ATiB MATERIAL HANDLING

INSTRUCTION MANUAL FOR USE

LOAD EXTENDER

TYPE 600

I-D02-01-62 - Rev.3

INDEX

LOAD EXTENDER
TYPE 600

⚠ WARNING ⚠

READ THIS MANUAL VERY CAREFULLY BEFORE STARTING-UP THE MACHINE

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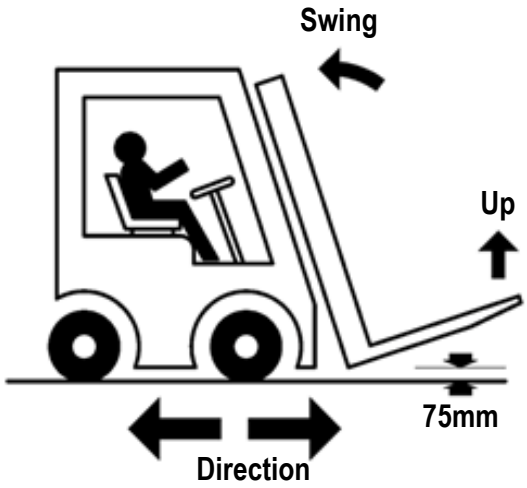
1 SAFETY RULES

Don’t carry passengers

Don’t cross the mast

Don’t pass under the load



2 INTRODUCTION

2.1 Use and upkeep of this manual

This “User Manual” (hereinafter referred to as Manual) is supplied together with the A.T.I.B. – “LOAD EXTENDER TYPE 600” pursuant the CE DIRECTIVE 2006/42/CE date 17/05/2006 and amendments..

The information contained here are imperative for the correct use of the attachment and must be known by the personnel who install, use, maintain and repair it.

This manual must be considered integral part of the attachment and must be kept as long as the attachment is in use on any machine in an accessible place, protected, dry and available for immediate consultation.

Should this manual be lost, the operator can apply for the supply of further copies from the manufacturer.

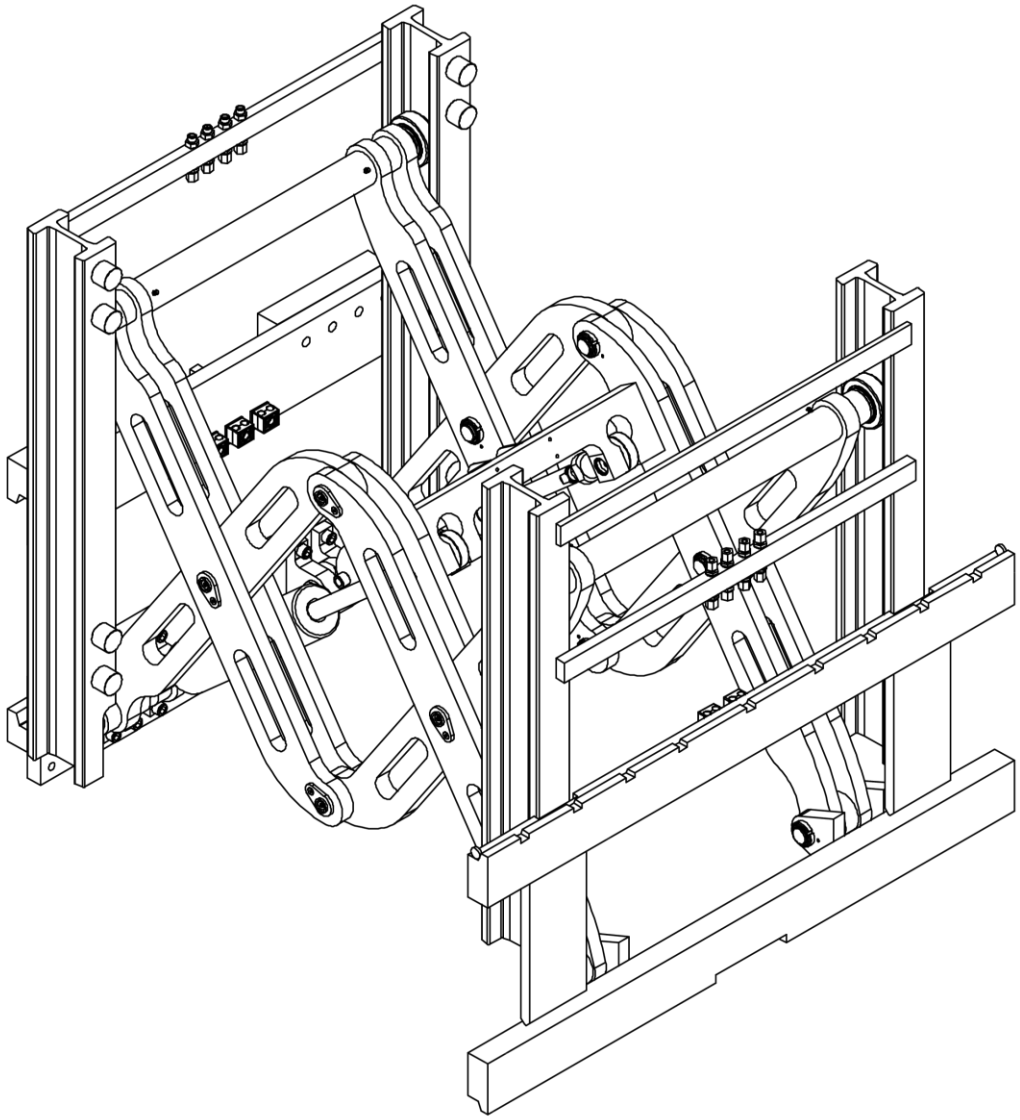
The manufacturer reserves the right to modify this Manual without notice and without the obligation to update the copies previously distributed.

The manufacturer is not liable in cases of:

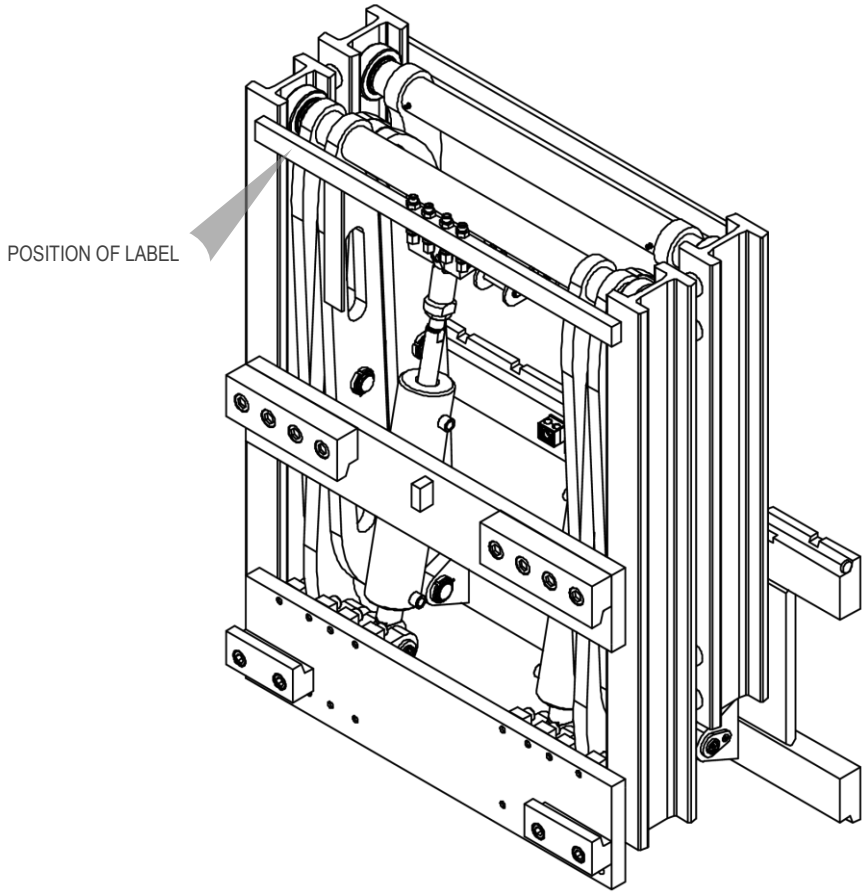
- Improper use of the attachment;
- Use by untrained personnel;
- Use contrary to current national and international laws;
- Lack of recommended maintenance;
- Non authorised modifications and repairs;
- Use of non original spare parts or parts for other models;
- Failure to adhere, either totally or partially, to these instructions;
- Exceptional circumstances.

The Nominal Capacity of the forklift / Equipment combination is established by the original manufacturer of the forklift and may be lower than that indicated on the identification plate.
Consult the plate of the forklift (Directive 2006/42 / EC).

2.2 Description of equipment



All the A.T.I.B. – "LOAD EXTENDER TYPE 600" are identified by means of a sticky identification label on attachment (*Tab 1*) position of identification label on equipment (*Picture 1*, the position of the identification plate may vary depending on the equipment). always refer to the serial number.



Picture 1

1. TIPO / TYPE	**8. PORTATA NOMINALE / NOMINAL CAPACITY**	**kg/mm**	**11. COPPIA MAX / MAX. TORQUE**	**daN m**
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) - ITALIA +39 030/9771711 info@atib.com - **atib.com**	
5. PESO / WEIGHT				
6. SPESSORE / THICKNESS	**NOTA: OSSERVARE I LIMITI DI PORTATA DELL'INSIEME CARRELLO CON ATTREZZATURA / WARNING: RESPECT THE RATED CAPACITY OF TRUCK AND ATTACHMENT COMBINED**			
7. CENTRO DI GRAVITÀ / CENTER OF GRAVITY				

Tab 1

1. **TYPE**
   It identifies the model of the equipment as shown in the catalogue.

2. **CODE**
   It identifies the equipment order code.

3. **SERIAL N°**
   It progressively identifies the individual equipment.
   The series number has been stamped should the tag go missing or be damaged. Always refer to the series number for any kind of information.

4. **YEAR OF CONSTRUCTION**
   It indicates the year of construction.

5. **WEIGHT**
   It indicates the weight of the equipment in kg.

6. **THICKNESS**
   It indicates the thickness of the equipment in mm.

7. **CENTER OF GRAVITY**
   It indicates the distance in mm of the equipment CG center of gravity from the fork holding plate table (CG1 closed position and CG2 open position.

8. **NOMINAL CAPACITY**
   It indicates the maximum P load applicable to the hoisting equipment and the maximum CC barycentric distance of the load itself. Example: 750/500 and 500/1050 indicate a 750kg capacity with 500mm center of gravity in closed position and 500kg capacity with 1050mm center of gravity in open position.

9. **CLAMPING CAPACITY**
   Not applicable to this equipment.

10. **MAX OPERATING PRESSURE**
    It indicates the maximum pressure applicable to the equipment.

11. **MAX TORQUE**
    Not applicable to this equipment.

The A.T.I.B. – “LOAD EXTENDER TYPE 600” was designed and built to allow the handling and positioning of double-deep palletized goods, by to the extension and retraction, for limited strokes, of the fork holder structure.

This equipment must be applied on the fork holding plate of the forklift the lift truck and the forks, and connected to the distributor by means of a hydraulic circuit.

The equipment performs the following function:

- Fork extension: the relative extension movement of the fork holder structure is achieved by means of two hydraulic cylinders applied to a mechanical pantograph mechanism.

Optional additional functions:

- SLS (SEMI-INTEGRAL SIDE SHIFT): the semi-integral sideshift movement between the parts integral with the fork holder plate and those integral with the lifting equipment is achieved by means of a hydraulic cylinder.

The coupling components of the fork holding plate are manufactured in compliance with the ISO 2328 norm.

3 INSTALLATION

Verify the nominal capacity of equipment

To check the nominal capacity of equipment, consult the identification label (*Tab 1* pag.*5*).

⚠ WARNING ⚠

Make sure that the operator of the forklift is aware of the maximum capacity of the attachments, so as NOT to pose a danger to himself and to the people who work in his vicinity.

The forklift manufacturer is responsible for calculating the residual capacity of the forklift /equipment assembly.

Check operating pressure and flow rate of oil

A.T.I.B. consiglia di rispettare i valori di portata oleodinamica e pressioni d'esercizio riportati nella *Tab 2*, al fine di ottimizzare il funzionamento dell'attrezzatura e di evitare inconvenienti durante le fasi di lavoro o messa in funzione. I valori sono indicativi e possono variare in funzione dell'attrezzatura.

TYPE and ISO	OIL FLOW (l/min)			Max operating pressure (Bar)
	Min.	Max.	recommended	
600 ISO II (POST. E ANT.)	15	30	20	175
600 ISO POST. III / ANT. II	20	40	30	175
600 ISO III (POST. E ANT.)	20	40	30	175

Tab 2

⚠ WARNING!! ⚠

RESPECT THE MAXIMUM WORKING PRESSURES INDICATED

3.1 Installation

STANDARD

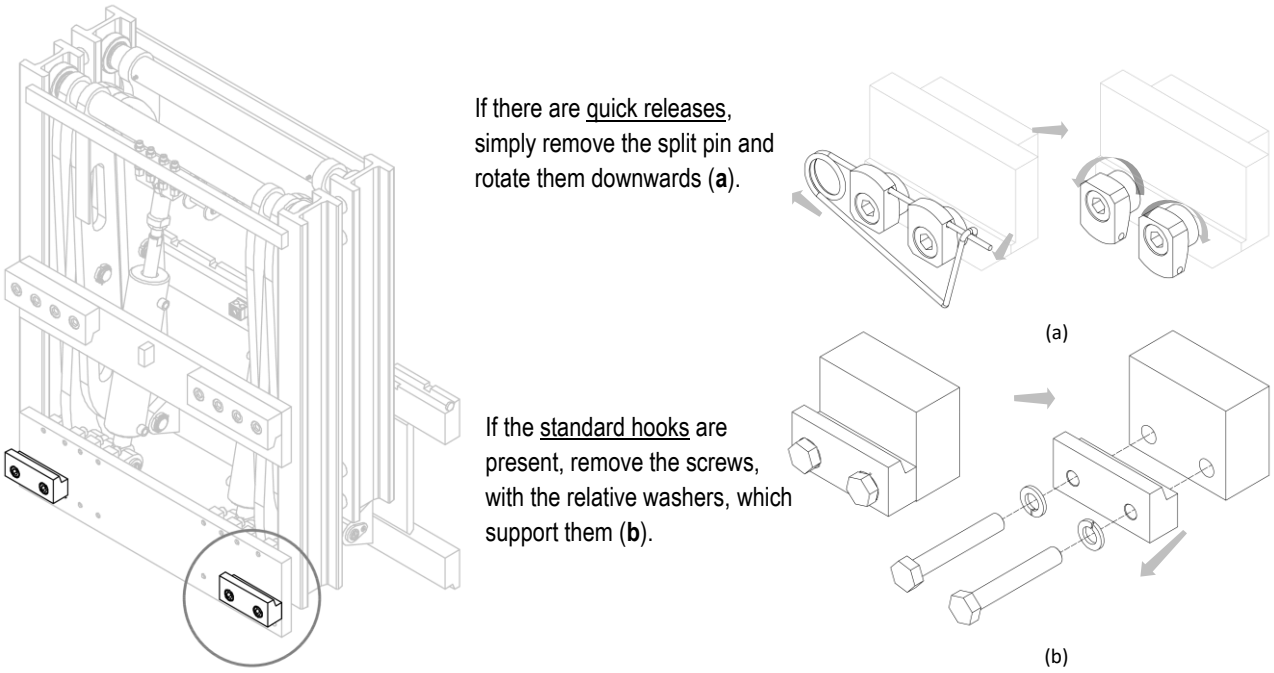
3.1.1 Attachment installation - Standard

1. Before installation, verify the condition of the fork carriage, ensuring that it is not deformed.

2. Also make sure that the profiles of the fork holding plate are not deformed, in order to allow a good coupling with the equipment.

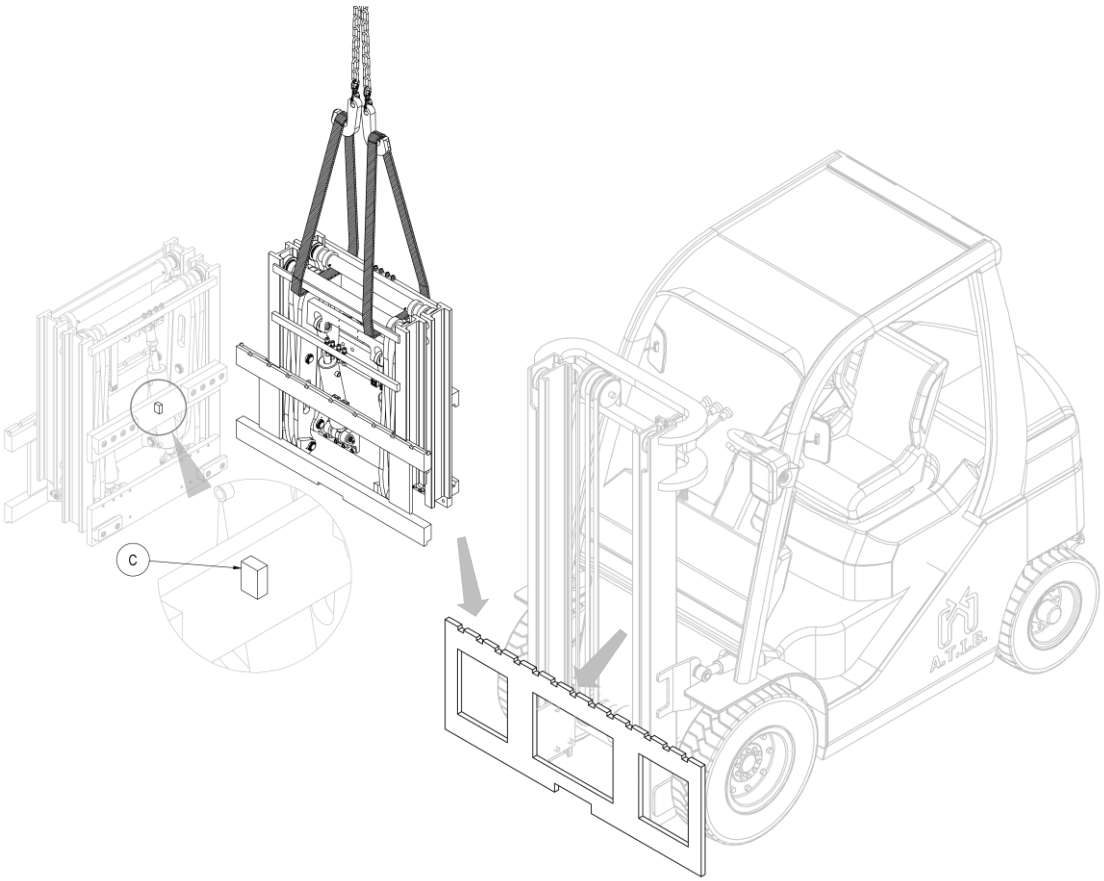
3. Check the condition of the pipes, replacing those that are in a bad condition.

4. Unscrew the lower hooks of equipment (*Picture 2*).



Picture 2

5. For handling, use belts or chains appropriately sized for the weight of the equipment, indicated on the identification plate (vedi *Picture 1* e *Tab 1* a pag.*5*).



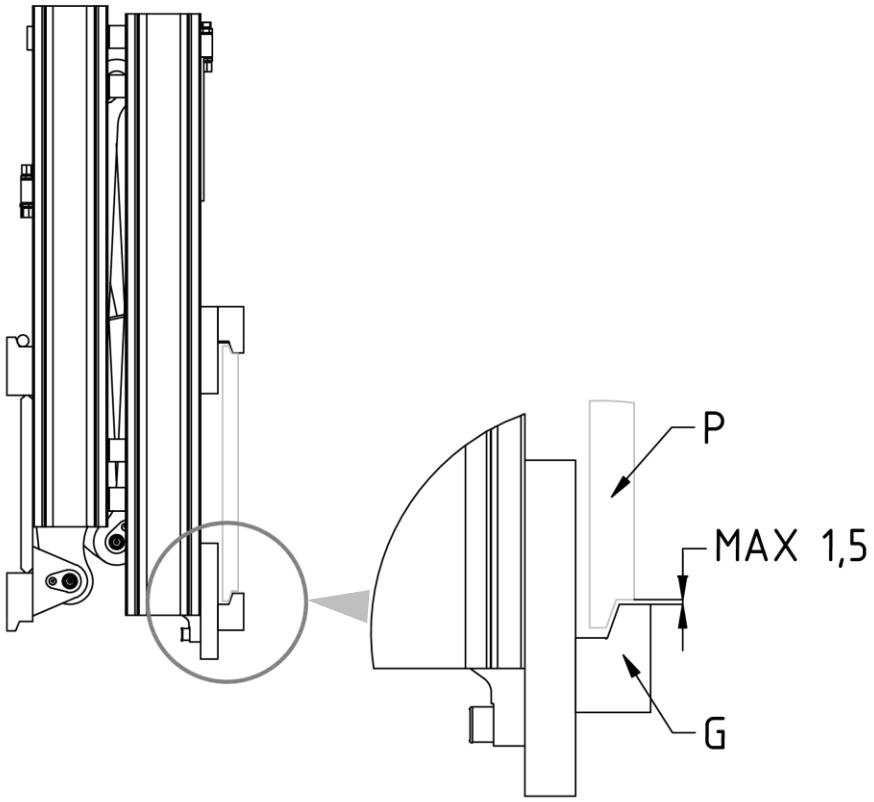
Picture 3

6. With an overhead crane or with a hoist of sufficient capacity hook the attachment to the fork carriage, placing the centring tooth C into the central notch (*Picture 3*).

7. Screw the two bottom hooks **G** with bolts so that the attachment is safely mounted on the fork carriage **P** (with a tolerance max. 1,5mm, *Picture 4*), reaching to the following torques *Tab 3*.

ISO 2328	THREAD	TORQUE
ISO II	**M12**	**90 Nm**
ISO III	**M14**	**140 Nm**

Tab 3



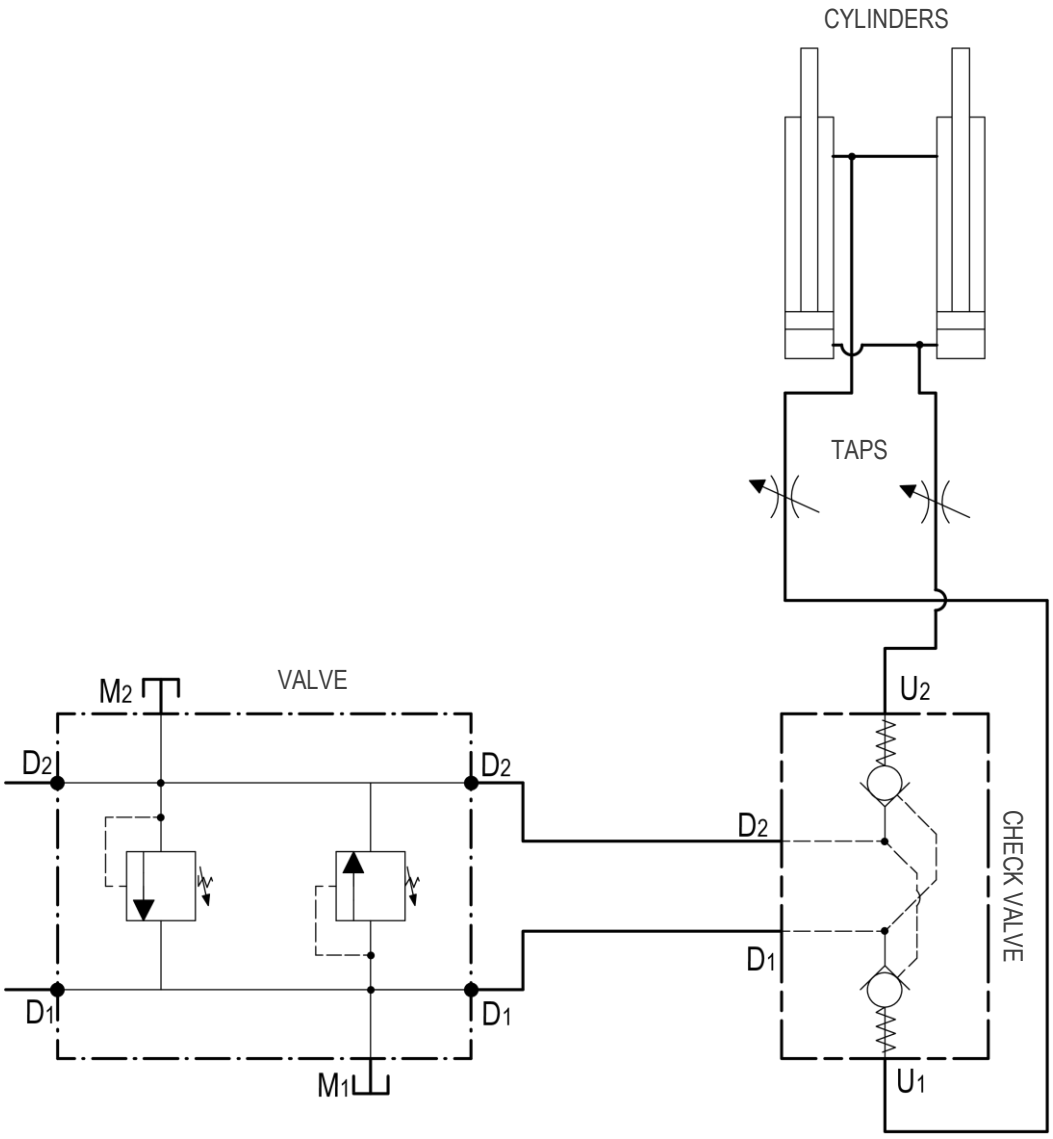
Picture 4

8. Lubricate the contact parts (*Lubrication* pag.*30*).

9. Connect the hydraulic circuit, making sure that the operating pressure of the pipes is higher than or equal to that indicated on the identification label (*Picture 1* and *Tab 1* pag.*5)*.

4 HYDRAULIC SYSTEM

4.1 Hydraulic system - Standard



Picture 5

5 USE RULES

Before using the equipment, check the tightness of the pipes and the correctness of assembly and connection by performing about ten preliminary operations.

When using the equipment, it is necessary to follow the instructions listed below:

1. Observe the capacity limits of the equipment.
2. Do not use the equipment when people or animals are within the range of action of the forklift.
3. Do not try to move loads sideways by sliding them on the ground.
4. Do not exceed the maximum pressure value indicated on the identification plate.
5. Operate the equipment from the driver's seat of the forklift by a single operator.
6. Act gently on the translation control lever, avoiding water hammer as much as possible.
7. Any operation relating to installation, use and maintenance must be performed by specialized personnel equipped with appropriate equipment for the type of intervention to be carried out.
8. Carry out maintenance and / or repair operations with the forklift stopped and with the hydraulic circuit not active, using suitable protective equipment (gloves, safety shoes, etc.).
9. Operate the piston rods only when they are correctly mounted on the equipment; Otherwise, the piston rods could be violently ejected by the oil pressure.

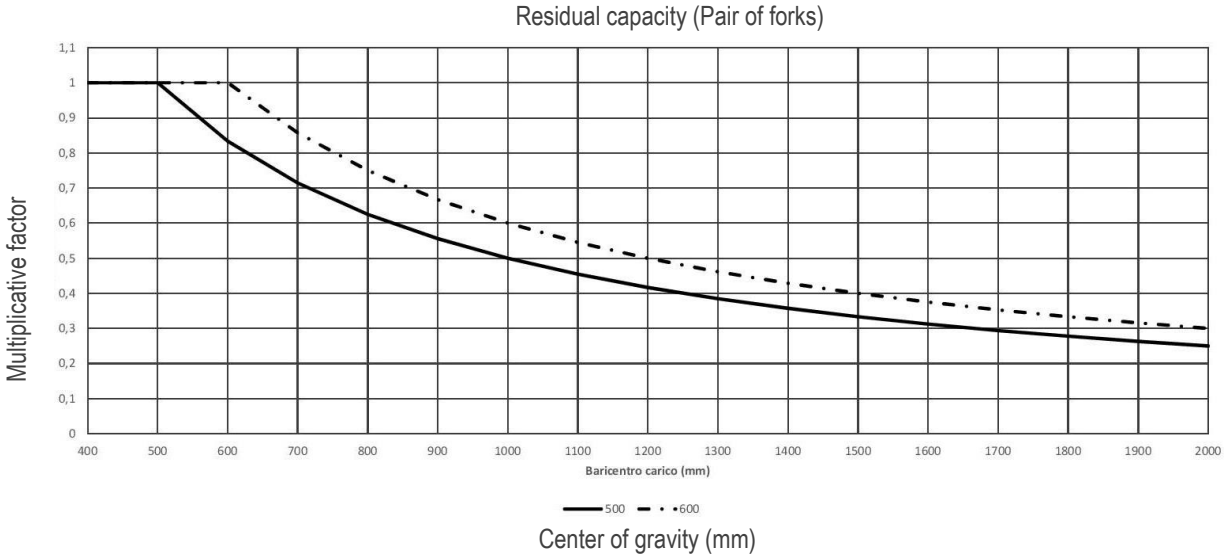
The considered acoustic pressure level is lower than 70 dB (A).

Every ATIB attachments are projected and constructed according to a load positioned (as regards its centre of gravity) at a certain distance from vertical part of the fork.

If you need to increase the distance of the center of gravity as regards vertical part of the fork you have to reduce the weight of the load.
In this occasion, we suggest to control the chart *(Picture 6)*, where, according to the increase of the centre of gravity (x-axis) there is a load reduction multiplying factor (y-axis).

The multiplying factor, obtained based on desired load centre position, will be multiplied with nominal capacity of the equipment. The result of this multiplication will be actual capacity of the attachment.

Continuous line is for equipment with load center at 500 mm.
Dotted line is for equipment with load center at 600mm.



Picture 6

NOTE - This calculation is valid only for "stable" load, in case of movement of liquid material please contact the producer.

The affordable stroke can compromise the stability of the forklift.

To check the nominal capacity of the combination forklift – attachment ask the producer of the forklift.

The condition of the soil, the quickness of the movement of the load and the lifting height can affect the hold of the load and must be taken into consideration as regards specific occasions.

Side shifting movement is forbidden in movement.
Side shifting movement in condition of lifted mast is permitted only to bring back the load at the center of the mast.

Nominal capacity of the combination forklift – attachment is established by the producer of the forklift and can be lower than the one indicated on the identification label of the attachment.

Check label of the forklift (Directive 2006/42/CE).

5.1 Load handling

Avoid handling and / or translation of the forklift / equipment with the load excessively raised from the ground, this could compromise the stability of the forklift itself.

Avoid moving / handling unstable loads.

Avoid moving / handling loads with center of gravity not centered.

6 PERIODIC MAINTENACE

Failure to adhere to the norms and established times for maintenance operations, will be detrimental to the good functioning of the equipment and will annul the guarantee conditions.

All maintenance operations must be carried out with the forklift motionless and the hydraulic circuit not activated, perimeter the entire maintenance area, using the necessary protective devices and, if it is necessary to disassemble the cylinders, always using a tray or container to recover the oil still present in the cylinder itself.

To avoid problems regarding the use of the equipment, A.T.I.B recommends changing the hydraulic oil and its filters regularly and trying to keep the system as clean as possible during maintenance operations.

⚠ WARNING ⚠

The hydraulic parts can be very hot. Use adequate protections.
Beware of any leaks. Oil under high pressure can damage the eyes and skin. Always wear protective goggles on the sides as well.
Never remove valves, hoses or other potentially pressurized parts when it is active.

6.1 Maintenance every 100 hours

1. Check the conditions of the hydraulic connections (pipes and fittings), replacing, if necessary, the worn parts.
2. Check the tightening torque of the bolts of the lower sealing hooks of the equipment, verifying that it is as indicated in *Tab 3* (pag. *11*) and, if necessary, intervene on the tightening of the screws that support them.
3. Check the clearance between the lower part of the fork holder plate and the lower hooks of the equipment, verifying that it is as indicated in *Picture 4* (pag.*11*) and, if necessary, intervene on the tightening of the screws that support them.
4. Clean and lubricate all sliding parts (*Picture 17* pag.*30).*

6.2 Maintenance every 300 hours

1. Check the condition of upper and lower sliding devices if an excessively worn component is found, it is recommended to replace the entire assembly of the component in question.
2. Also carry out the operations listed in the previous point (Point 06.01).

6.3 Maintenance every 1000 hours

1. Check the condition of upper and lower sliding devices if an excessively worn component is found, it is recommended to replace the entire assembly of the component in question.
2. Check the condition of the sliding bearings.
3. Also carry out the operations listed in the previous points (Point 6.1 and 6.2).

6.4 Maintenance every 2000 hours

1. Proceed with a thorough inspection of the equipment; this, possibly, must be performed by qualified personnel, able to identify any problems that could compromise the safety and efficiency of use of the equipment. The defects that can be found can be many:

   - Check the condition of all equipment components (cylinders, hooks, gaskets, fittings, grease nipples, etc.), verifying that their conditions are optimal and, if there are worn components, proceed with their replacement / repair.

   - Check the condition of the sliding and working surfaces and proceed with their replacement / repair if they are damaged.

   For further possible problems (and relative solutions) refer also to
   Tab 4 pag.*29*.

2. Disassemble the cylinders and check the condition of the rods and seals, if there is a damaged or excessively worn seal, A.T.I.B. recommend to replace the entire assembly seals.
3. Replace the seals even in the event of oil leaks and the rods if scratched (the cylinders must always be tested inserted in the equipment in order to avoid the sudden expulsion of the rods).
4. Also carry out the operations listed in the previous points (points *6.1*, *6.2* and *6.3*).

Please Note: Intensify interventions in case of use in particularly severe conditions

7 DISASSEMBLY PROCEDURE

All maintenance operations must be carried out with the forklift stopped and with the hydraulic circuit not connected and not under pressure, surrounding the entire maintenance area, using the necessary protection devices and, if it is necessary to disassemble the cylinders, always using a tray or container to recover the oil still present in the cylinder itself.

7.1 Disassembly attachment from forklift

STANDARD

1. Relieve the pressure of the hydraulic system and disconnect the pipes.

2. Unscrew the lower hooks of equipment (*Picture 2* pag.*9)*.

3. For handling, use belts or chains appropriately sized for the weight of the equipment, indicated on the identification plate.

4. With an overhead crane or with a hoist of sufficient capacity hook the attachment and remove equipment from forklift (*Picture 3 pag.10*).

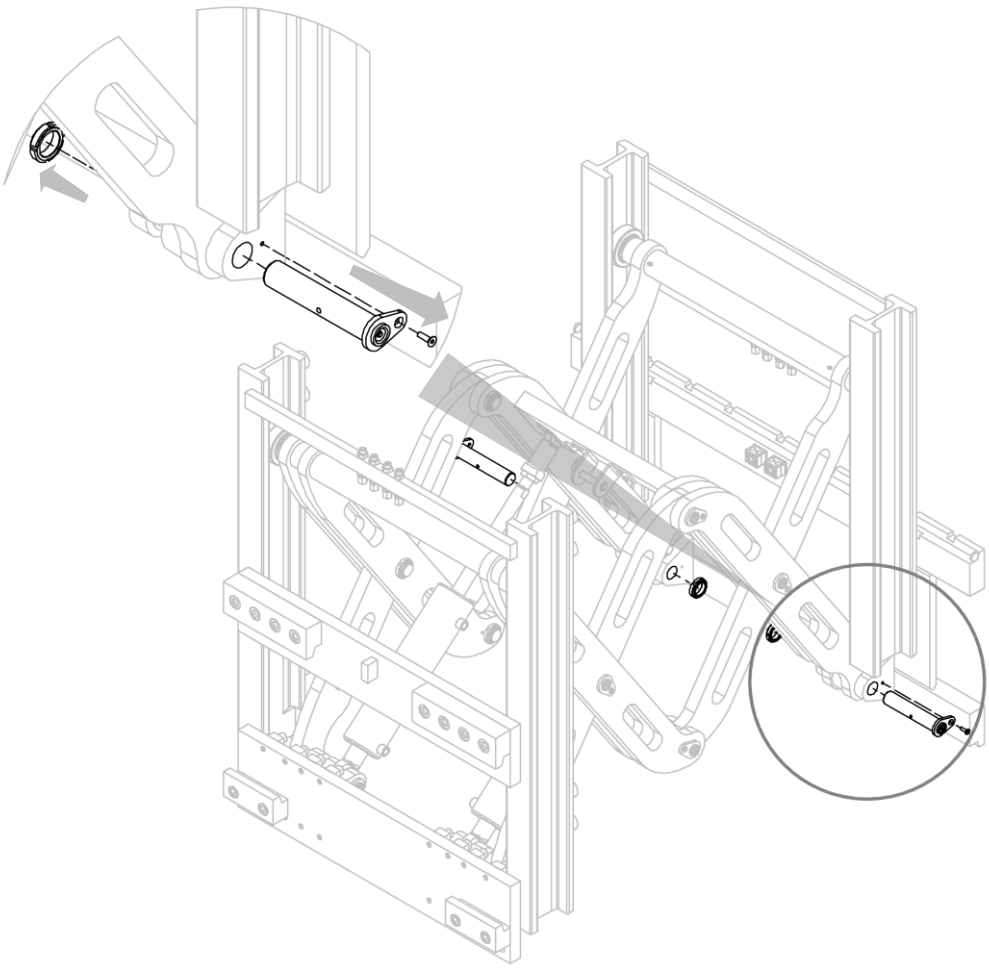
7.2 Push unit disassembly

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

FRONT PART

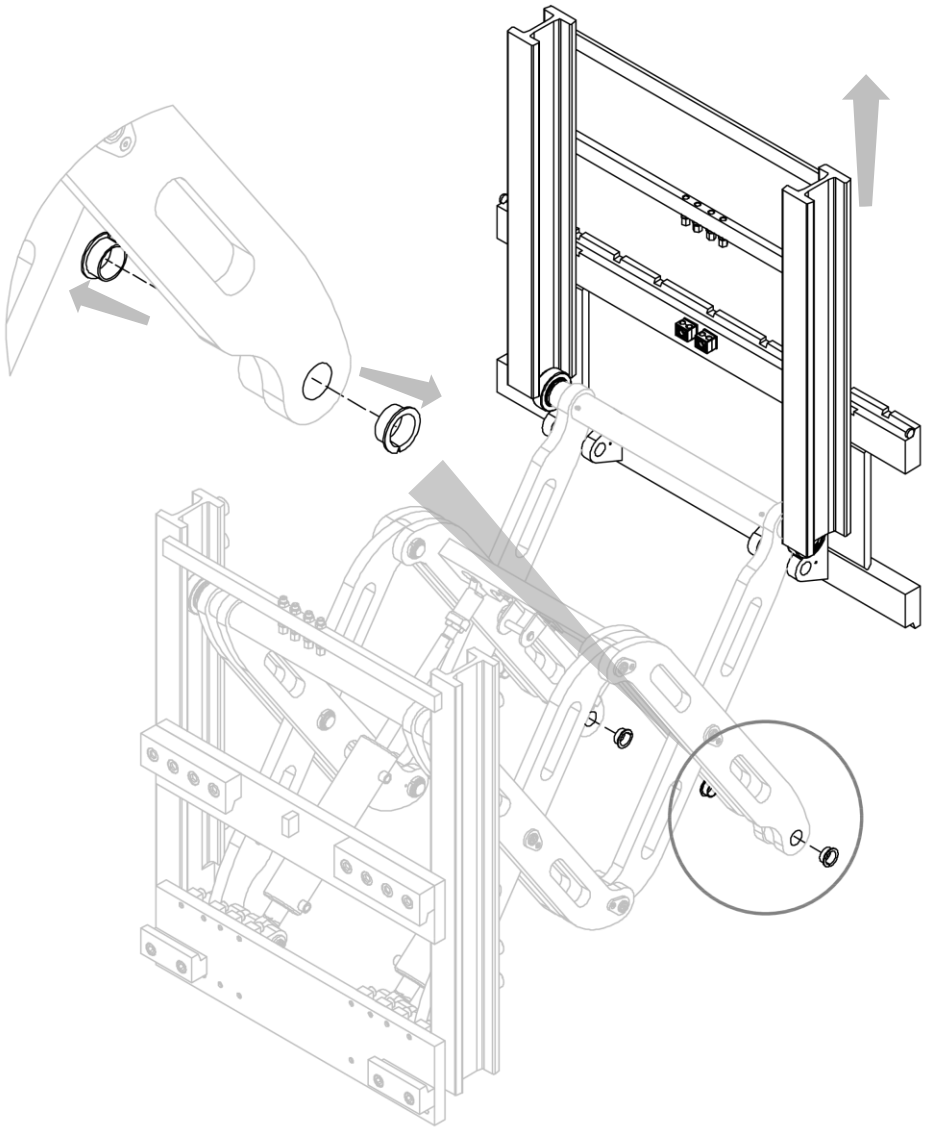
7.2.1 Front frame removal

1. Relieve the pressure of the hydraulic system and disconnect the pipes.
2. Remove the pins (with the relative screws and ring nuts) indicated in *Picture 7*.



Picture 7

3. Remove the front frame. At this point it will be enough to remove it from above, as it is "bound" to the equipment only by the bearings of the pair of arms indicated in *Picture 8*.



Picture 8

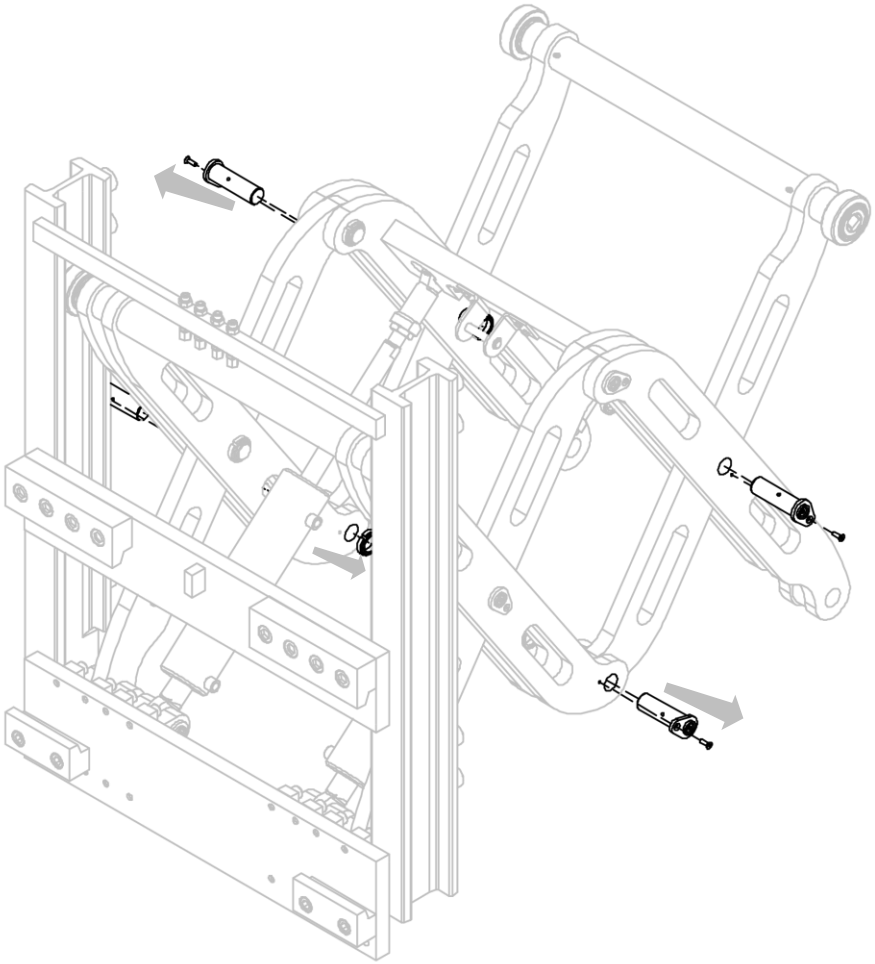
7.2.2 Harms removal

HARMS

1. Relieve the pressure of the hydraulic system and disconnect the pipes.

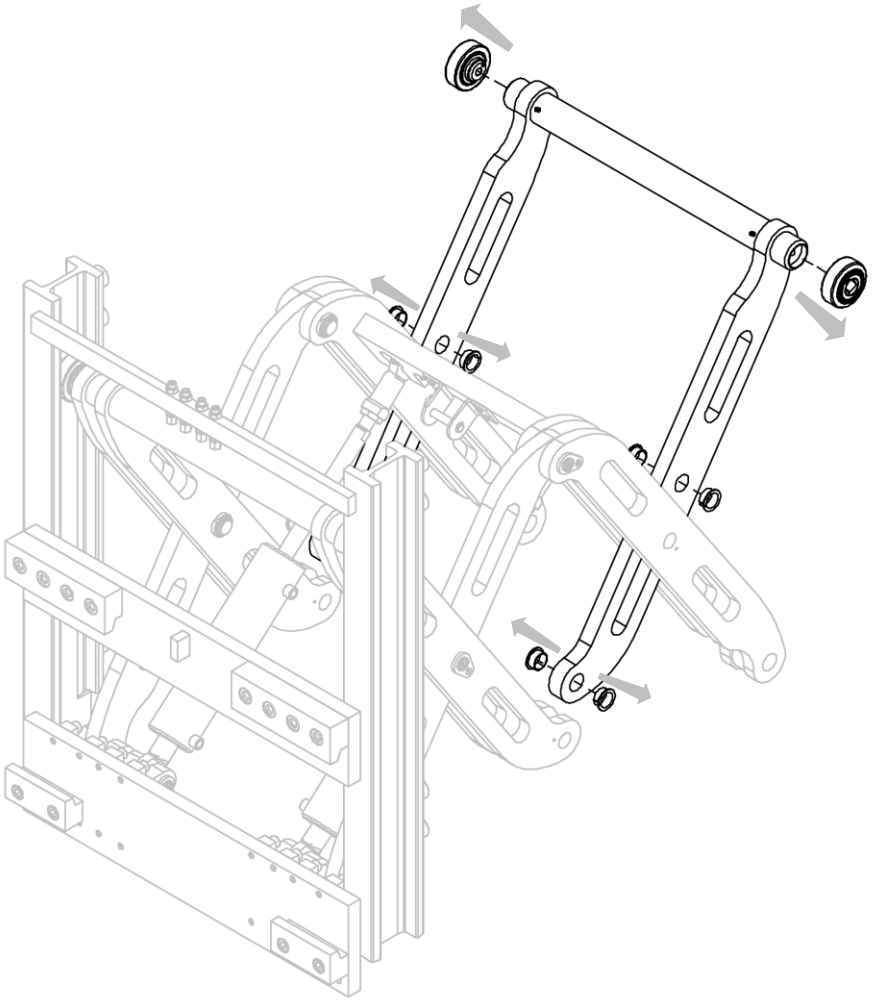
2. Remove the front frame from the equipment as explained in the previous chapter.

3. Remove the pins (with relative screws and ring nuts) that lock the pair of arms (*Picture 9*).



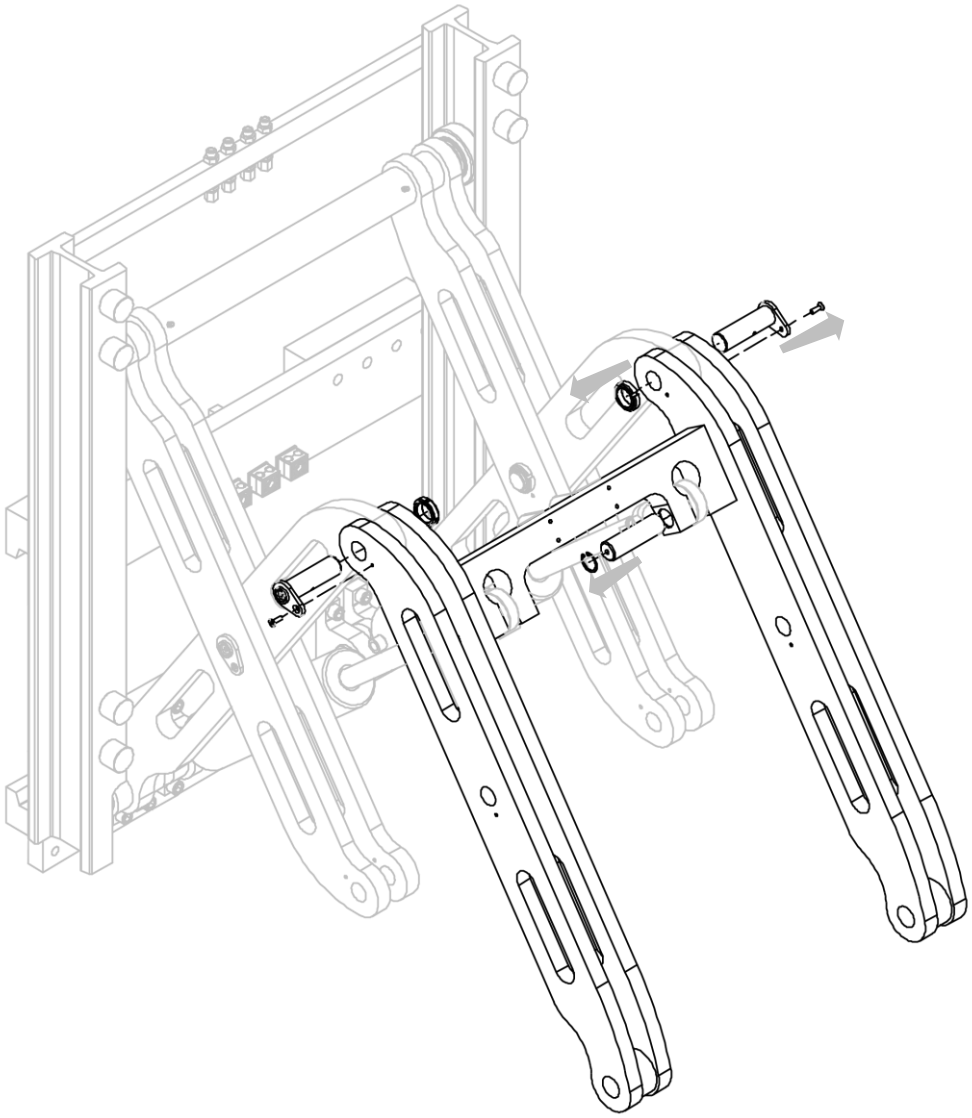
Picture 9

4. Remove the pair of arms from the equipment, with the relative oscillation bushings (*Picture 10*).



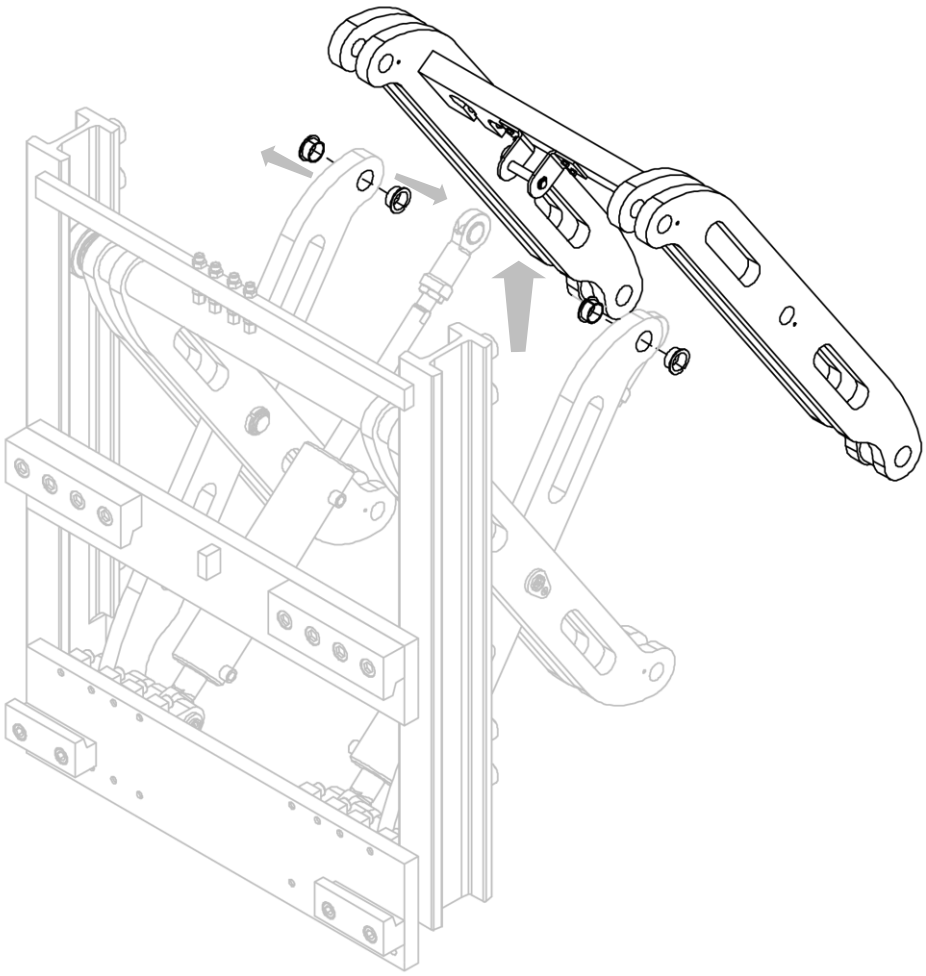
Picture 10

5. Remove the four pins that lock the pair of arms (*Picture 11*).



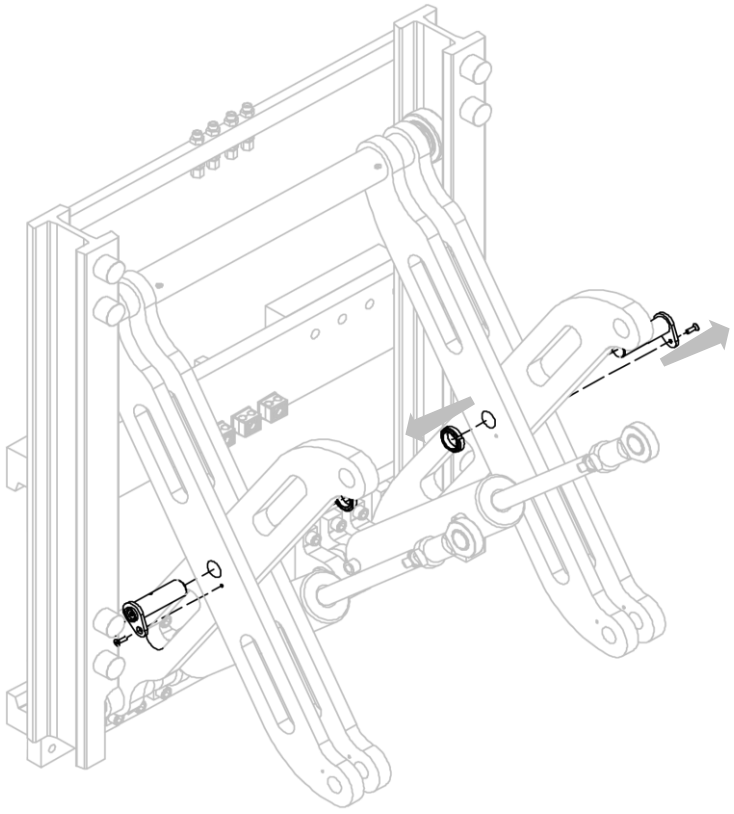
Picture 11

6. Remove the pair of arms from the equipment, with the relative oscillation bushings (*Picture 12*).

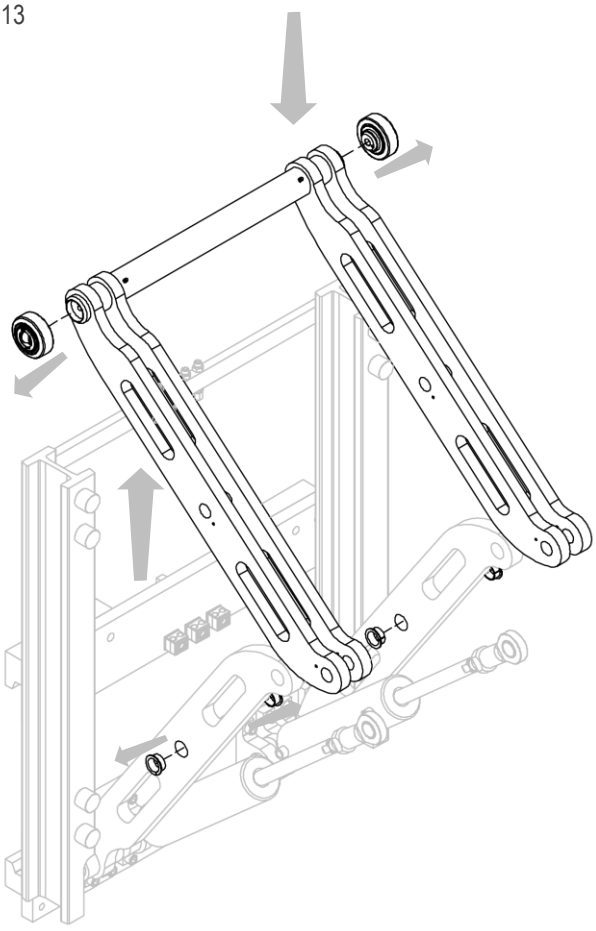


Picture 12

7. Remove the pair of arms (with their bearings) from the equipment, after removing the pins that block them (*Picture 13* and *Picture 14*).



Picture 13



Picture 14

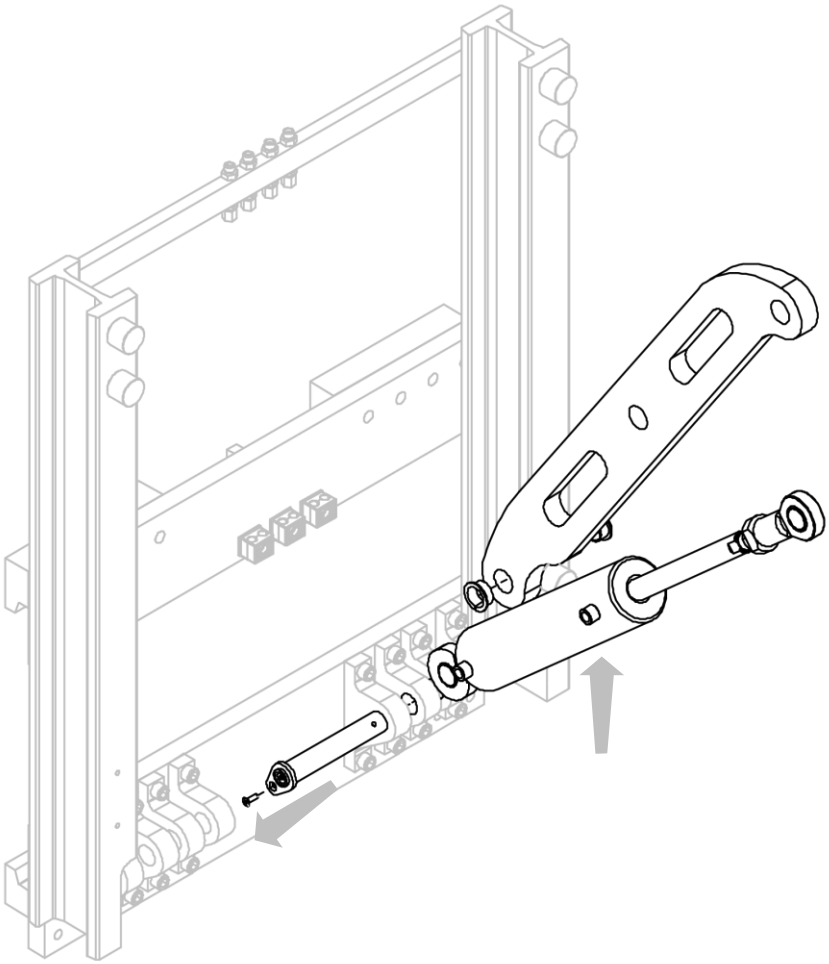
7.2.3 Cylinders removal

CYLINDERS

1. Relieve the pressure of the hydraulic system and disconnect the pipes.

2. Remove the necessary arms as explained in the previous chapter.

3. Remove the cylinders and the remaining arms after removing the pins that secure them to the bolted supports (*Picture 15*).

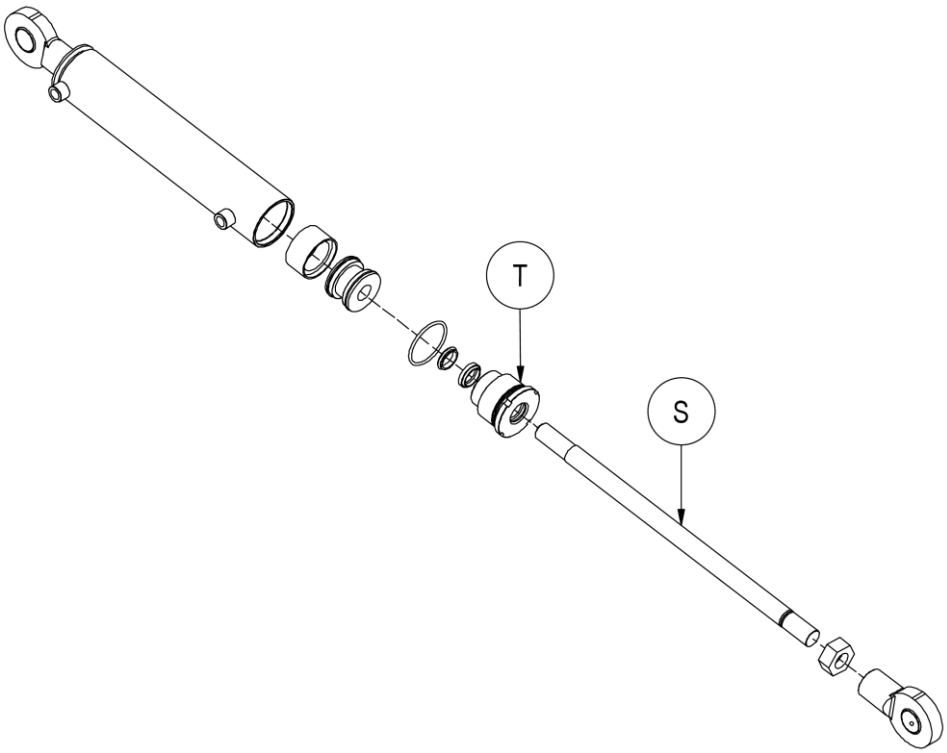


Picture 15

7.2.3.1 Cylinder disassembly

If it is necessary to replace the entire pair of cylinders, reassemble everything following the instructions listed in the previous point in reverse, if you also need to replace some cylinder component, proceed as indicated below:

1. Clamp the cylinder in a vice with rubber jaws (taking care not to deform the housing).
2. With a sector wrench unscrew the cup **T**.
3. If you find it difficult to unscrew the cap, it is necessary to slightly heat the area of the thread concerned to facilitate unscrewing.
4. Remove the stem **S** (the stem can be either welded or screwed to the piston) and unscrew it from its joint.
5. Disassemble / separate the rest of the components and seals from each other.
6. Replacing the worn components, follow the previous steps in backwards, re-lock the cap applying a medium strength thread locker.
7. If there is a damaged seal, it is advisable to replace the entire kit.
8. Refer to *Picture 16*.



Picture 16

8 BREAKDOWNS AND SOLUTION

8.1 Breakdowns and solutions

FAILURE	CAUSE	SOLUTION
Insufficient strength	Too low setting of the maximum pressure valve	Increase the pressure without exceeding the maximum limit
	Insufficient pressure	Contact the forklift manufacturer
	Worn Pump	Replace
	Worn cylinder seals	Replace
	Lack of oil in the tank	Top up
Loss of pressure	Leakage of oil from the pipes and joints	Tighten the joints or replace them
	Leakage of oil from the cylinders	Replace the seals or, if necessary, the cylinders
Slow extension	Loss load while sideshifting	Lower the side shift pressure
	Low oil flow	Check the tank level and the pump
	Pressione insufficiente	Bottlenecks in the system: Search and delete them
	Insufficient pressure	Set the maximum pressure valve
	Mechanical deformations of some parts	Repair or replace
	Worn cylinder seals	Replace
	Lack of oil in the tank	Top up
Irregular sideshift	Presence of air in the hydraulic system	Bleed the hydraulic system
	Lardoni o rulli di scorrimento usurati	Replace
	Excessive friction between the sliding parts	Clean and lubricate the sliding parts
	Worn cylinder seals	Replace

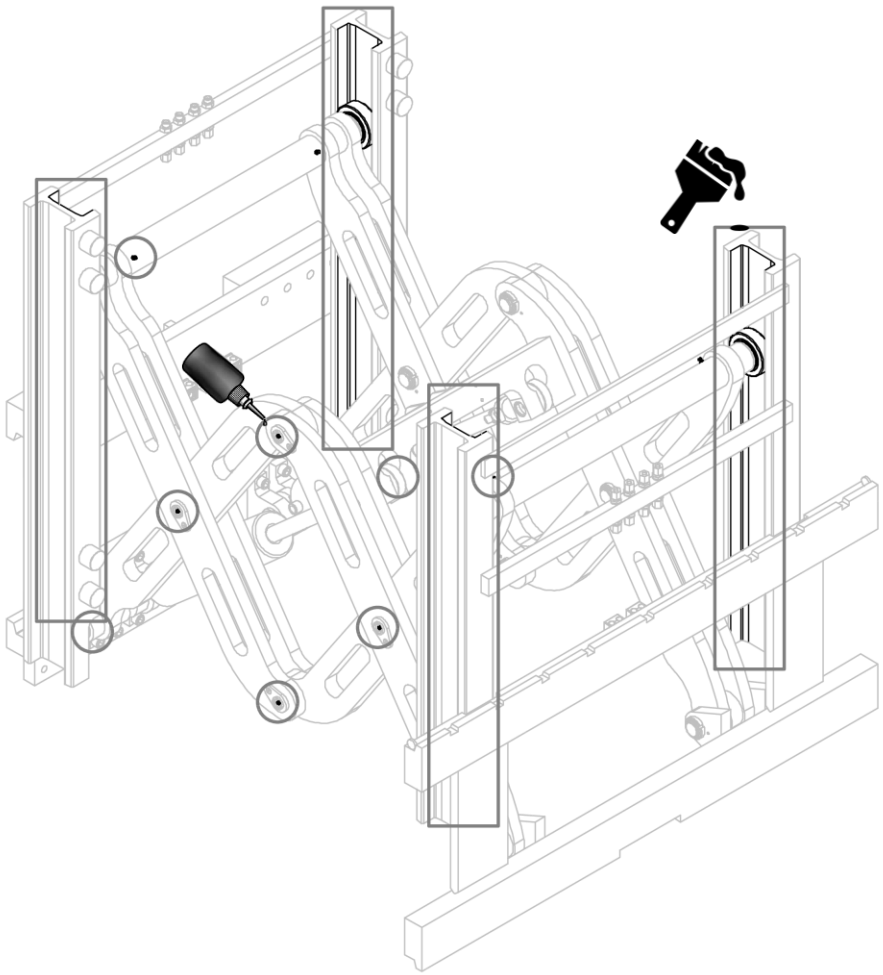
Tab 4

Should there be other problems, please contact A.T.I.B. S.r.l.

8.2 Lubrication

Lubricate the sliding parts.

- Lubricate the pins (and the relative bushings) using the special grease nipples;
- Grease the sliding profiles of the bearings.



Picture 17

MADE IN ITALY

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