ATiB MATERIAL HANDLING

INSTRUCTION MANUAL FOR USE

BOX ROTATOR 360°

TYPE 219

I-D02-01-56 - Rev.4

INDEX

BOX ROTATOR 360° TYPE 219

⚠ WARNING ⚠

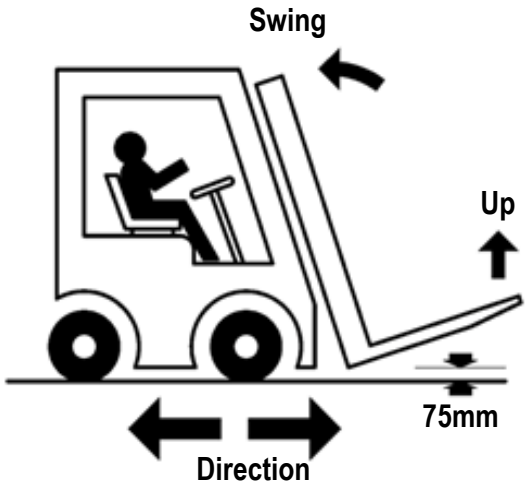
READ THIS MANUAL VERY CAREFULLY BEFORE STARTING-UP THE MACHINE

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. – “BOX ROTATOR 360° TYPE 219” 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.

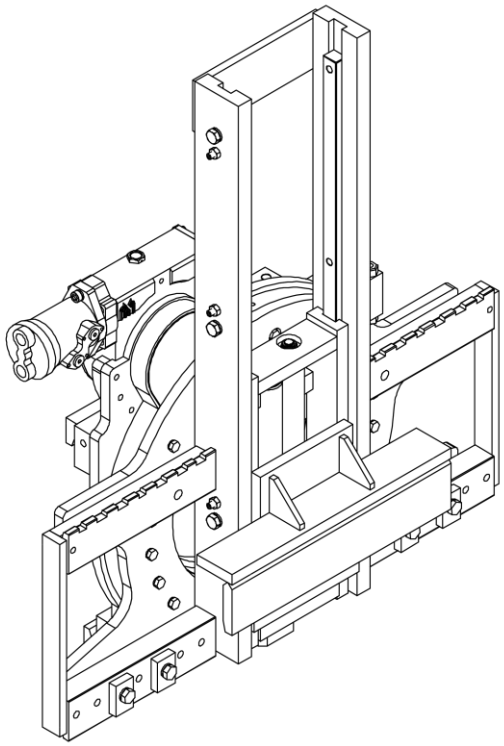
The manufacturer is not liable in cases of:

- 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.

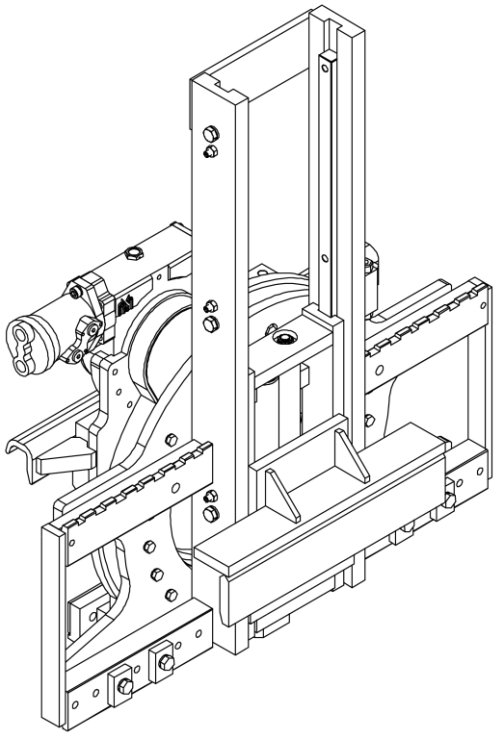
The Nominal Capacity of the forklift / Equipment combination is established by the original manufacturer of the forklift and may be lower than that indicated on the identification plate.
Consult the plate of the forklift (Directive 2006/42 / EC).

2.2 Description of equipment

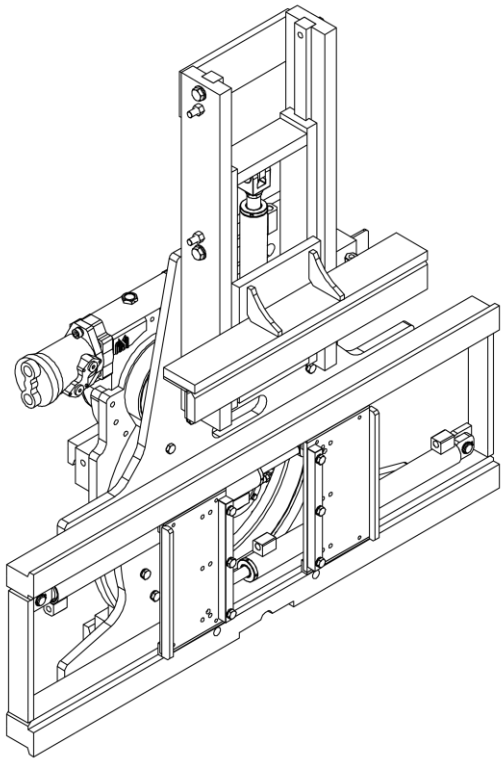
TYPE 219



TYPE 219 WITH SLS

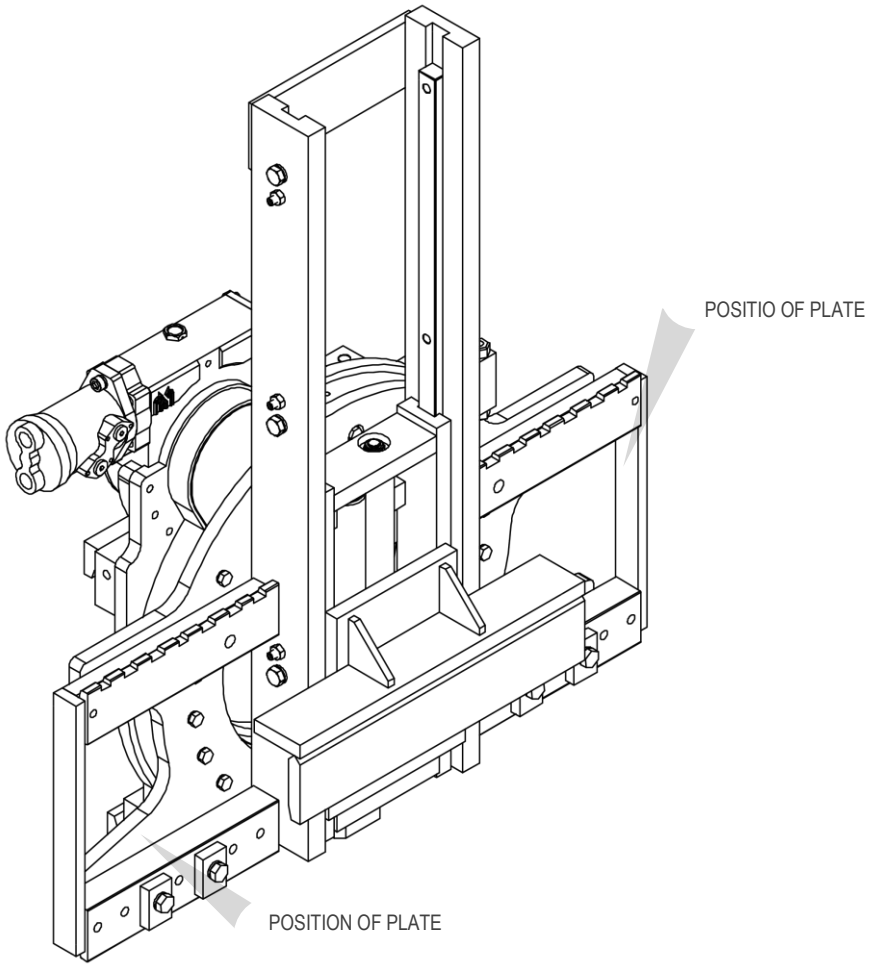


TTPE 219 RFI



All the A.T.I.B. – “BOX ROTATOR 360° TYPE 219” are identified by means of a sticky identification label on attachment (

Tab 1) positioned on the equipment (*Picture 1,* in which the two most common positions of the identification plate are shown). Always refer to serial number.



Picture 1

1. TYPE	**8. NOMINAL CAPACITY**	**kg/mm**	**11. MAX. TORQUE**	**daN m**
2. CODE	**9. CLAMPING CAPACITY**	**kg/mm**	A.T.I.B.	CE
3. SERIAL N°				
4. YEAR OF MANUFACTURE	**10. 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. WEIGHT				
6. THICKNESS	**WARNING: RESPECT THE RATED CAPACITY OF TRUCK AND ATTACHMENT COMBINED**			
7. 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.

8. **NOMINAL CAPACITY**
   It indicates the maximum P load applicable to the hoisting equipment and the maximum CC barycentric distance of the load itself.

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

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

11. **MAX COUPLE**
    Indicates the rotation torque of the equipment.

All the A.T.I.B. – “BOX ROTATOR 360° TYPE 219” were planned and built to allow the lifting, transport and emptying of bins for any use (scrap, recycling, agricultural ...).

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

The equipment can perform the following functions:

- Rotation: the relative rotation movement between the parts integral with the fork holder plate and those integral with the lifting equipment is achieved by means of a hydraulic motor integrated with the reducer gear;
- Locking bins: the movement related to the bins containment plate is achieved through the use of a cylinder / a pair of hydraulic cylinders;

Optional additional functions:

- SLS (SEMI-INTEGRAL SIDESHIFT): 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;
- RFI (INTEGRAL FORK POSITIONER): the movement that allows the adjustment of the fork center distance is achieved by operating two hydraulic cylinderS;

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 (

⚠ 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.

Tab 1 pag.*6*).

Check operating pressure and flow rate of oil

A.T.I.B. advises to respect the hydraulic flow rates and operating pressures shown in *Tab 2*, in order to optimize the operation of the equipment and avoid problems during the work or commissioning phases. The values are indicative and may vary depending on the equipment.

TYPE and ISO	FLOW (l/min)			Max operating pressure (Bar)
	Min.	Max.	Recommended	
219 (II / III)	10/**10**	60/**40**	25/**25**	175

Tab 2

Values in bold refer to sideshift.

⚠ WARNING!! ⚠

RESPECT THE MAXIMUM WORKING PRESSURES INDICATED

3.1 Installation

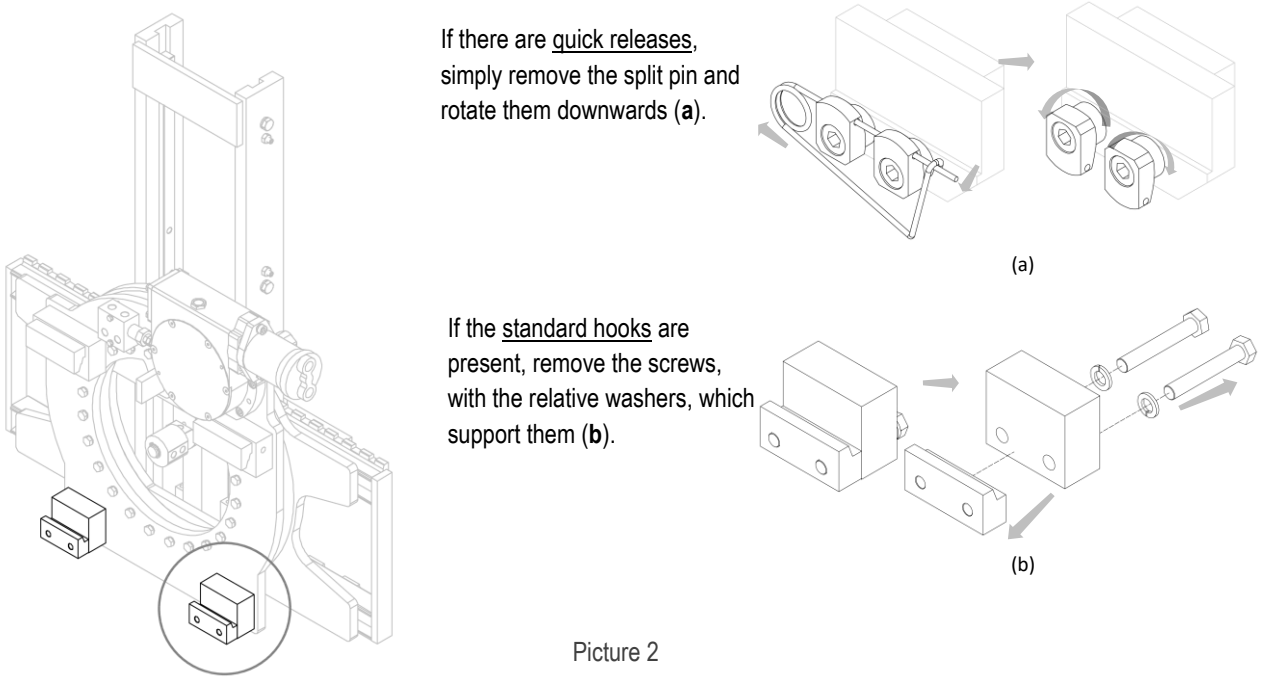
3.1.1 Attachment installation – TYPE 301 without SIs

NO SLS

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.

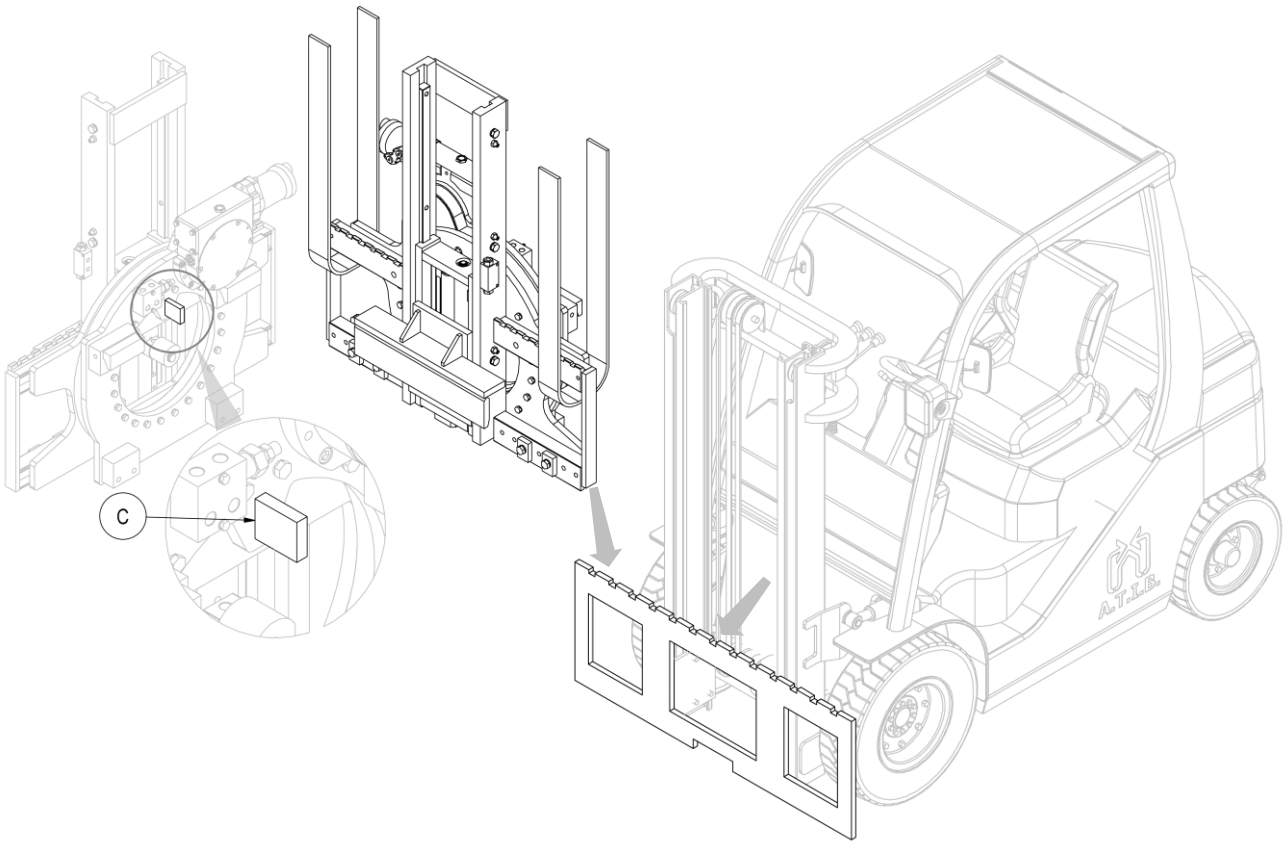
NOTE: Although only the standard type is shown in the following installation phase, the equipment installation procedure is the same for the other types as well (WITHOUT SLS).

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 (*Picture 1* and
6. *Tab* 1 pag.*6*).



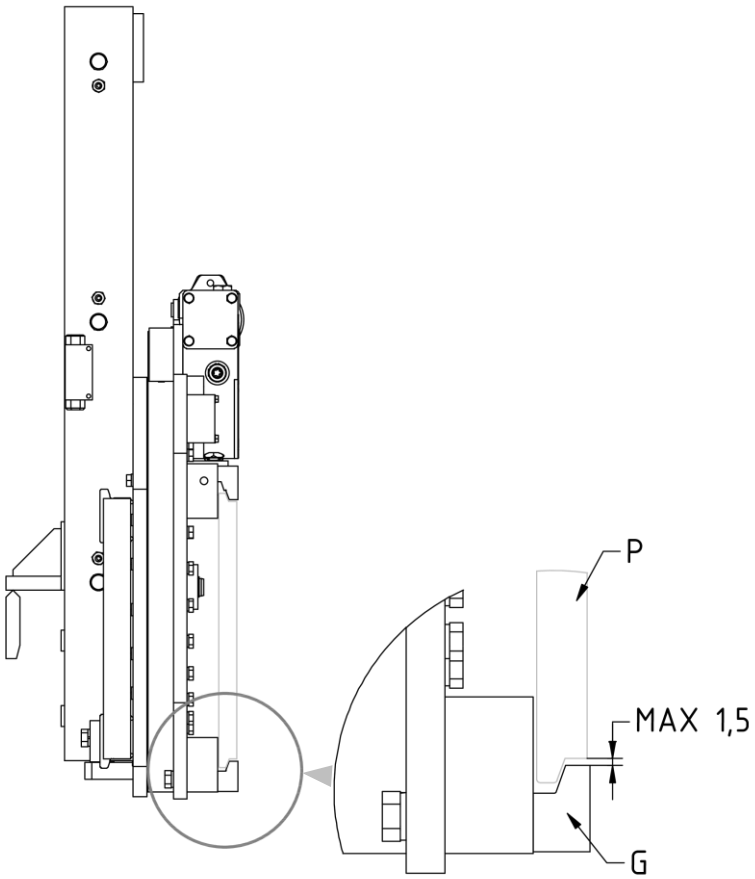
Picture 3

7. 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*).

8. 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

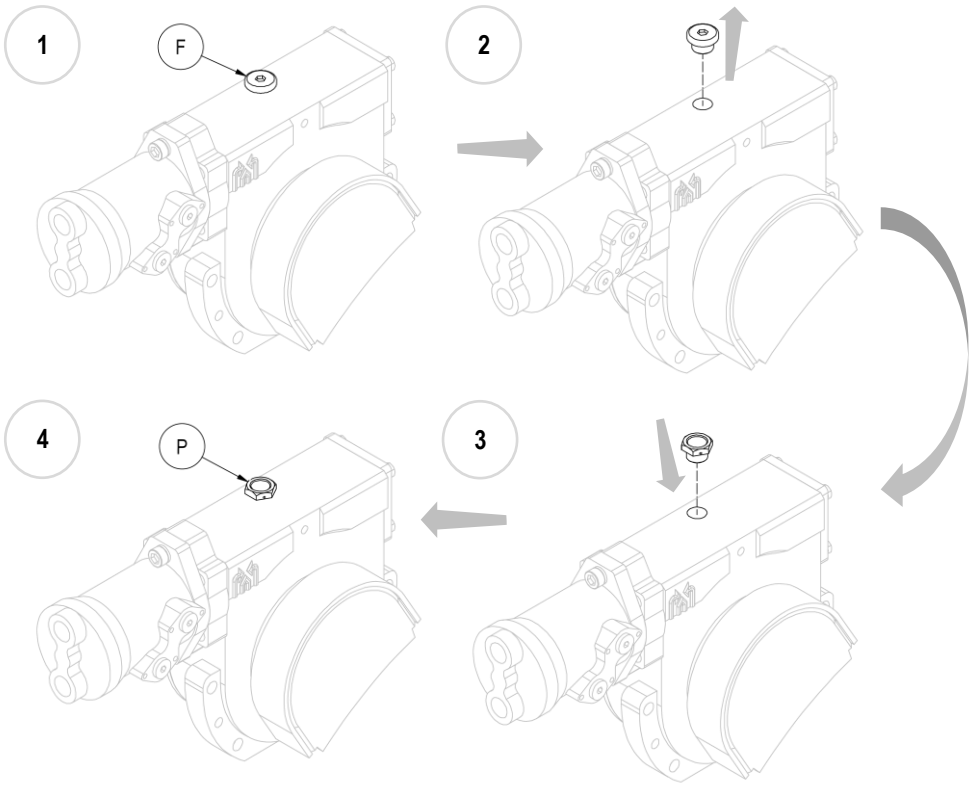


Picture 4

9. Install the forks (pag.***Errore. Il segnalibro non è definito.***).

10. Lubricate the contact parts (pag.*49*).

11. **NOTE.** With the equipment installed, replace the blind iron oil filler cap (**F**) with the plastic one supplied (**P**), provided with vent (*Picture 5*).



Picture 5

12. 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
13. Tab 1 pag.*6).*

3.1.2 Attachment installation - with SIs

WITH SLS

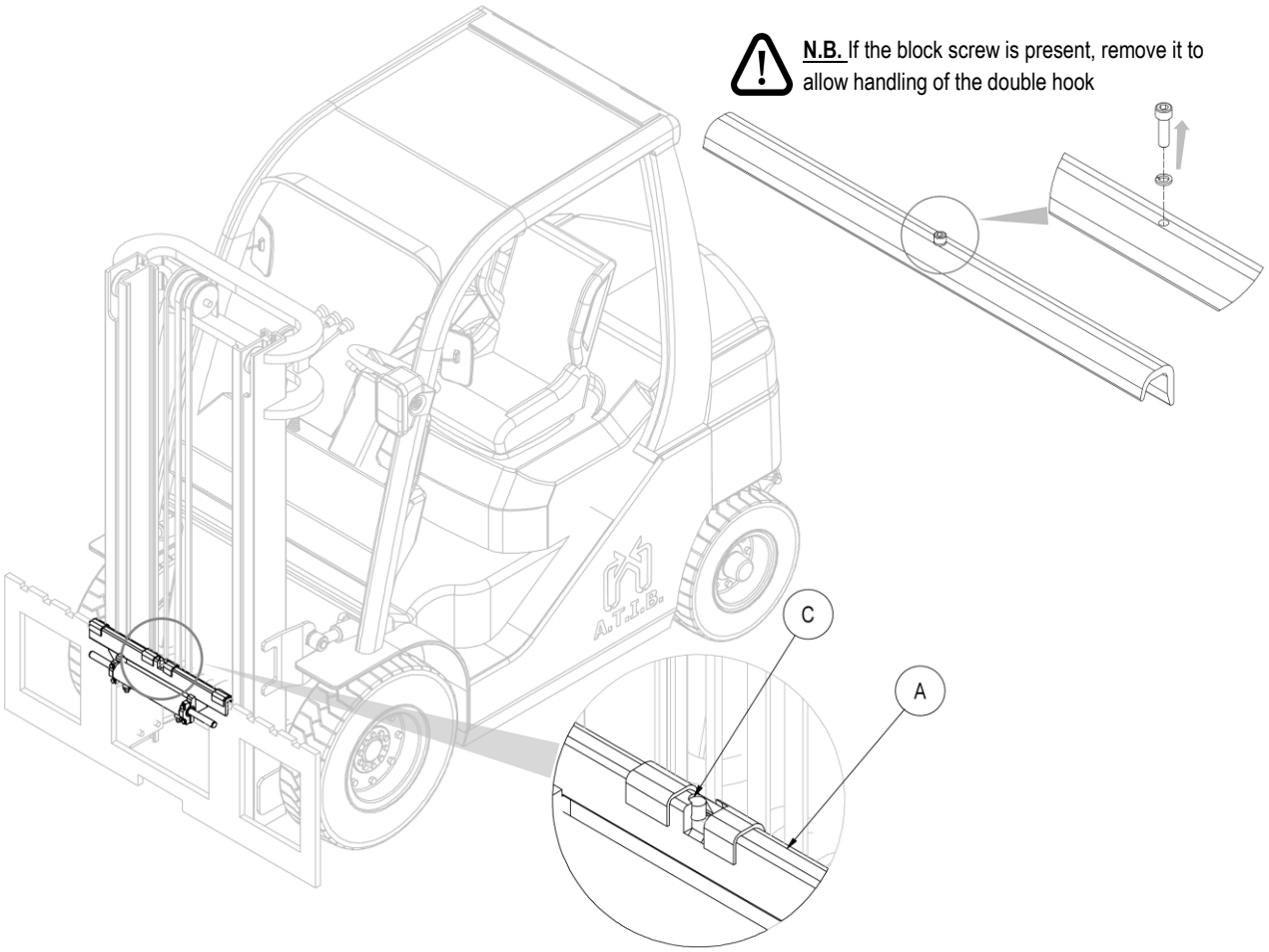
1. Before installation, verify the condition of the fork holding plate, ensuring that it is not deformed.

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

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

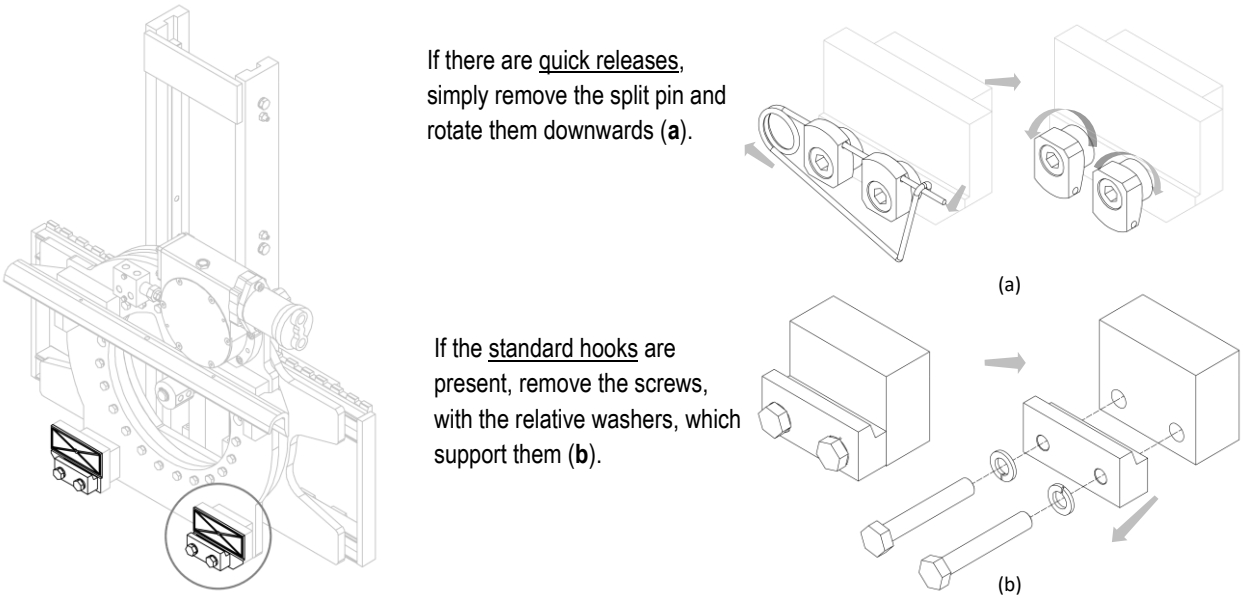
NOTE. Although only the standard type is shown in the following installation phase, the equipment installation procedure is the same for the other types as well (WITH SLS).

4. Manually take the double hook **A** (with the relative sliding bushings and relative sideshifting cylinder), and place it on the upper profile of the fork holder plate, taking care to fit the centring pin **C** in the central notch of the same (*Picture 6*).



Picture 6

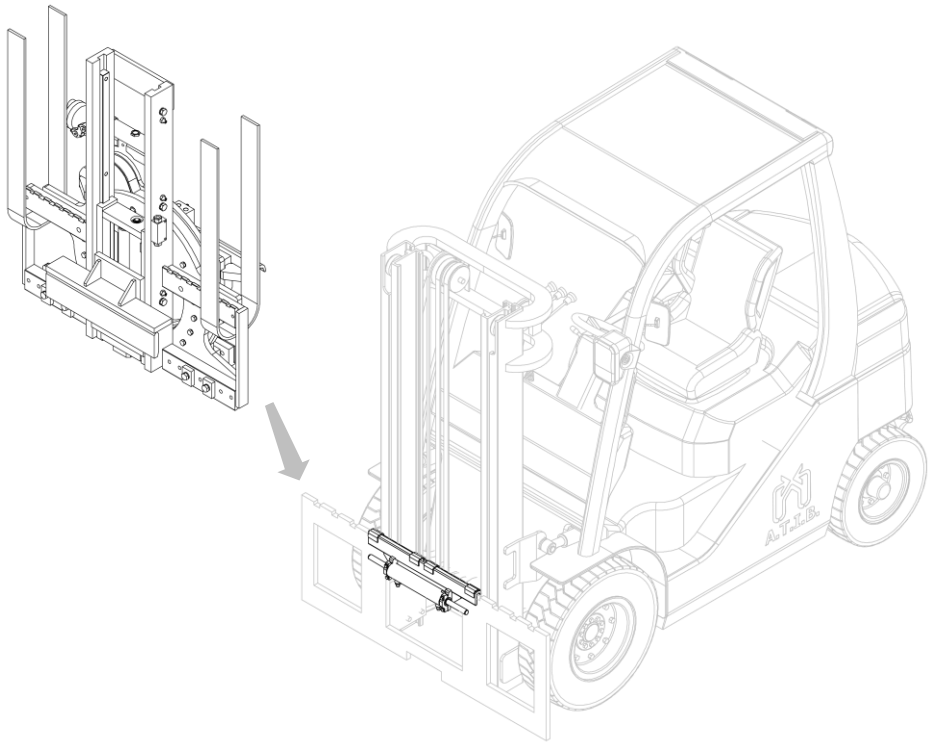
5. Unscrew the lower hooks of equipment and lubricate the slide (*Picture 7*).



Picture 7

6. For handling, use belts or chains appropriately sized for the weight of the equipment, indicated on the identification plate (*Picture 1* and
7. *Tab* 1 pag.*6*).

8. With an overhead crane or with a hoist of sufficient capacity hook the attachment on the double hook, taking care to position the equipment correctly (*Picture 8)*.

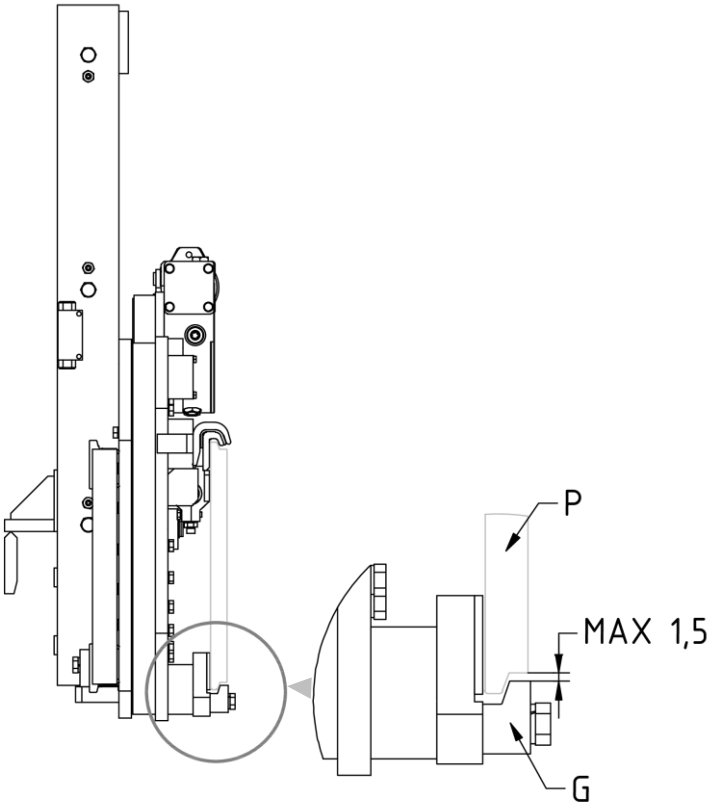


Picture 8

9. 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 9*), reaching to the following torques *Tab 4.*

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

Tab 4

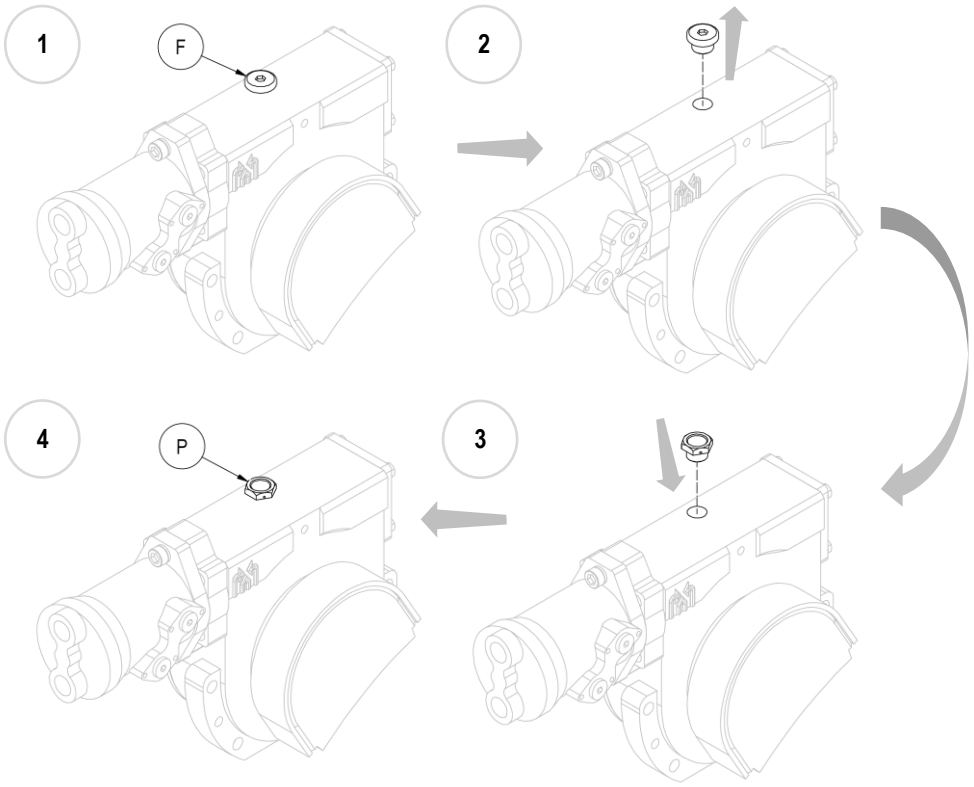


Picture 9

10. Install the forks (pag.***Errore. Il segnalibro non è definito.***).

11. Lubricate the sliding parts (pag.*49*).

12. **NOTE.** With the equipment installed, replace the blind iron oil filler cap (**F**) with the plastic one supplied (**P**), provided with vent (*Picture 10*).



Picture 10

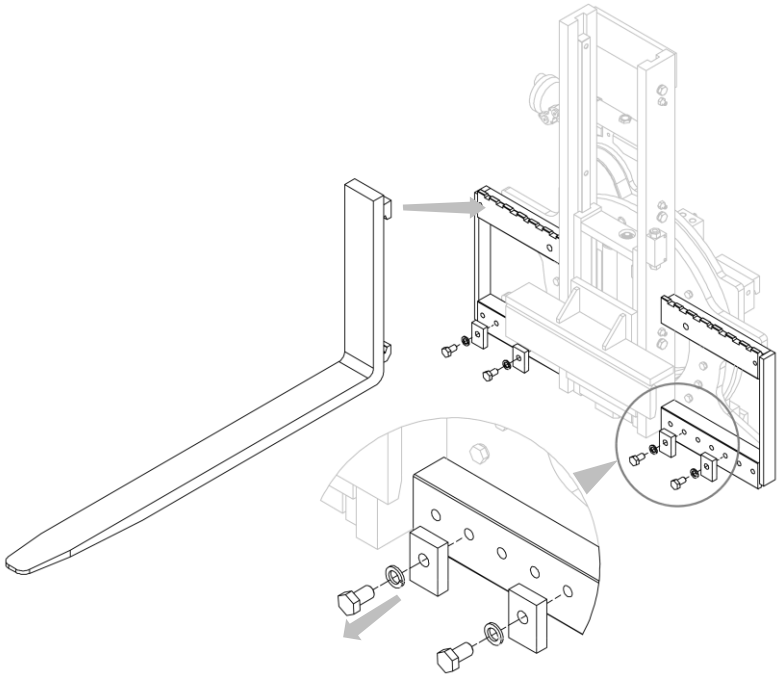
13. Connect the hydraulic circuit, making sure that the operating pressure of the pipes is higher than or equal to that indicated on the identification label (*Picture 1* and
14. Tab 1 pag. *6).*

3.2 Fork installation on attachment

3.2.1 Fork installation – TYPE Standard / Hooked on

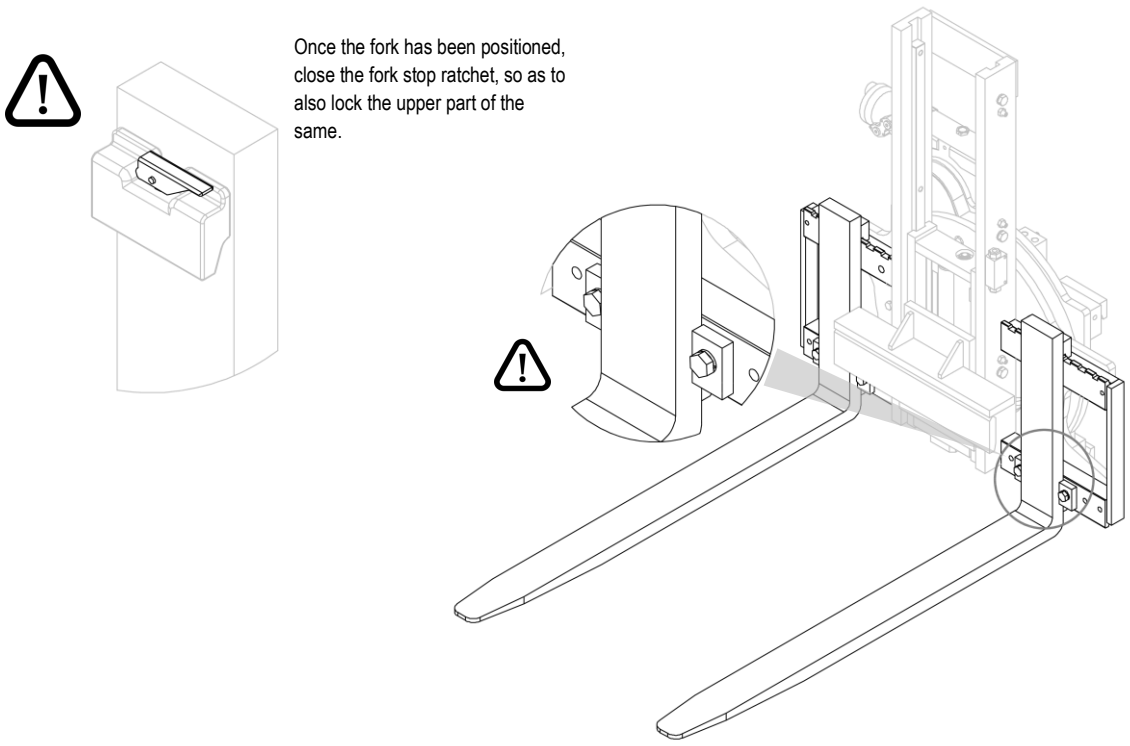
TYPE STANDARD / HOOKED ON

1. Apply the forks after unscrew the fork blocks from fork holders (*Picture 11*).



Picture 11

2. Apply the forks and screw back the fork blocks (*Picture 12*).

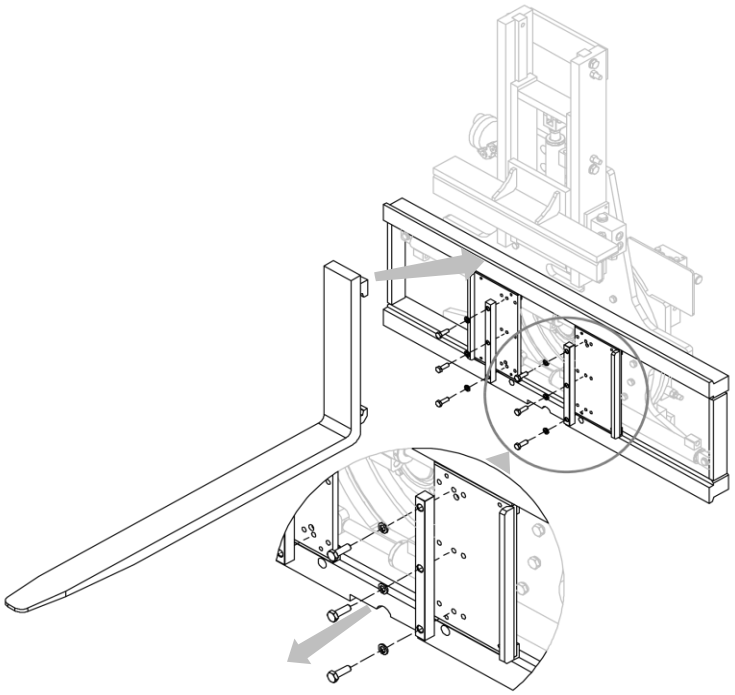


Picture 12

3.2.2 Fork installation – TYPE RFI

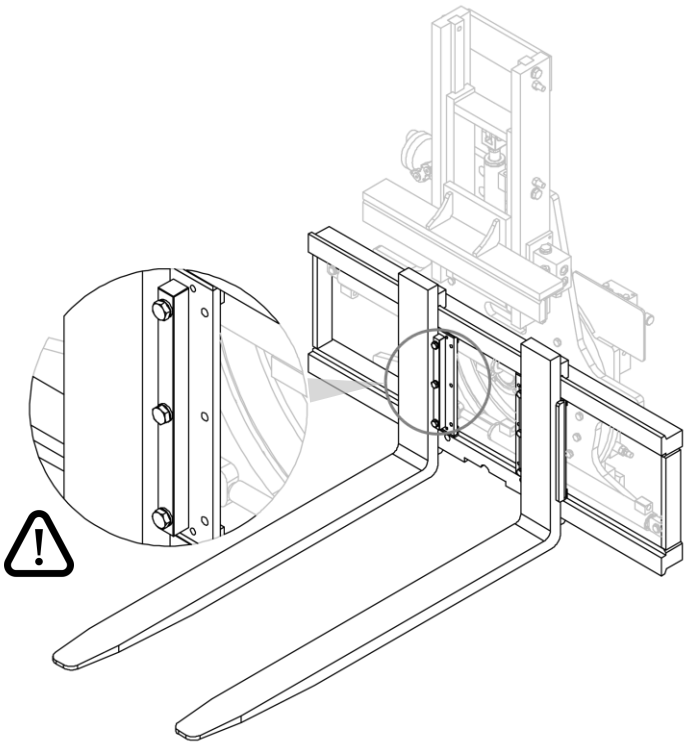
TYPE RFI

1. Apply the forks after unscrew the fork blocks from fork holders (*picture 13*); according to the width of the forks, use the most suitable holes.



picture 13

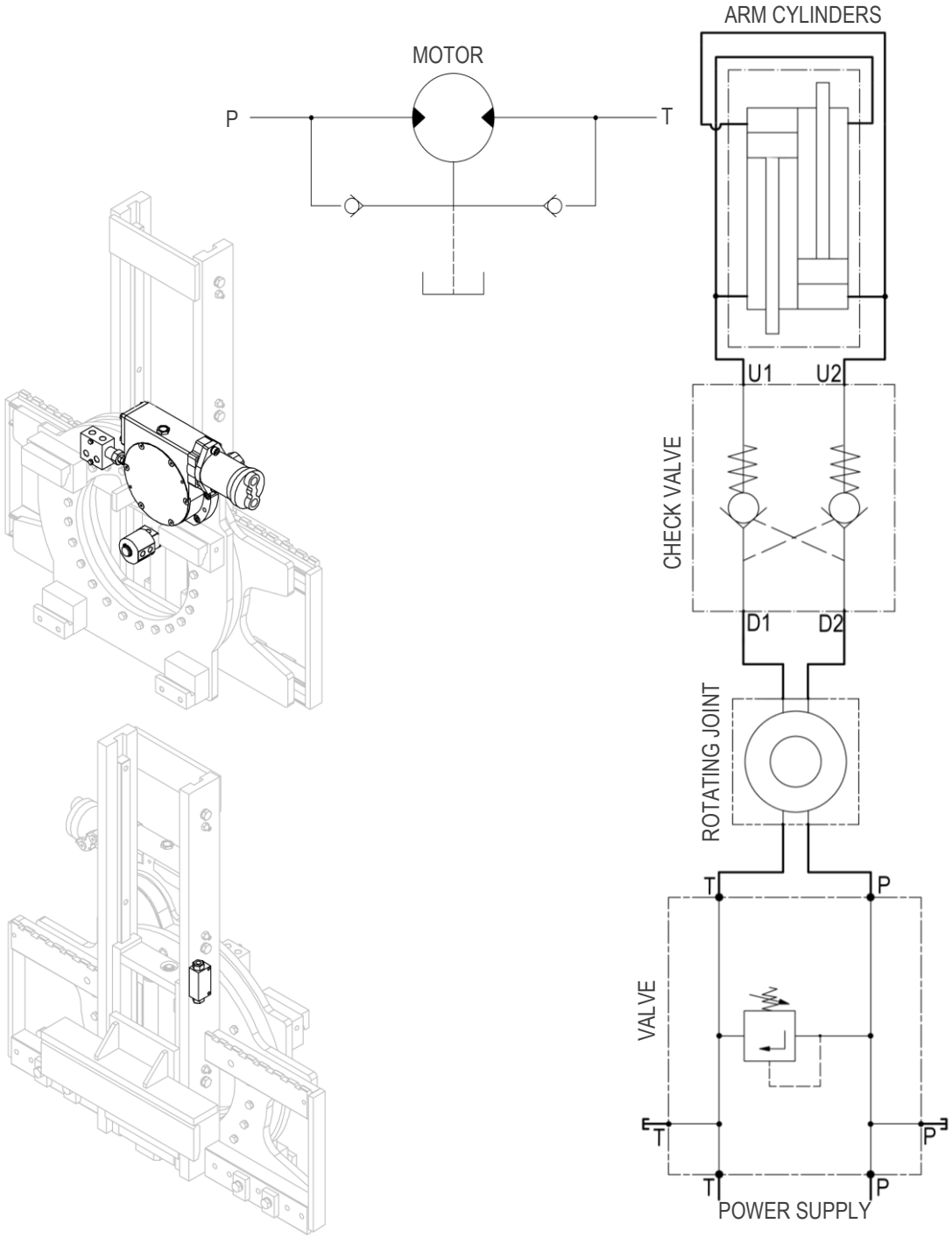
2. Apply the forks and screw back the fork blocks (*Picture 14*).



Picture 14

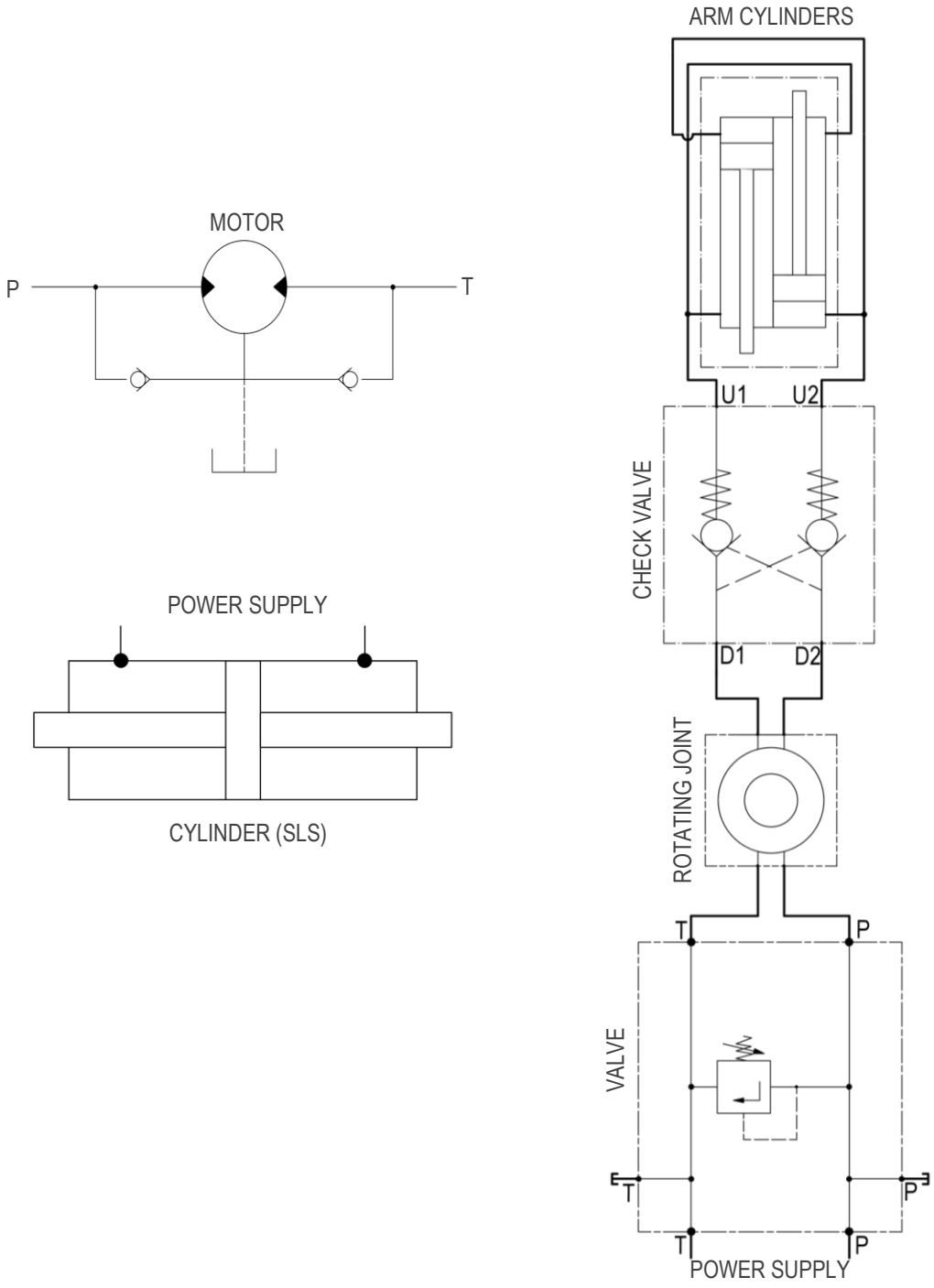
4 HYDRAULIC SYSTEM

4.1 Hydraulic system



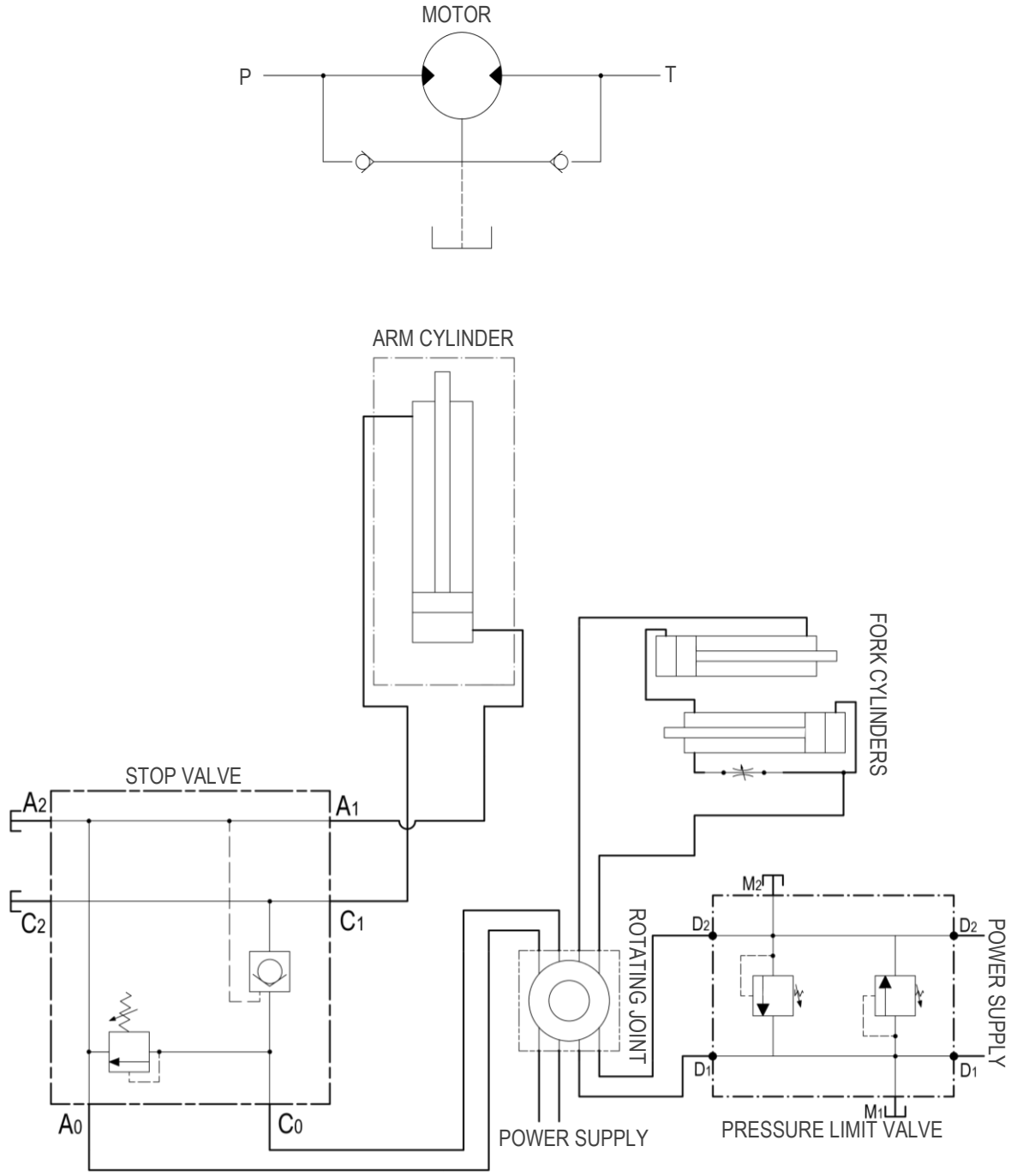
Picture 15

4.2 Hydraulic system – with SLS



Picture 16

4.3 Hydraulic system – with RFI



Picture 17

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).

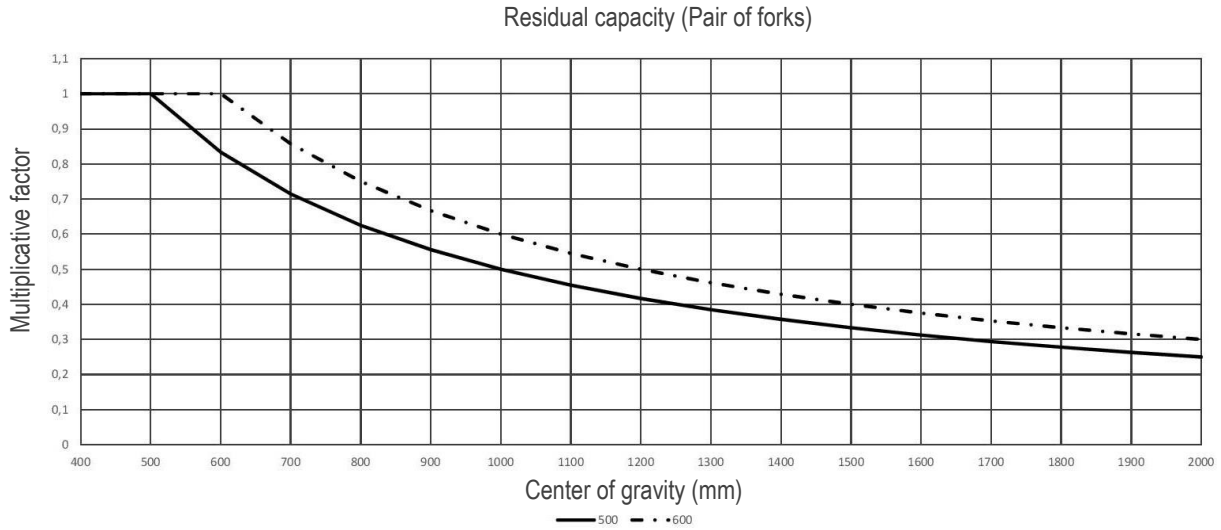
Should the equipment be subject to slight errors in the movement synchronism between the two forks, these movement differences, which will add up in time, will have to be annulled by an operator.
It will be sufficient for the operator to keep one of the two forks at the opening or closing end stroke, for the necessary time it will take for the other fork to recuperate the difference in movement accumulated.

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 18* 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 18

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 Handling of loads

To empty the load contained in the bins, proceed as follows:

- fork the box and then lock it with the presser arm;
- Lift the load and rotate it until empty.

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 MAINTENANCE

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. *12*), *Tab 4* (pag. *16)* 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.*12*) and *Picture 9* (pag.*16*) and, if necessary, intervene on the tightening of the screws that support them.
4. Check the tightening torque of the bolts of the fork blocks. if necessary, intervene on the tightening of the screws.
5. Clean and lubricate all sliding parts (*Picture 42* pag.*49 and Picture 43, Picture 44* pag. *50*).

6.2 Maintenance every 300 hour

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 6.1*).

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. Also carry out the operations listed in the previous points (*Point 6.1* and *6.2* pag.*27*).

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 5* pag.*48.*
2. Disassemble the cylinders and check the condition of the rods and seals, if there is a damaged or excessively worn seal, it is always recommended 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 (*Point 6.1*, and *6.2*, *6.3* pag.*27*).

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

6.5 Rotator maintenance

6.5.1 Maintenance every 200 hours

1. Check the hydraulic connections, replacing the worn parts.
2. Check the tightening torque of the the fifth wheel fixing bolts, and possibly intervene.
3. Check the oil level of the reducer through the inspection cap and in the case of a level lower than half of the cap, top up with the oil filler cap, oil AGIP BLASIA 307.
4. Grease the device by slowly rotating the equipment, we recommend the use of high-pressure lithium soap grease AGIP GR MU/EP2 (dropping point 205 °, ASTM penetration at 235 ° 250/300).

6.5.2 Maintenance every 2000 hours

1. Disassemble the rotating body by unscrewing the fifth wheel screws and replace the felt seal, fixing the new ones with BOSTIK 5242C glue after having cut them to size.
2. Check the state of wear of the fifth wheel components and, if necessary, disassemble and replace it as indicated in the section *Disassembly of the fifth wheel* (point 7.8 pag 47).
3. With the rotating body disassembled, check that the pinion does not have worn teeth due to heavy use, if so, replace it.
4. In case of excessive tolerance between pinion and crown gear, replace the helical wheel of the reduction gear and / or pinion.
5. Completely Replace the rotation gear oil.

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

1. Relieve the pressure of the hydraulic system.

2. Unscrew the lower hooks of equipment (*Picture 2 and Picture 7* pag.*10, 15).*

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

4. With an overhead crane or with a hoist of sufficient capacity hook the attachment and remove it from forklift (*Picture 3* and *Picture 8 pag.11, 15*).

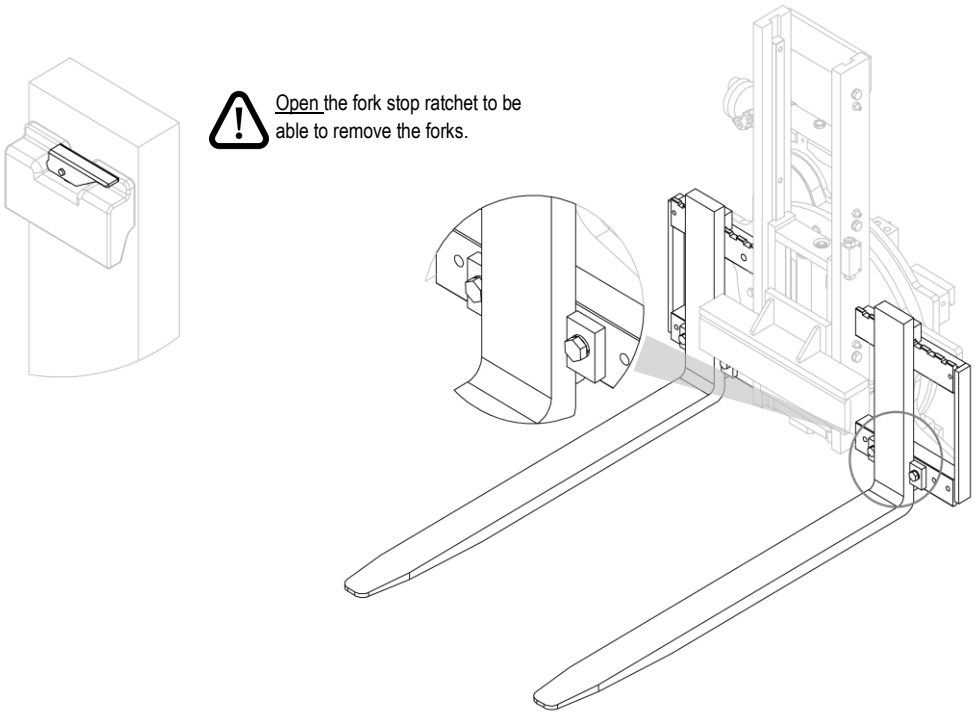
7.2 Fork disassembly

7.2.1 Fork disassembly – TYPE Standard / hooked on

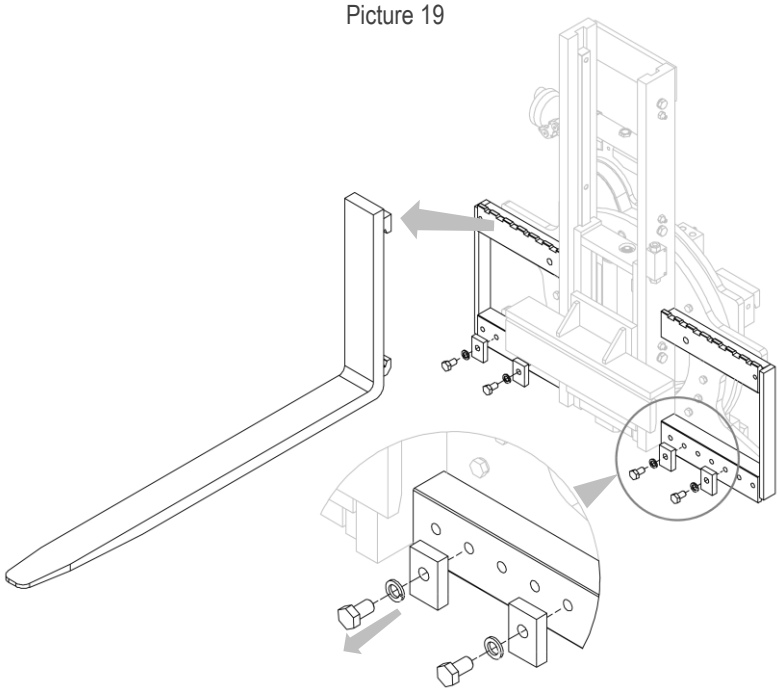
TYPE STANDARD / HOOKED ON

1. Relieve the pressure of the hydraulic system.

2. Remove the forks after unscrewing the fork blocks and having opened the fork stop ratchet (*Picture 19* and *Picture 20*).



Picture 19



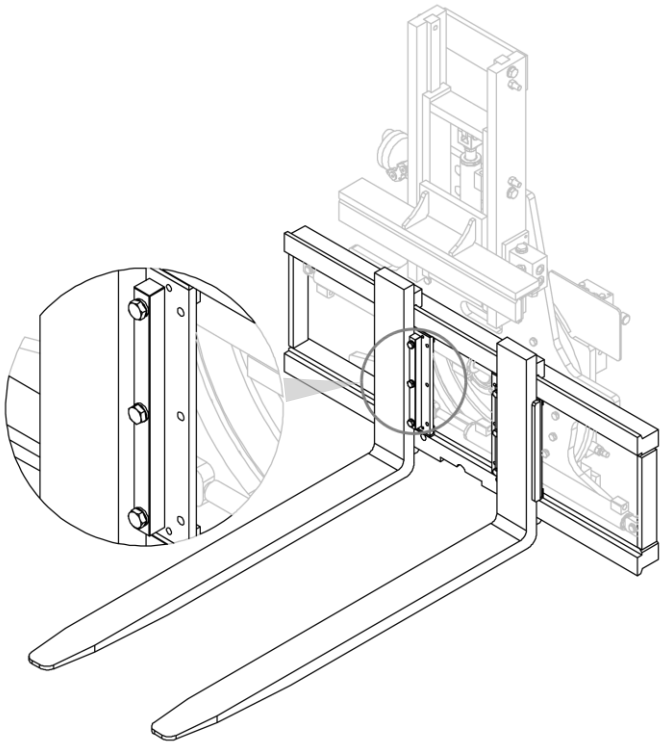
Picture 20

7.2.2 Fork disassembly – TYPE RFI

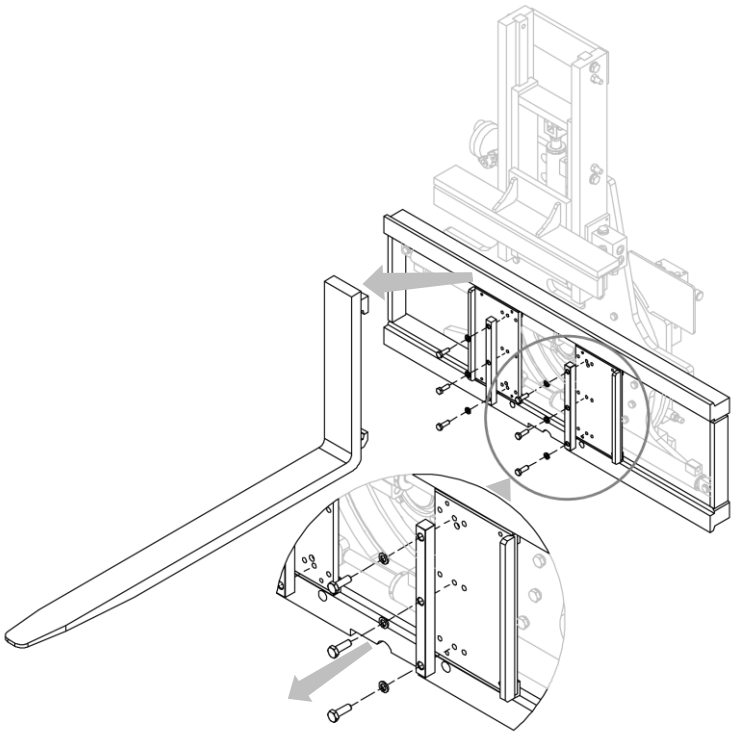
TIPO RFI

1. Relieve the pressure of the hydraulic system.

2. Remove the forks (towards the center, where there is the appropriate groove) after unscrewing the fork blocks (*Picture 21* and *Picture 22*);



Picture 21



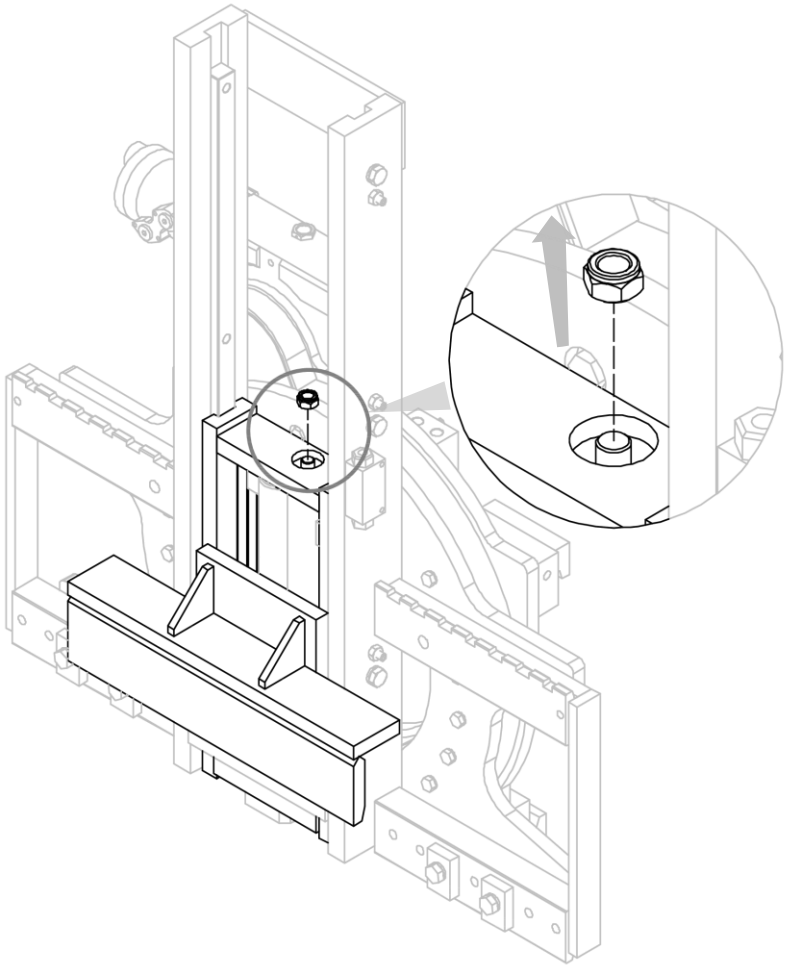
Picture 22

7.3 Removing a pair of bins locking cylinders

NOTE. Although in the following images only the standard type is shown, the procedure for removing and disassembling the cylinders is the same even for different versions (however equipped with double cylinder for blocking the bins).

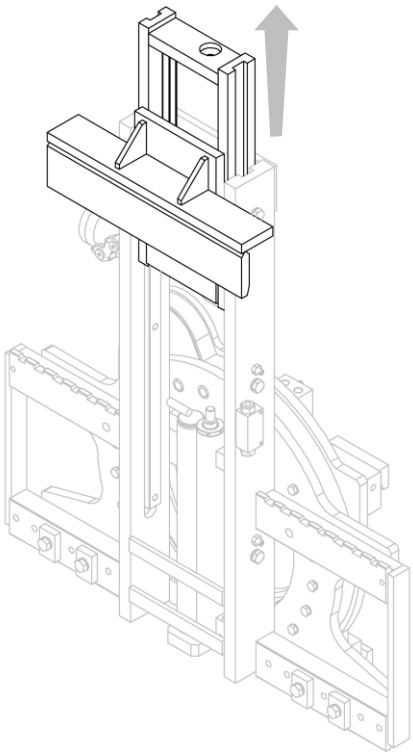
1. Relieve the pressure of the hydraulic system.

2. Remove the forks after unscrew the relative screws that lock them (*Picture 23*).



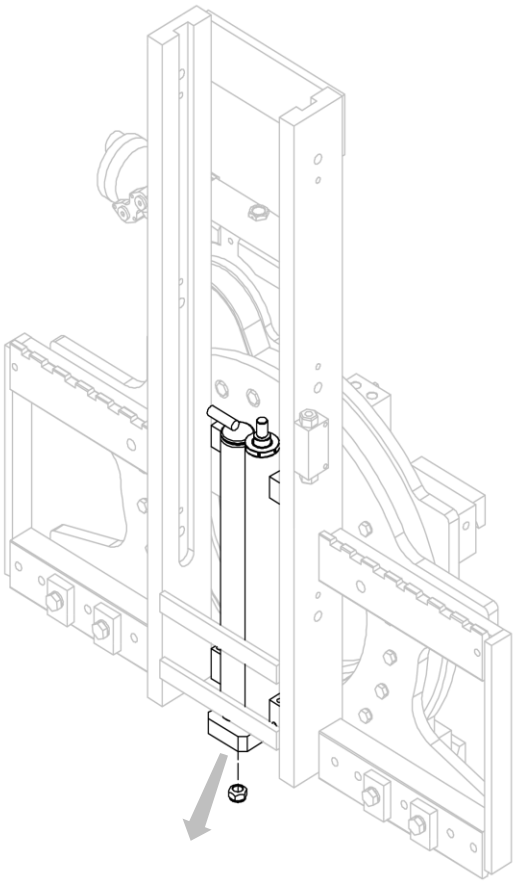
Picture 23

3. Remove the mobile frame (*Picture 24*).



Picture 24

4. Remove the cylinder after removing the nut which binds them to the equipment structure (*Picture 25*).



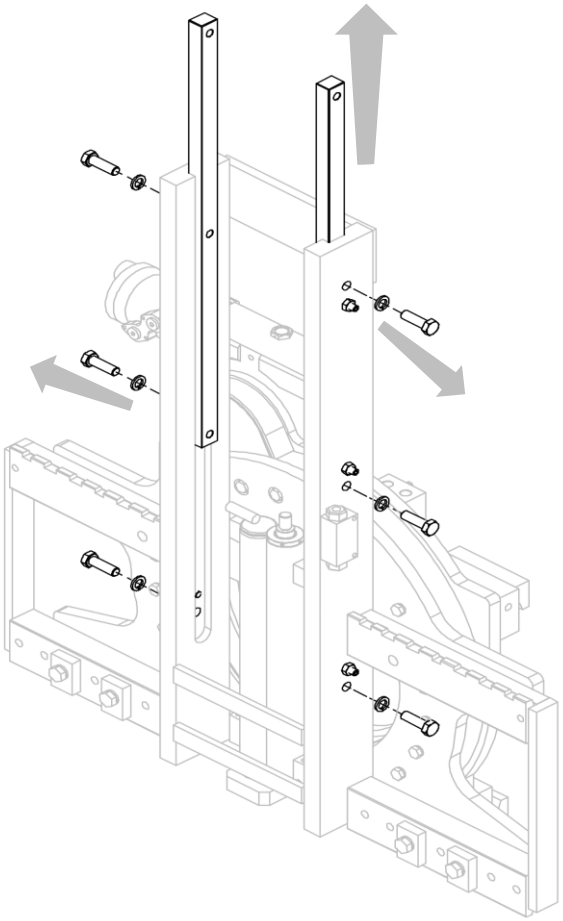
Picture 25

7.3.1 Removing the sliding bushings of the mobile structure

1. Relieve the pressure of the hydraulic system and remove the tubes.

2. Remove the mobile frame as indicated in the previous chapter.

3. Removing the slide after loosening the dowels and unscrewing the relative screws that lock them (*Picture 26*).

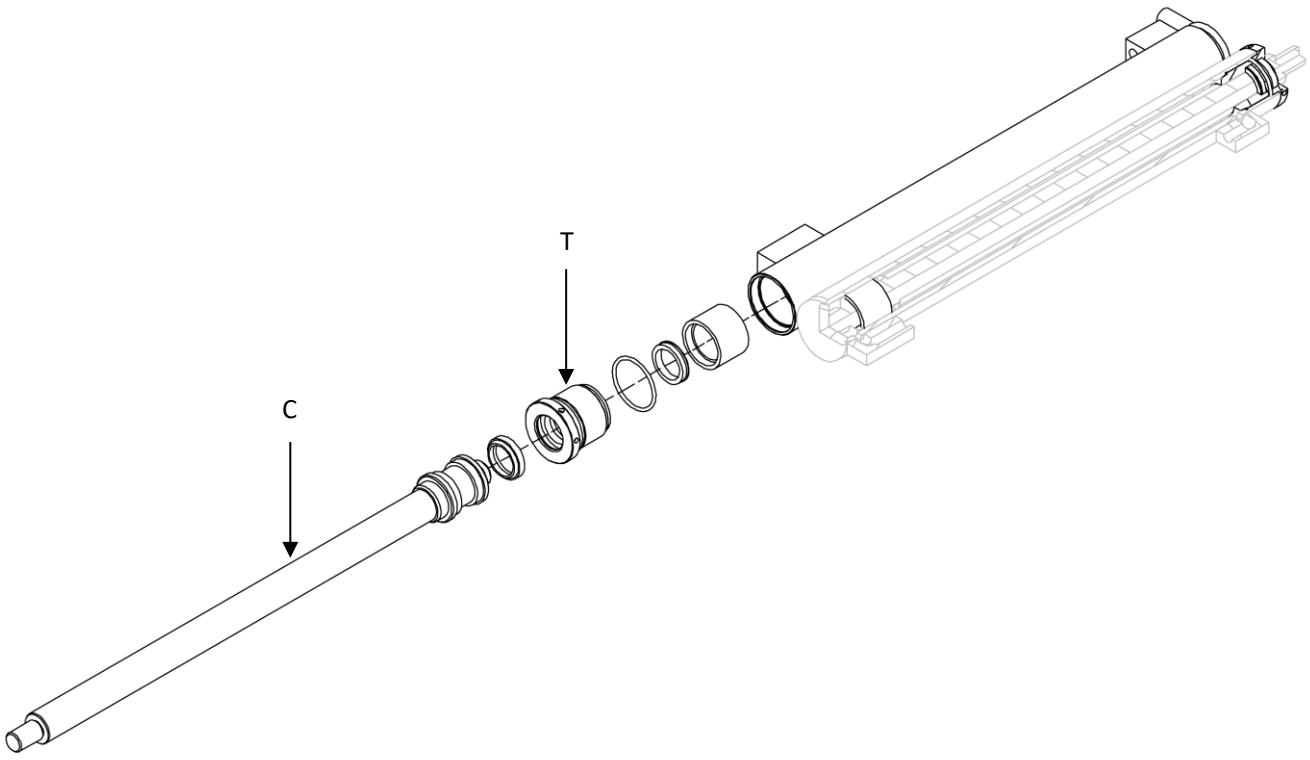


Picture 26

7.3.2 Bins locking cylinders disassembly and reassembly

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. Unscrew the stem C.
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 27.*



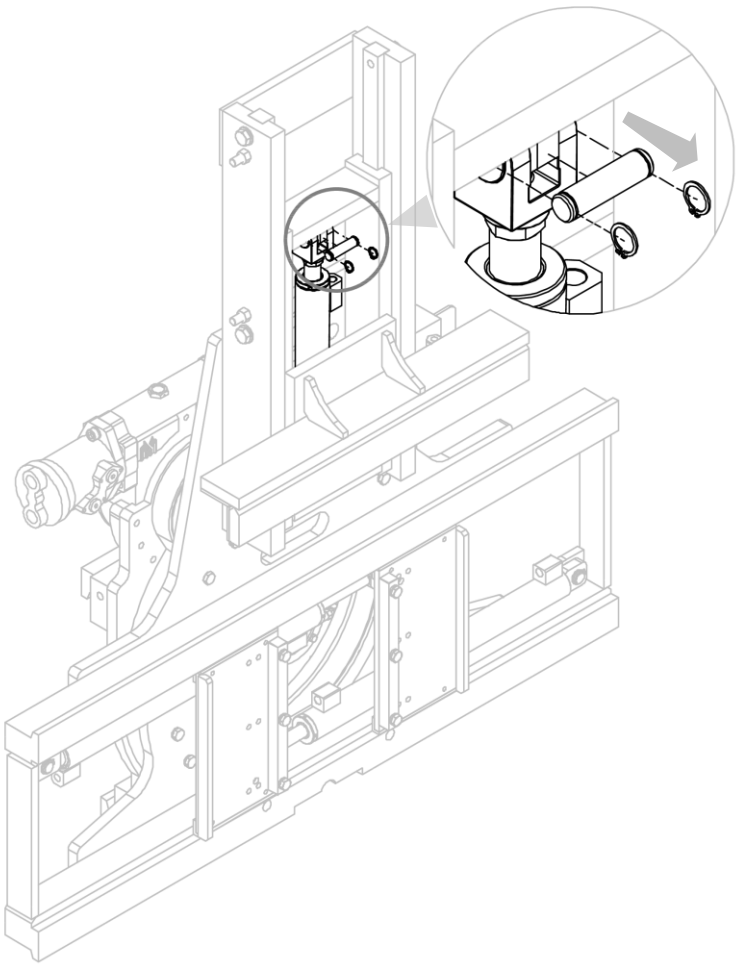
Picture 27

7.4 Removing the cylinder locking bins

NOTE. Although in the following images only the standard type is shown, the procedure for removing and disassembling the cylinders is the same even for different versions (always equipped with a single cylinder for locking the bins).

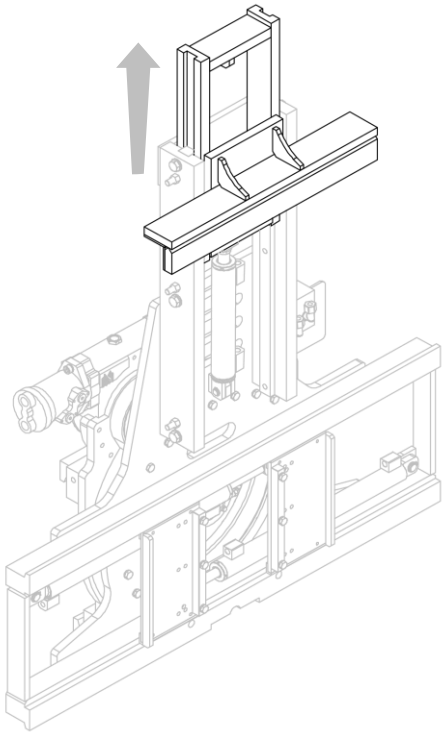
1. Relieve the pressure of the hydraulic system and remove the tubes.

2. Remove the pin (with the relative locking elastic rings) which binds the mobile structure to the cylinder (*Picture 28*).



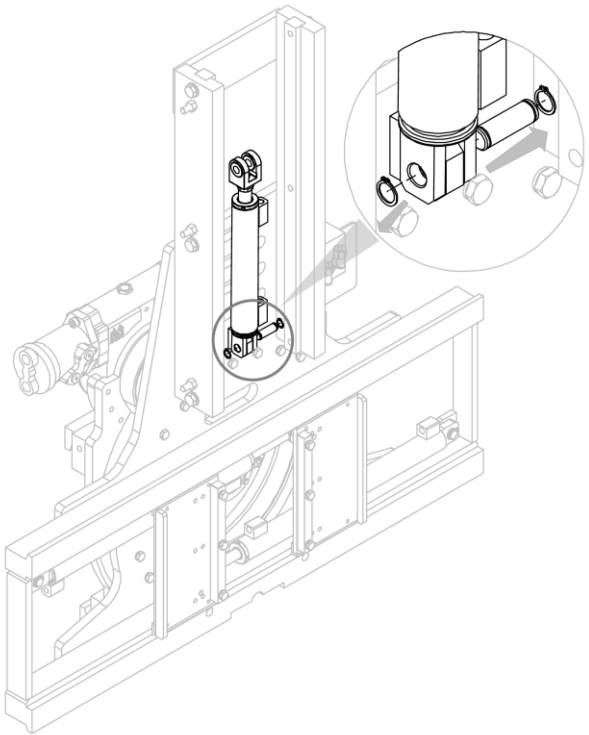
Picture 28

3. Remove the mobile frame (*Picture 29*).



Picture 29

4. Remove the cylinder after removing the relative pin (with the relative elastic locking rings) which binds it to the structure of the equipment (*Picture 30*).



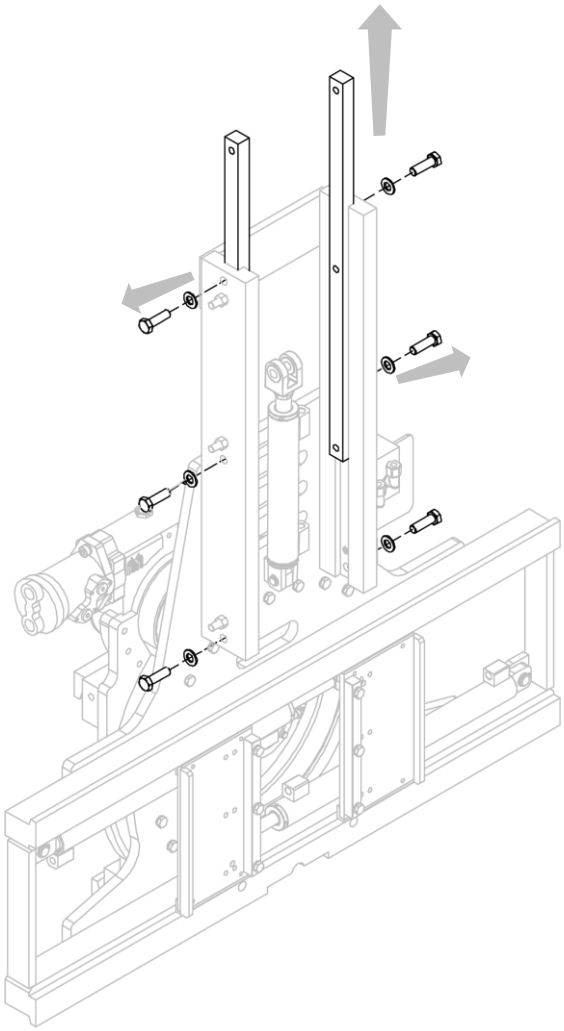
Picture 30

7.4.1 Removing the sliding bushings of the mobile frame

1. Relieve the pressure of the hydraulic system and remove the tubes.

2. Remove the mobile frame as indicated in the previous chapter.

3. Removing the slide after loosening the dowels and unscrewing the relative screws that lock them (*Picture 31*).

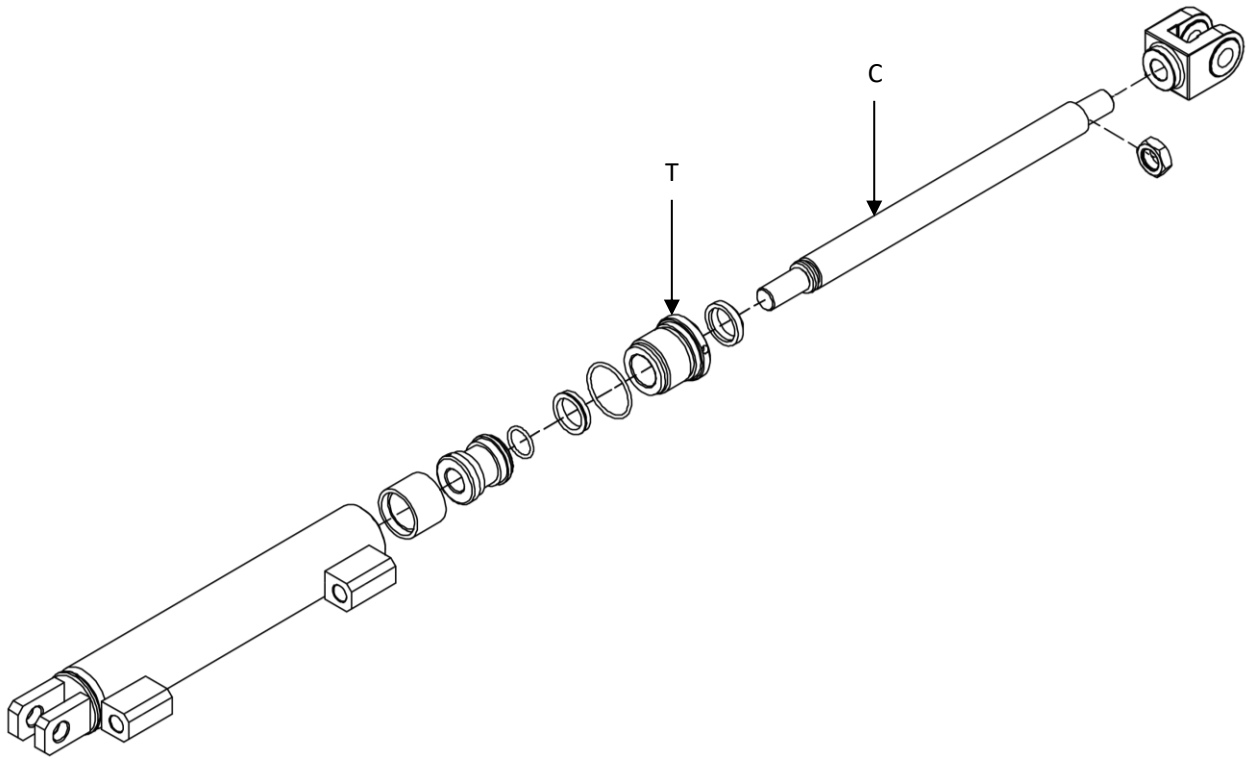


Picture 31

7.4.2 Bins locking cylinder disassembly and reassembly

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 (*Picture 32*):

1. Clamp the cylinder in a vice with rubber jaws
2. Loosen the lock nut that locks the fork.
3. Unscrew the fork.
4. Unscrew the cylinder head.
5. With a sector wrench unscrew the cup **T** and remove the stem **C**.
6. If you find it difficult to unscrew the cap, it is necessary to slightly heat the area of the thread concerned to facilitate unscrewing.
7. separate the rest of the components and replacing the worn components (the piston, despite being separated in the image below, can also be welded to the rod).
8. If there is a damaged seal, it is advisable to replace the entire kit.
9. Reassemble, following the instructions listed above in reverse.

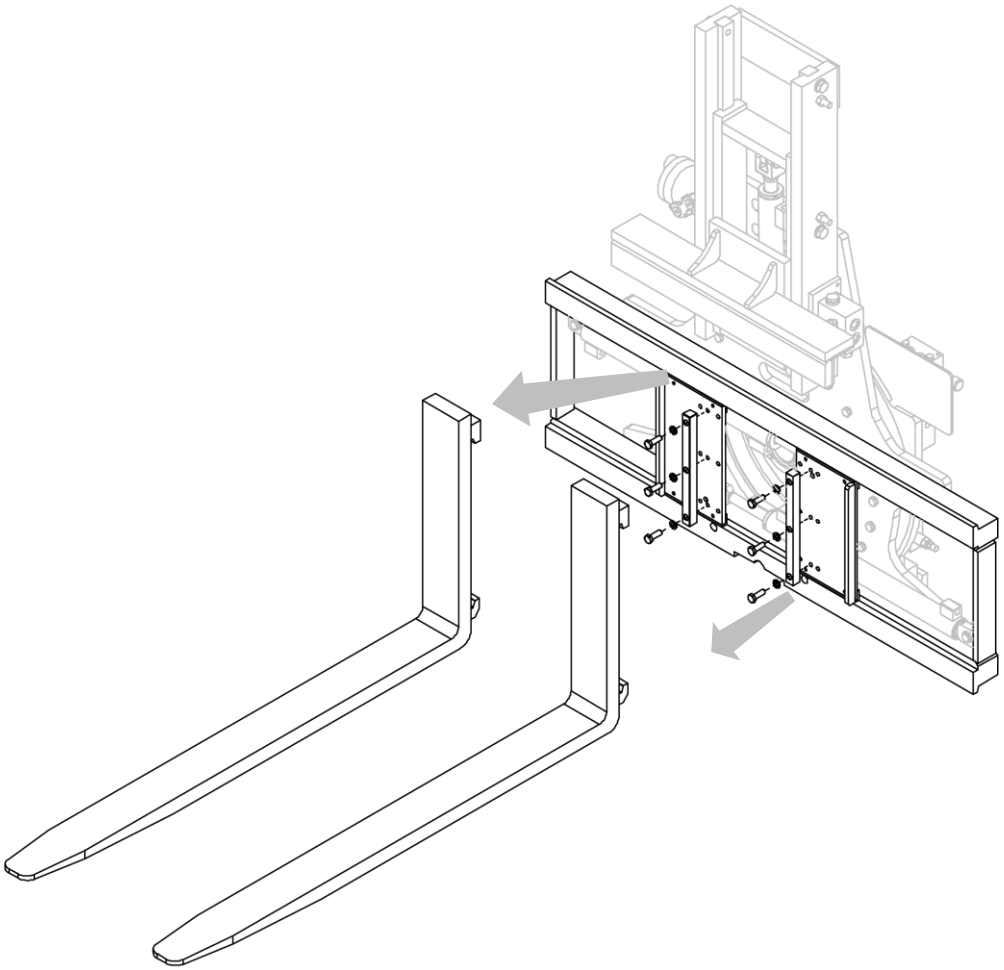


Picture 32

7.5 Fork cylinders removal – TYPE 219 RFI

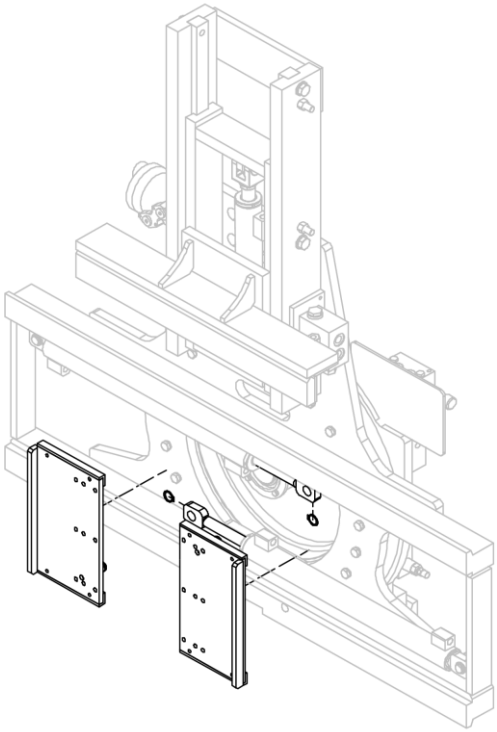
1. Relieve the pressure of the hydraulic system and disconnect the pipes.

2. Remove the forks after remove fork blocks (*Picture 33*).



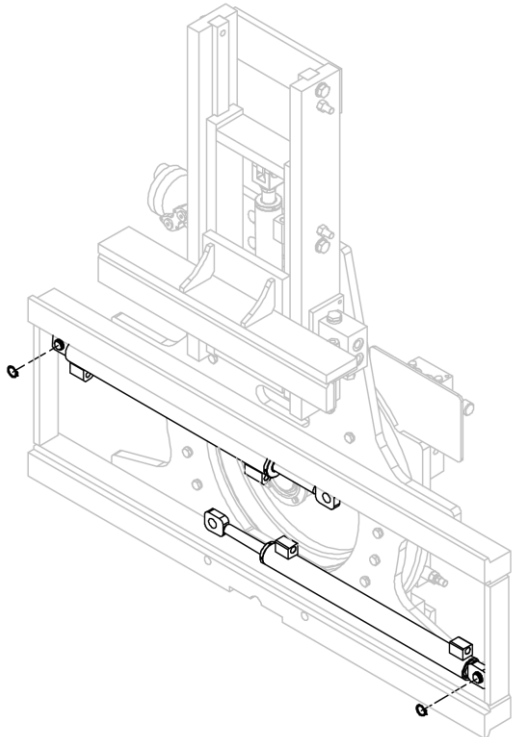
Picture 33

3. Remove fork holders from attachments, after having removed the relative elastic rings that bind them to the cylinders (*Picture 34*).



Picture 34

4. Remove the cylinders, after removing the relative snap rings that bind them to the equipment structure (*Picture 35*).

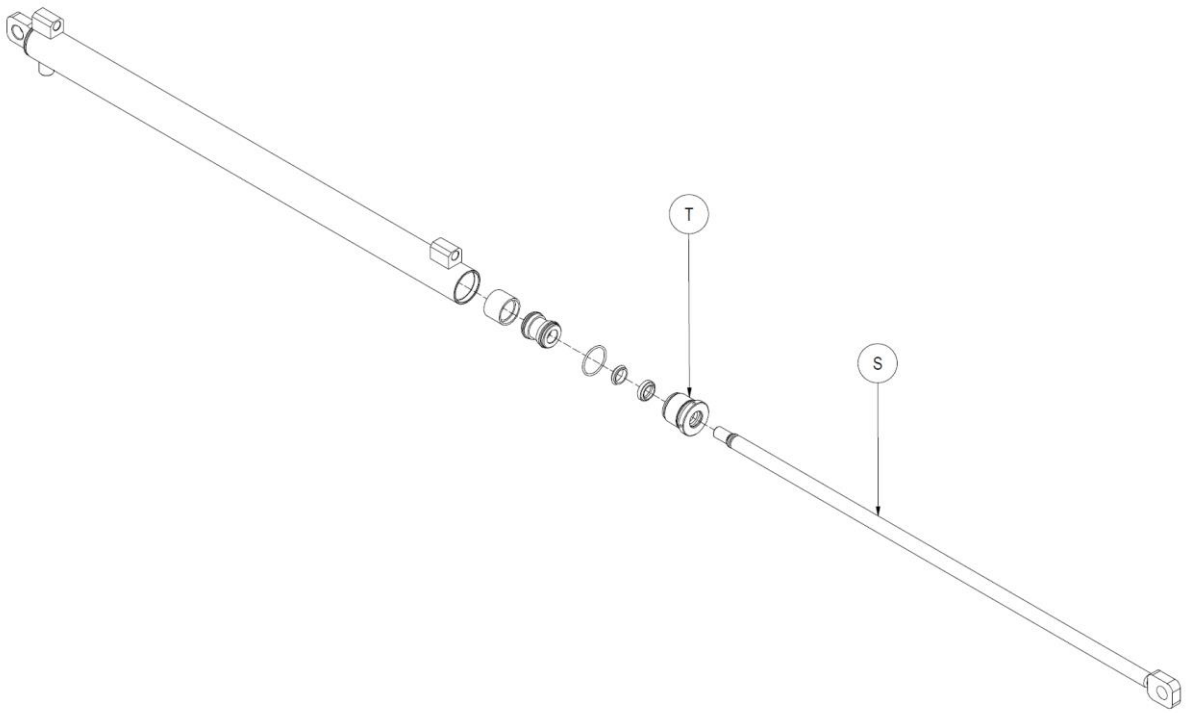


Picture 35

7.5.1 Fork cylinder disassembly and reassembly

If it is necessary to replace the entire cylinder, 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. Unscrew the stem **S**.
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 36.*



Picture 36

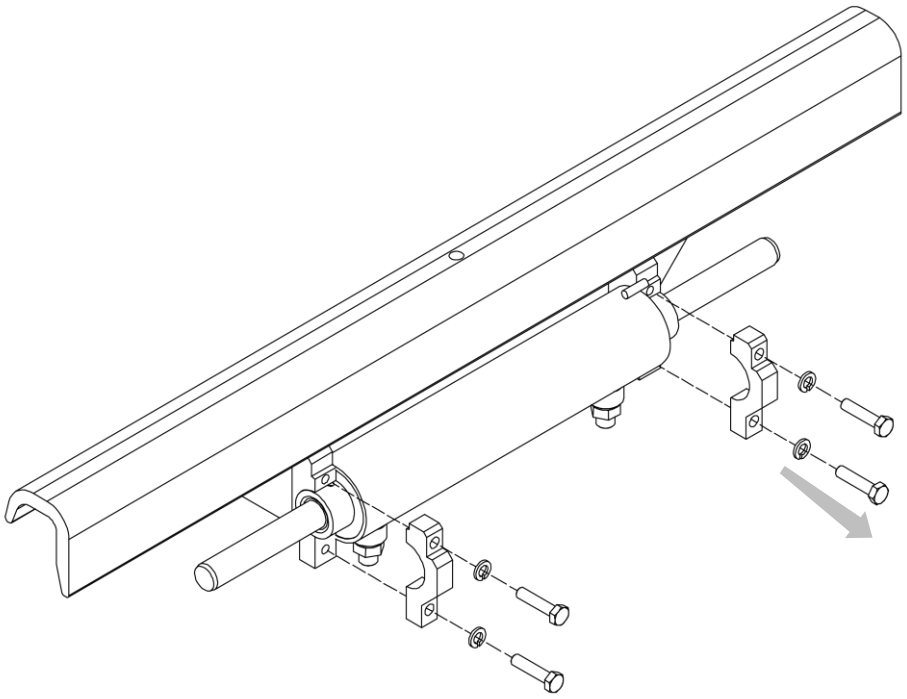
7.6 Sideshift cylinder removal – TYPE with SLS

1. Relieve the pressure of the hydraulic system and remove the tubes, making sure to place a tray or container under the fittings to recover the oil still present in the cylinder.

2. Remove attachments from forklift (point 7.1 pag.***Errore. Il segnalibro non è definito.***).

3. Remove the cylinder from its seat after removing the front half-collar and the relative screws / pins that lock it.

4. Refer to *Picture 37.*



Picture 37

7.6.1 Sideshift cylinder disassembly and reassembly

If it is necessary to replace the entire cylinder, reassemble everything following the instructions listed in the previous point in reverse (use new cylinder), if you also need to replace some cylinder component, proceed as indicated below (*Picture 38*):

1. Place the cylinder on a horizontal plane.

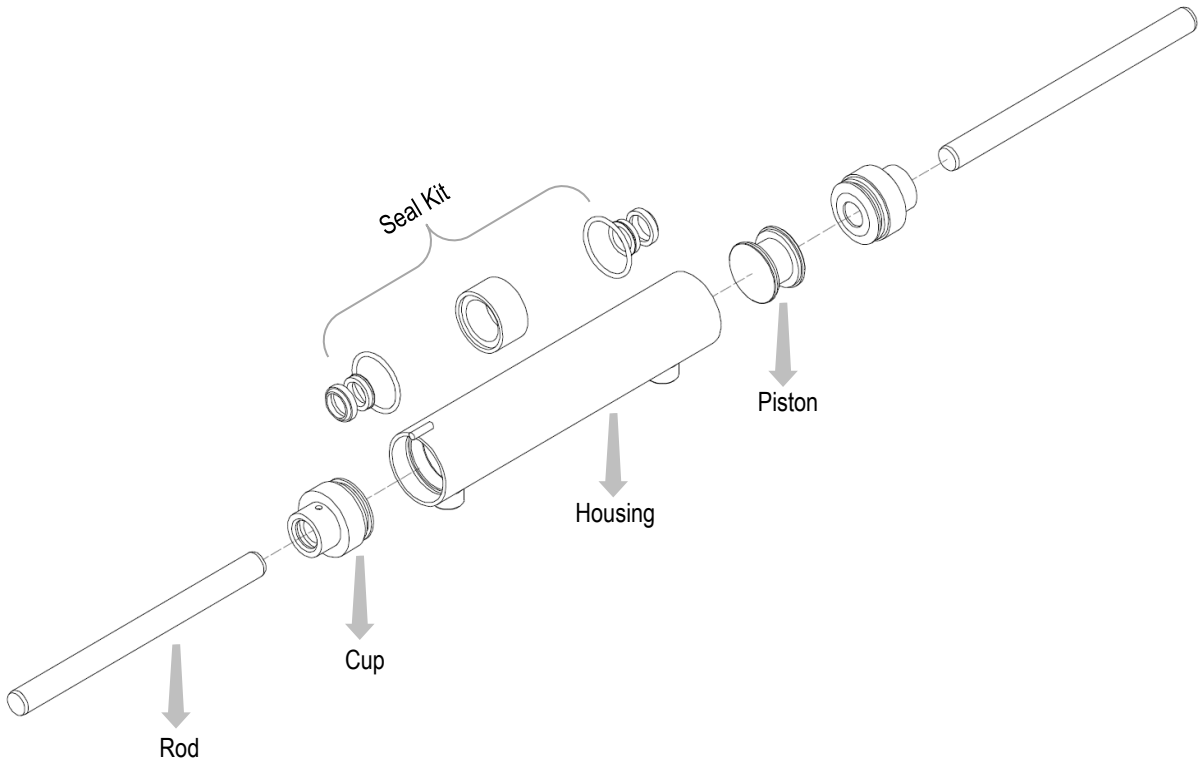
2. If only the stems need to be replaced, just remove them from the cylinder cap.

3. If you need to replace the seals and / or other parts, it is necessary unscrew the cup with a sector wrench.

4. If you find it difficult to unscrew the cap, it is necessary to slightly heat the area of the thread concerned to facilitate unscrewing.

5. Replacing the worn components, follow the previous steps in backwards, re-lock the cap applying a medium strength thread locker.

6. If there is a damaged seal, it is advisable to replace the entire kit.



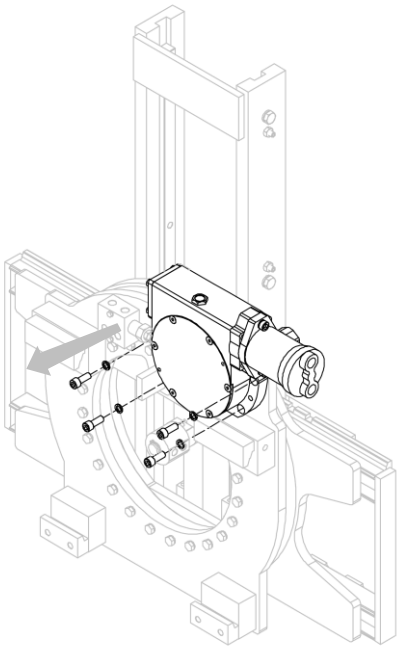
Picture 38

7.7 Disassembly of Reducing gear and motor

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

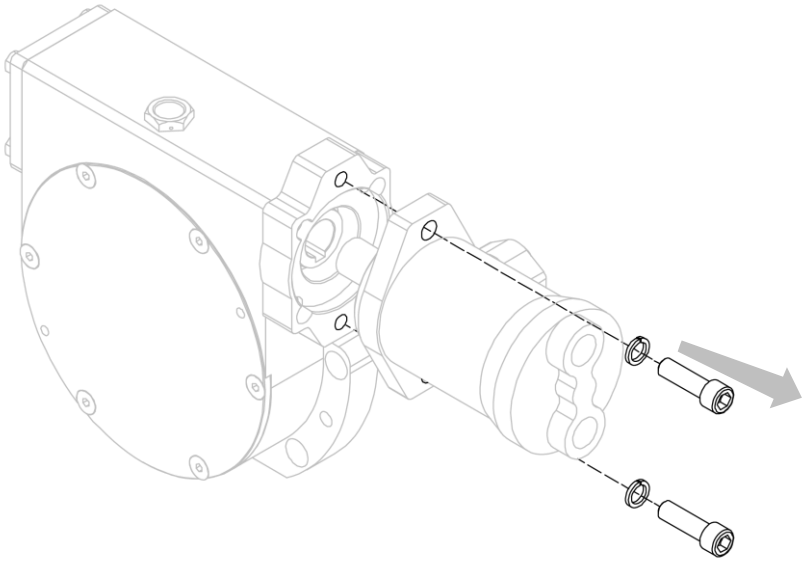
2. Remove the attachment from forklift (see the point 7.1 pag 30).

3. Remove the reducing gear and motor from the equipment, after removing the relevant screws (*Picture 39*).



Picture 39

4. Separate the reducing gear from the motor, after removing the relevant screws (*Picture 40*).



Picture 40

7.8 Disassembly of the fifth wheel

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

2. Remove the attachment from forklift (see the point 7.1 pag 30).

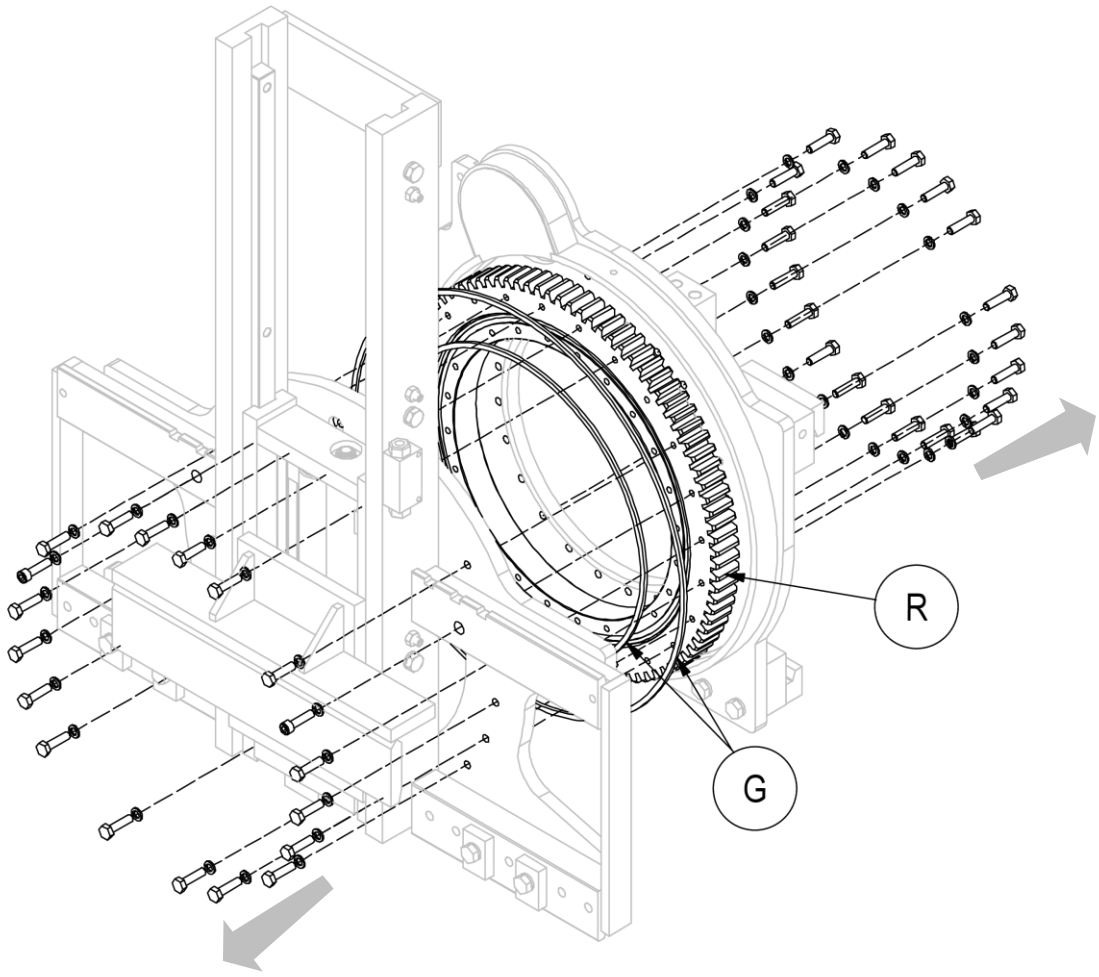
3. Remove the reducing gear and motor from the equipment (see section 3 of point 7.7 pag 46).

4. Remove the front part of the rotating body, making sure to adequately support all parts in order to carry out the operation safely (*Picture 41*).

5. In order to remove the fifth wheel **R**, it is also necessary to remove the screws from the rear of the equipment (*Picture 41*).

6. Remove the fifth wheel, and if necessary, insert a new one.

7. Reassemble everything following the instructions listed above backwards, remembering to replace the felt gaskets **G** with new ones, which will be fixed with adhesive such as BOSTIK 5242C.



Picture 41

8 BREAKDOWNS AND SOLUTIONS

8.1 Breakdowns and solution

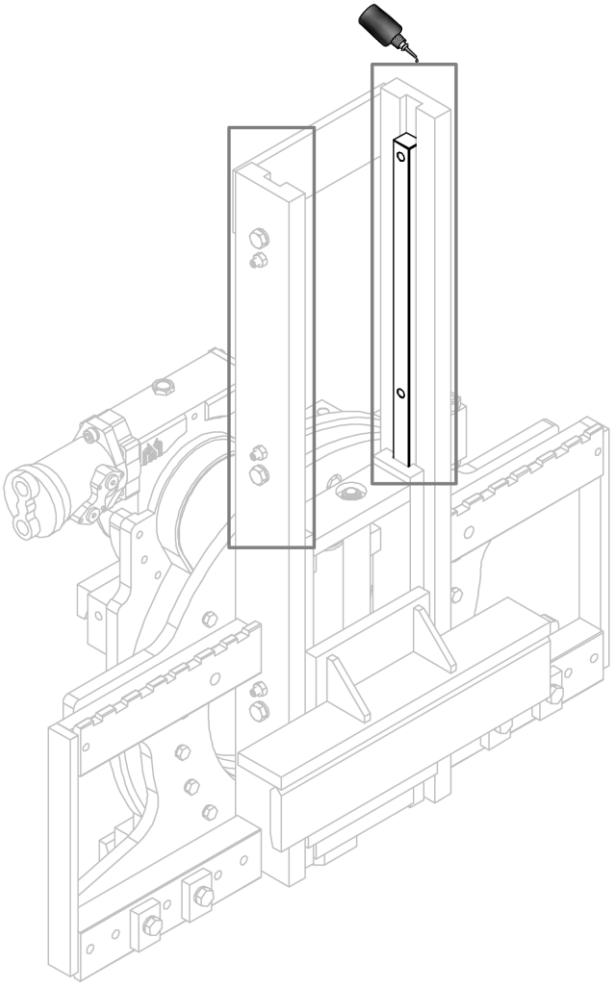
FAILURE	CAUSE	SOLUTION
Insufficient strength	Too low setting of the maximum pressure valve	Increase the pressure without exceeding the maximum limit
	Insufficient pressure	Contact the forklift manufacturer
	Worn Pump	Replace
	Worn cylinder seals	Replace
	Lack of oil in the tank	Top up
Loss of pressure	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
	Loss load while sideshifting	Lower the side shift pressure
Slow opening and closing	Low oil flow	Check the tank level and the pump
		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
	Snap in rotation	decrease the eccentricity of the loads
	Lack of oil in the tank	Top up
Rotation device	Noise and / or vibrations	Replace worn bearings and / or lubricate and / or replace the motor
	Worn hydraulic motor	Replace motor

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

Tab 5

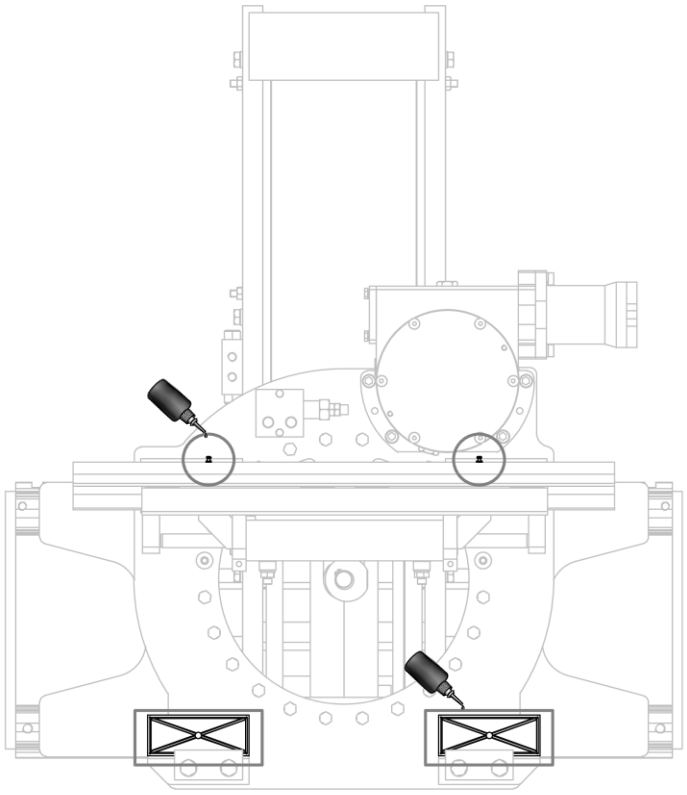
8.2 Lubrication

1. Lubricate the sliding parts using the special grease nipples.
2. Lubricate the sliding gibs and sliding axles / surfaces.
3. Lubrificate fifth weel using the special grease nipples.



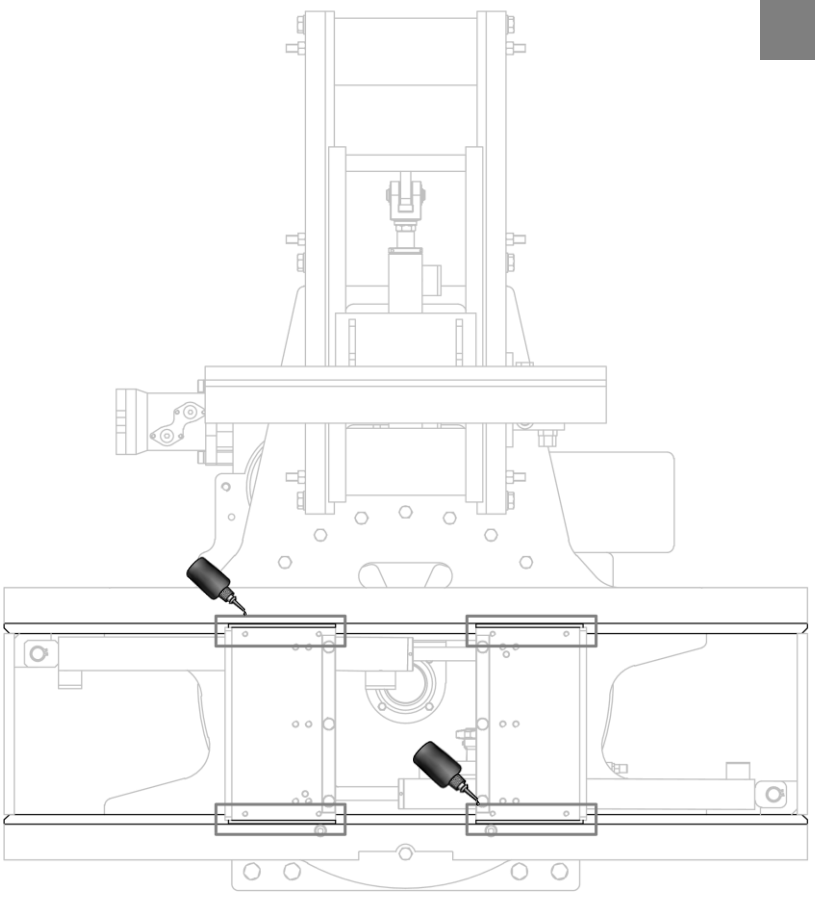
Picture 42

TYPE 219 SLS



Picture 43

TYPE 219 RFI



Picture 44

MADE IN ITALY

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

+39 030 977 17 11
info@atib.com
atib.com