



ATiB MATERIAL
HANDLING

USE AND MAINTENANCE MANUAL

BALE CLAMP WITH THIN JAWS TYPE 116.131 |

BALE CLAMP WITH BOXED JAWS TYPE 116.130

TABLE OF CONTENTS

BALE CLAMP WITH THIN JAWS TYPE 116.131 | BALE CLAMP WITH BOXED JAWS TYPE 116.130



READ THIS USE AND MAINTENANCE MANUAL CAREFULLY BEFORE
COMMISSIONING THE EQUIPMENT

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1 SAFETY REGULATIONS FOR THE OPERATOR



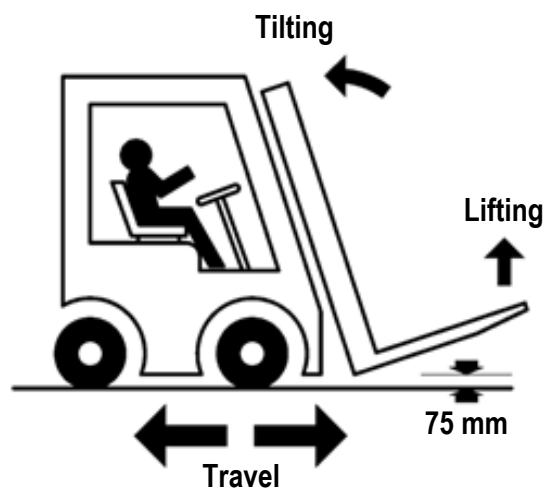
Do not transport passengers



Do not cross the upright



Do not stand under the load



2 INTRODUCTION

2.1 Use and Storage of the Manual

This "Use and Instruction Manual" (hereinafter referred to as the Manual) is issued together with the A.T.I.B. equipment. - "BALE CLAMP WITH THIN JAWS TYPE 116.131 | BALE CLAMP WITH BOXED JAWS TYPE 116.130" in accordance with DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17/05/2006 and subsequent additions.

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

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

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

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

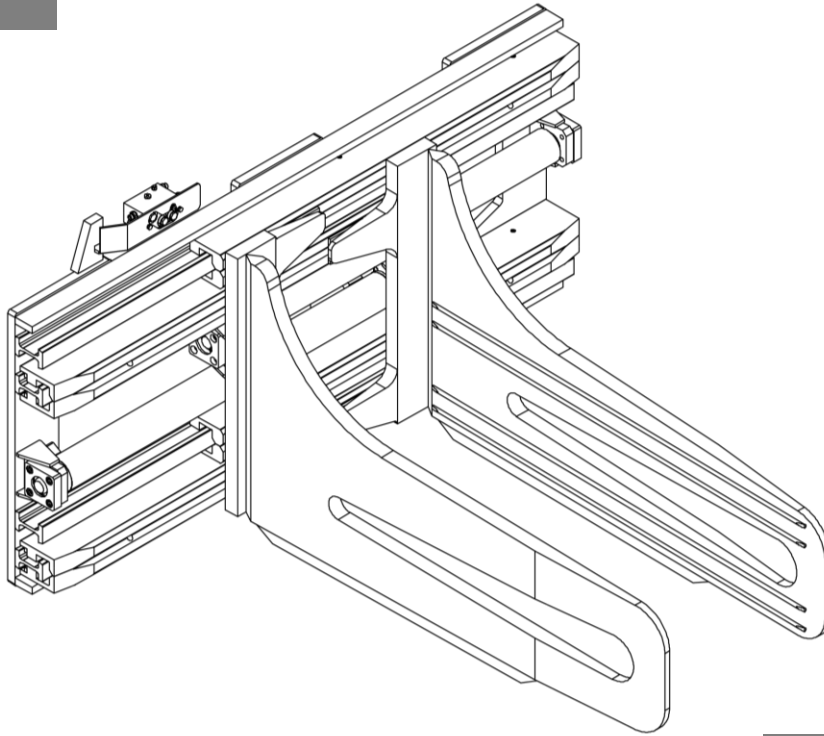
The manufacturer is exempted from any responsibility in the event of:

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

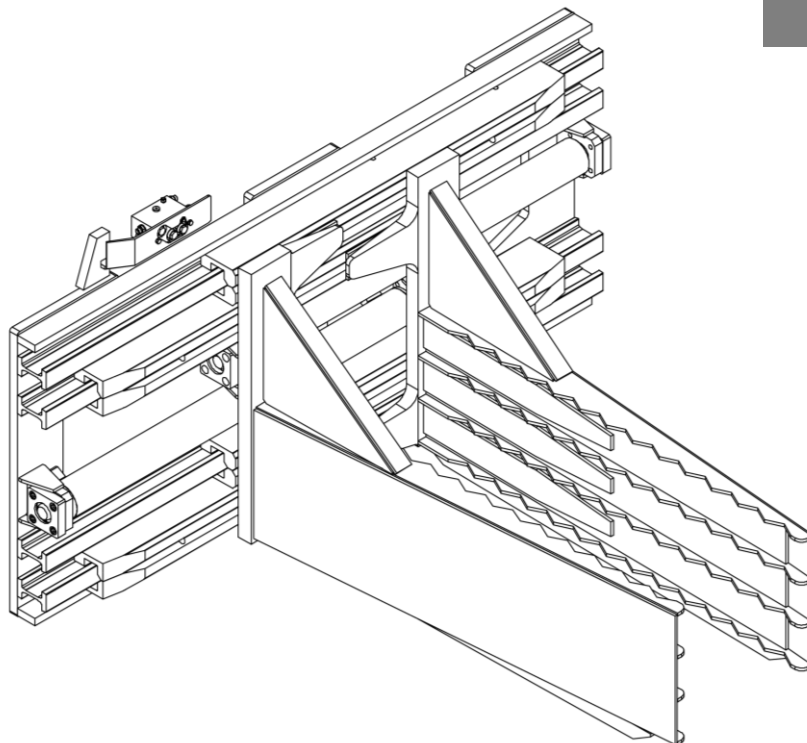
The nominal capacity of the forklift truck/equipment combination has been set by the original manufacturer of the forklift truck and may be less than that indicated on the equipment plate.
Consult forklift truck plate (Directive 2006/42/EC).

2.2 Equipment Description

TYPE 116.131



TYPE 116.130



All the A.T.I.B. equipment – “BALE CLAMP WITH THIN JAWS TYPE 116.131 | BALE CLAMP WITH BOXED JAWS TYPE 116.130” are identified by means of an adhesive plate (see

Table 1) located on the equipment (see *Figure 1*, in which the two main positions the identification plate can take are shown), always refer to the serial number.

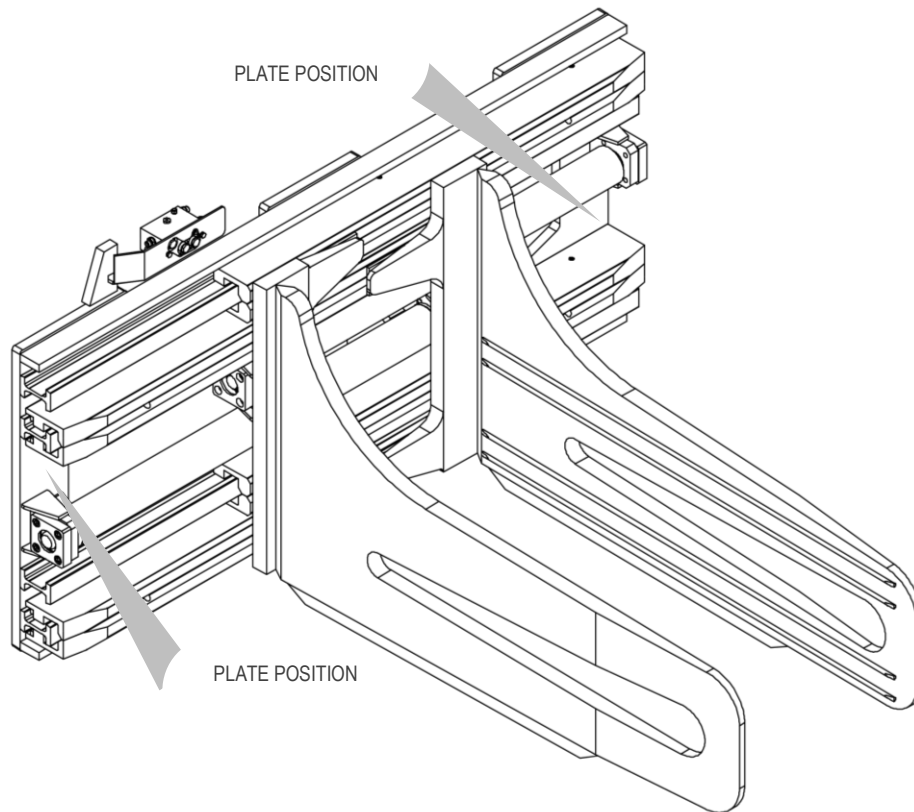


Figure 1



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

Table 1

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

The A.T.I.B. equipment - "BALE CLAMP WITH THIN JAWS TYPE 116.131 | BALE CLAMP WITH BOXED JAWS TYPE 116.130" has been conceived, designed and manufactured to allow the clamping and/or handling of bulky bales/loads of any type or material (paper, cardboard, scrap, plastic, etc.).

On request, they can be supplied with the following:

ISS = with INTEGRAL SIDESHIFT

SISS = with SEMI-INTEGRAL SIDESHIFT

This equipment must be attached to the fork carriage of the forklift truck and connected to the distributor via a hydraulic circuit.

The relative movement for adjusting the distance between the jaws is achieved by means of two hydraulic cylinders.

Integral sideshift motion is carried out by a special valve and uses the same cylinders that handle the jaws.

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

3 INSTALLATION

Checking the Nominal Capacity of the Equipment

To check the nominal capacity of the clamp, refer to the clamp's rating plate (See

Table 1 on page 6).



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

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

Checking the Operating Pressure and Oil Flow Rate

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

TYPE and ISO	FLOW RATE (l/mm)			Operating pressure Maximum (Bar)
	minimum	maximum	recommended	
116.131 ISO III	15	40	25	175
116.131 ISO IV	20	40	30	175
116.130 ISO IV	20	40	30	175

Table 2



OBSERVE THE INDICATED MAXIMUM OPERATING PRESSURES

3.1 Installation Procedure

3.1.1 Installing the Equipment

(NO SISS)

1. Prior to installation, check the condition of the fork carriage, ensuring that the lower profile is smooth.

2. Also make sure that the profiles of the fork-holder plate are not deformed, in order to ensure good coupling with the equipment.

3. Check the condition of the pipes, replacing those in a poor condition.

N.B. Although only type 116.131 is shown in the installation phase, the procedure for installing the equipment on the fork carriage plate is identical for different versions (.130, always WITHOUT SISS).

4. Remove the lower couplings from the equipment (see *Figure 2*).

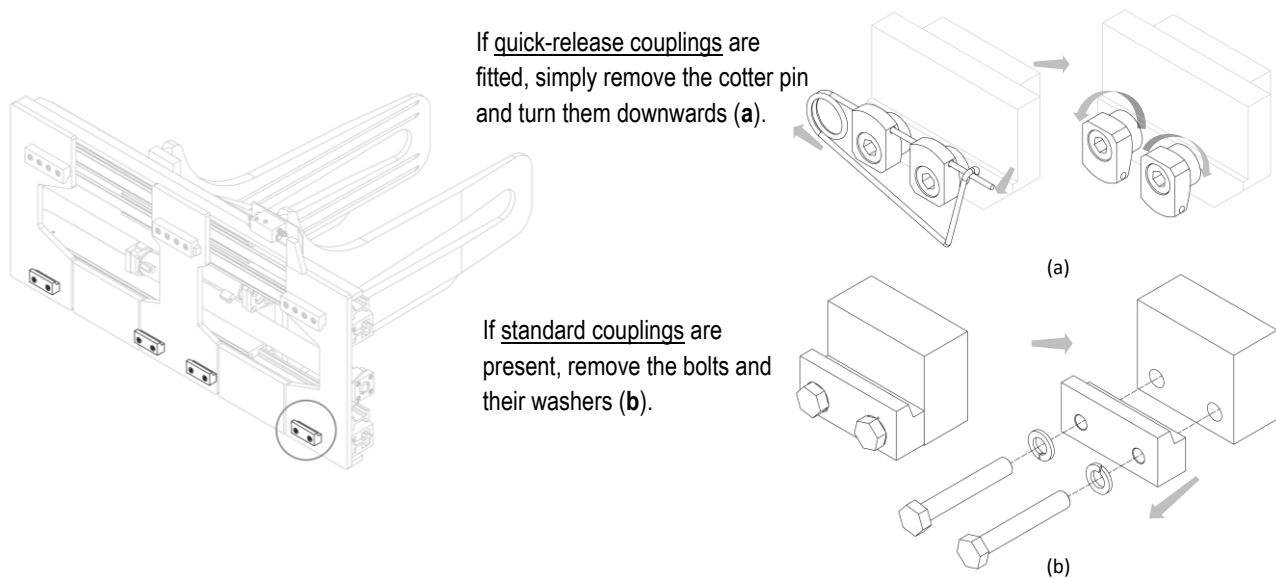


Figure 2

5. For handling, use straps or chains that are suitably sized in relation to the weight of the equipment as indicated on the plate (see *Figure 1* and
6. *Table 1* on page 6).

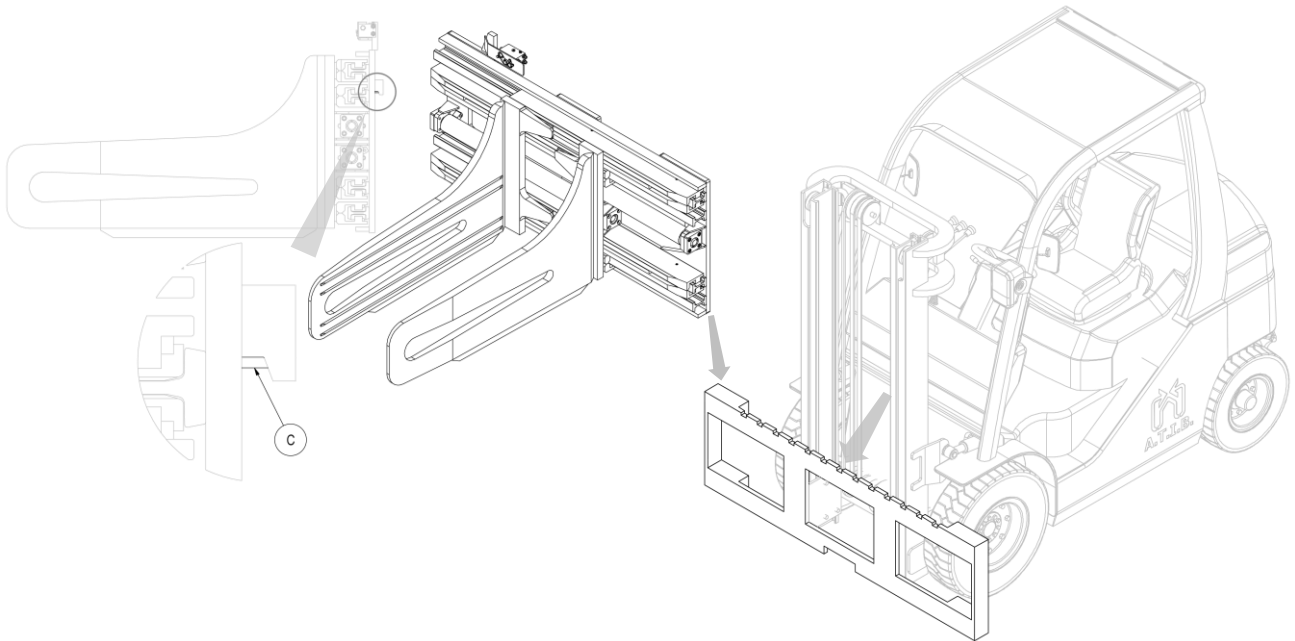


Figure 3

7. Then hook on the equipment using an overhead crane or hoist of sufficient capacity and position it on the fork carriage, taking care to fit centring pin C into the central notch on the fork carriage (see *Figure 3*).

8. Screw on the 2 lower couplings G in such a way that their bodies also remains coupled to the lower part of the fork carriage P (with max. clearance of 1.5 mm, see detail *Figure 4*), tightening with the torque indicated in *Table 3*.

CLASS	THREAD	TIGHTENING TORQUE
ISO III	M14	140 Nm
ISO IV	M16	220 Nm

Table 3

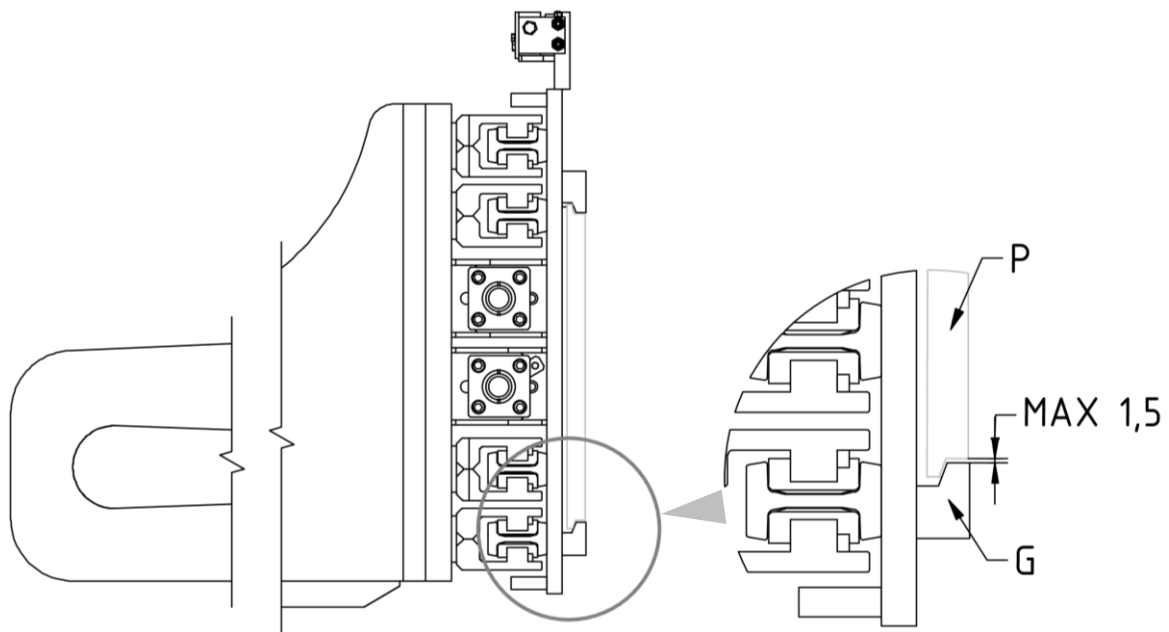


Figure 4

9. Lubricate contact surfaces.

10. Connect the hydraulic circuit, ensuring that the operating pressure of the lines is greater than or equal to that indicated on the rating plate (see *Figure 1* and

11. *Table 1* on page 6).

3.2 Assembling the Sliding Bushes

SLIDING BUSHES

N.B. Although only type 116.131 is shown, the procedure for installing the slide bushes is identical for the other versions (.130).

This step must be carried out with the jaws removed (see step - *Removing the Jaws* from the Equipment on page 26).

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Install the slide bushes in the slots of the forks, positioning them correctly between the stop blocks and screwing in the relevant locking bolts (see *Figure 5* and *Figure 6*).

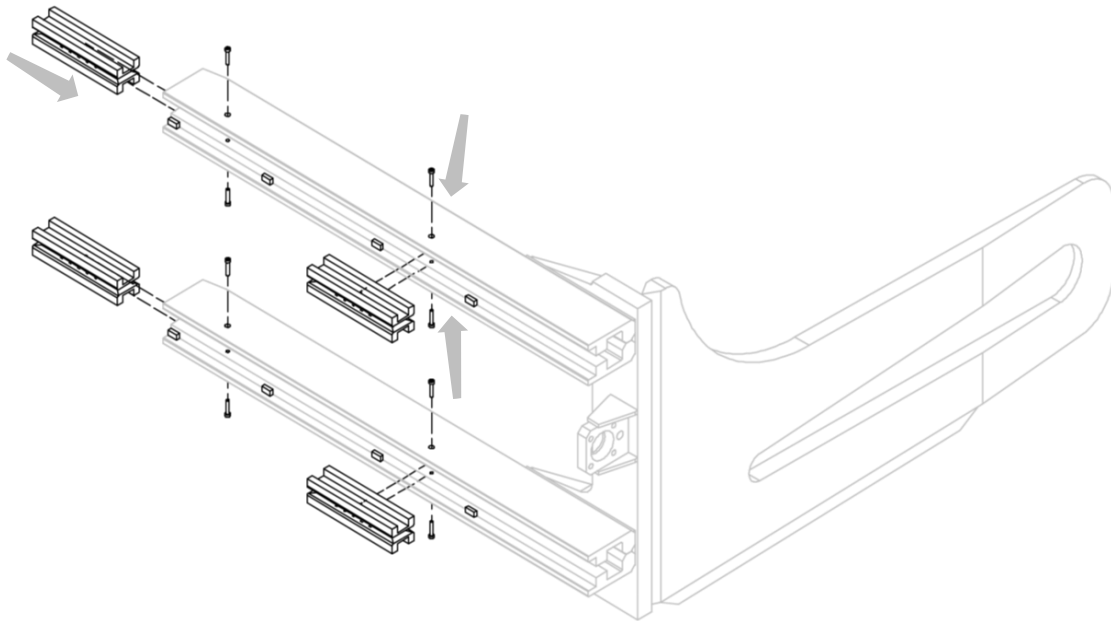


Figure 5

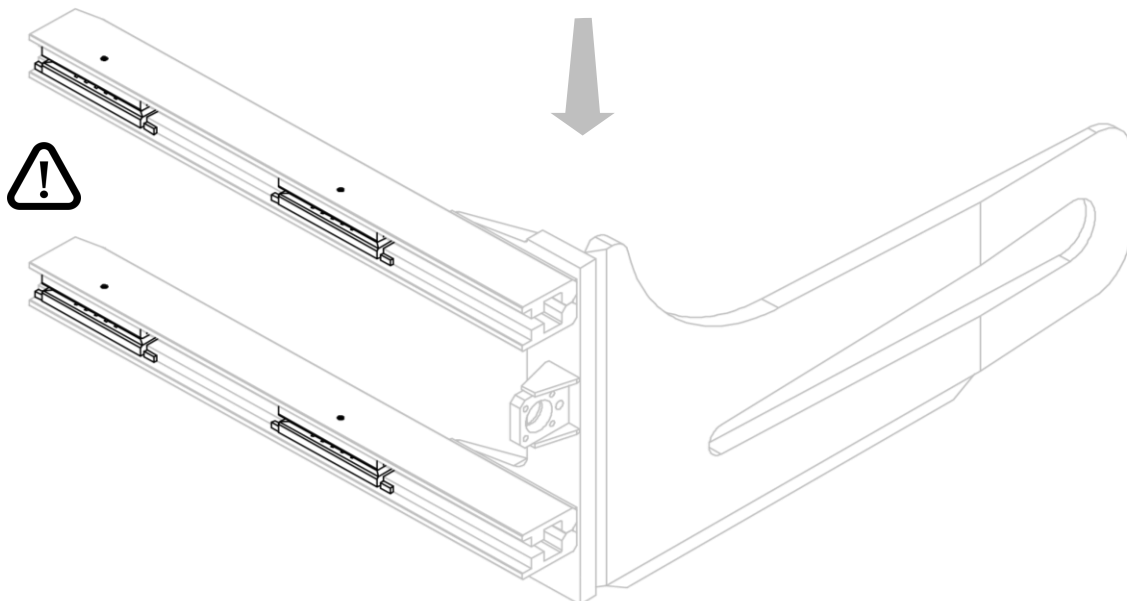


Figure 6

3.3 Installing the Jaws onto the Equipment

JAWS

N.B. Although only type 116.131 is shown, the procedure for installing the jaws on the equipment is identical for the other versions (.130).

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Insert the forks with their jaws, into their housings , positioning them correctly in relation to the cylinders (see *Figure 7*).

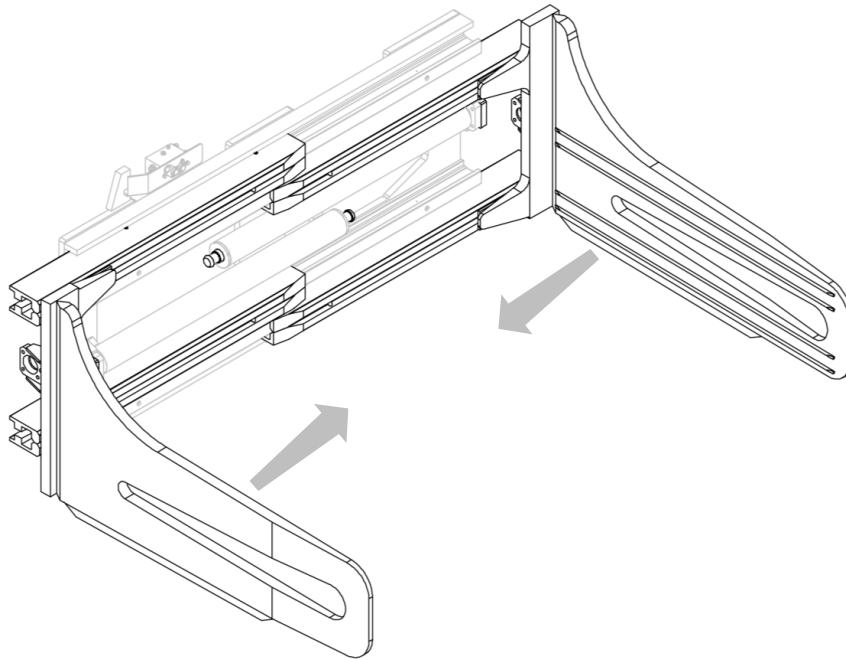


Figure 7

3. Install the locking collars (see *Figure 8*).

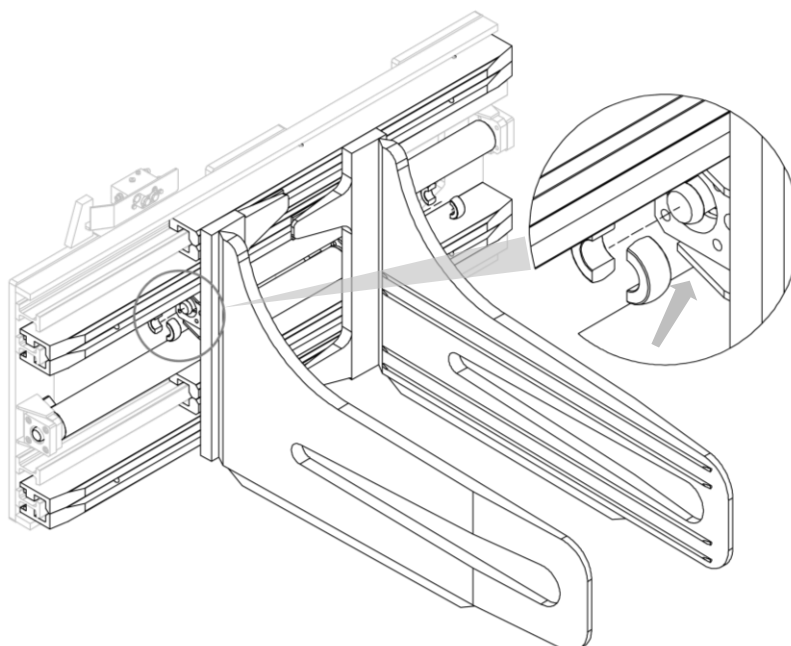


Figure 8

4. Secure the jaws to the cylinders (see *Figure 9* and *Figure 10*).

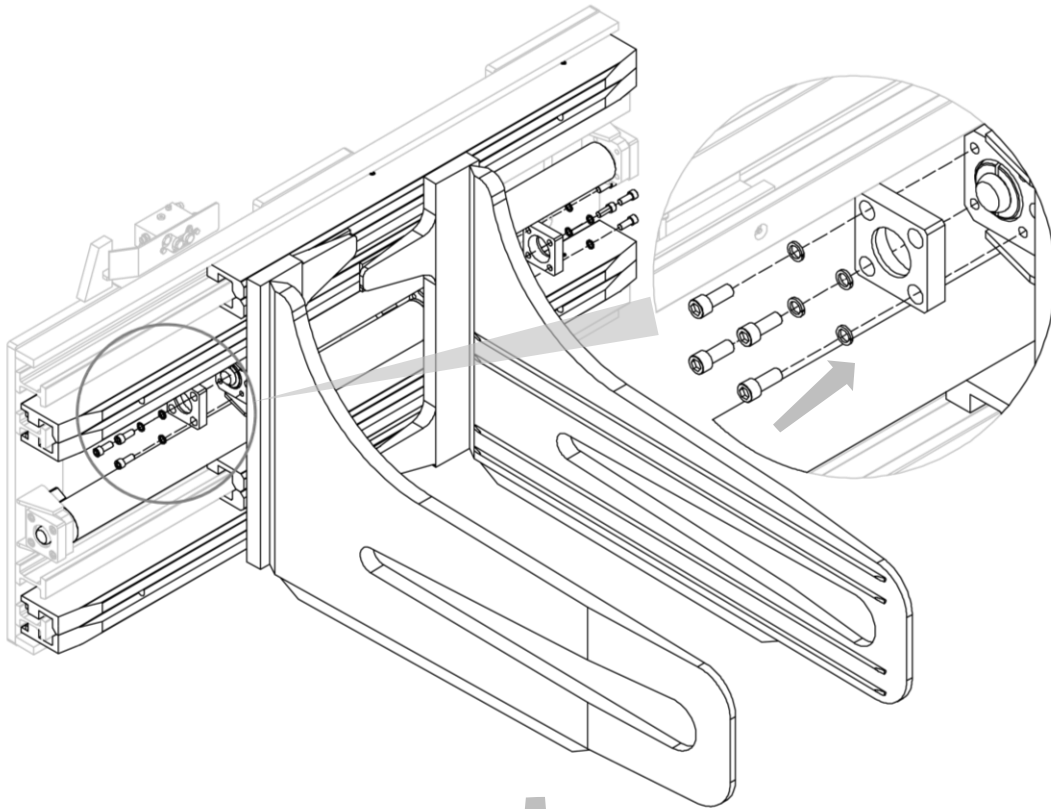


Figure 9

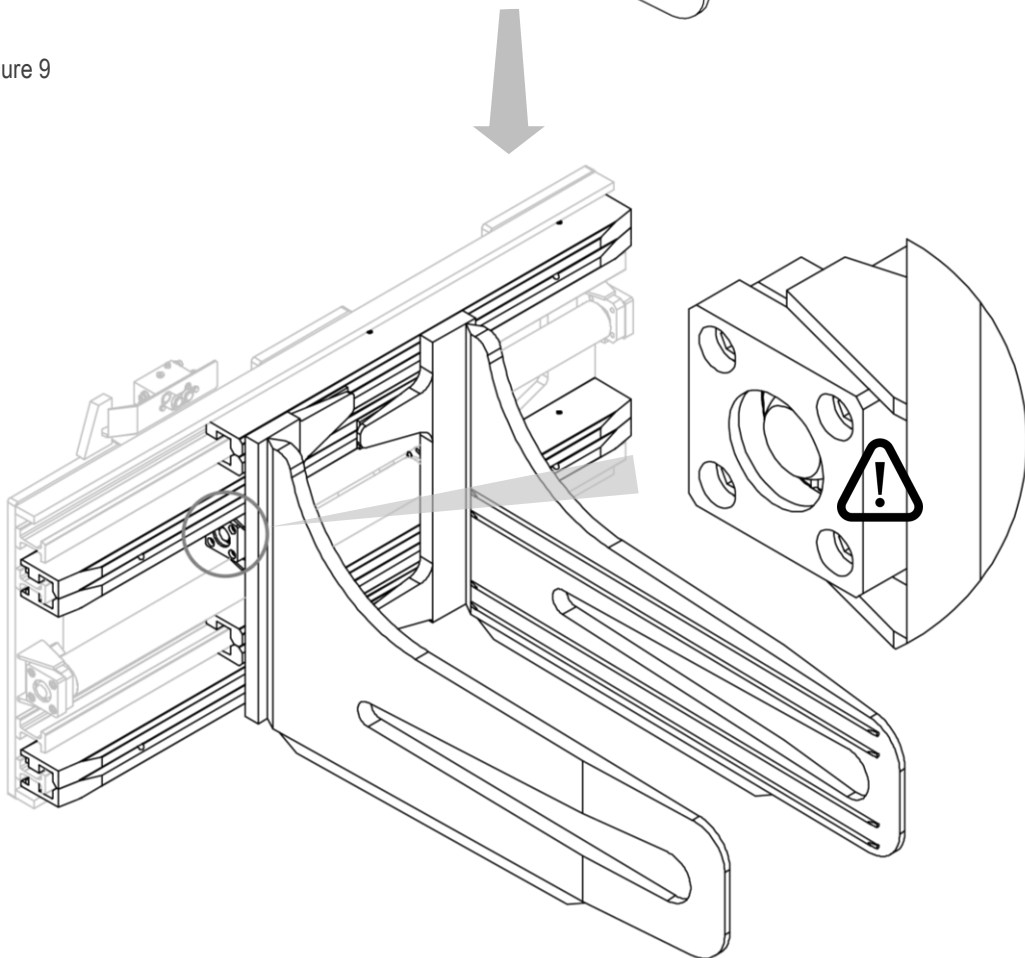


Figure 10

4 HYDRAULIC SYSTEM

N.B. Although only type 116.131 is shown in the images, the position of the solenoid valves is identical (.130).

4.1 Hydraulic System - Valve B2383022

VALVE B2383022

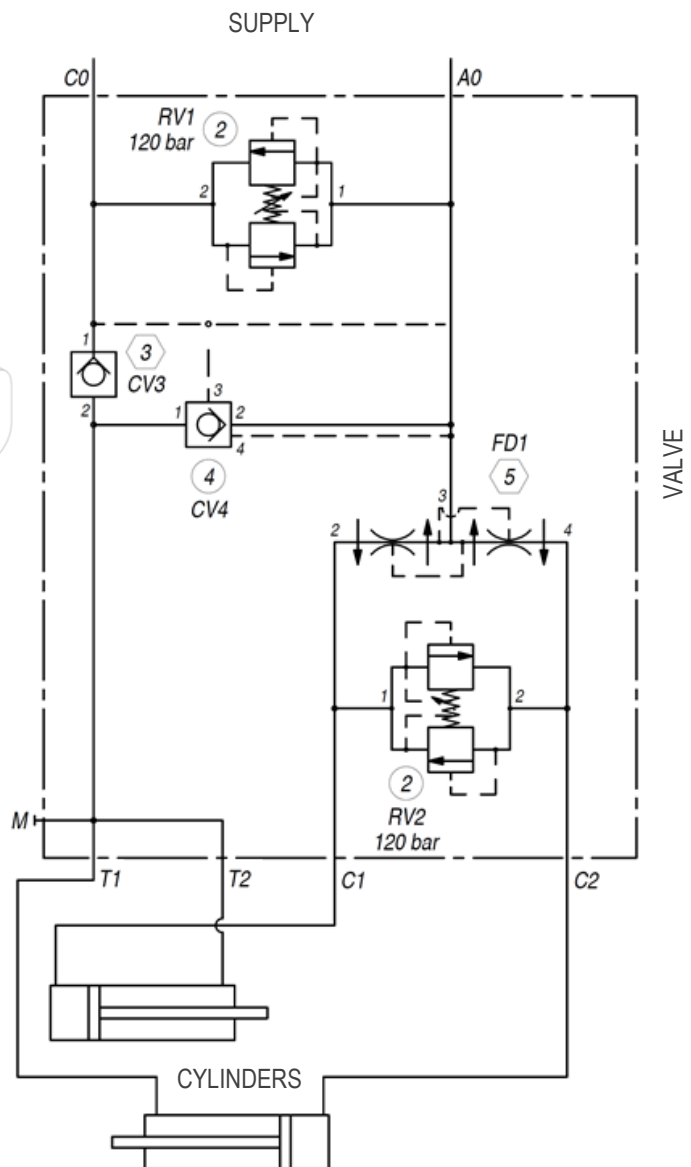
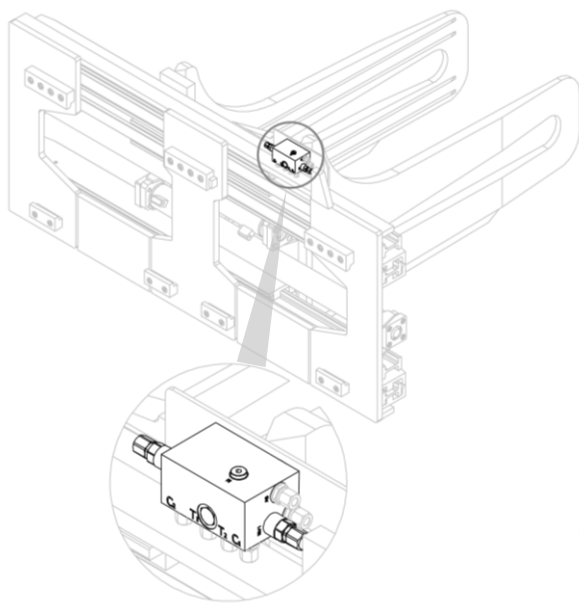


Figure 11

4.2 Hydraulic system - Iss - Valve B2383023

VALVE B2383023

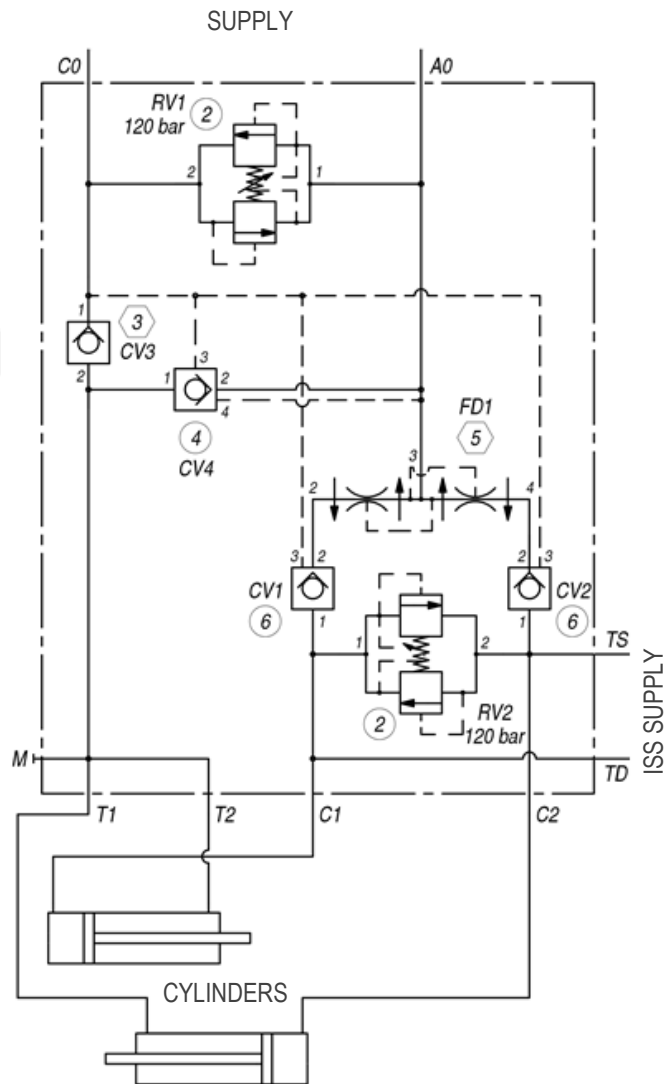
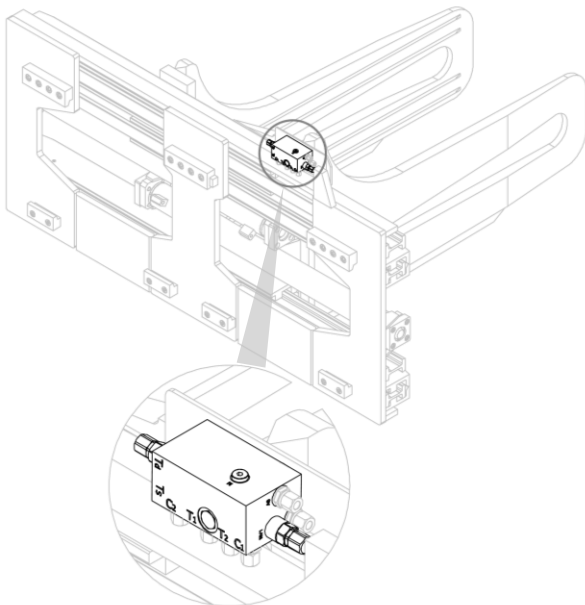


Figure 12

5 RULES GOVERNING USE

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

The following instructions must be followed when using the equipment:

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

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

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

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

All ATIB equipment is designed and manufactured according to a load positioned (with respect to its centre of gravity) at a certain distance from the vertical plane of the jaws.

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

In this case, consult the chart shown in *Figure 13* where, as the distance from the centre of gravity increases (x-axis line), a multiplicative factor is included for load reduction purposes (y-axis line).

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

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

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

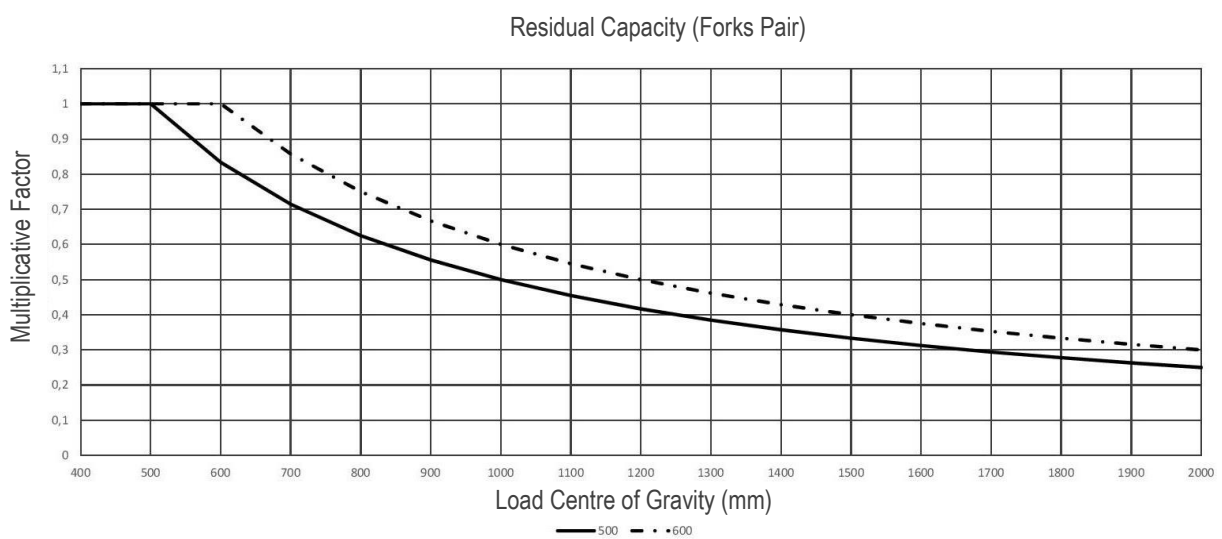


Figure 13

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



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



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



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



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

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

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

5.1 Integral Sideshift

This is the one most frequently used in “BALE CLAMP WITH THIN JAWS TYPE 116.131 | BALE CLAMP WITH BOXED JAWS TYPE 116.130” and uses the same cylinders that carry out the clamping. The stroke depends on the opening and will be equal to zero in maximum opening and minimum closing. Since the stroke of the equipment may be higher than that defined by the stability regulations of forklift trucks (100 + 100 mm up to 6300 kg capacity and 150 +150 mm for higher capacities) and can, therefore, generate issues regarding lateral stability and premature wear of the upright profiles, it will be necessary to check feasibility with the forklift truck manufacturer.

Sideshift with a given load will be the minimum between the following two values:

1. Maximum opening (A max) less load width (Lc) divided by two. $[(A \text{ max} - Lc) / 2]$
2. Load width (Lc) less minimum opening (A min) divided by two. $[(Lc - A \text{ min}) / 2]$

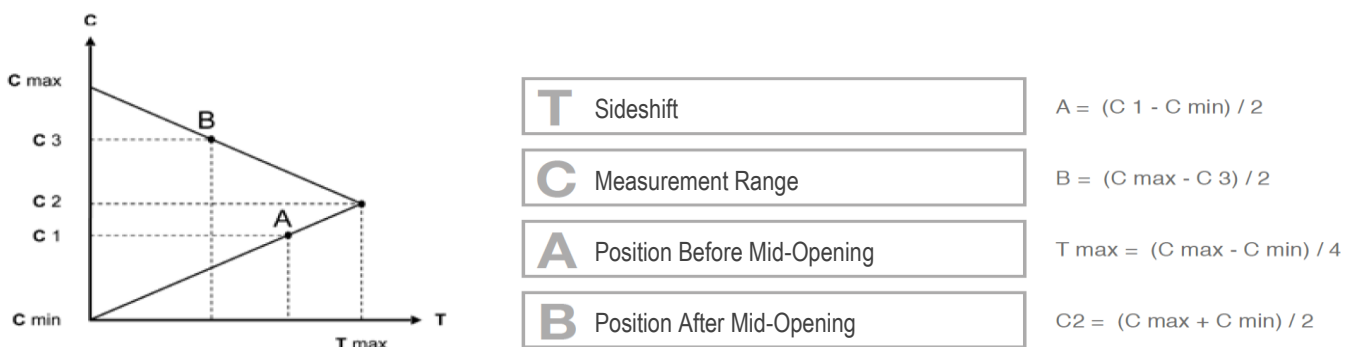


Figure 14



Off-centre sideshift of the load is only permitted on the ground. In this case, a loss of clamping force may occur, which may result in load loss. As a precaution, the centre of gravity of the equipment can be assumed to move laterally by the value of the sideshift (per side). If the precise value is required, consult the manufacturer of the equipment.

5.2 Handling Loads

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



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



Avoid displacing/handling unstable loads.



Avoid displacing/handling loads with an uncentred centre of gravity.

6 PERIODIC MAINTENANCE

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

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

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



Hydraulic parts may be very hot. Use suitable protective equipment.
Watch out for leakage. High-pressure oil can injure eyes and skin. Wear protective eyewear that includes side shields.
Do not remove valves, lines or other potentially pressurised parts when this is active.

6.1 Maintenance Every 100 Hours

1. Check the condition of the hydraulic connections (lines and fittings), replacing worn parts if necessary.
2. Check the tightening torque of the bolts of the lower retaining couplings of the equipment, ensuring that it is as indicated in *Table 3* (page 12) and, if necessary, adjust the tightening of the bolts holding them in place.
3. Check the clearance between the lower part of the fork carriage plate and the lower equipment couplings, ensuring that it is as shown in *Figure 4* (page 12) and, if necessary, adjust the tightening of the bolts holding them in place.
4. Clean and lubricate all sliding parts (see *Figure 23* on page 33).

6.2 Maintenance Every 300 Hours

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

6.3 Maintenance Every 1000 Hours

1. Check condition of bushes and sliding gibs. If excessively worn component are detected, A.T.I.B. recommends replacing the entire component assembly in question.
2. Carry out the additional operations listed in the previous points (Point 6.1 and 6.2 on page 23).

6.4 Maintenance Every 2000 Hours

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

For further potential issues (and their solutions), refer additionally to *Table 4* on page 32.

2. Dismantle cylinders and check condition of piston rods and seals. If a damaged or excessively worn seal is detected, A.T.I.B. recommends replacing the entire seal assembly.
3. Replace seals in the event of oil leakage and replace rods if they are scratched (cylinders should always be tested when inserted into the equipment to prevent sudden ejection of rods).
4. Carry out the additional operations listed in the previous points (*Point 6.1*, and points 6.2 on page 23 and 6.3).

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

7 DISASSEMBLY PROCEDURE

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

7.1 Removing the Equipment from the Forklift Truck

1. Release the pressure from the hydraulic system.
2. Remove the lower couplings from the assembly (see *Figure 2* on page 10).
3. For handling, use straps/chains that are suitably sized in relation to the weight of the equipment as indicated on the plate.
4. Then lift the equipment using an overhead crane or hoist of sufficient capacity and remove it from the forklift truck (see *Figure 3* on page 11).

7.2 Removing the Jaws from the Equipment

JAWS

N.B. Although only type 116.131 is shown, the procedure for removing the jaws from the equipment is identical for the different versions (.130).

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Remove the counterflanges, with their bolts and spring washers, that secure the jaws to the cylinders (see *Figure 15* and *Figure 16*).

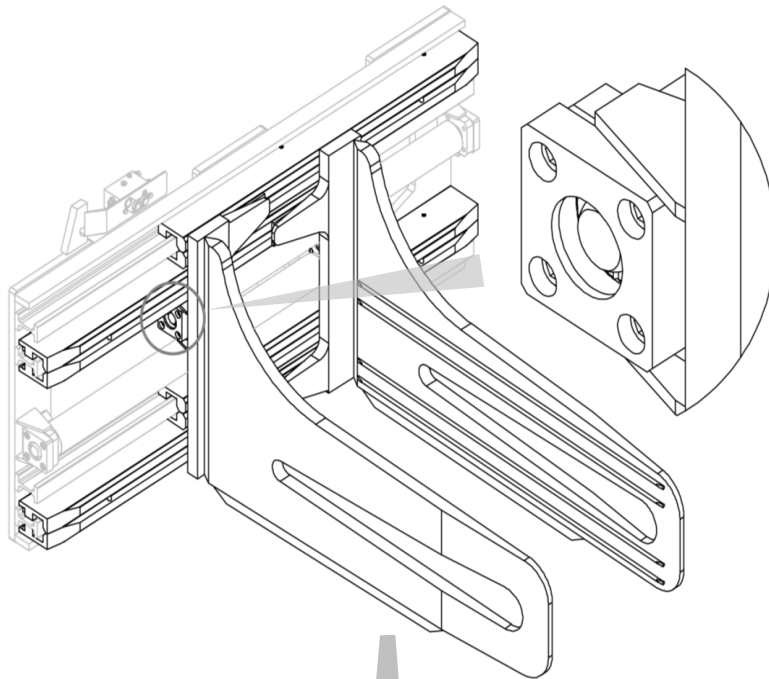


Figure 15

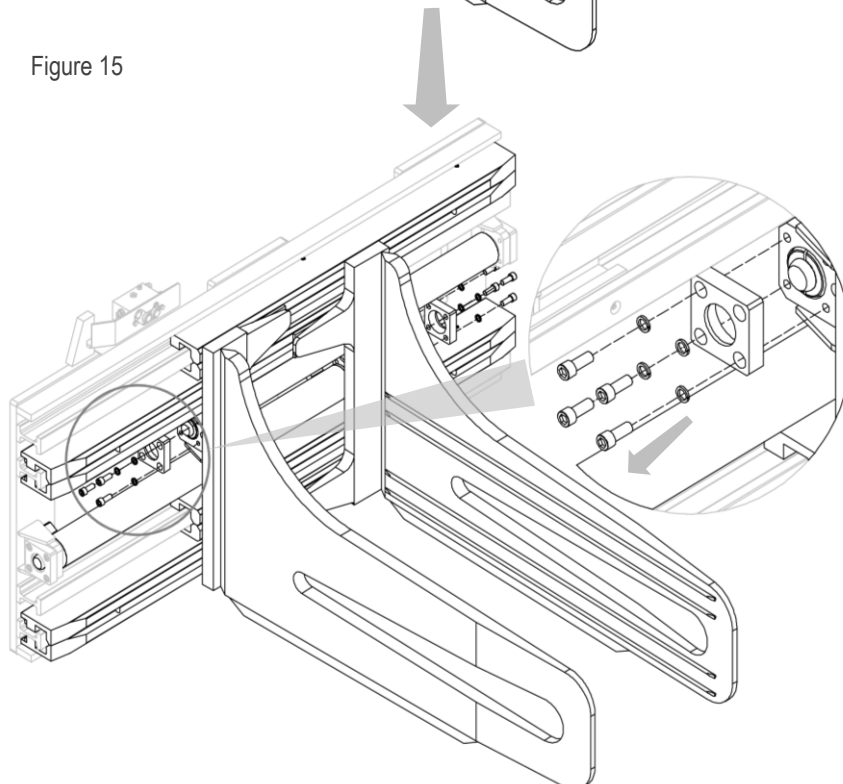


Figure 16

3. Remove the locking collars (see *Figure 17*).

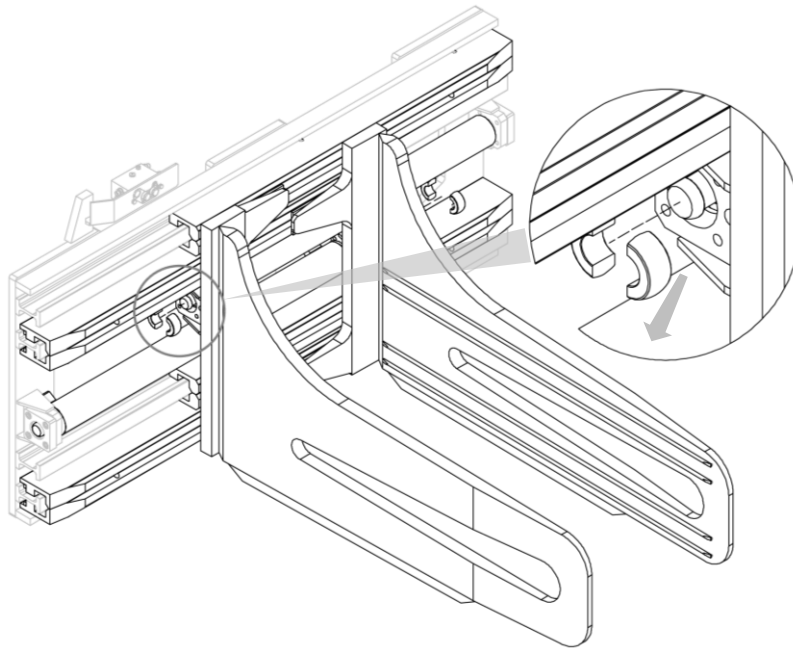


Figure 17

4. Remove the forks with their jaws, from their housings (see *Figure 18*).

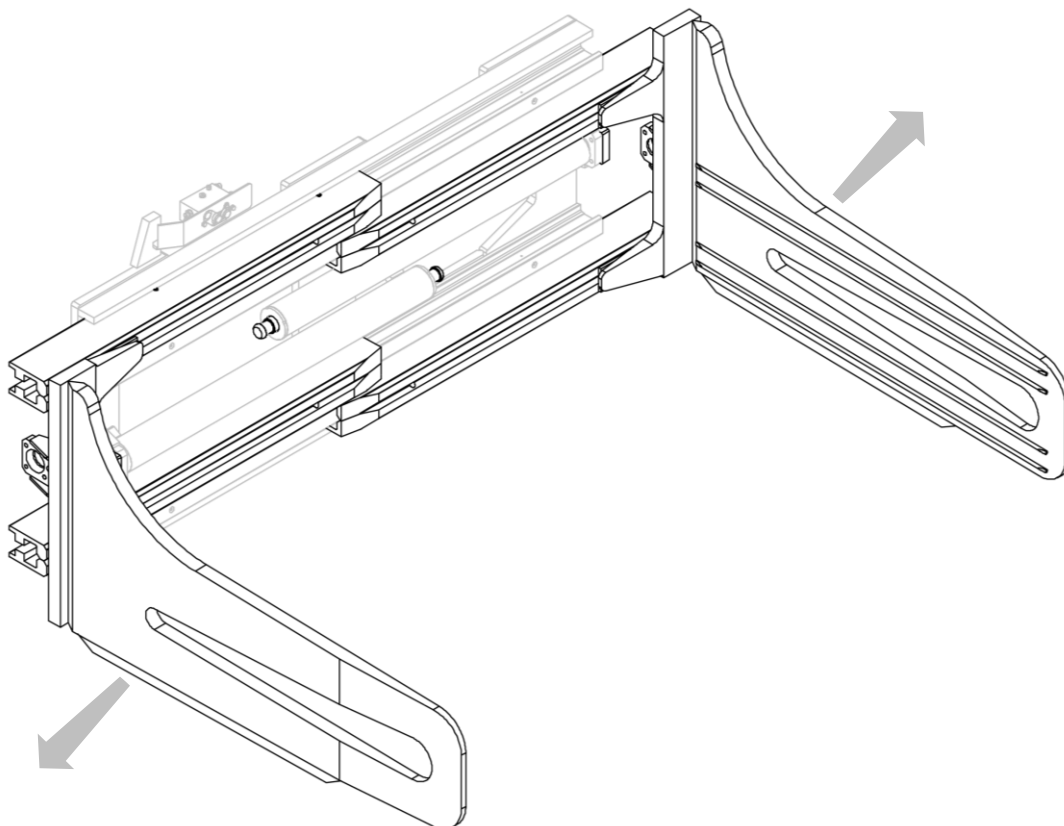


Figure 18

7.3 Disassembling the Sliding Bushes

SLIDING BUSHES

N.B. Although only type 116.131 is shown, the procedure for removing the slide bushes is identical for the other versions (.130).

This step must be carried out with the jaws removed (see step - *Removing the Jaws* from the Equipment on page 26).

1. Release the pressure from the hydraulic system and disconnect the lines.
2. Remove the slide bushes from their housings after removing the corresponding fastening bolts (see *Figure 19* and *Figure 20*).

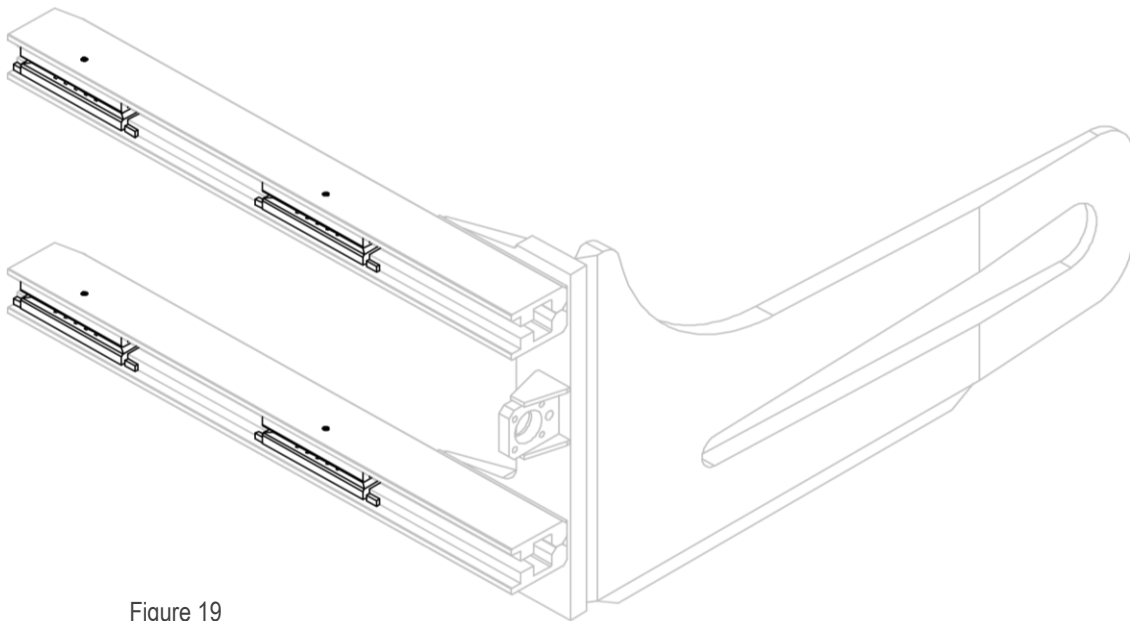


Figure 19

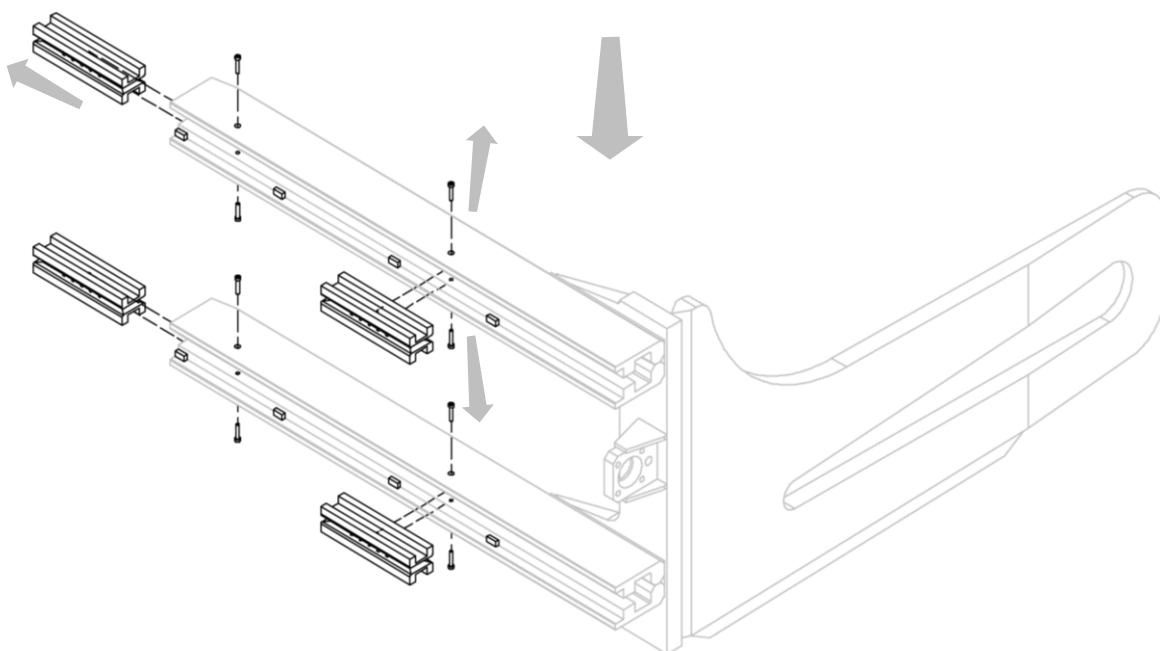


Figure 20

7.4 Removing the Jaw Cylinders from the Equipment

N.B. Although only type 116.131 with siss is shown, the procedure for removing and disassembling the jaw cylinders is identical for the other versions (.130).

JAW CYLINDERS

1. Open the cylinders.
2. Release the pressure from the hydraulic system and disconnect the lines.
3. Remove the counterflanges and collars that secure the jaws to the cylinders (see *Figure 21*).

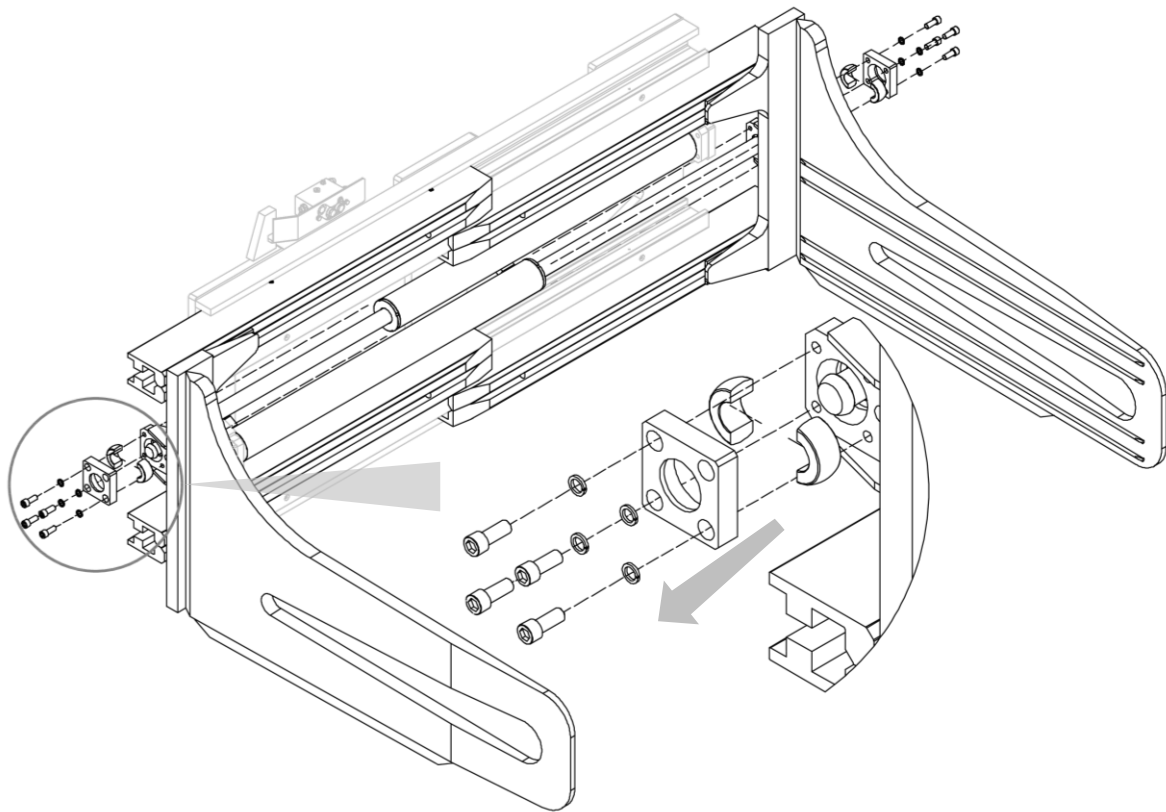


Figure 21

4. Reconnect the hydraulic system.
5. Close the cylinders.

6. Release the pressure from the hydraulic system and disconnect the lines.
7. Remove the counterflanges and collars that secure the cylinders to the equipment assembly; once this is done, remove the cylinders, taking care not to damage them (see *Figure 22*).

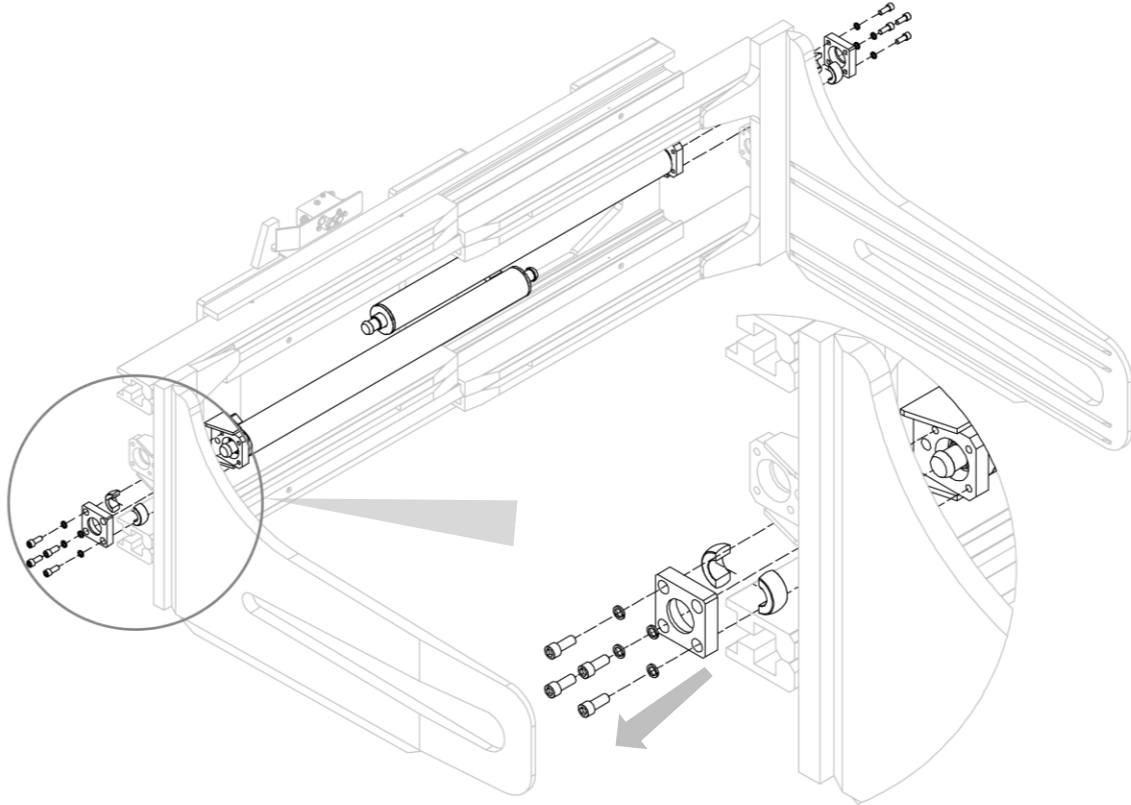


Figure 22

7.4.1 Disassembling and Reassembling the Jaw Cylinders

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

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

8 TROUBLESHOOTING

8.1 Probable Faults and Solutions

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

Table 4

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

8.2 Lubrication

1. Lubricate sliding components using grease nipples.
2. Also grease the gibs and axles/sliding surfaces.

N.B. Although only type 116.131 is shown, the lubrication procedure is identical for the other versions (.130).

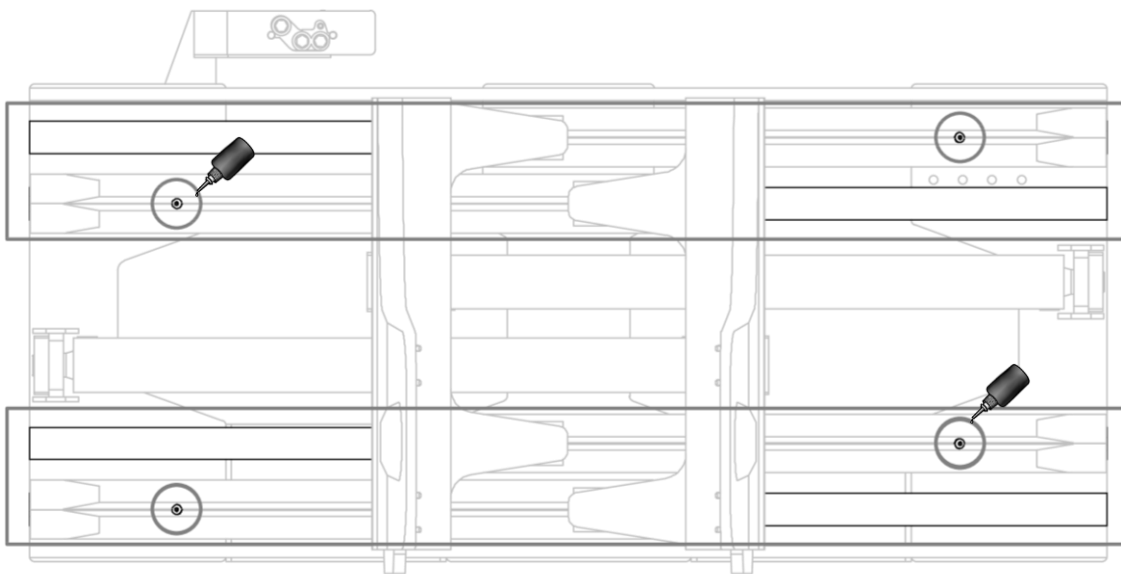


Figure 23

A.T.I.B. S.r.l.

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