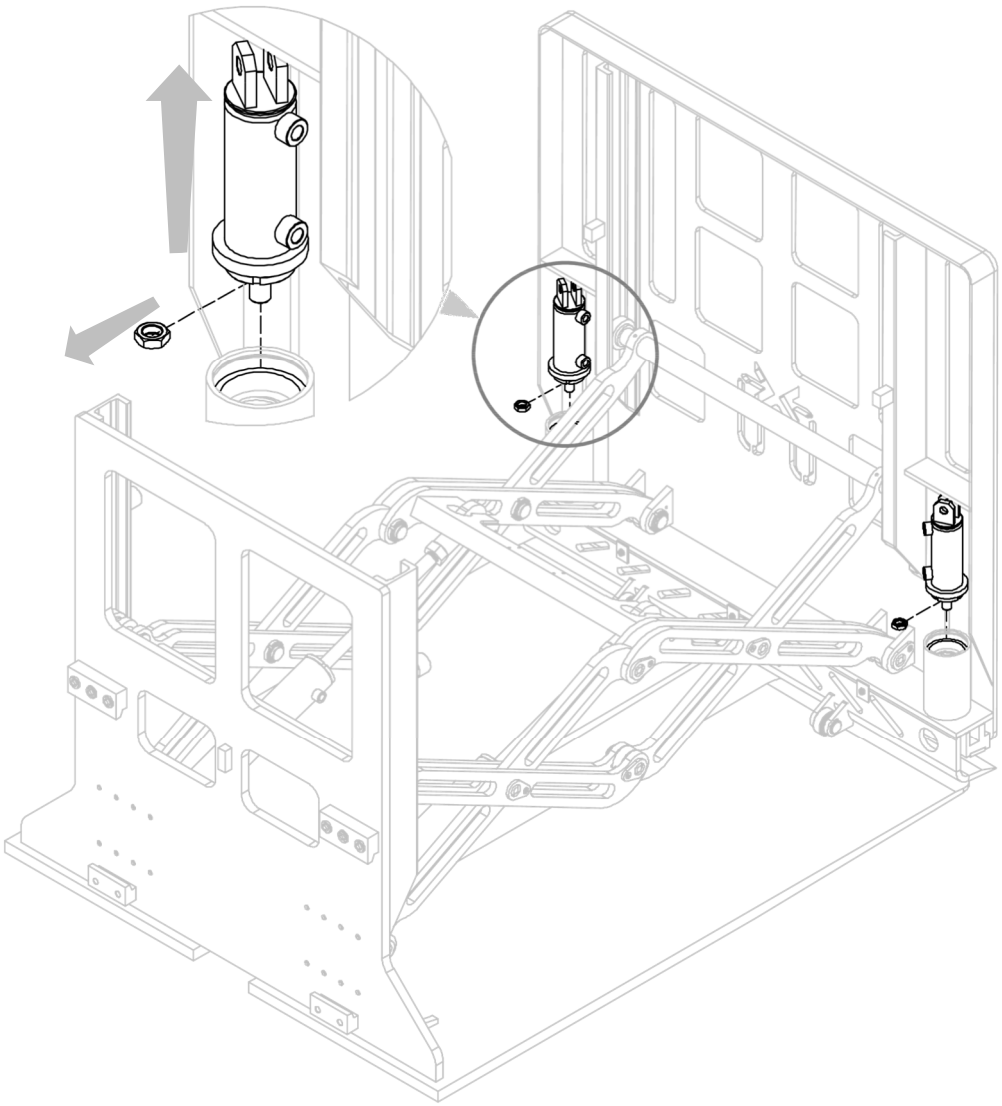


Figure 14

7.2.1.1 Disassembling the Cylinders

If the entire cylinder needs to be replaced, reassemble it by 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. Remove the rod **S** (the rod can be either welded or screwed to the piston).
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. For reference, see *Figure 15*.

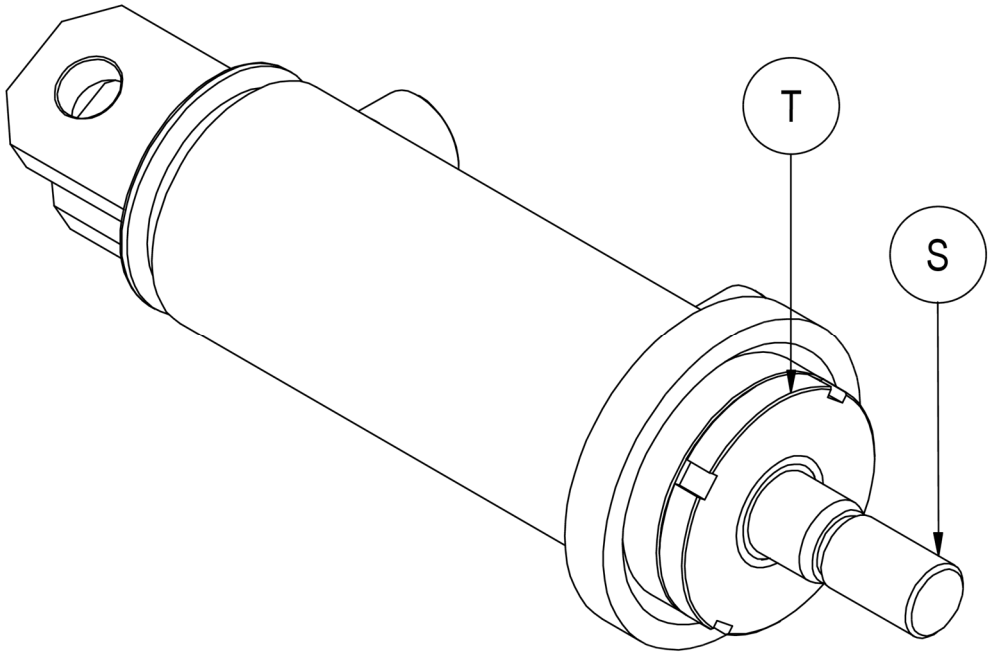


Figure 15

7.2.2 Removing the Blade

BLADE

1. Release the pressure from the hydraulic system and disconnect the lines.

2. Remove the cylinders as indicated in the previous chapter.

3. Remove the blade thrust pins (with their bushes) after removing the pins (with their snap rings) that hold them (see *Figure 16*).
   N.B. Note, after removing both pins, the blade will be released from the ring nut and, therefore, free to move.

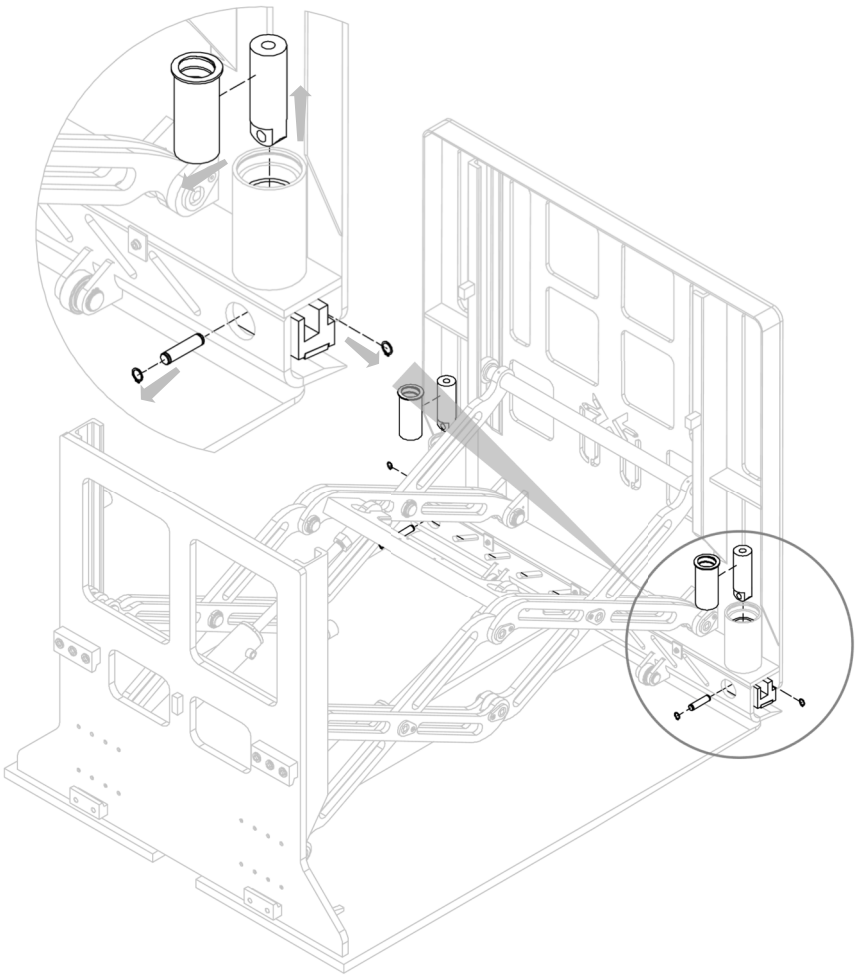


Figure 16

7.2.3 Removing the Bearings

BEARINGS

1. Release the pressure from the hydraulic system and disconnect the lines.

2. Remove the sliding bearings (with their spacers) after removing the pins (with their snap rings) that hold them (see *Figure 17*).

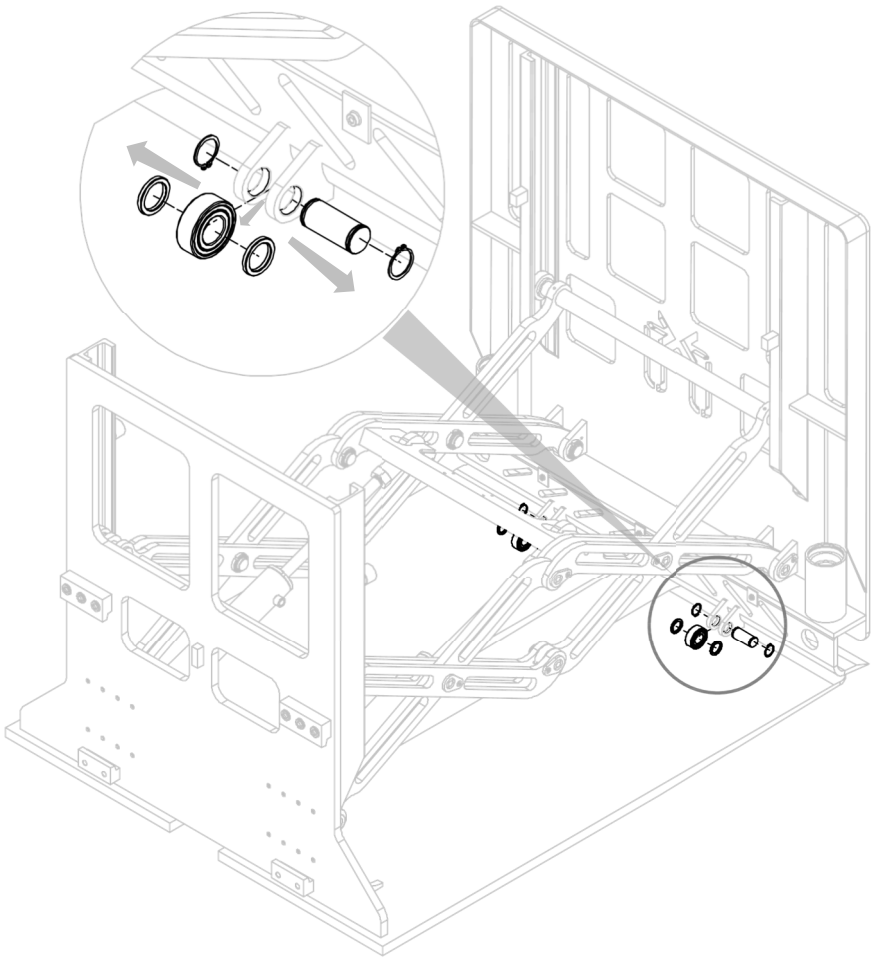


Figure 17

7.3 Disassembling the Handling Unit

N.B. During this phase, be sure to take all necessary precautions to avoid/prevent any sudden movement of the arms, which, once released (even partially) due to the removal of the pins, could move dangerously.

BULKHEAD

7.3.1 Removing the Front Bulkhead

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Remove the pins (with the relative screws and ring nuts) indicated in *Figure 18*.

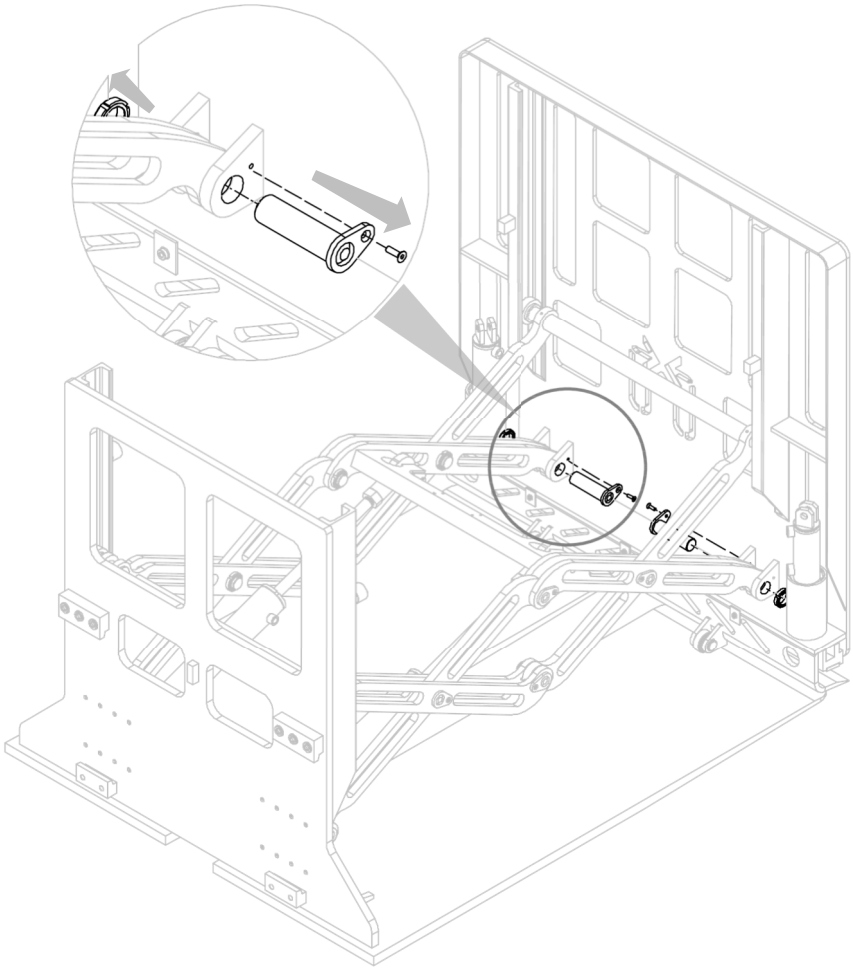


Figure 18

3. Remove the front bulkhead (with its blade holder structure). At this point, it can be removed from above, since it is only held on the equipment by the bearings of the pair of arms indicated in *Figure 19*.

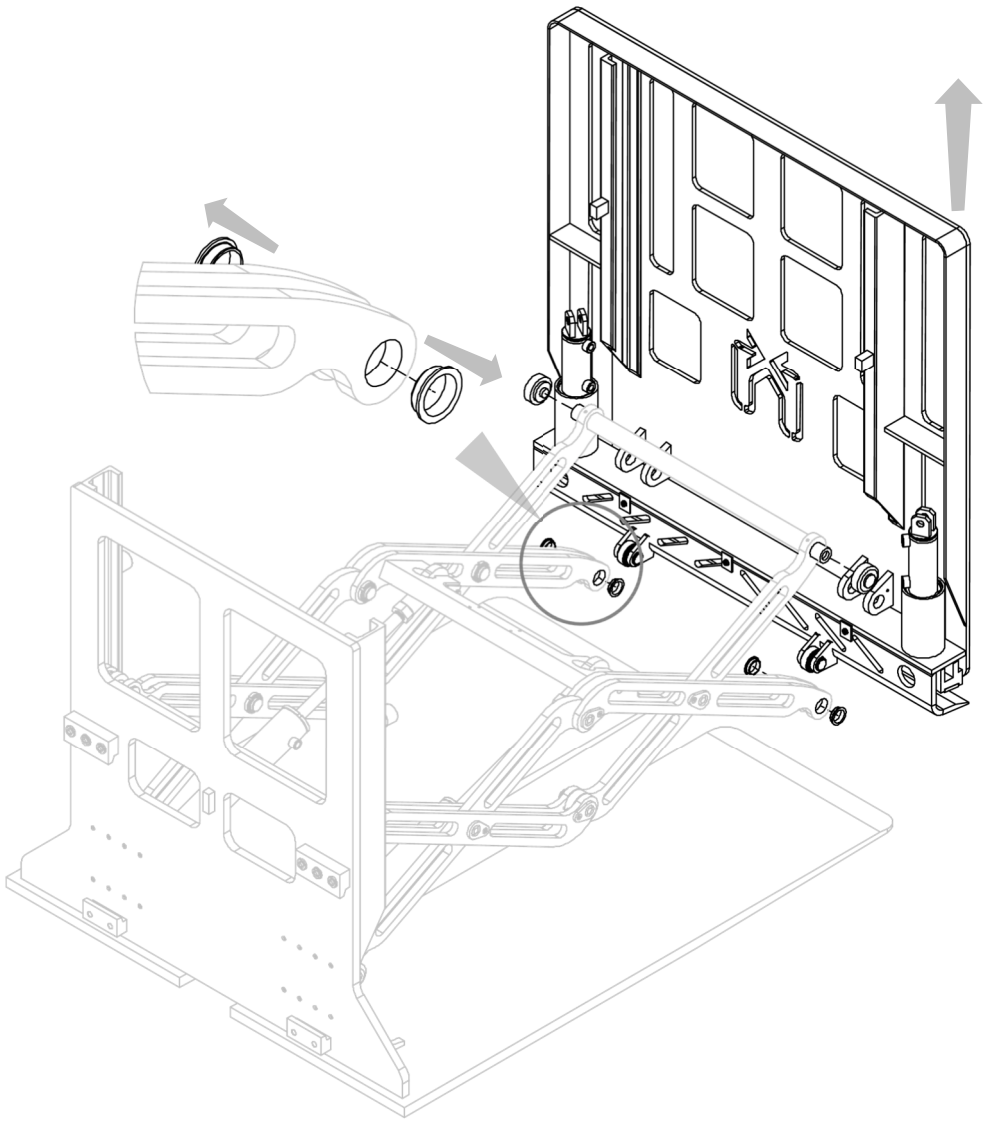


Figure 19

7.3.2 Removing the Arms

ARMS

1. Release the pressure from the hydraulic system and disconnect the lines.

2. Remove the front bulkhead from the equipment (see *Removing the Front Bulkhead* chapter).

3. Remove the pins (with the relative screws and ring nuts) that lock the pair of arms (see *Figure 20*).

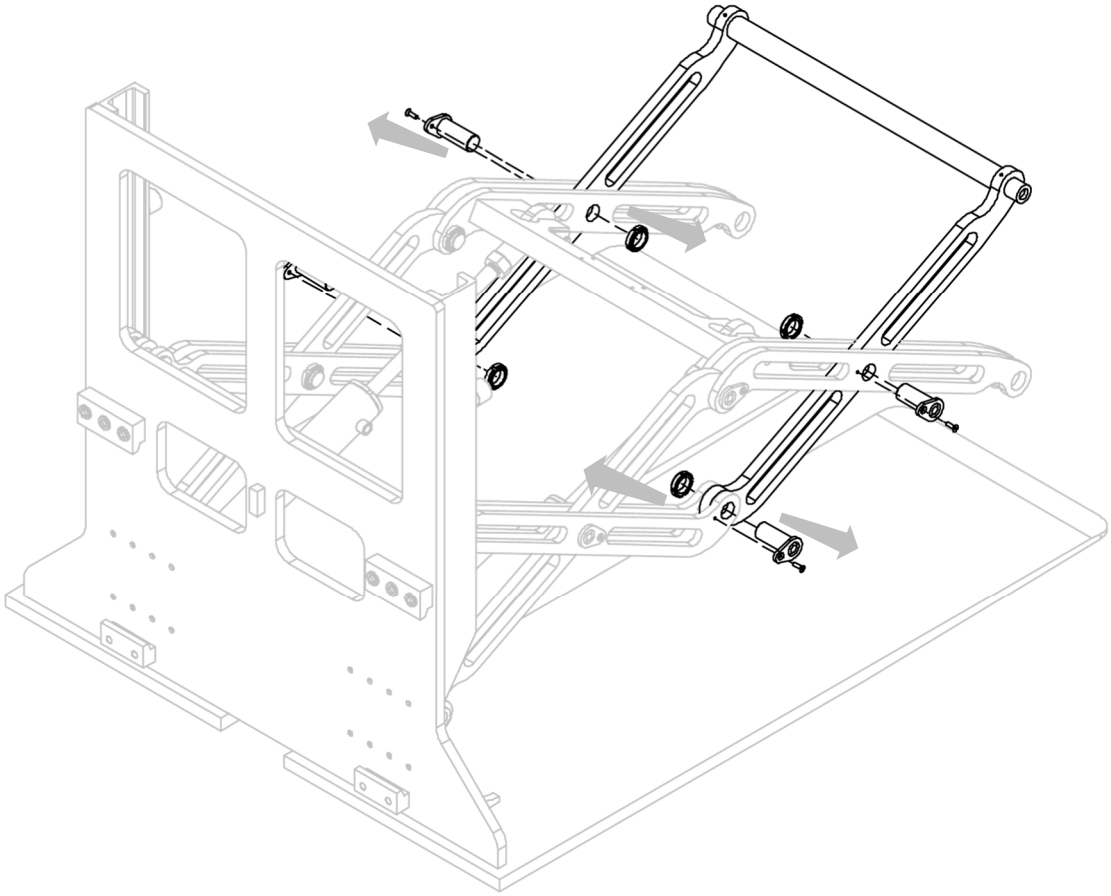


Figure 20

4. Remove the pair of arms from the equipment, with the relative swing bushes (see *Figure 21*).

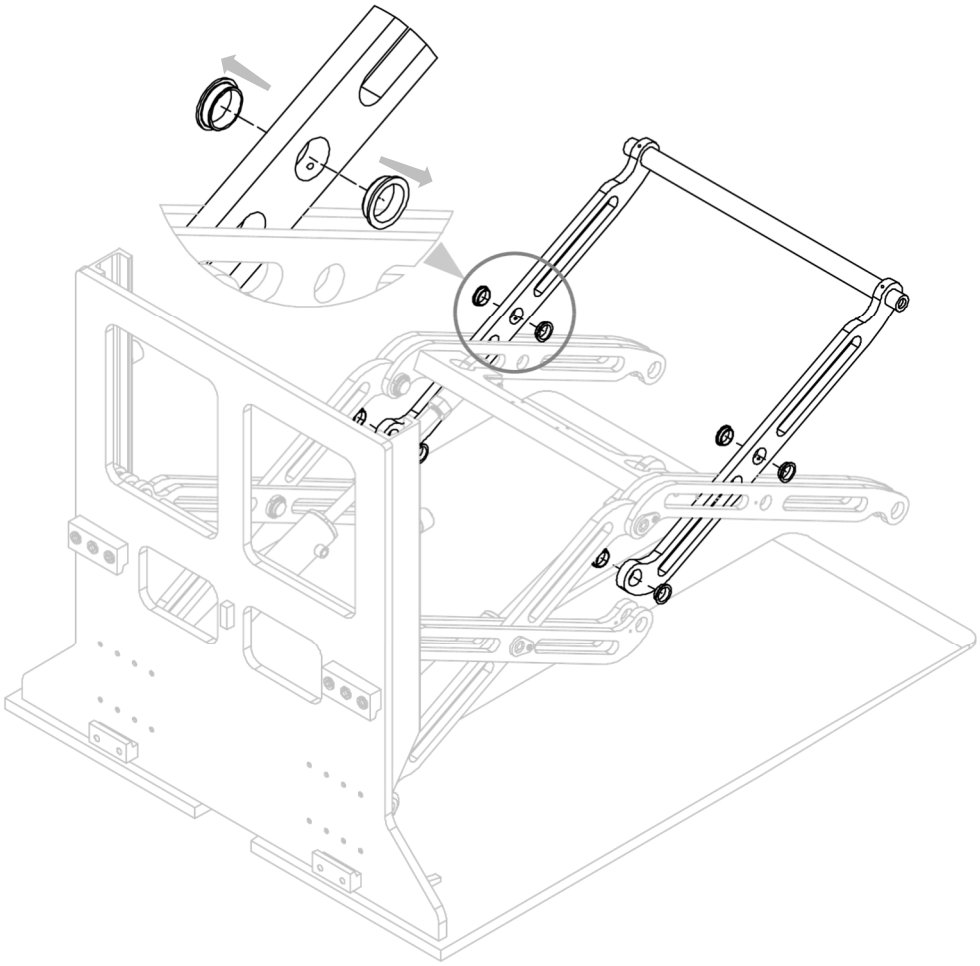


Figure 21

5. Remove the four pins that hold the pair of arms (see *Figure 22*).

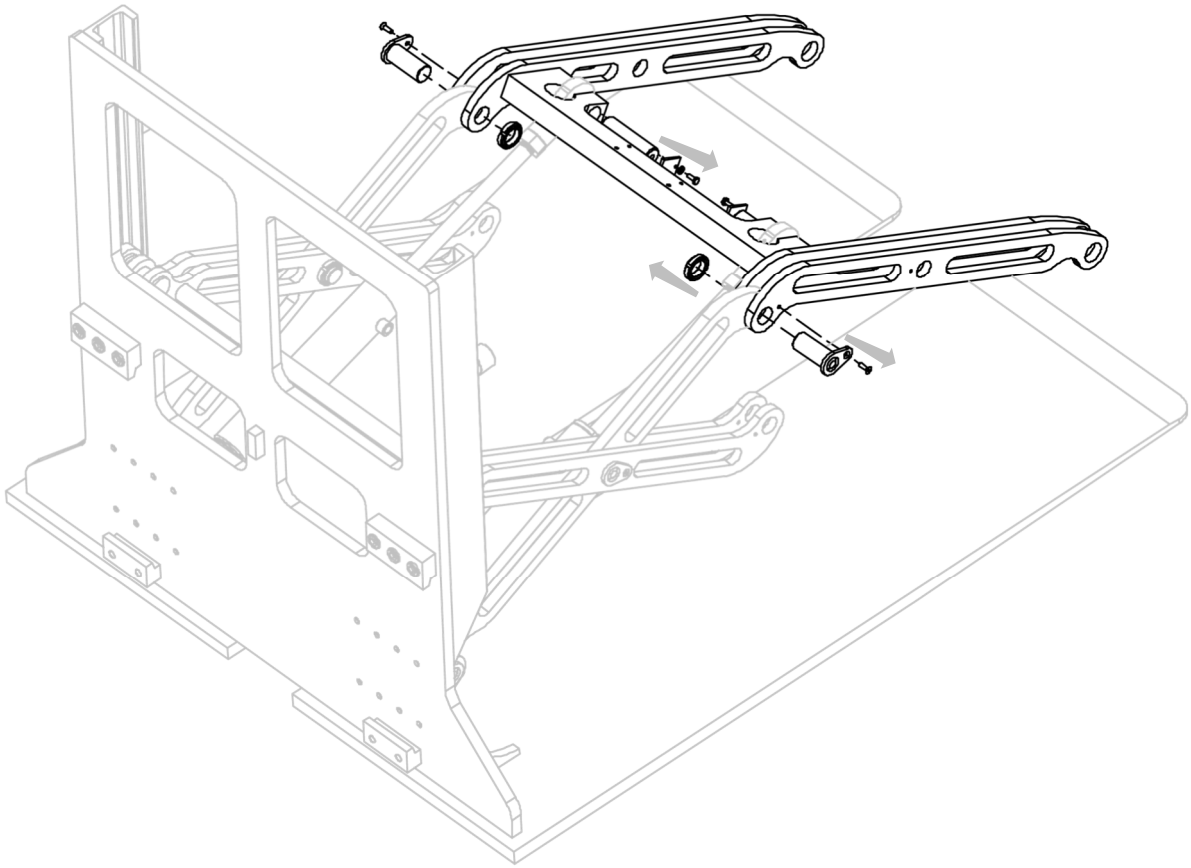


Figure 22

6. Remove the pair of arms from the equipment, with the relative swing bushes (see *Figure 23*).

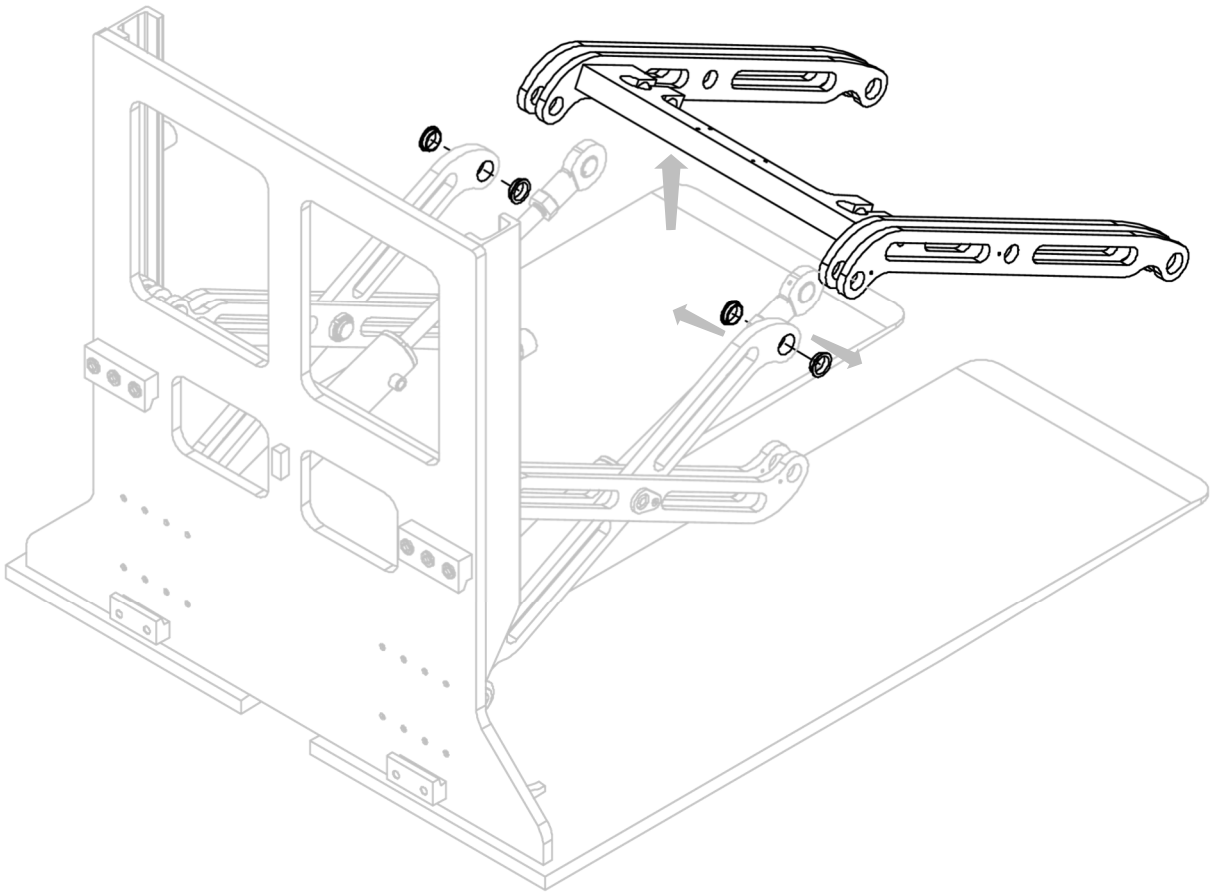


Figure 23

7. Remove the pair of arms (with their bearings) from the equipment, after removing the pins that hold them (see *Figure 24* and *Figure 25*).

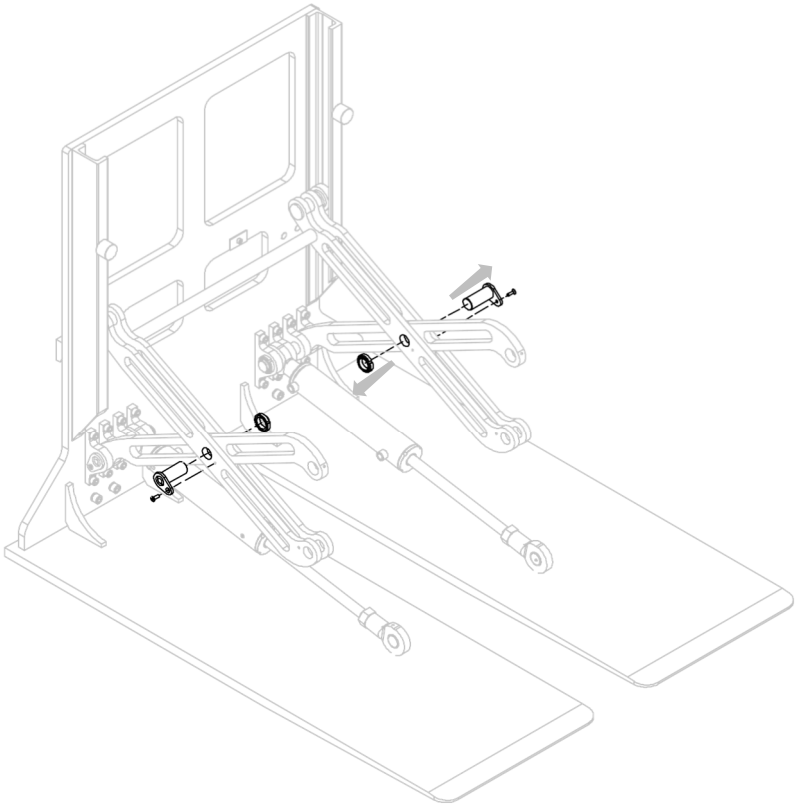


Figure 24

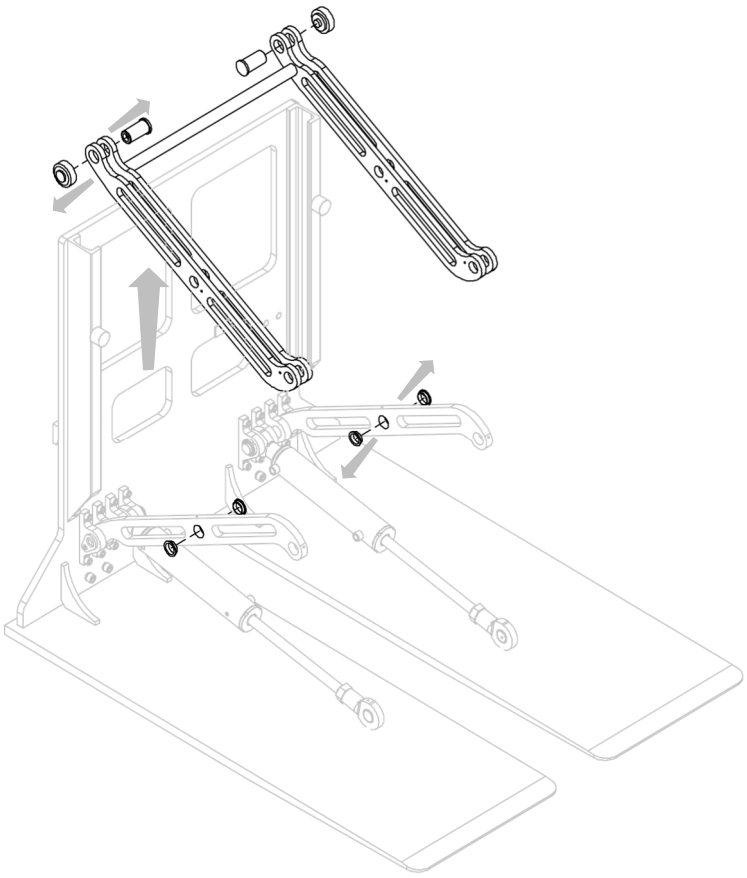


Figure 25

7.3.3 Removing the Cylinders

CYLINDERS

1. Release the pressure from the hydraulic system and disconnect the lines.

2. Remove the arms as explained in the previous point.

3. Remove the pins that hold the cylinders (and the remaining arms) to the bolted supports (see *Figure 26*).

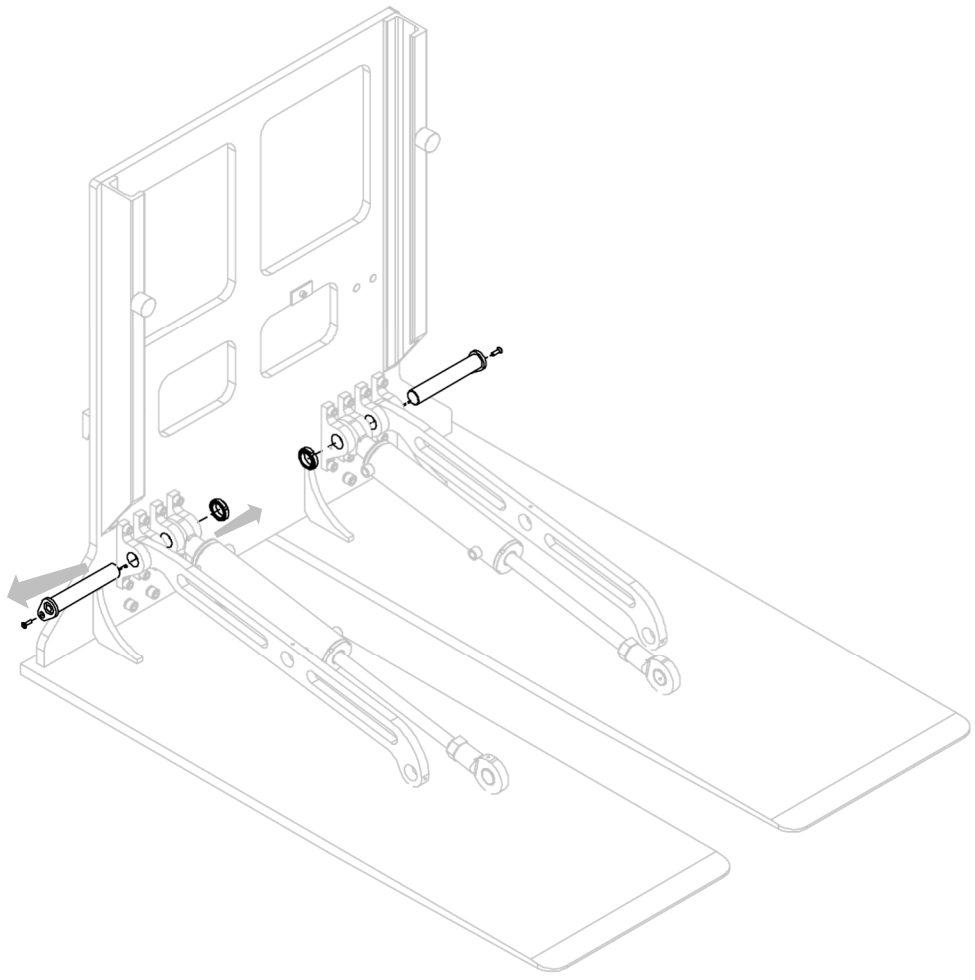


Figure 26

4. Remove the cylinders and the remaining two arms (see *Figure 27*).

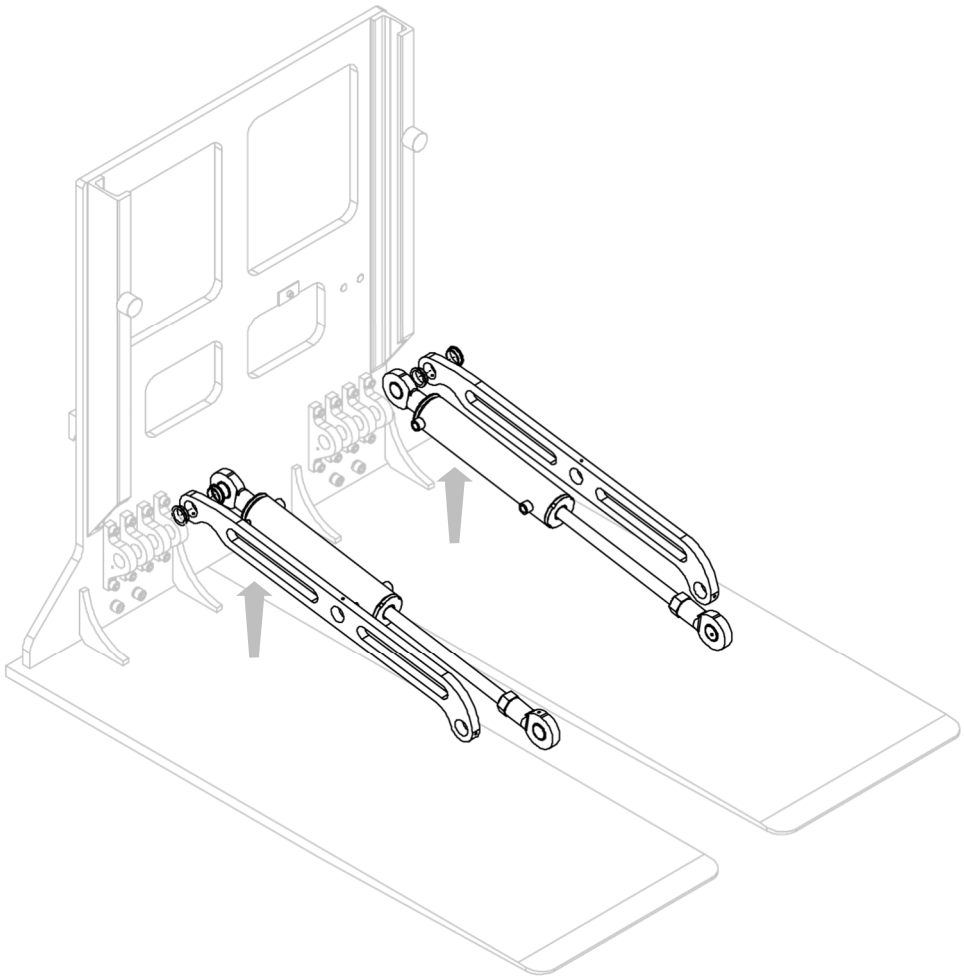


Figure 27

7.3.3.1 Disassembling the Cylinders

If the entire cylinder needs to be replaced, reassemble it by 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. Remove the rod **S** (the rod can be either welded or screwed to the piston) and unscrew it from the relative joint.
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. For reference, see *Figure 28*.

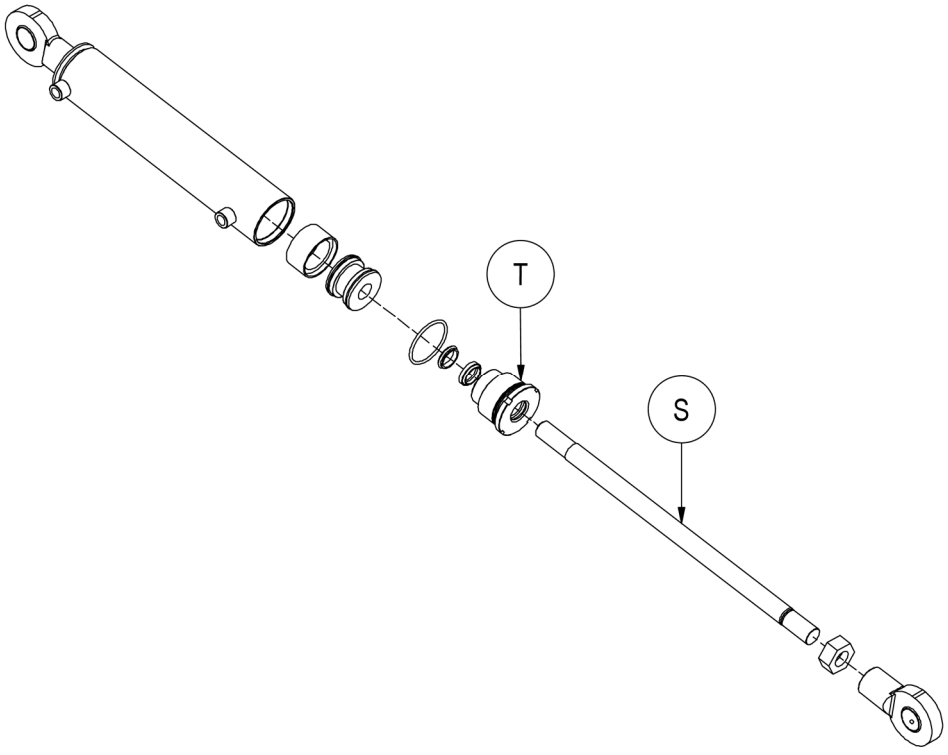


Figure 28

7.4 Removing the Blade Lock Cylinder - TYPE With Retention

BLADE CYLINDER

1. Release the pressure from the hydraulic system and disconnect the lines.

2. Remove the pin (after removing the snap rings that lock it) that holds the cylinder to its bolted coupling (see *Figure 29*).

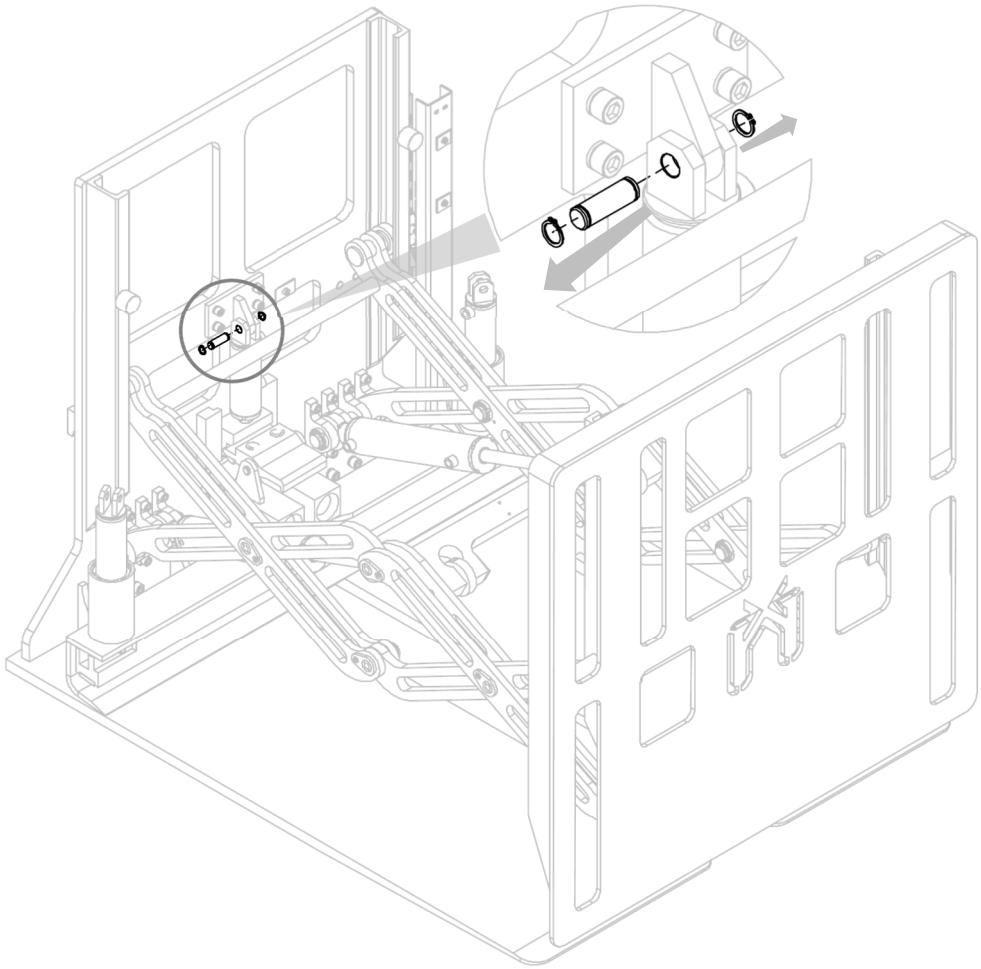


Figure 29

3. Remove the cylinder coupling after removing the relative screws and washers that support it (see *Figure 30*).43

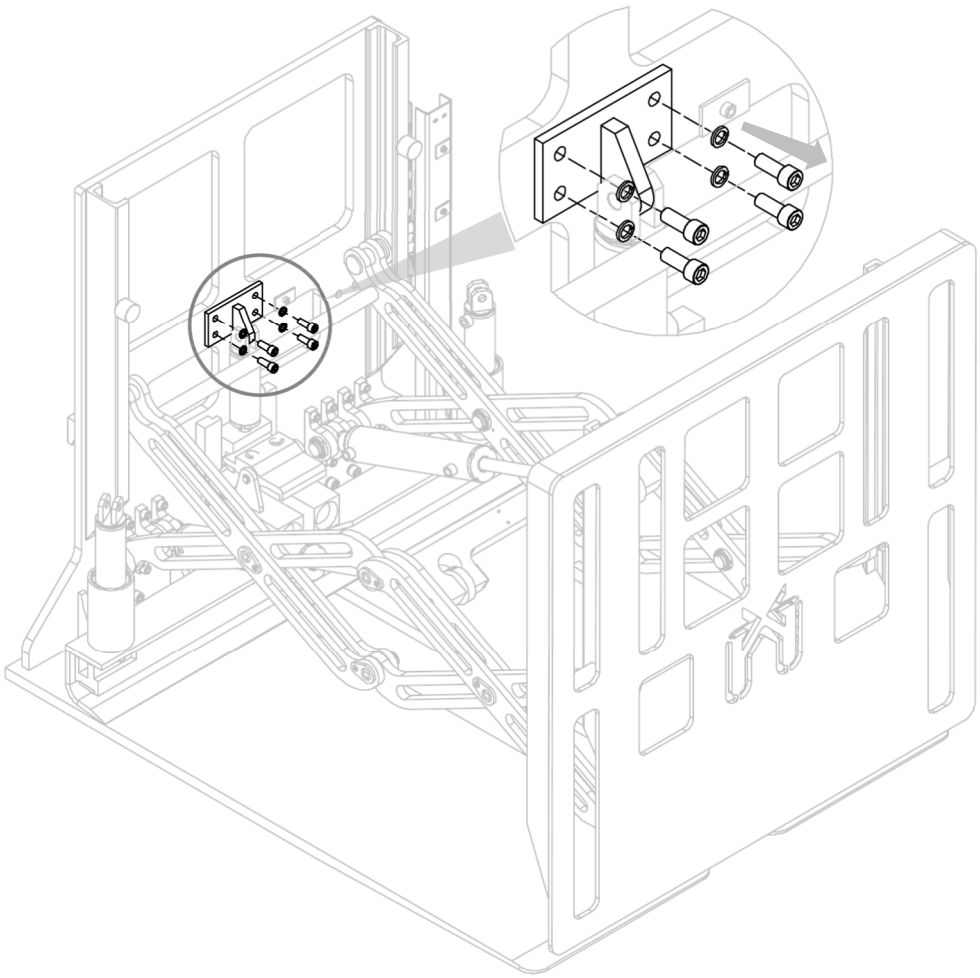


Figure 30

4. Remove the cylinder after unscrewing the rod from its coupling (see *Figure 31*).

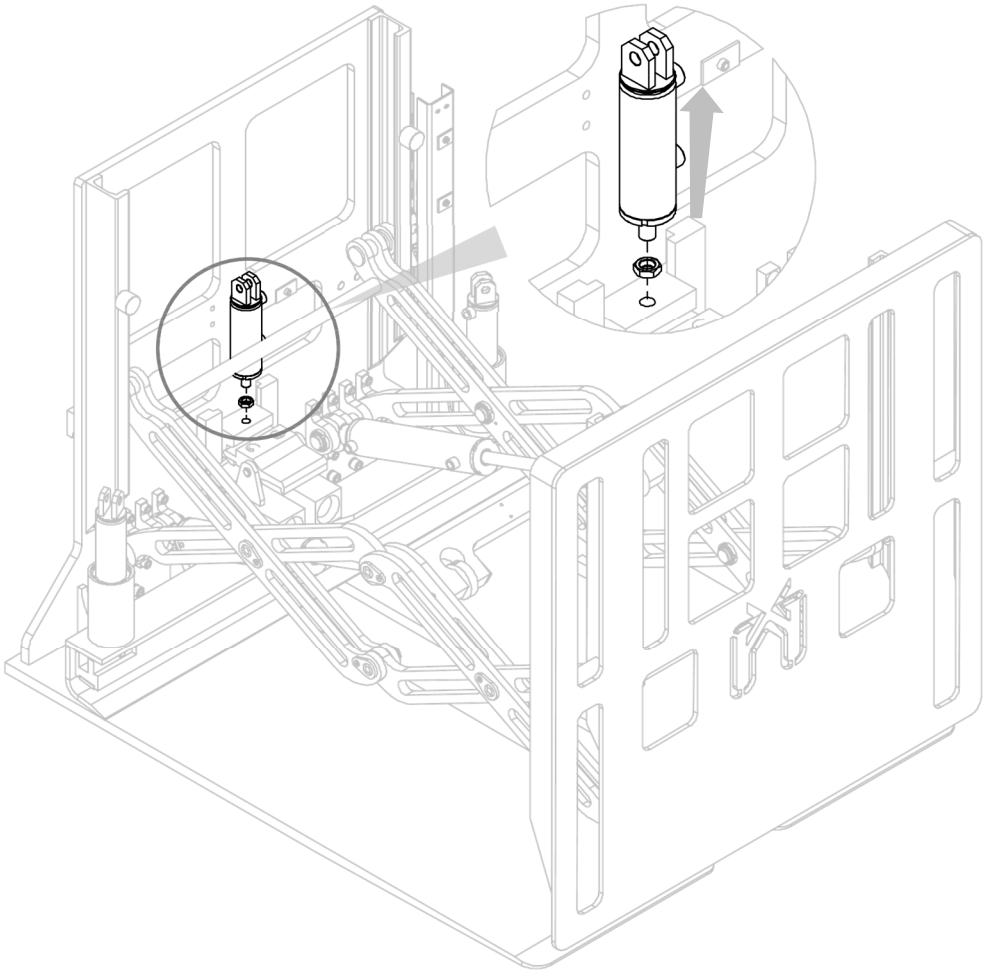


Figure 31

7.4.1 Disassembling the Cylinder

If the entire cylinder needs to be replaced, reassemble it by 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. Remove the rod **S** (the rod can be either welded or screwed to the piston).
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. For reference, see *Figure 32*.

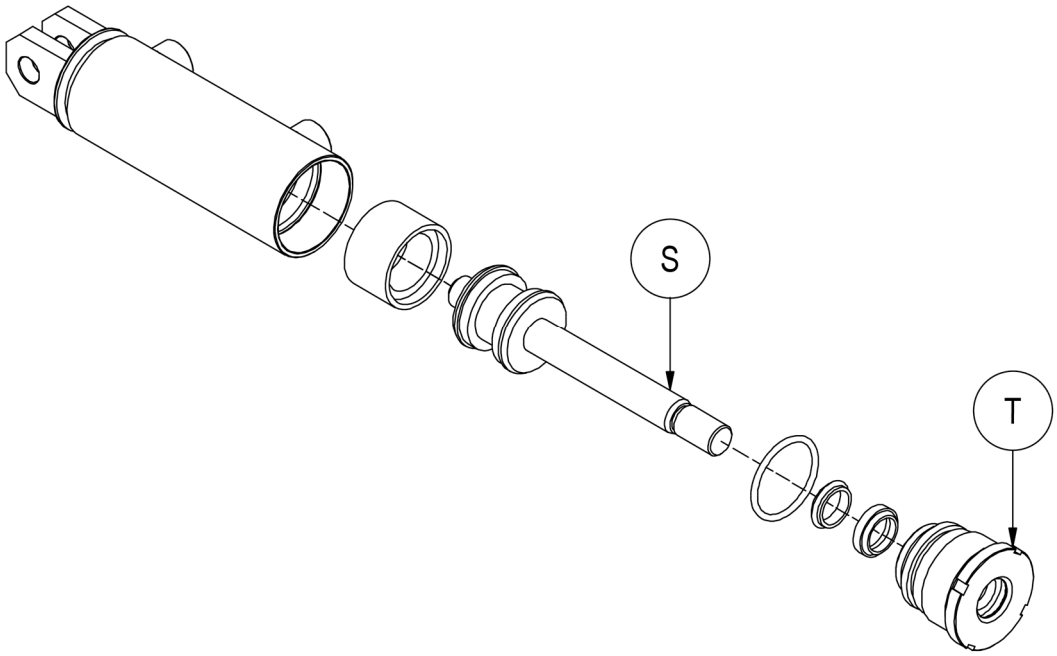


Figure 32

8 TROUBLESHOOTING

8.1 Probable Faults and Solutions

FAULT	CAUSE	SOLUTION
Insufficient ejection 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
	No oil in the tank	Fill up
Pressure drop	Oil leakage through pipes and fittings	Tighten the fittings or replace them
	Oil leakage from the cylinders	Replace the seals or, if necessary, the cylinders
Slow ejection	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 valve calibration
	Mechanical deformations of some parts	Repair or replace
	Worn cylinder seals	Replace them
	Closed Flow Regulator	Open
	No oil in the tank	Fill up
Irregular movements	Air in hydraulic system	Purge system
	Worn sliding bushes/bushings	Replace them
	Excessive friction between sliding parts	Clean and grease sliding parts
	Worn cylinder seals	Replace them
	No oil in the tank	Fill up

Table 4

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

8.2 Lubrication

Clean and lubricate all sliding surfaces.

- Lubricate the pins (the bushes) using the appropriate grease nipples;
- Grease the sliding profiles of the bearings;
- Grease the centring pins and the blade retainer coupling (sheet retention).

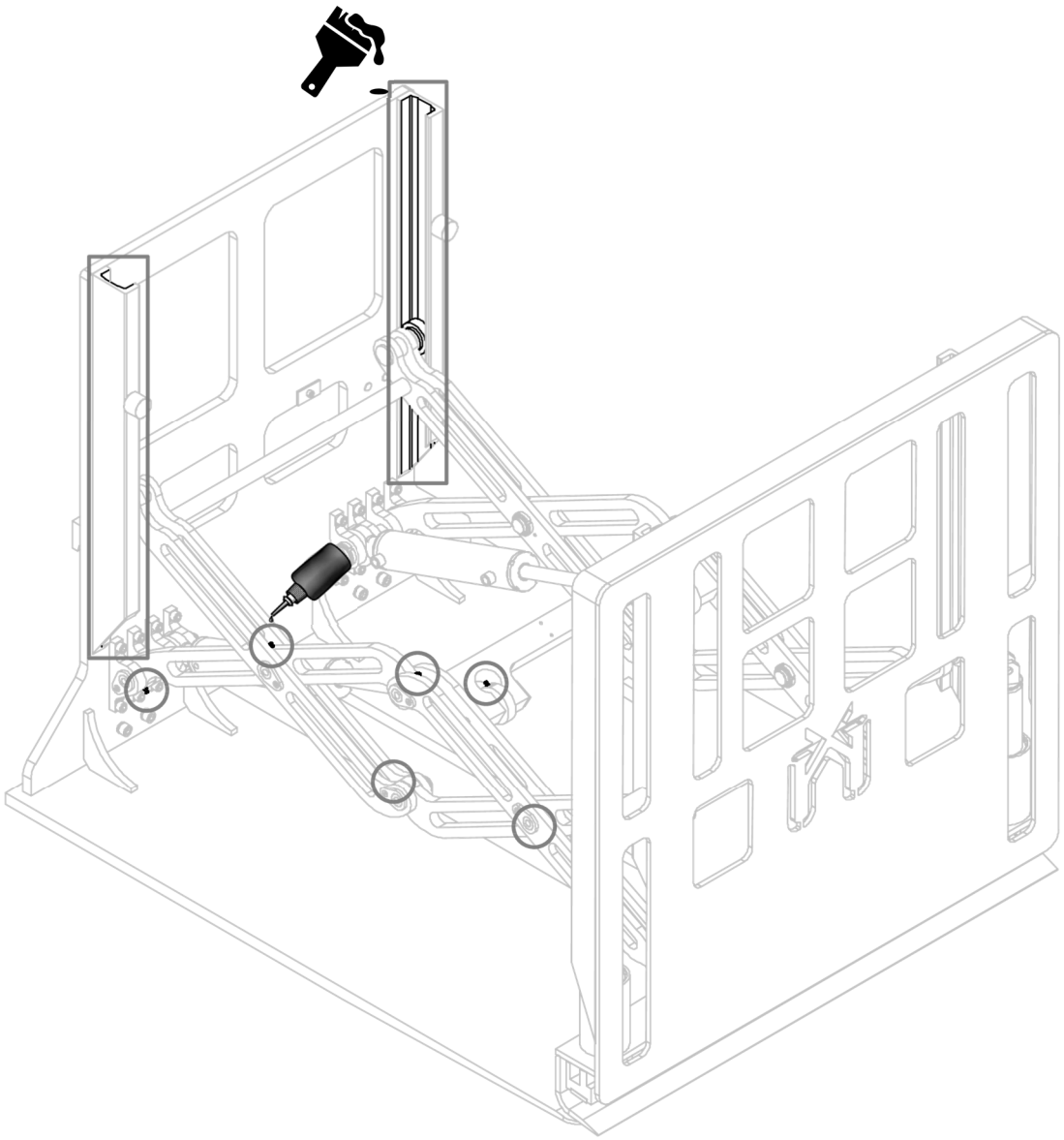


Figure 33

WITH SHEET RETENTION

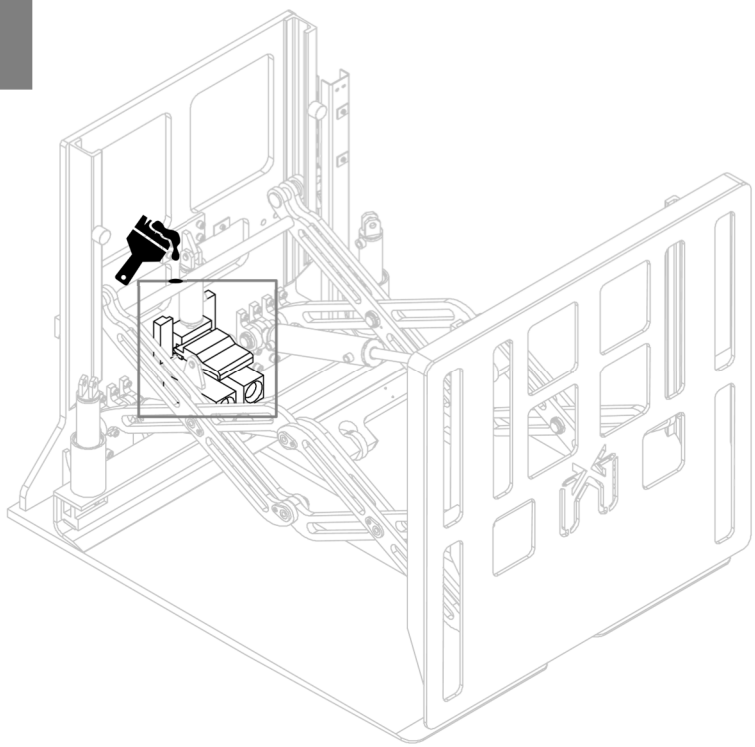


Figure 34

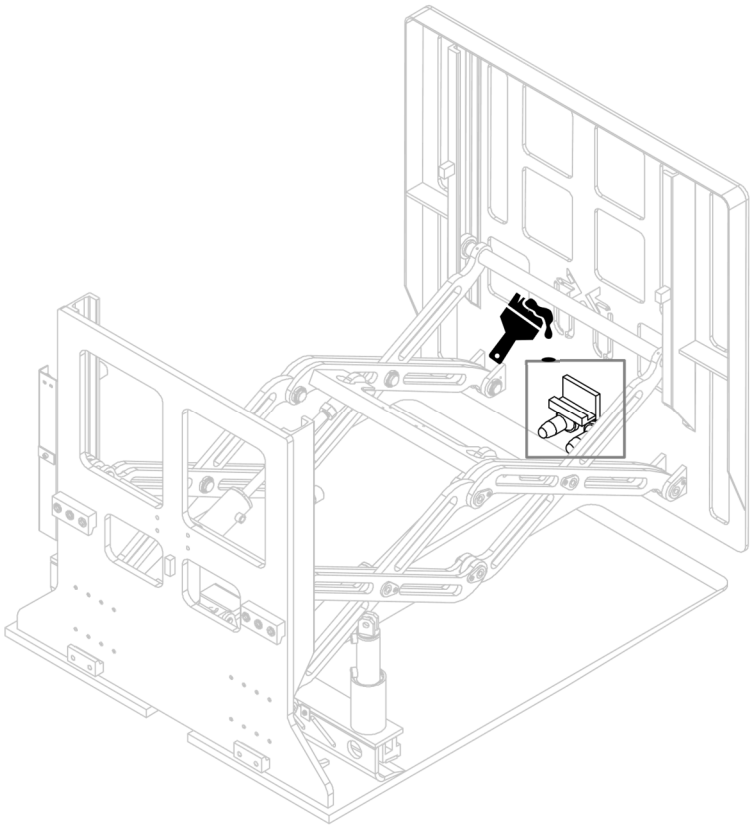


Figure 35

MADE IN ITALY

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