



ATI3 MATERIAL
HANDLING

INSTRUCTION MANUAL FOR USE

360° ROTATING DRUM CLAMP FOR ONE DRUM

TYPE 636

INDEX

360° ROTATING DRUM CLAMP FOR ONE DRUM

TYPE 636



READ THIS MANUAL VERY CAREFULLY BEFORE STARTING-UP THE MACHINE

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1 SAFETY RULES



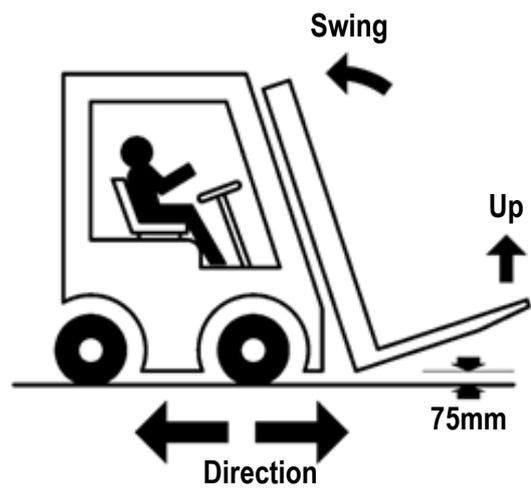
Don't carry passengers



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. – “360° ROTATING DRUM CLAMP FOR ONE DRUM TYPE 636” 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:

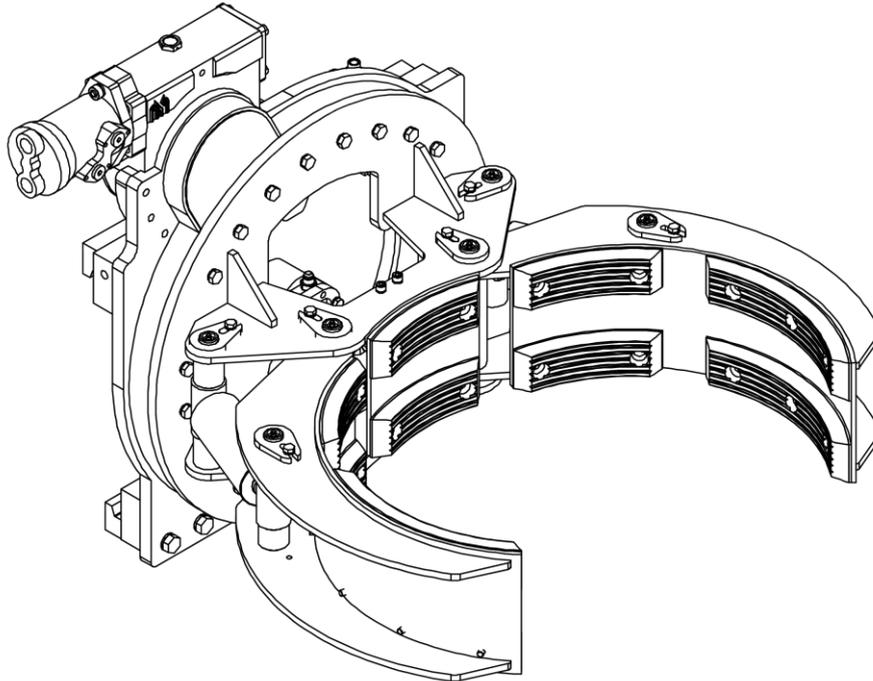
- Improper use of the attachment;
- Use by untrained personnel;
- Use contrary to current national and international laws;
- Lack of recommended maintenance;
- Non authorised modifications and repairs;
- Use of non original spare parts or parts for other models;
- Failure to adhere, either totally or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

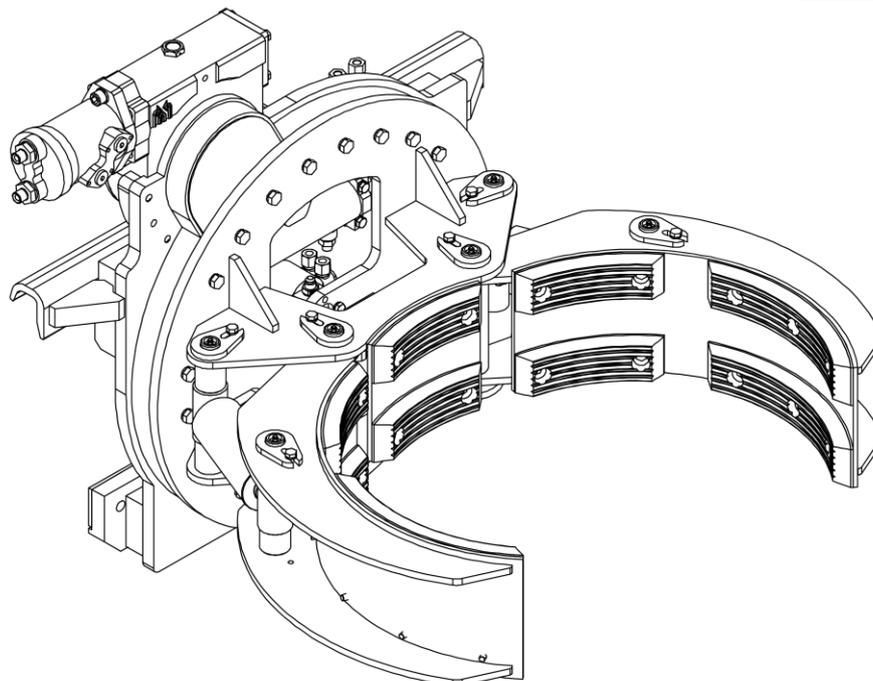
Consult the plate of the forklift (Directive 2006/42 / EC).

2.2 Description of equipment

TYPE 636

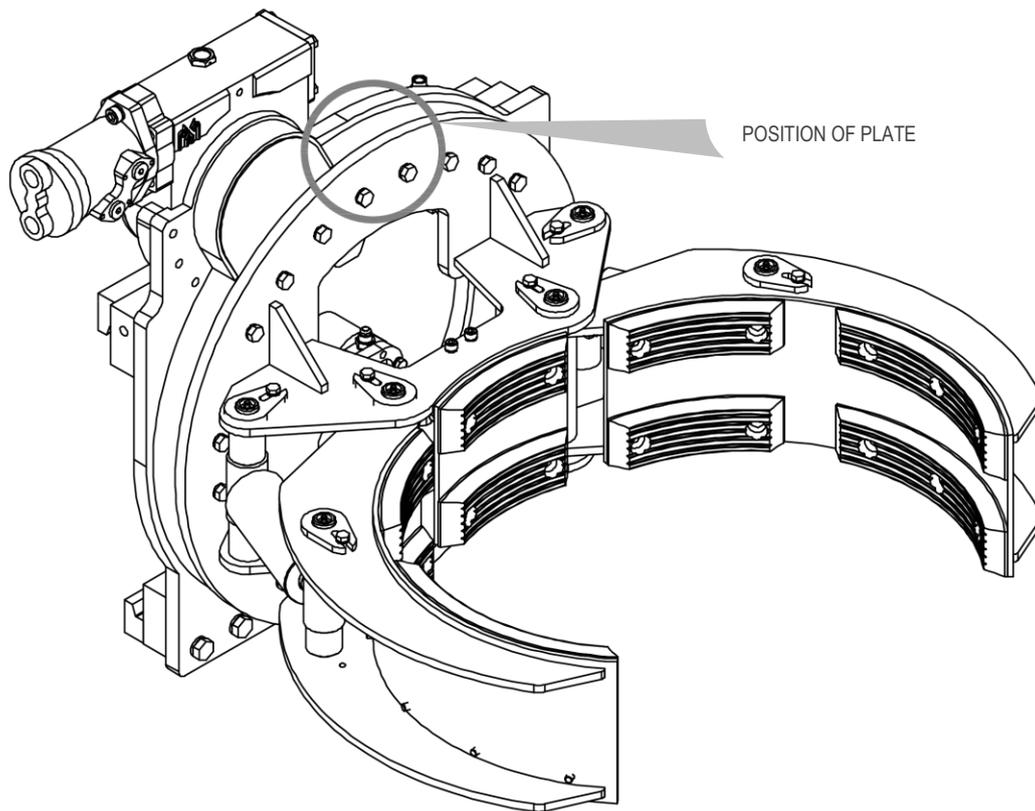


WITH SLS



All the A.T.I.B. – “360° ROTATING DRUM CLAMP FOR ONE DRUM TYPE 636” are identified by means of a sticky identification label on attachment (

Tab 1) positioned on the equipment (the position of the identification plate may change according to the equipment, *Picture 1*). 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. S.r.l. Via Quinzanese snc, 25020 Dello (BS) - ITALIA +39 030/9771711 info@atib.com - atib.com
3. SERIAL N°				
4. YEAR OF MANUFACTURE	10. MAX. OPERATING PRESSURE	bar		
5. WEIGHT	WARNING: RESPECT THE RATED CAPACITY OF TRUCK AND ATTACHMENT COMBINED			
6. THICKNESS				
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

It indicates the maximum load liftable by clamping.

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. – “360° ROTATING DRUM CLAMP FOR ONE DRUM TYPE 636” were planned and built to allow the lifting, transport and rotate of one drum.

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;
- Load clamp: the movement related to clamp and rotation of load is achieved through the use of a pair of hydraulic cylinders which act directly on the blades.

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;

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 
<p>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.</p>

<p>The forklift manufacturer is responsible for calculating the residual capacity of the forklift /equipment assembly.</p>
--

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	
636 ISO II	10/ 10	40/ 45	20/ 20	175

Tab 2

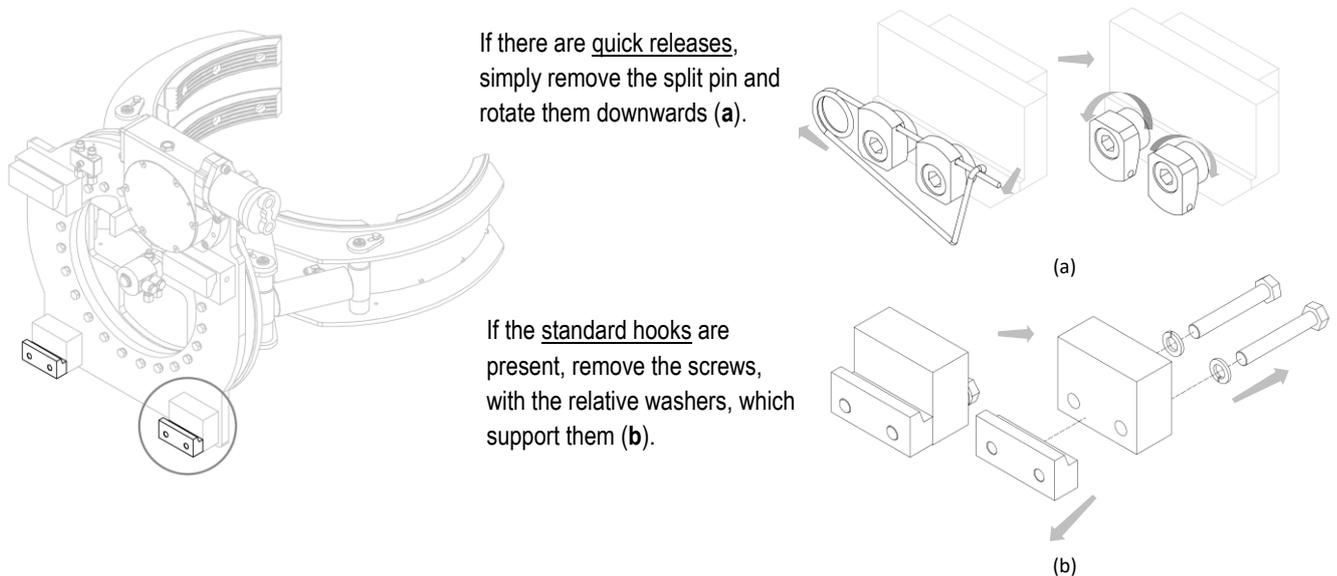
Values in bold refer to sideshift.

 WARNING!! 
<p>RESPECT THE MAXIMUM WORKING PRESSURES INDICATED</p>

3.1 Installation

3.1.1 Attachment installation

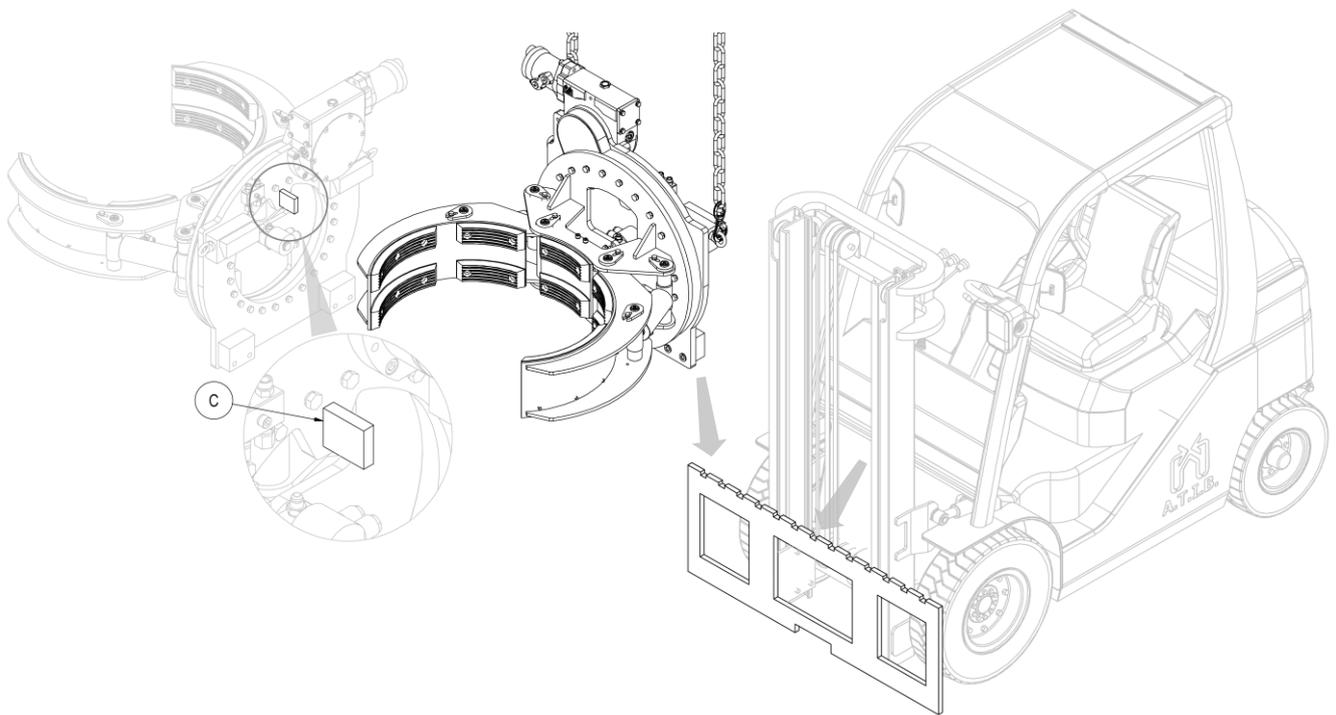
1. Before installation, verify the condition of the fork carriage, ensuring that it is not deformed.
2. Also make sure that the profiles of the fork holding plate are not deformed, in order to allow a good coupling with the equipment.
3. Check the condition of the pipes, replacing those that are in a 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 (*Picture 1 and*
6. *Tab 1 pag.6*).

NOTE: For this use, use only adjustable eyebolts.



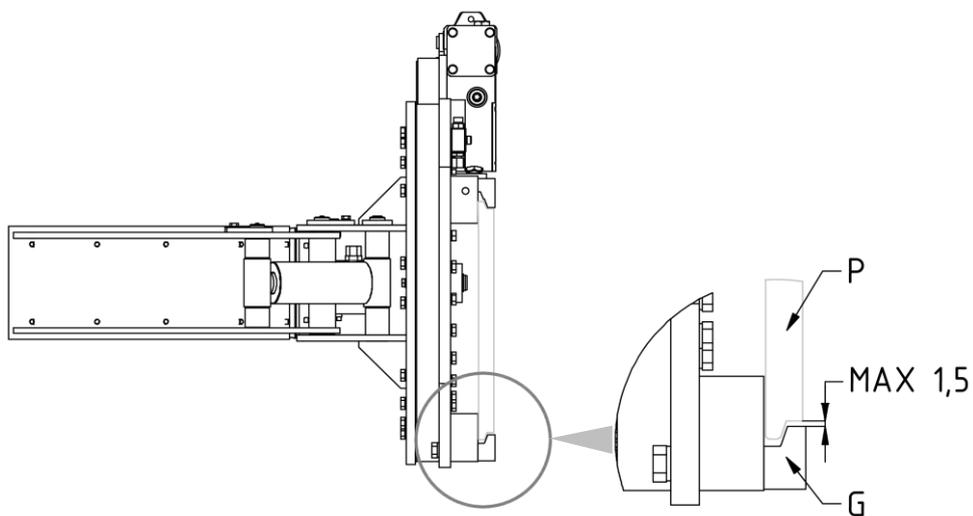
Picture 3

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

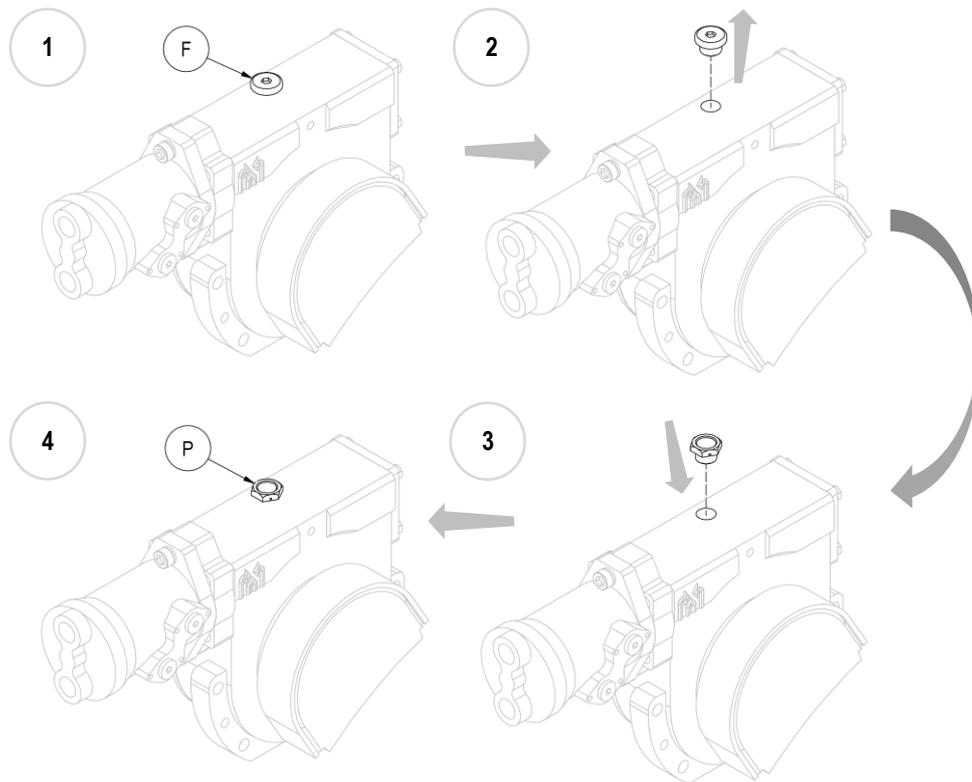
Tab 3



Picture 4

9. Lubricate the contact parts (pag.39).

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



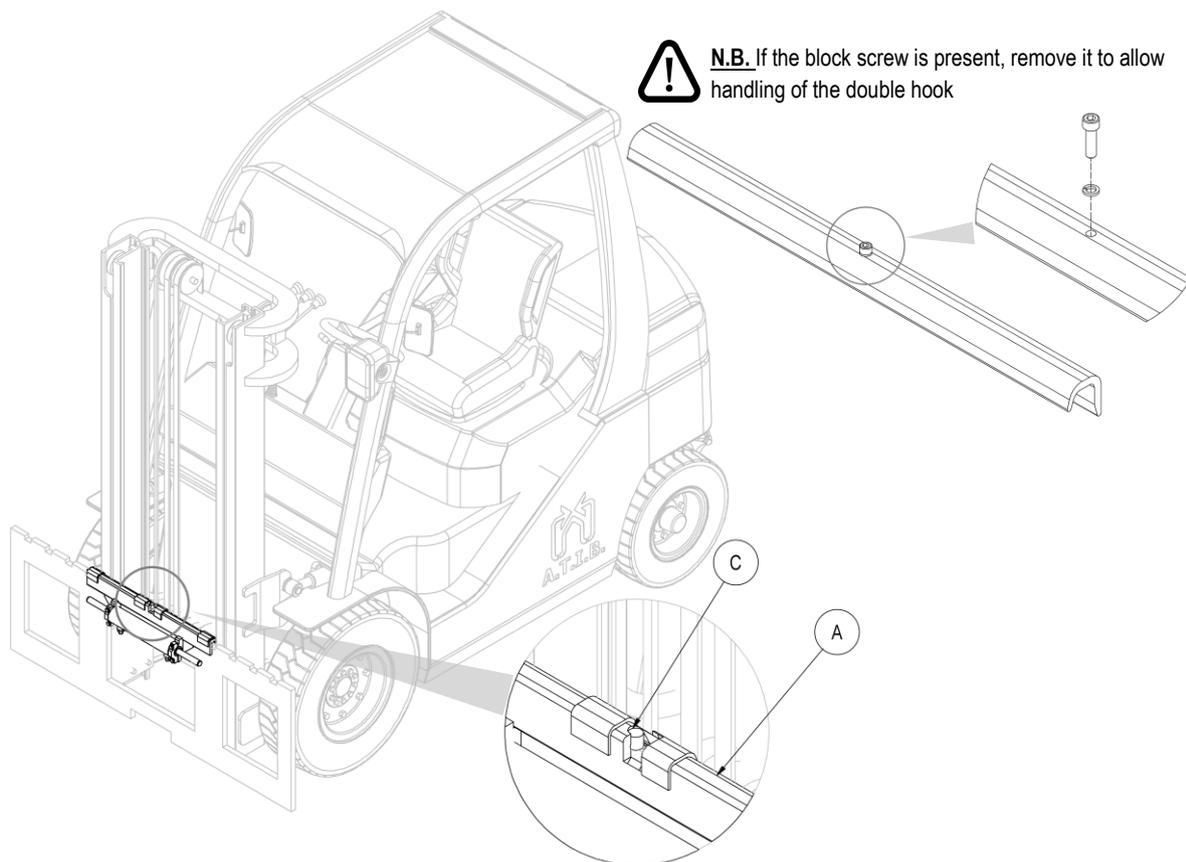
Picture 5

11. 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 12. Tab 1 pag.6).

3.1.2 Attachment installation - with Sls

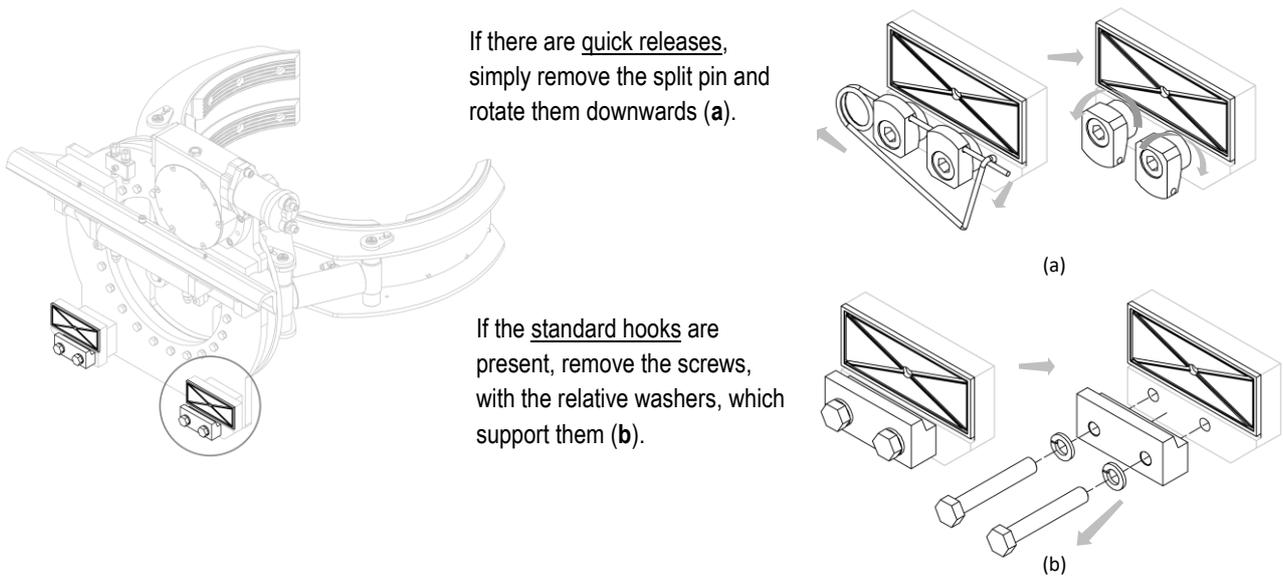
WITH SLS

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.
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*).



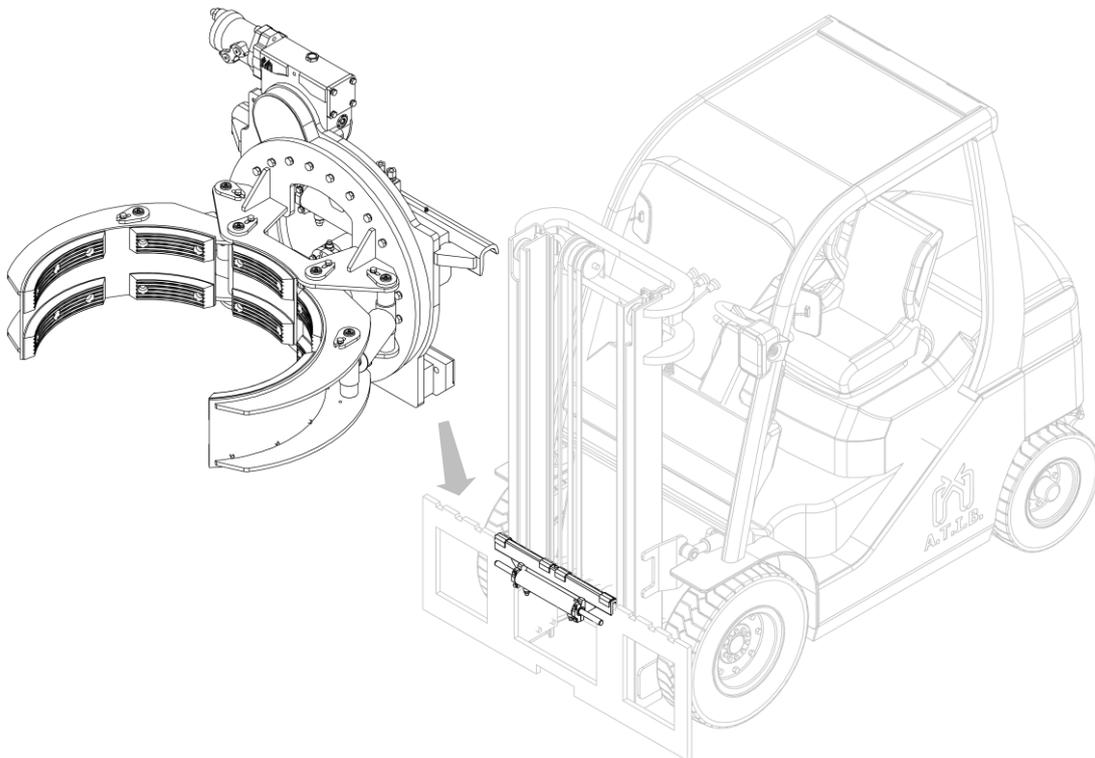
Picture 6

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).
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).

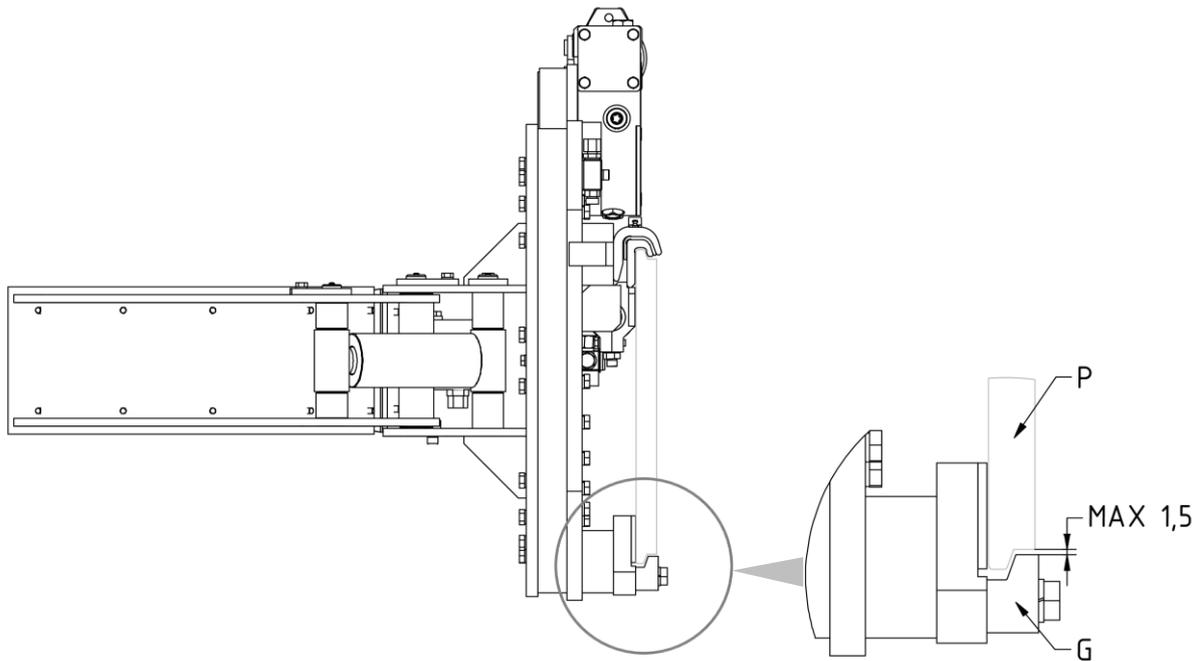


Picture 8

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*.

CLASSE	FILETTATURA	COPPIA DI SERRAGGIO
ISO II	M12	90 Nm

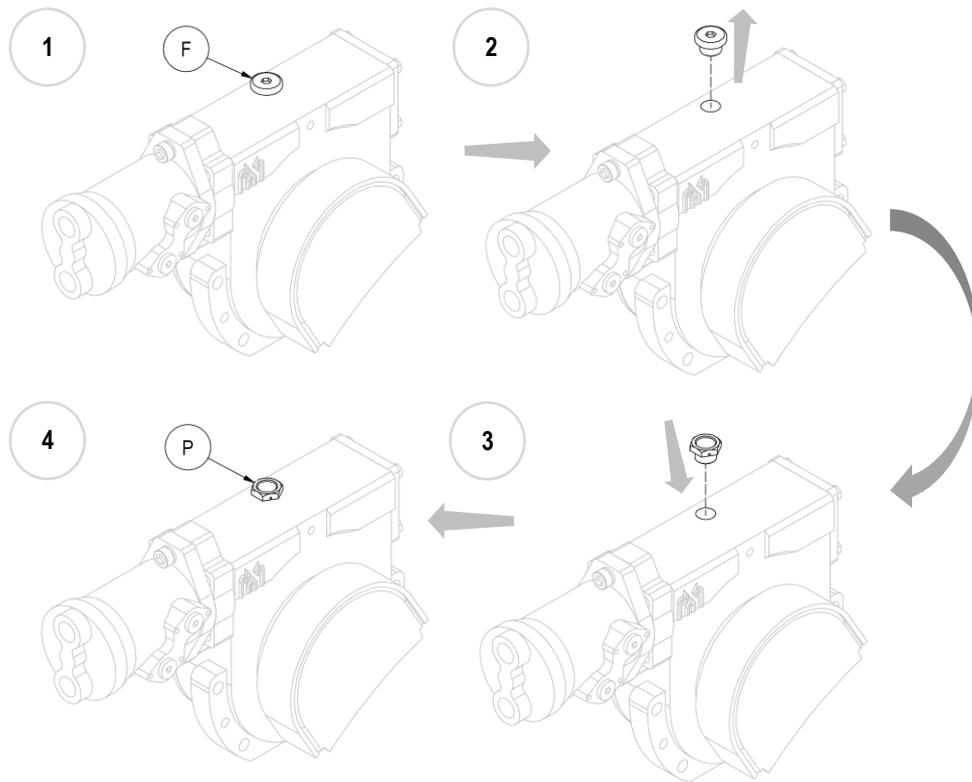
Tab 4



picture 9

10. Lubricate the sliding parts (pag.39).

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



Picture 10

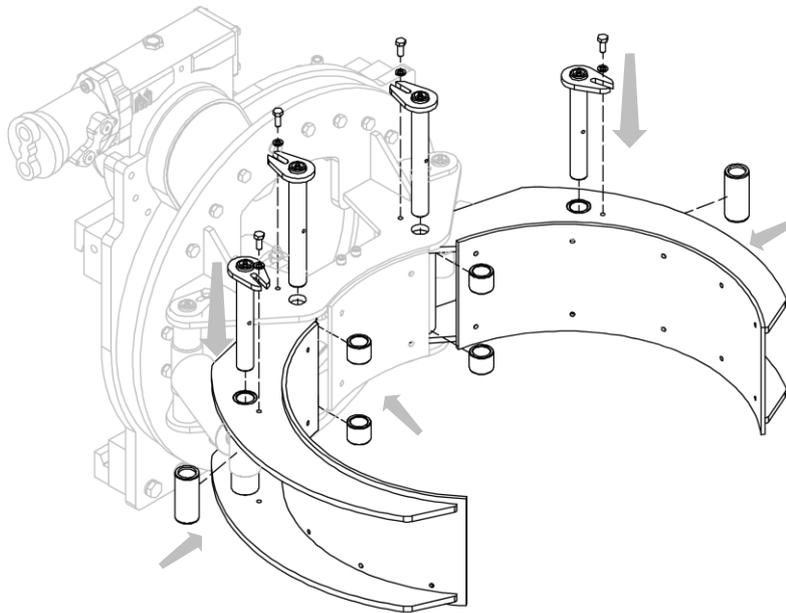
12. Connect the hydraulic circuit, making sure that the operating pressure of the pipes is higher than or equal to that indicated on the identification label (Picture 1 and 13. Tab 1 pag.6).

3.2 Assembly clamping unit

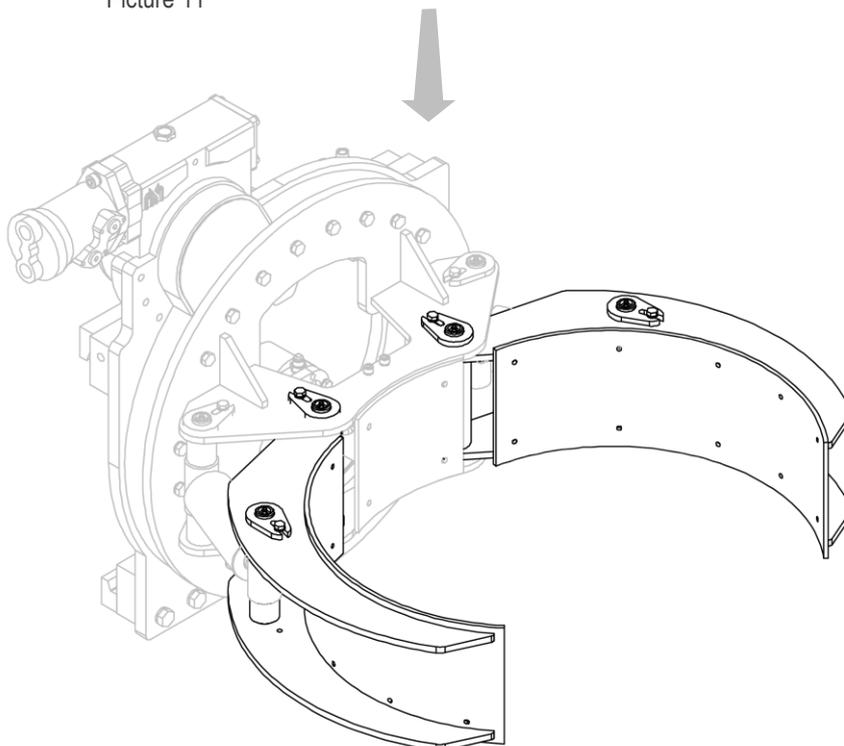
3.2.1 Blades installation

BLADES

1. Relieve the pressure of the hydraulic system and disconnect the pipes.
2. Fit the blades in the appropriate seats, installing the locking pins with the relative screws. Also install the blade and cylinder bushings (*Picture 11* and *Picture 12*).



Picture 11



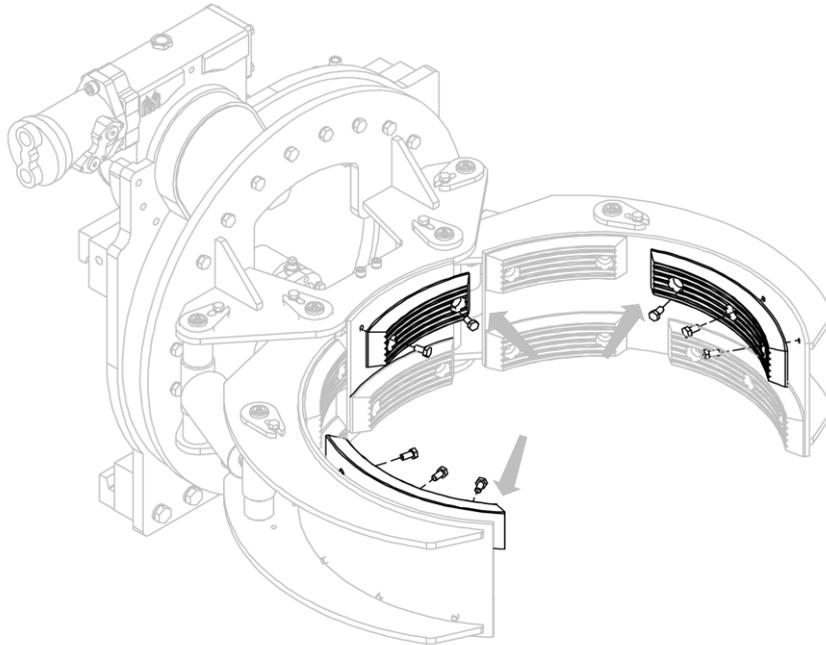
Picture 12

3.2.2 Installation rubber pads

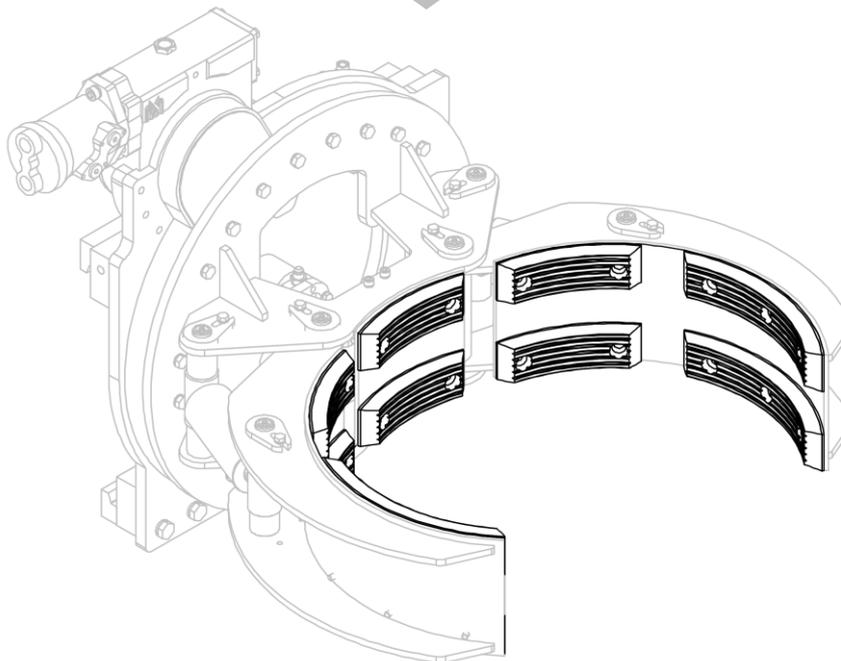
RUBBER PADS

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

2. Install the rubber pads, using their screws (Picture 13 Picture 14).



Picture 13

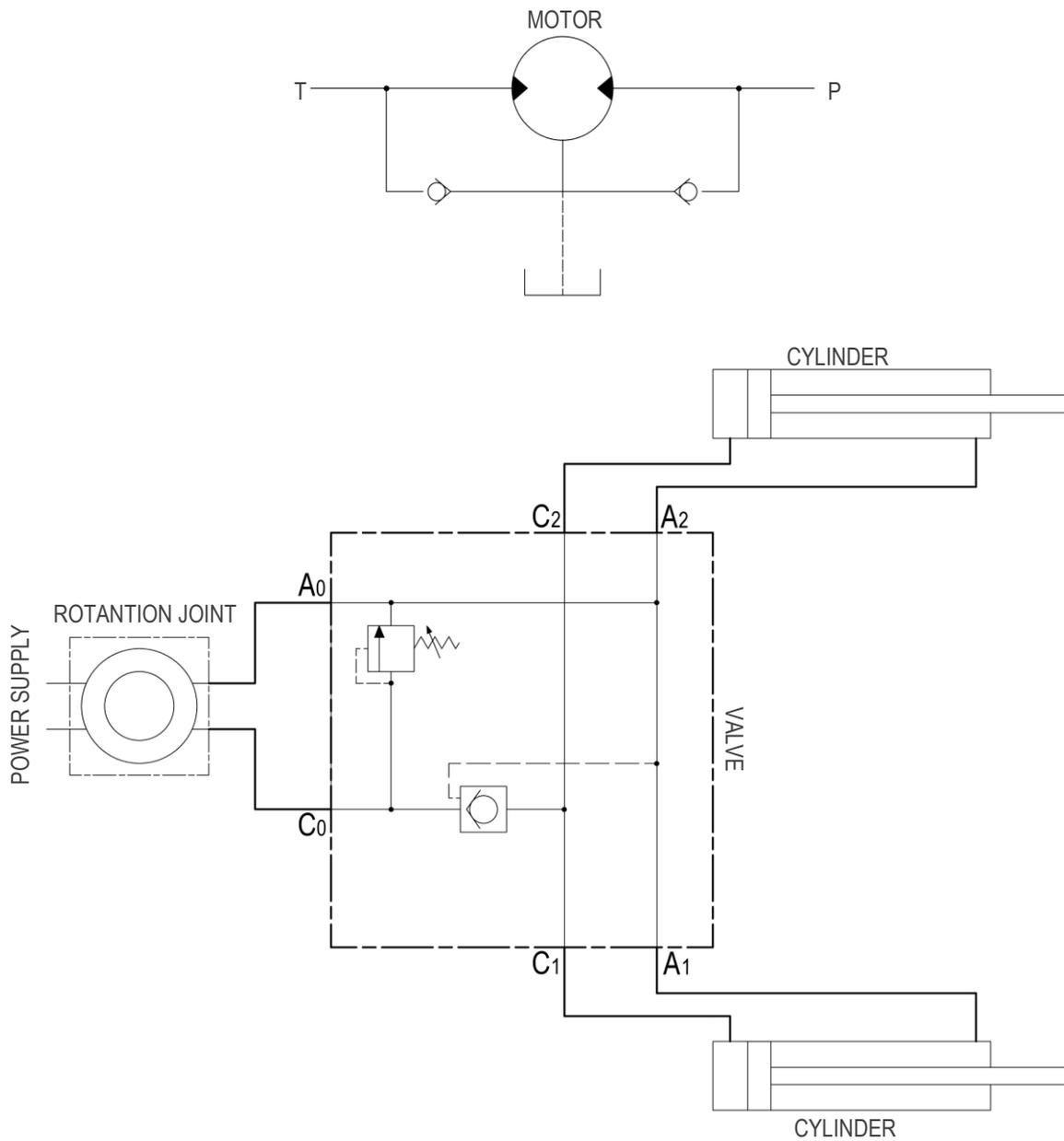


Picture 14

4 HYDRAULIC SYSTEM

4.1 Hydraulic system

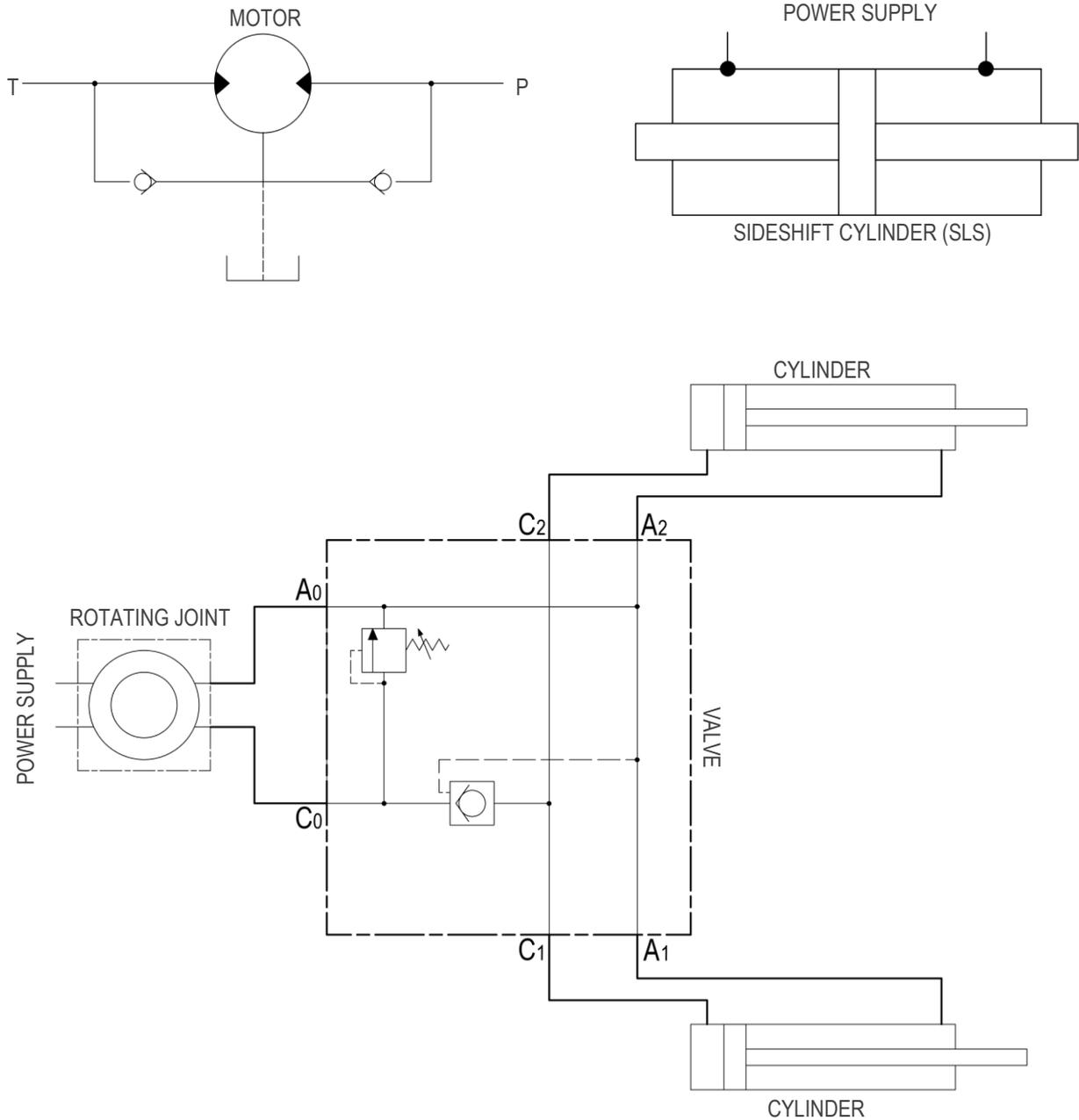
STANDARD



Picture 15

4.2 Hydraulic system – with SIs

WITH SLS



Picture 16

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.

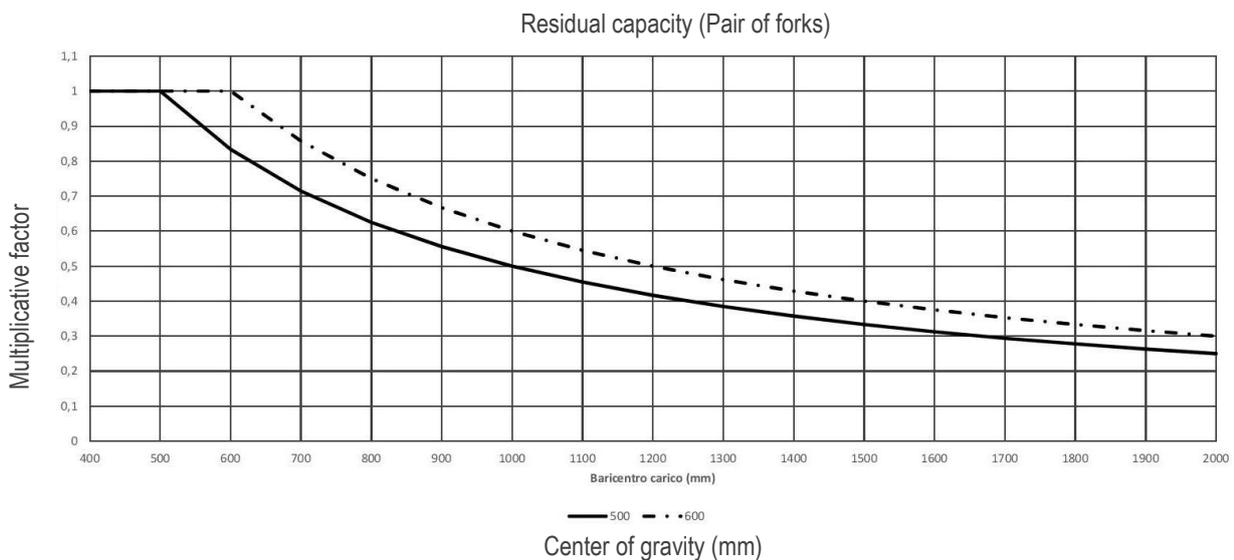
If you need to increase the distance of the center of gravity as regards vertical part of the fork you have to reduce the weight of the load.

In this occasion, we suggest to control the chart *Picture 17*, 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 17

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

The minimum transportable size must be greater than the minimum opening. Depending on the load to be transported, this difference can vary and must be evaluated from time to time by the operator.



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) and *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. Clean and lubricate all sliding parts (*Picture 29 and Picture 30* pag. 39).

6.2 Maintenance every 300 hours

1. Check the condition of upper and lower sliding devices if an excessively worn component is found, A.T.I.B. recommend replacing the entire assembly of the component in question.
2. Check the condition of the clamping unit, replacing any damaged and / or excessively worn components if necessary.
3. Also carry out the operations listed in the previous point (Punto 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, A.T.I.B. recommend replacing the entire assembly of the component in question.
2. Also carry out the operations listed in the previous points (Punti 6.1 and 6.2 pag.26).

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.
 - 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.38.

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, 6.2 and 6.3)

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 point 7.5 pag 36.
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

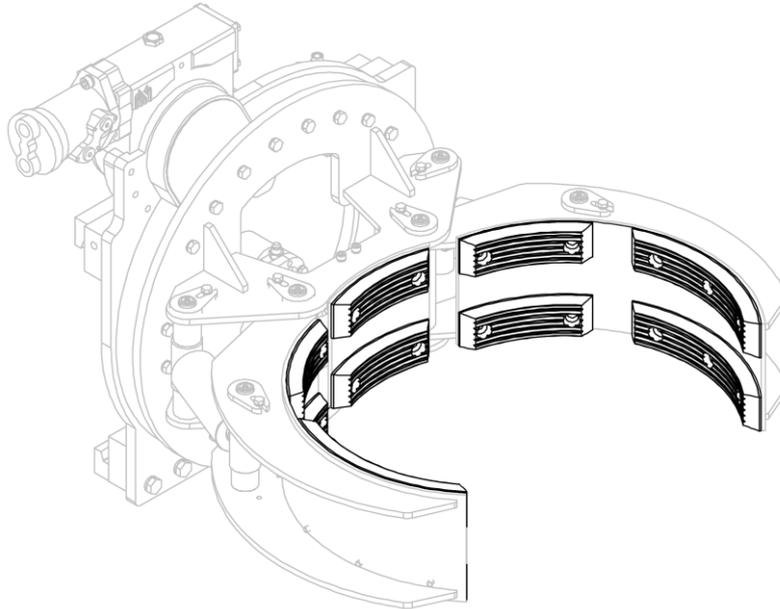
1. Relieve the pressure of the hydraulic system.
2. Unscrew the lower hooks of equipment (*Picture 2 and Picture 7 pag.10, 15*).
3. For handling, use belts or chains appropriately sized for the weight of the equipment, indicated on the plate.
4. With an overhead crane or with a hoist of sufficient capacity hook the attachment and remove it from forklift (*Picture 3 and Picture 8 pag.11, 15*).

7.2 Disassembly clamping unit

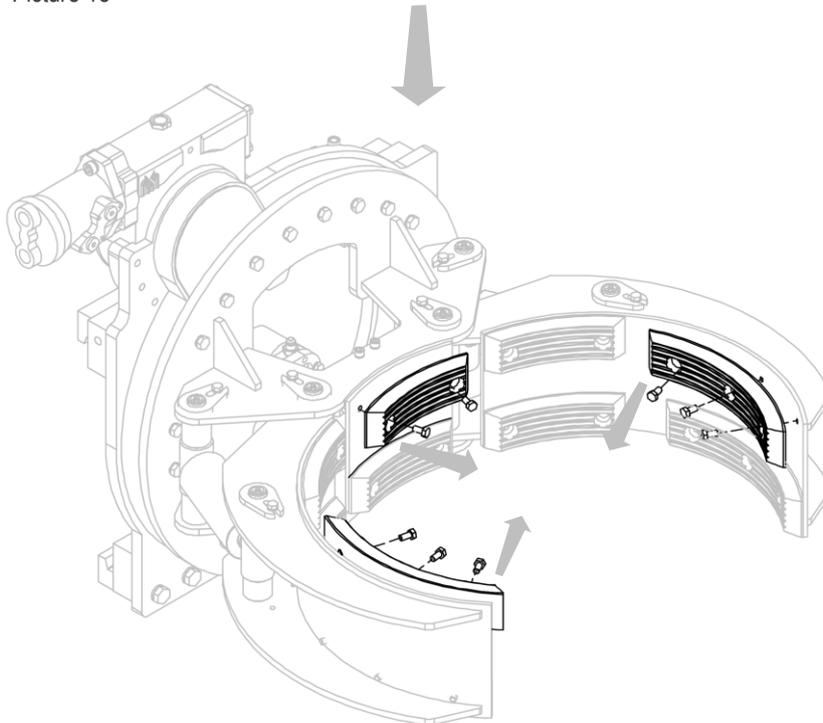
7.2.1 Rubber pads removal

RUBBER PADS

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 18* and *Picture 19*).



Picture 18

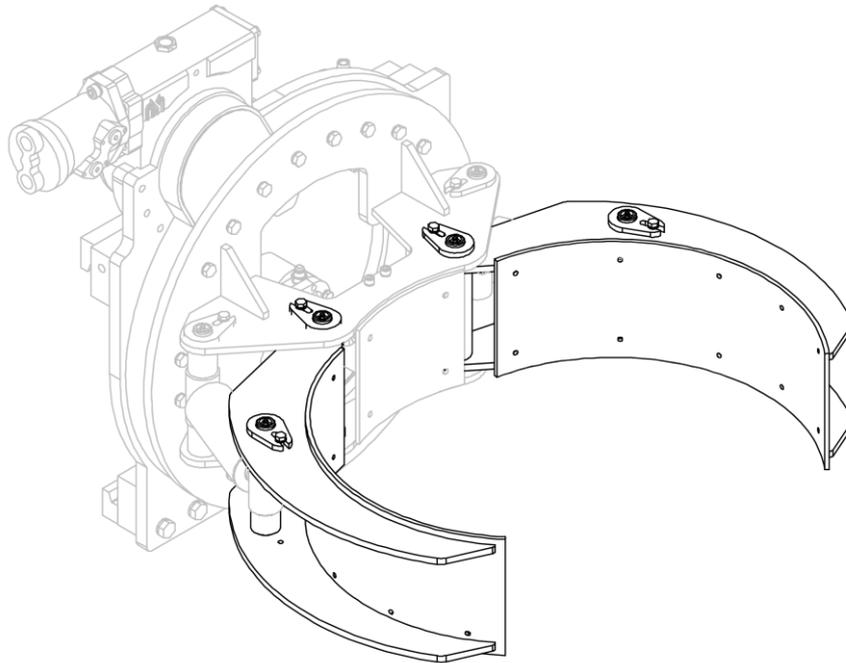


Picture 19

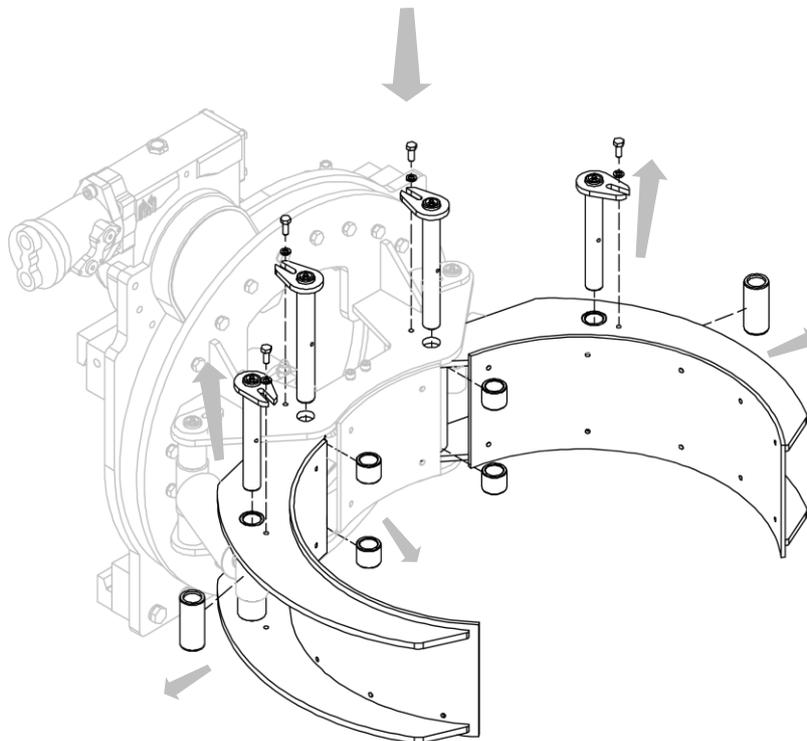
7.2.2 Blades removal

BLADES

1. Relieve the pressure of the hydraulic system.
2. Remove the blades after removing the pins that lock them, with the relative screws and spring washers.
Also remove the bushings of the cylinders and blades (*Picture 20* and *Picture 21*).



Picture 20

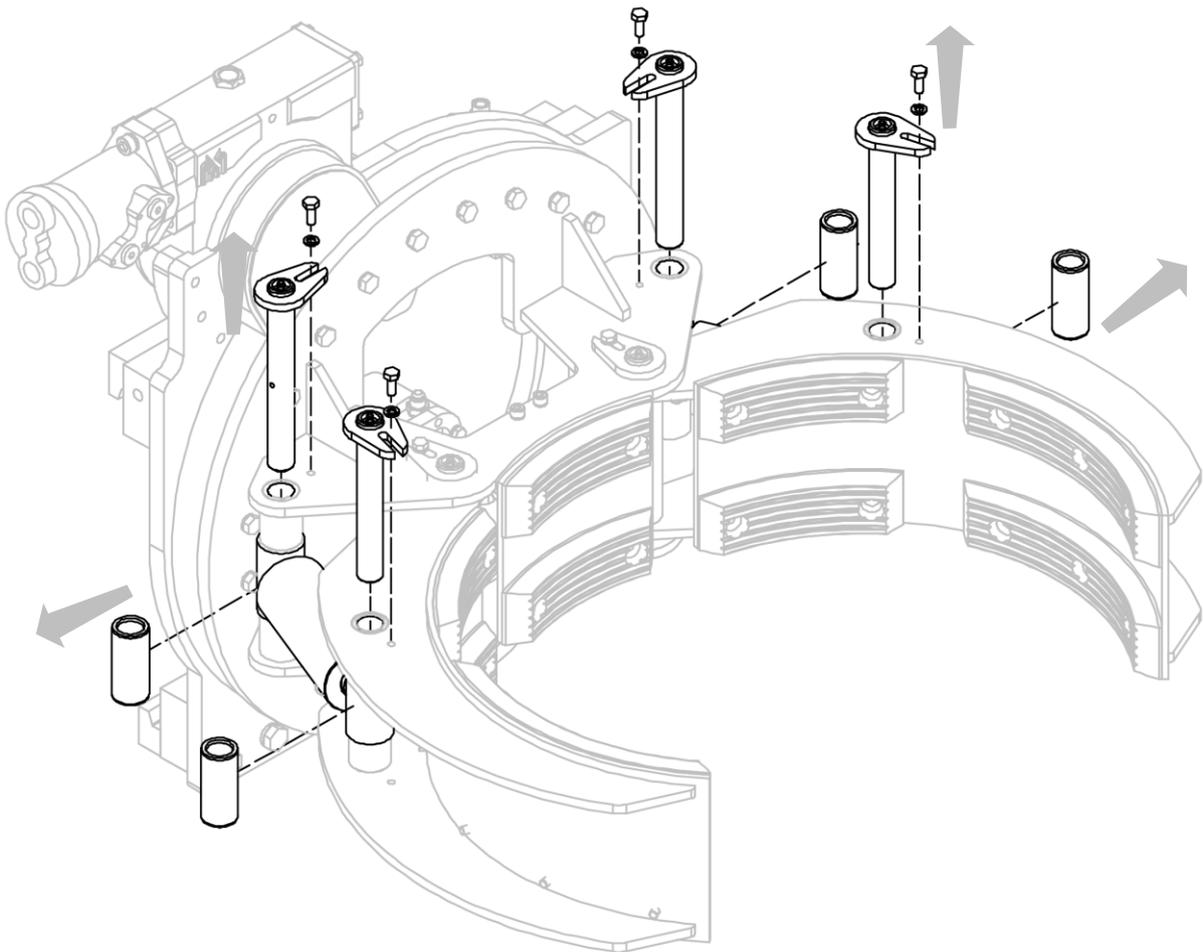


Picture 21

7.3 Blade cylinders removal from attachments

BLADE CYLINDERS

1. also remove the bushings of the cylinders and blades.
2. Remove the blades after removing the pins that lock them, with the relative screws and spring washers (*Picture 22*).
Also remove the bushings of the cylinders and blades.

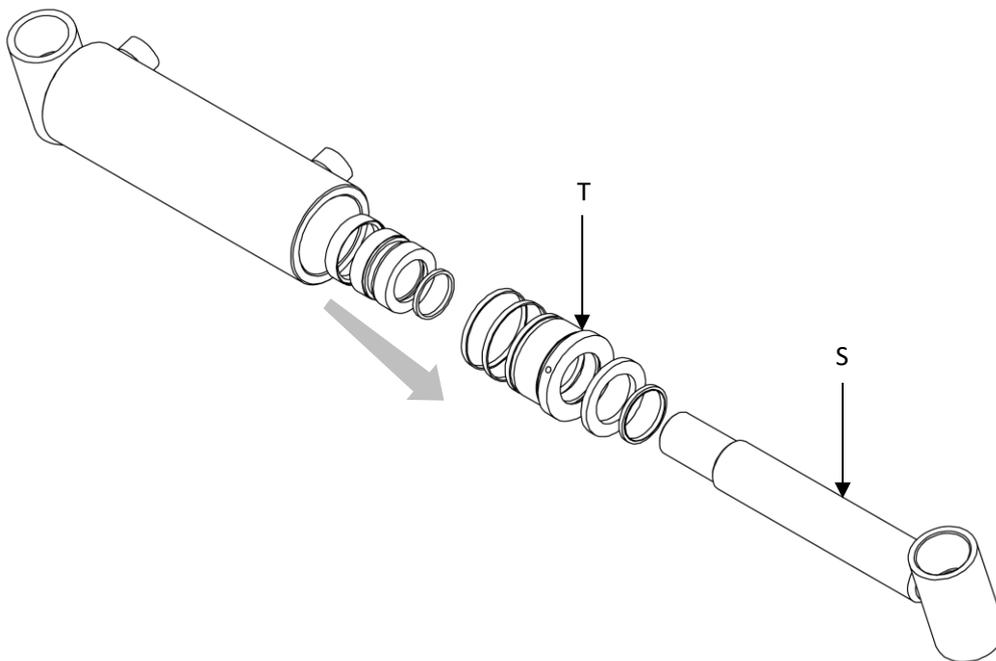


Picture 22

7.3.1 Blade 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. Separate the rest of the components and seals from each other (the piston can be welded or screwed to the stem **S**).
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.
7. Refer to *Picture 23*.

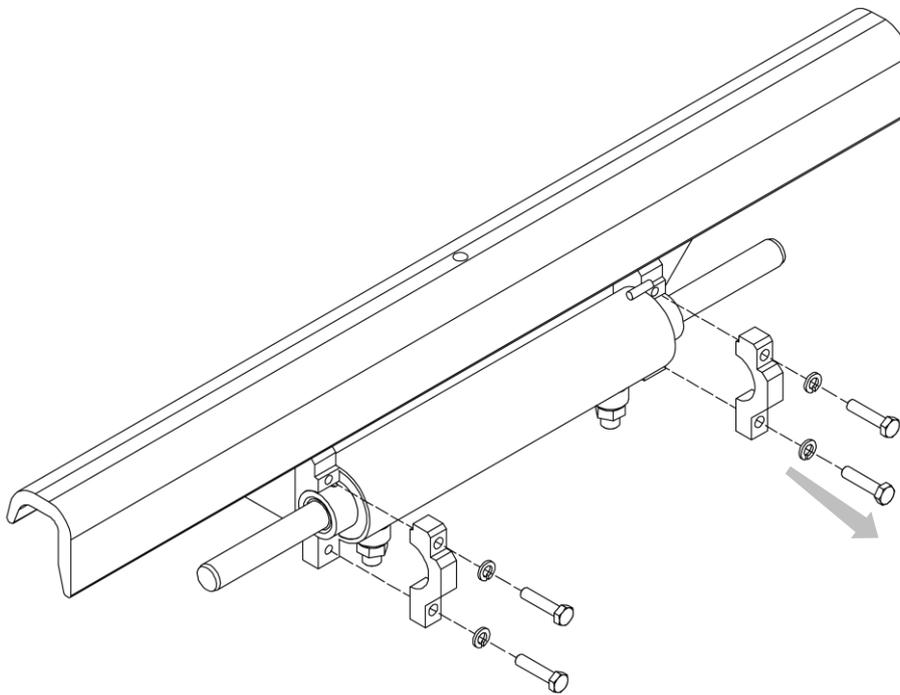


Picture 23

7.4 Sideshift cylinders removal (sls)

SLS CYLINDER

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 24*.

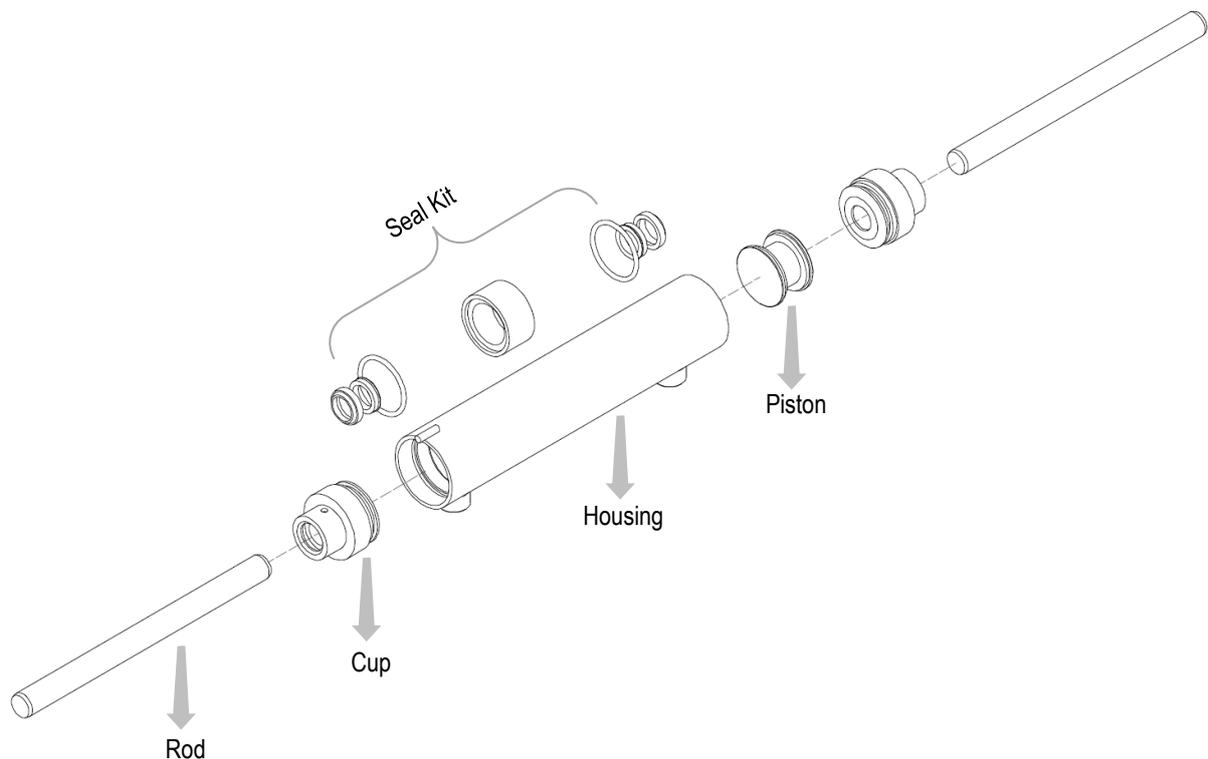


Picture 24

7.4.1 Sideshift cylinders 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 25):

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.

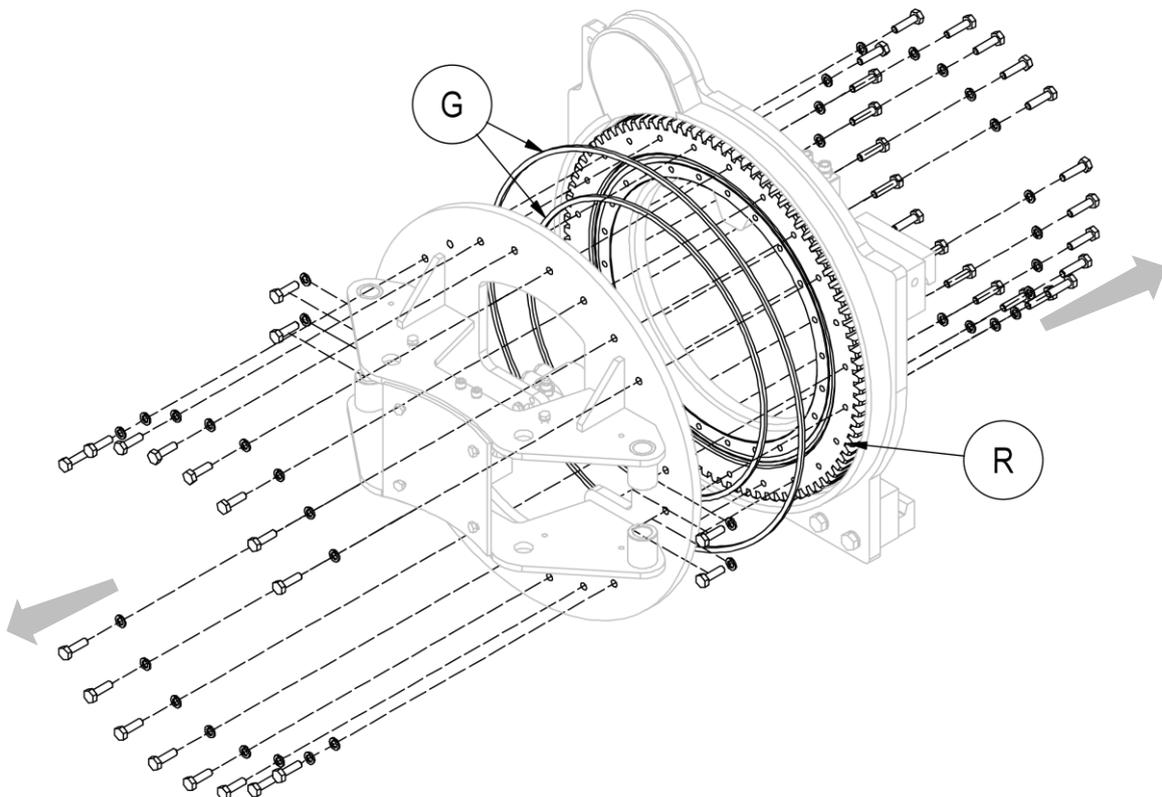


Picture 25

7.5 Disassembly of the fifth wheel

FIFTH WHEEL

1. Relieve the pressure of the hydraulic system and disconnect the pipes.
2. Remove the attachment from forklift (point 7.1 pag 29).
3. Remove the reducing gear and motor from the equipment (see section 3 point 7.6 pag 37).
4. Remove the blades and relative cylinders (point 7.2 pag.31 and 7.3 pag33).
5. 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 26).
6. In order to remove the fifth wheel **R**, it is also necessary to remove the screws from the rear of the equipment (Picture 26).
7. Remove the fifth wheel, and if necessary, insert a new one.
8. 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.

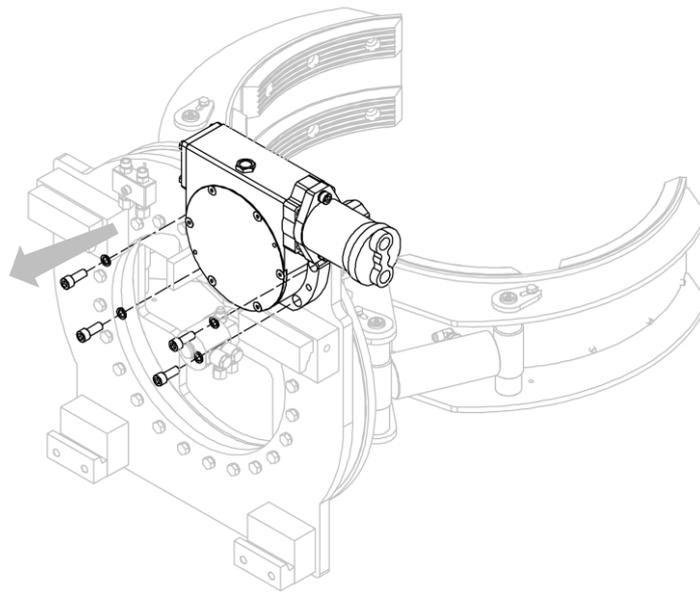


Picture 26

7.6 Reducing gear and motor disassembly

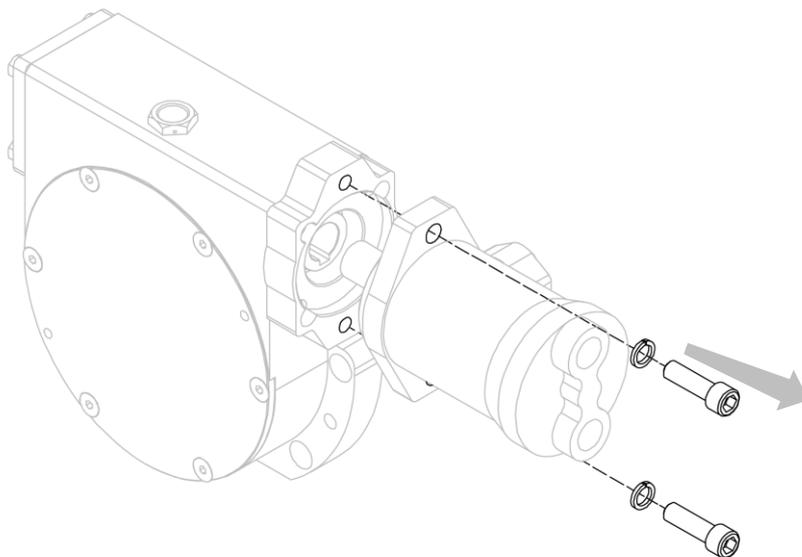
REDUCING GEAR AND MOTOR

1. Relieve the pressure of the hydraulic system and disconnect the pipes.
2. Remove the attachment from forklift (see section 3 point 7.6 pag 37).
3. Remove the reducing gear and motor from the equipment, after removing the relevant screws (*Picture 27*).



Picture 27

4. Separate the reducing gear from the motor, after removing the relevant screws (*Picture 28*).



Picture 28

8 BREAKDOWNS AND SOLUTIONS

8.1 Breakdowns and solution

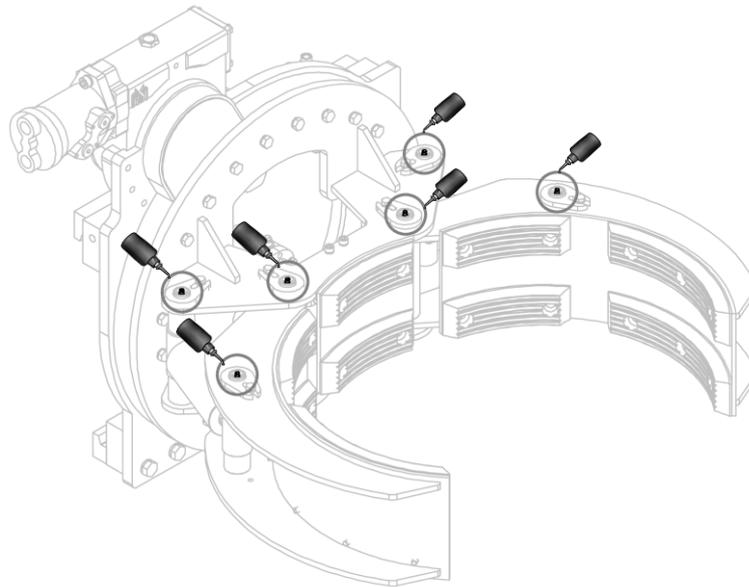
FAILURE	CAUSE	SOLUTION
Insufficient strenght	Too low setting of the maximum pressure valve	Increase the pressure without exceeding the maximum limit
	Insufficient pressure	Contact the forklift manufacturer
	Worn Pump	Replace
	Worn cylinder seals	Replace
	Lack of oil in the tank	Top up
Loss of pressure	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
	Loss load	Verify blades cambering
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
	Worn sliding parts	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

Tab 5

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

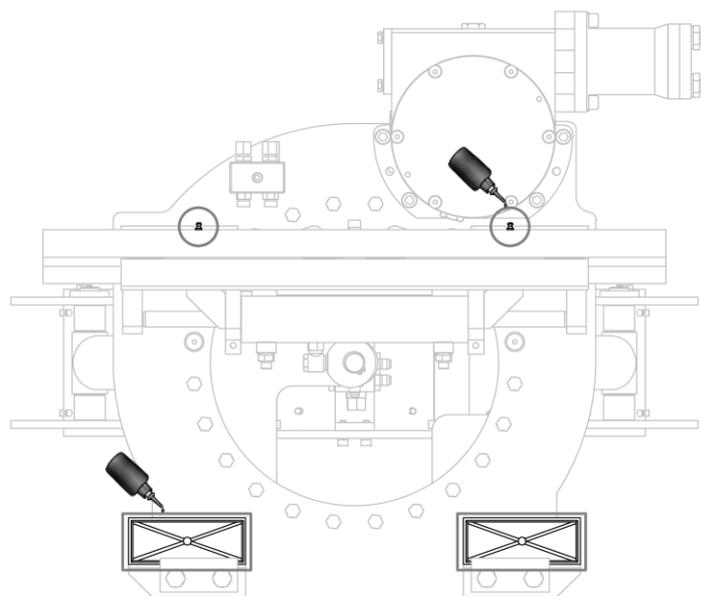
8.2 Lubrication

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



Picture 29

WITH SLS



Picture 30

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