This is the instructions manual of the "device for industrial trucks, apt to roll on, roll off and rear tipping for interchangeable equipments

USER MANUAL

HOOKLIFT SYSTEM

ROLL ON - ROLL OFF - TIPPING

ATIBLIFT model : AT 25/59 FS-MR

Serial number: *5190621*

Year of manufacture: 2016

Via Quinzanese, DELLO, Brescia, Italy - Tel. 030 - 9771711 Fax. 030 - 997190

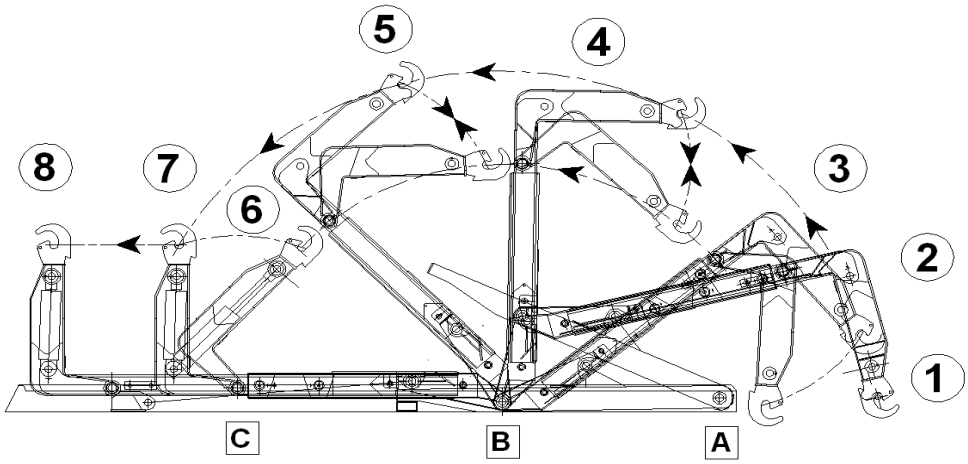
WARNING ! ! !

PLEASE READ CAREFULLY THIS MANUAL FOR USE AND MAINTENANCE BEFORE USING THE HOOKLIFT

INDEX

CHAPTER 1 : EQUIPMENT MOVEMENTS AND CONFIGURATION

1.1 ROLL ON

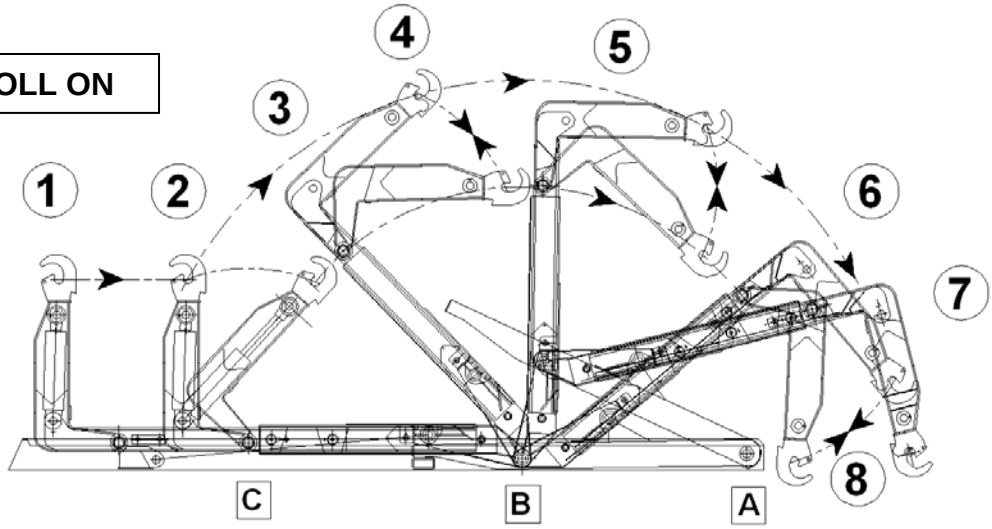


Sequences of the phases in the operation of container roll on.

- The positions from 1 to 3 are obtained by the actioning of the main cylinders, with rotating centre in A
- The positions from 3 to 7 are obtained by the actioning of the main cylinders, with rotating centre in B
- The positions from 7 to 8 are obtained by the actioning of the telescopic cylinder, with horizontal traslation.

During all the movement from 1 to 7 it is possible to use the function “articulated arm” (position 6) with rotation in C.

1.2 ROLL ON

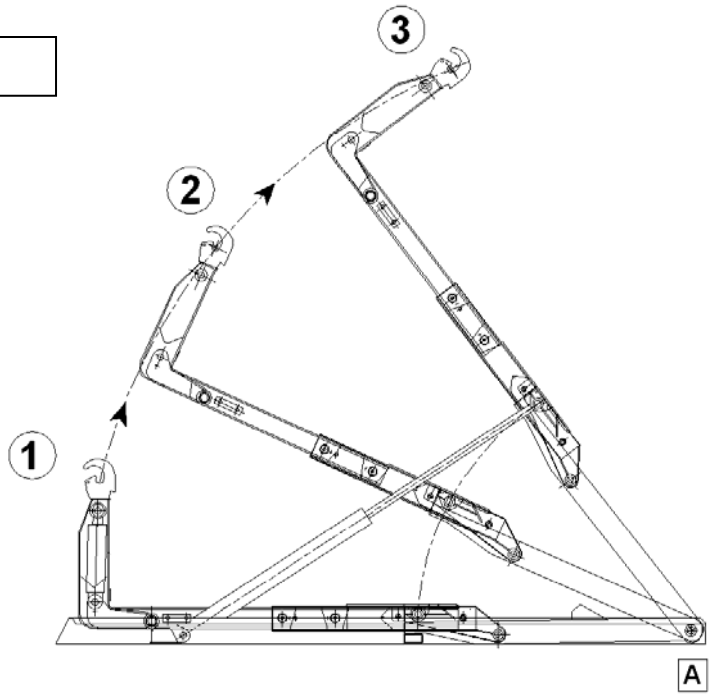


Sequences of the phases in the operation of container roll off.

- The positions from 1 to 2 are obtained by the actioning of the telescopic cylinder, with horizontal traslation.
- The positions from 2 to 6 are obtained by the actioning of the main cylinders, with rotating centre in B
- The positions from 6 to 7 are obtained by the actioning of the main cylinders, with rotating centre in A

During all the movement from 2 to 7 it is possible to use the function “articulated arm” (position 8) with rotation in C.

1.3 TIPPING

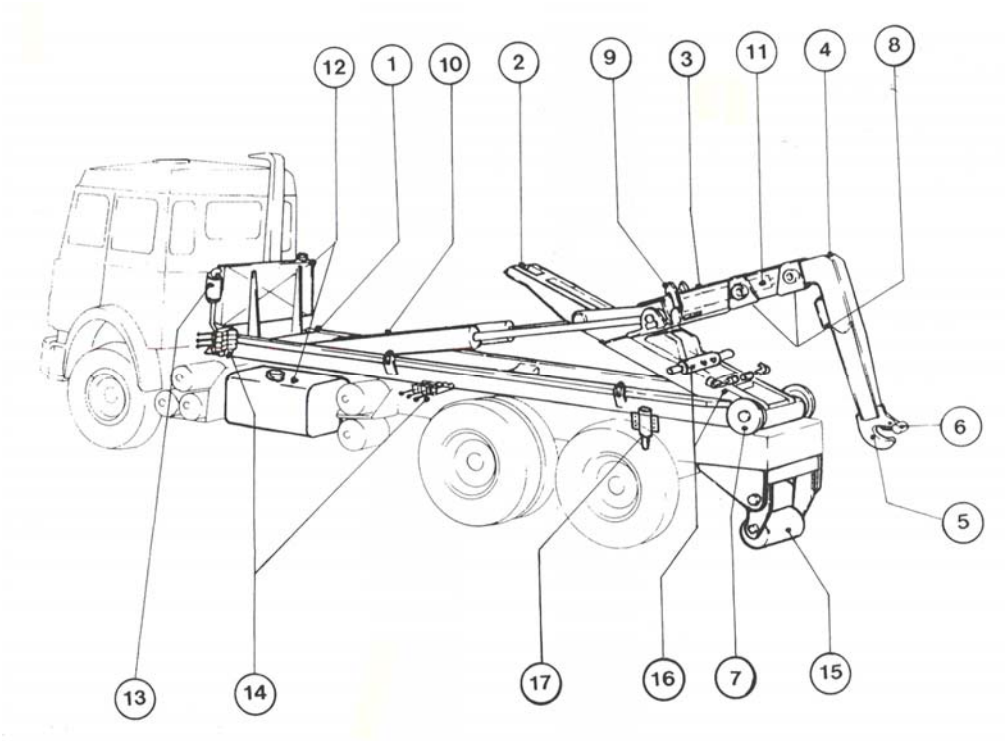


Sequences of the phases in the operation of container tipping.

- The positions from 1 to 3 are obtained by the actioning of the main cylinders, with rotating centre in A

The container remains firmly linked to the tilting frame during the tipping operation, through two wedge locks which, during the roll on, are inserted in the “POCKETS” obtained in the skid plate.
The flexible system telescopic jib arm/arm/tilting frame is a whole with the container, rigidly moving, by rotating around “A” axle.

1.4 DIAGRAM - EQUIPMENT DESCRIPTION



1.5 EQUIPMENT DESCRIPTION

1. Frame
2. Tilting frame
3. Arm
4. Telescopic jib arm
5. Lifting hook
6. Safety lock device
7. Rear rollers
8. Skid plates
9. Tilting frame hooking device
10. Roll on, Roll off and Tipping Cylinders
11. Telescopic jib arm Sliding cylinder
12. Side or forward oil tank
13. Oil filter
14. Side or front controls
15. Rear roller stabilizer
16. Hydraulic lock - Type A or type B
17. Suspensions locking

Note: Technical data and descriptions are supplied as typical and are not binding. These may be changed by the manufacturer at any time without notice.

For the hooklifts of the “FS” series the particular n. 4 “Telescopic Jib Arm” must be subdivided into:
- Telescopic arm
- Articulated arm

CHAPTER 2 : SAFETY and WARNING DEVICE

2.1 SAFETY AND WARNING DEVICES (table 2.1.1)

1. Balancing, Lock and Feathering Valve of Main Cylinders (with or without speed gear)
2. Telescopic Cylinder Valve
3. Cylinders Locking Valve. Type A and type B.
4. Counterweight Locking Device against Accidental Unhooking of Containers
5. Roller Stabiliser Cylinder Locking Valve or Suspensions Locking
6. By-pass valve of Main Cylinder
7. Telescopic jib arm retraction manual by-pass valve
8. Valve for the articulated arm function
9. Electrovalves for the electric functioning of the external distributor
10. General discharge Electrovalve (stop emergency)

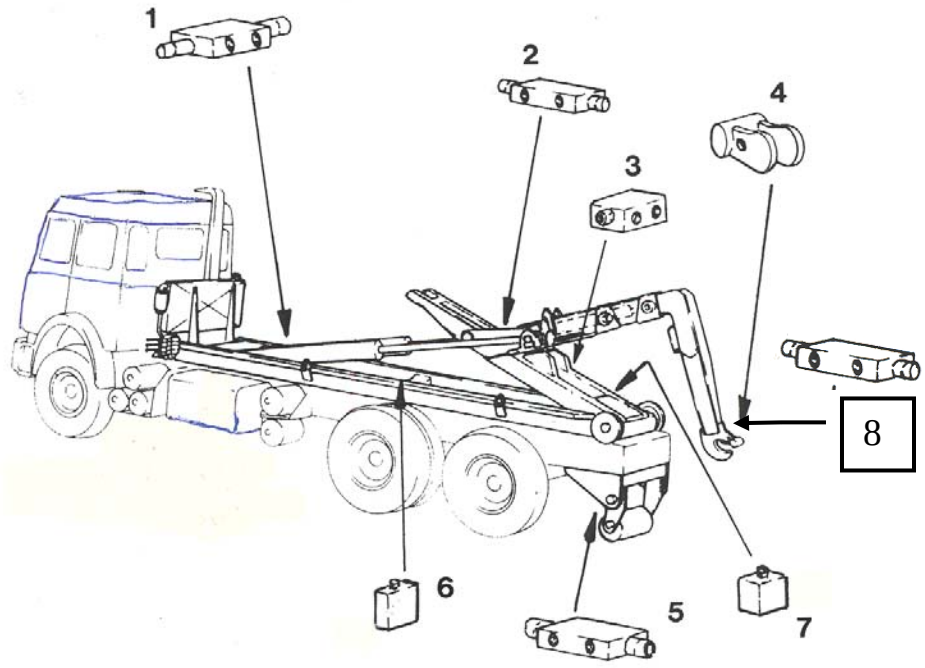
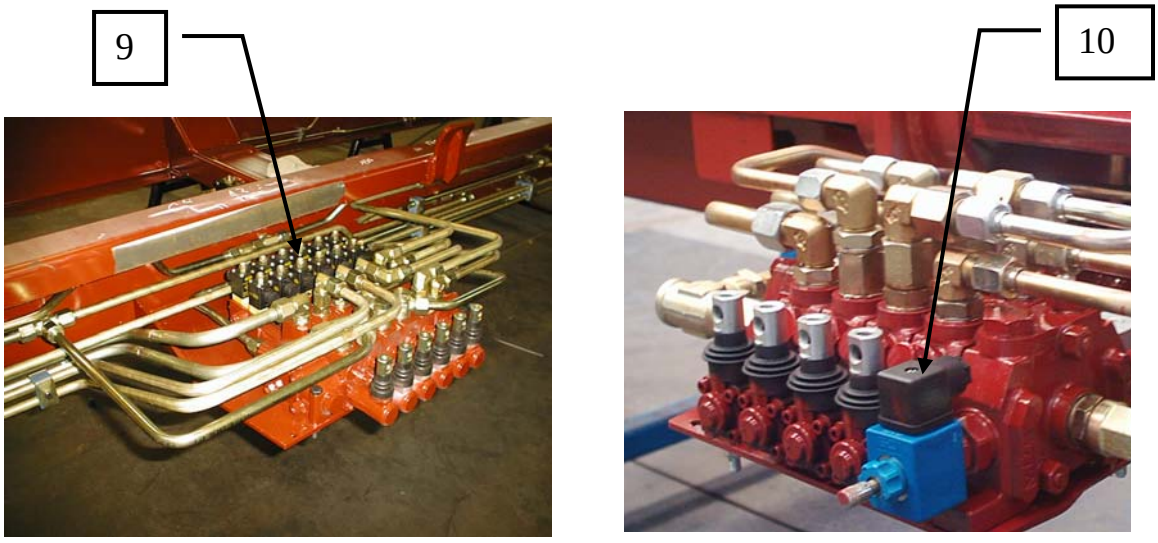


table 2.1.1



External Distributor

WARNING DEVICES (Table 2.1.2)

1. Telescopic All Extended and in Horizontal position
2. Horizontal Tilting Arm to the Frame
3. Hydraulic Rear Locking Closed

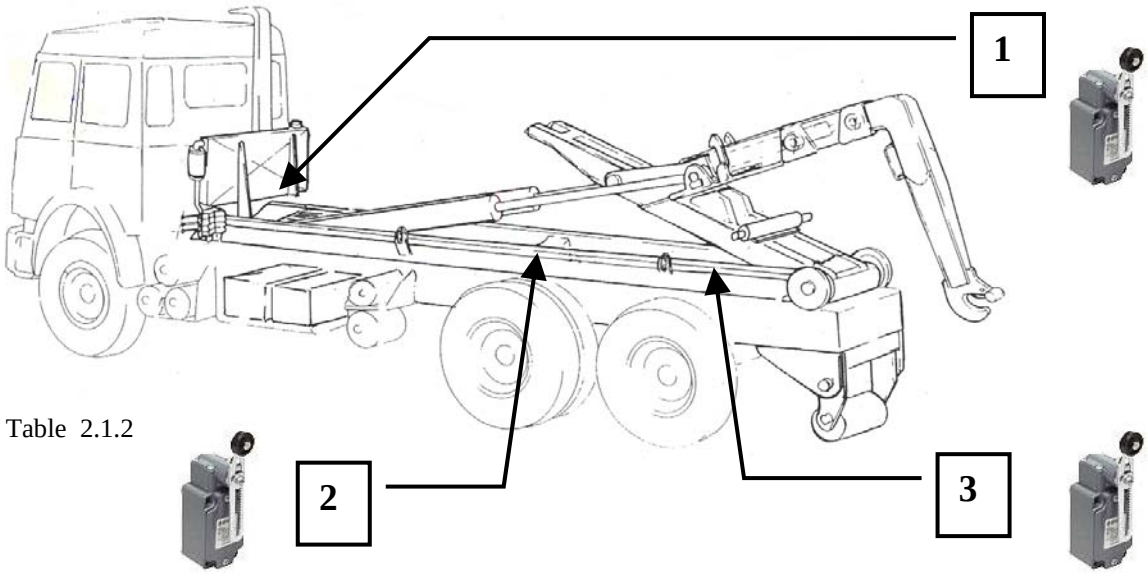


Table 2.1.2

2.2 GENERAL SAFETY RULES

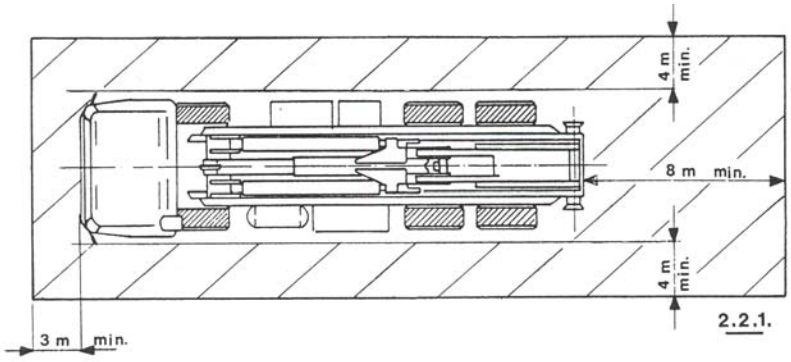
- This Roll on Roll off equipment has been designed and made to be operated **by one person only.**

- The operator of the equipment must have the appropriate Driving Licence and must have read carefully and understood all information contained in this manual. After acquiring knowledge of all controls he must then practice with the equipment itself until the correct use is achieved.

- Obviously the operator may also be the driver of the vehicle to which the attachment is fitted.

- The operator, from his driving position, should have a direct view and indirect rear mirrors view of the operation area.

- The operator must make sure that there is no person or animal in the operating area, indicated on page 2.2.1, before starting the manoeuvre.



The use of the equipment is limited to roll on, roll off and tipping of containers compatible for capacity and dimensions with the equipment used and with the capacity of the vehicle to which the equipment is installed.

Only in exceptional circumstances, and with the understanding that this is an abnormal but expected operation, the equipment can be used to drag containers on the ground **only when empty**.

It is forbidden to drag full containers whatever the size of equipment or the size of the vehicle.

The use of the equipment different from the one for which it has been designed must always be authorized by the technical office of the manufacturer, which will agree with it. Failure to do so will cancel the warranty and cancel any manufacturer's liability, direct or indirect.

Roll on, roll off and tipping of containers must be carried out only in the manner described in chapter " Use of the Equipment"

It absolutely forbidden the use of Equipment and Vehicle on rough and soft terrain where the stability of the vehicle may be impaired during the roll on, roll off and tipping operations.

The Equipment has been designed to be used in the open and is not affected by normal weather conditions.

In case of exceptional weather conditions such as:
- very cold temperatures
- very high temperature
- high winds
- gales, heavy snow falls, down pours, floods etc.

extreme caution is advised in the use of the equipment which must be left to the common sense of the operator having taken into account all conditions and consequences on the necessity of the operation without giving heed to pressure from other parties or contingent situations when the manoeuvre could give rise to dangerous situations.

The operator is responsible for the safe keeping of the vehicle key and above all the access key to controls, driving cab and the lock protection of the controls accessed from the ground.

The operator is held **responsible for the type of load** carried both for its **content and quantity** and for the **load distribution** inside the container. Uneven load may give rise to instability and increase the risk of accidents, see Chapter 6 "Permissible operations".

It is absolutely forbidden to the operator to ask other non authorised, untrained persons who do not know the content of this manual, to carry out any manoeuvre with the attachment.

It is the responsibility of the operator to ensure that the vehicle to which the equipment is installed, is in good working order and complies with the requirements of the highway code and all other laws concerning transport.

The operator must ensure that all containers to be handled are in good working order and are equipped with devices that make them compatible with the equipment and with the vehicle used.

The general stop of all the parts of the equipment is possible by activating the emergency stop, situated both on the cabin control panel in the driving cab and on the controls block, situated on the equipment and manoeuvrable from the ground.

The use of external controls, closed by a door with a key, is not allowed because the operator would always be exposed to falling objects from the container and also would not have access to all manoeuvres needed should persons or animals appear suddenly around the operating area of the attachment.
External controls may only be used when:

1. In workshops for maintenance and/or repairs.
   In this case without container or with empty container.
2. For emergencies for instance, should the cabin controls badly functions.
   In this case, only to bring the equipment to its rest position.

In the cases described above (1 - 2) all trained personnel must ensure that there are no persons or animals around the machine.

All operations of fitting, maintenance and repair, other than those carried out by the user, must be done by trained personnel or by persons who have knowledge of the instructions and information contained in this manual.

The manufacturer of the equipment is not liable for direct or indirect damage to persons, animals or property arising from operations carried out by the user, if he is not trained, or by others, unauthorised persons, who are not competent or trained to use the equipment.

The manufacturer is not liable if fitting does not comply to its instructions or if the vehicle does not comply to regulations or it is not fit to have the attachment fitted.

The user of the equipment must be aware about all requirements and instructions contained in this manual.

To set equipment "off service":

a) position the equipment with the telescopic jib arm totally extracted, as at the beginning of tipping movement;

b) detach PTO on one condition: no function may be activated with any of the controls either from the cabin or from outside and accessible from the ground.

c) detach the controls of the control panel, using the device with the key.

Working with the controls from the ground:

a. position the equipment with the telescopic jib arm totally extended, as at the beginning of tipping movement;

b. detach PTO at one condition: no function may be activated with any of the controls either from the cabin or from outside and accessible from the ground.

c. take the levers off and block, with the key, the foreseen protection on the controls panel.

Note: the setting of the equipment “off service” can be done without container or with the container on.

2.3 - EQUIPMENT NOISE

Average level of noise is 77.5 dB

2.4 DESCRIPTION OF SYMBOLS ON CONTROLS (see table 2.4.1)

1 - Movement of the main cylinders = rod out
2 - Movement of the main cylinders = rod in
3 - Movement of telescopic jib arm cylinder = rod out
4 - Movement of telescopic jib arm cylinder = rod in
5 - Movement of rear stabiliser = roller down
6 - Movement of rear stabiliser = roller up
7 - Suspensions locking = suspensions free
8 - Suspensions locking = suspensions locked
9 - Type "B" locking = free
10 - Type "B" locking = locked
11 - Type "A" locking = free
12 – Type “A” locking = locked
13 – Working of roller Stabiliser and locking type "A" = manoeuvre position
14 – Working of roller Stabiliser and locking type "A" = travel position
15 – Working of roller Stabiliser and locking type "B" = manoeuvre position
16 – Working of roller Stabiliser and locking type "B" = travel position
17 – Starting of suspensions Locking and locking type "A" = manoeuvre position
18 – Starting of suspensions Locking and locking type "A" = travel position
19 – Starting of suspensions Locking and locking type "B" = manoeuvre position
20 – Starting of suspensions Locking and locking type "B" = travel position
21 – Working of the main cylinders = rod out -fast-
22 - Stop pushbutton - Emergency
23 – Starting control of crash bars - rod out
24 – Starting control of crash bars - rod in
25 – Starting back board control - opening
26 – Starting back board control – closing
27 – Starting front rotation articulated arm
28 – Starting back rotation articulated arm

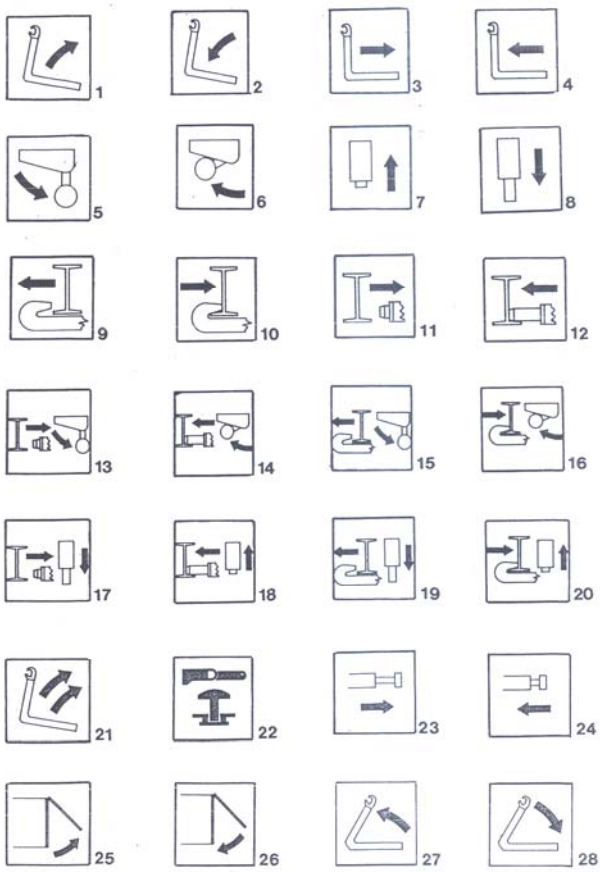


table 2.4.1

2.5 SAFETY WARNINGS

2.5.1 VISUAL WARNINGS

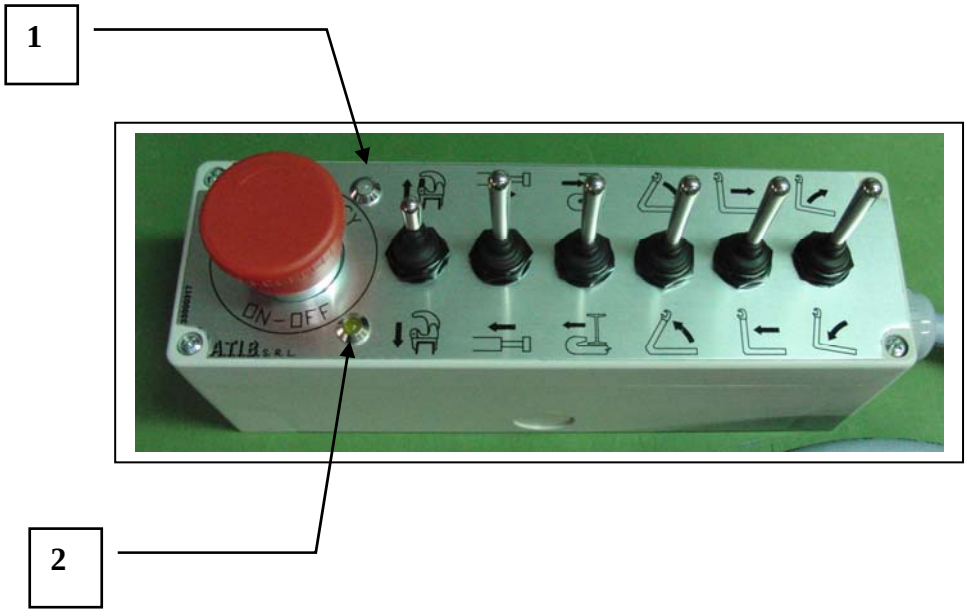
* The control panel for the equipment, placed inside the vehicle cab, is fitted with warning lights that show the wrong positions of the equipment, that is:

- **Light for insertion P.T.O**
- **Light for hooklift in road march position**

THE CABIN CONTROLS PANEL IS COMPOSED BY THE CONTROL LEVERS, BY A STOP BUTTON AND OF ACTIVATION AND BY THE SIGNAL LIGHTS.

1) **The yellow signal** light indicates the activation of the P.T.O.

2) When the neutral signal light is red, its signals the hooklift not in position. When it is green it signals the hooklift in correct position for the road march.



* All warning lights are low voltage ones (12 - 24 volts).

CHAPTER 3 : CONTROLS DESCRIPTION

3.1 CONTROLS PANEL IN THE DRIVING CAB

* The panel installed in the driving cab.

* Directional control valves, are pneumatically or electrically fed and they transmit the signal to the hydraulic directional control valves (distributors), fitted to the equipment and remotely controlled also from the ground.

* The control devices are moved by levers and they have to determine all the movements of the gears of the hooklift.

* All control levers return to neutral when not activated and are meant to keep the operator away from the moving parts of the equipment. Only the P.T.O. lever has two fixed position: ON or OFF.

* Every lever controls one movement and its opposite. The direction of each lever corresponds to the movement of the controlled part of the equipment.

* All levers must be fitted away from the dangerous parts of the equipment.

3.2 CONTROLS BLOCK FITTED TO EQUIPMENT AND ACCESSIBLE FROM THE GROUND

* External control levers are placed on the left (or the right) of the frame as the vehicle moves forward and are placed in such a way that the operator cannot be affected by the moving parts.

* The levers are of a dimension that ensures easy and safe movement from the operating position. The distance between close levers is the minimum allowed.

*** External controls lock is to be used only for emergency only to complete a normal working operation. E.g.:**

- **breakdown or malfunction of controls panel in the driver's cabin**
- **lack of compressed air to feed the controls panel**

Or for cleaning, maintenance and/or repair by trained personnel

Read carefully " 2.2 GENERAL SAFETY RULES "

Each lever is clearly identified with a symbol for the function controlled by the directional valve (distributor).

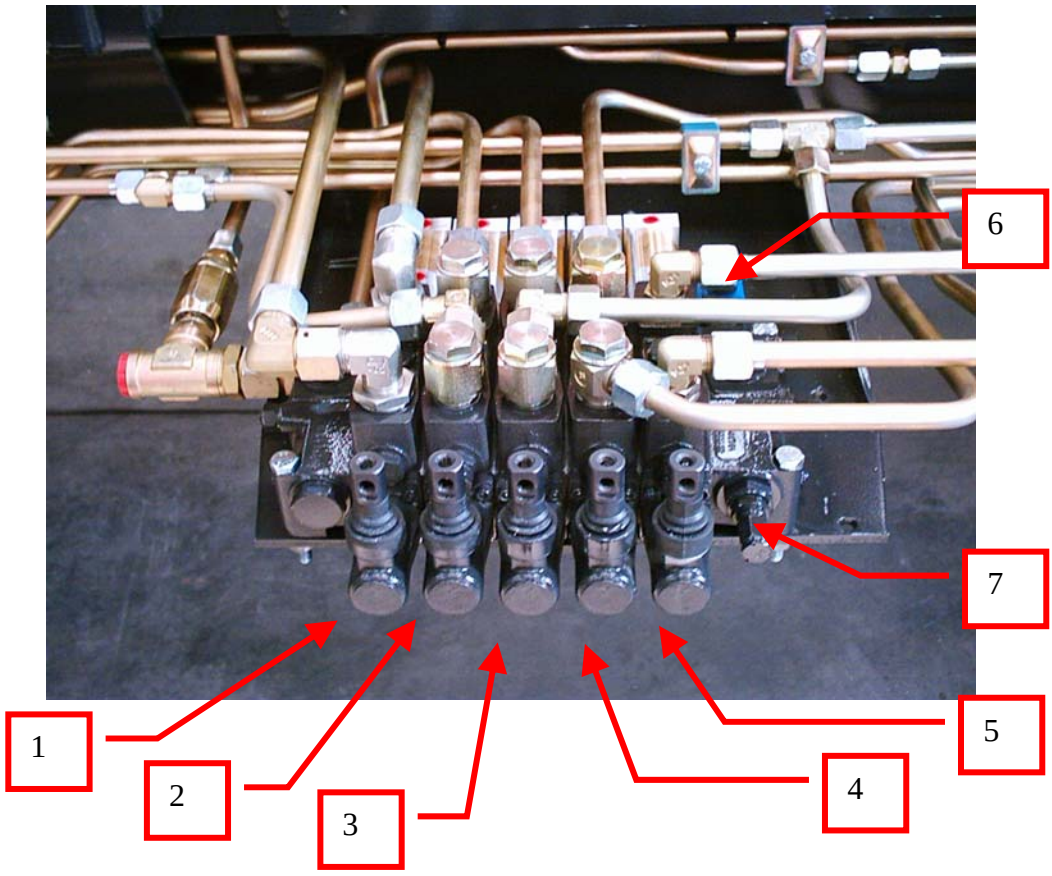
Each lever may control only one direction and its opposite and the movement direction of the lever corresponds with the movement of the part controlled.

The controls panel, run from the ground, can only be used by keeping the protection cover off, through a special key, that has always to be kept by the operator (when authorized by the owner of the vehicle)

3.3 CONTROLS BLOCK ON THE EQUIPMENT – CONTROLS DESCRIPTION

1. Main cylinder control lever
2. Telescopic jib arm cylinder control lever
3. Articulated arm control lever
4. Hydraulic locking control lever
5. Rear stabilizer control lever
6. Electrovalve emergency stop
7. Max pressure valve

table 3.3.1 positioning on the left side



CHAPTER 4 : USE OF THE ATTACHMENT

With electric installation FS – Series Multirail Type 242

4.1. INTRODUCTION

*** The operator must, before the usage of the hooklift,be sure that the truck and the hooklift are in perfect conditions and comply with the requirements foreseen in the Highway Code and all other laws concerning transport.**

It is absolutely forbidden to the operator to ask other non-authorised, untrained persons who do not know the content of this manual, to use the hooklift.

In any case, before the usage of the hooklift acting on the controls the operator must be sure visually, directly and by means of the driving mirrors of the truck, that no person or animal are in the operating area.

LIGHT SIGNALS

Upon the controls panel there are n°2 signal lights:

- YELLOW SIGNAL LIGHT : Signal insertion P.T.O.

- NEUTRAL SIGNAL LIGHT :

RED = hooklift in movement or in **not in position** for road march
GREEN = hooklift in **correct position** for the road march

TIPPING MOVEMENT

THE TIPPING MUST BE CARRIED OUT ONLY WITH:
- THE HYDRAULIC LOCKING ACTIVATED
- THE TELESCOPIC LEVER ONWARDS

In this phase the functioning of the telescopic and articulated arm movement is forbidden if the rear hydraulic locking is activated.

In this phase the functioning of the hydraulic locking is forbidden.

TELESCOPIC MOVEMENT

THIS FUNCTION IS POSSIBLE ONLY IF:
- THE HYDRAULIC LOCKING IS DEACTIVATED
- THE SECOND ARM IS IN HORIZONTAL POSITION

In the function of roll on and roll off, during the rotation of the arm, its movement is free. In the phase of rotation including the lifting of the second arm, the movement is forbidden.

We do not advise the movement of the loading with telescopic extended. The improper usage of the hooklift could cause damages to the equipment or risks to persons and things finding in the surrounding areas.

In the tipping phase the telescopic movement is forbidden. (lifting of the second arm)

PNEUMATIC SECURITY HOOK

On the controls panel there is an electric switchgear which activates/deactivates the pneumatic electro-valve for the movement of the hook security.

Pneumatic electro-valve deactivated → Hook security activated (closed hook)
Pneumatic electro-valve activated → Hook security retracted (open hook)

With electric installation deactivated (deactivated electro-valve) the security on the hook must be activated

ARTICULATED ARM MOVEMENT

THIS FUNCTION IS POSSIBLE ONLY IF:
- THE HYDRAULIC LOCKING IS DEACTIVATED
- THE SECOND ARM IS IN HORIZONTAL POSITION

All the functions and the using ways are the same as for the Telescopic movement

ROLL ON / ROLL OFF MOVEMENT

THIS FUNCTION MUST BE CARRIED OUT ONLY WITH :
- THE REAR STABILIZER OR THE SUSPENSIONS LOCKING LOWERED (if present)
- THE HYDRAULIC LOCKING DEACTIVATED
- THE TELESCOPIC LEVER BACKWARDS

During this phase the usage of the telescopic is free if the second arm is horizontal.

The usage of the telescopic is forbidden if the second arm is lifted up from the frame. (second arm rotation)

We do not advise the movement of the loading with telescopic extended. The improper usage of the hooklift can cause damages to the equipment or risks to persons and things finding in the surrounding areas.

HYDRAULIC LOCKING MOVEMENT

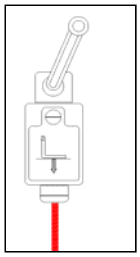
TIPPING
- During this phase the locking must be closed.
  In this phase the usage is forbidden.

ROLL ON – ROLL OFF
- During this phase the locking must be open.
  In this phase the usage is allowed if the second arm is horizontal.
  Its usage is forbidden if the second arm is lifted up from the frame. (second arm rotation)

"HORIZONTAL LIMIT SWITCH "

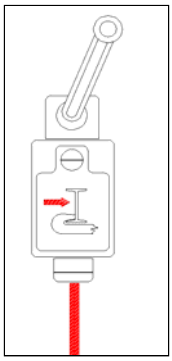
The limit switch must be positioned under or sideways at the second arm and it must signal when this component is horizontal.

Its activation contributes with the other sensors to the telescopic functioning. Its function changes, from red to green, the light positioned upon the visualizer to indicate the correct position of the hooklift for the road march.



" LOCKING " LIMIT SWITCH

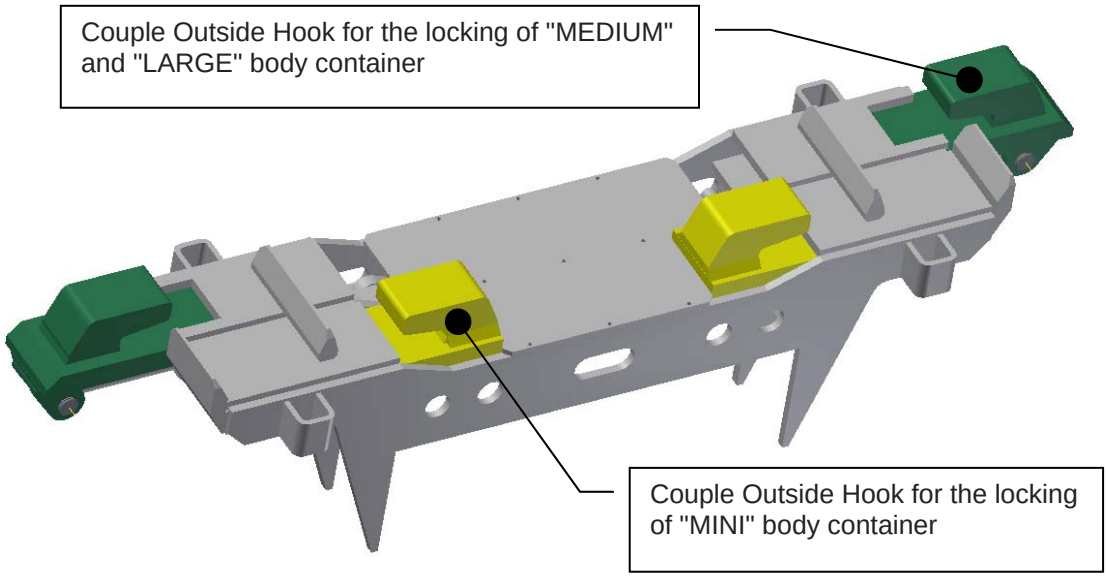
The limit switch must indicate the Hydraulic Locking activated (closed)

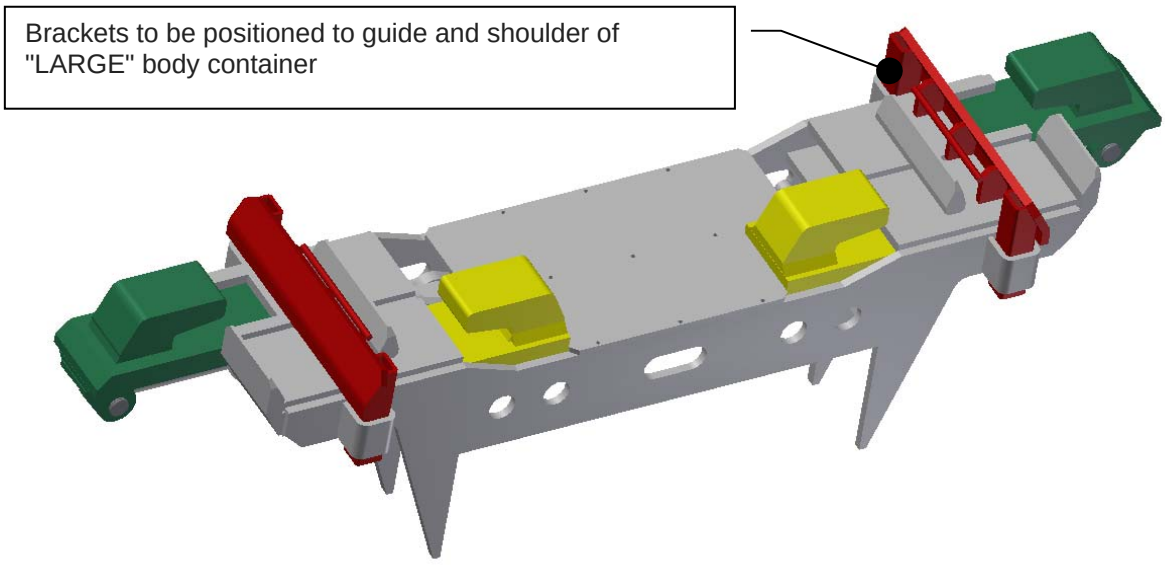


Its activation contributes with the other sensors to the telescopic function. Its function changes, from red to green, the light positioned upon the visualizer to indicate the correct position of the hooklift for the road march.

The indication of the hydraulic locking closed forbids the functioning of the telescopic movement of the hook.

For the FS-MR series equipment (Multirail) having the need to handle and block bins with different widths, the hydraulic locking is composed of:



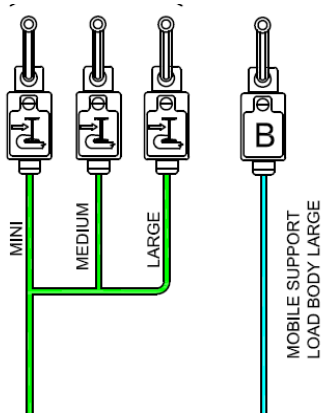


Therefore they have the following sensors:

- Microswitch for detecting the activated internal locking (for MINI body container)

- Microswitch for detecting the external locking activated (for MEDIUM body container)

- Microswitch for detecting the external locking enabled (for LARGE body container) after positioning of the dedicated guide brackets with the relative activation of the microswitch "LOAD BODY LARGE"



The microswitch "LOAD BODY LARGE" has the following function:
- If ON are activated the switchs for detecting the "MINI" and "LARGE" body container
- If OFF are activated the switchs for detecting the "MINI" and "MEDIUM" body container

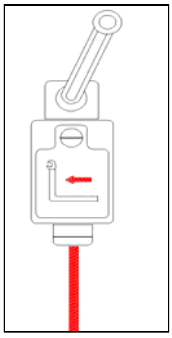
The limit switch for the locking function are :

- n° 3 for rear Hydraulic locking activated divided into:
  - n° 1 for locking body "Mini"
  - n° 1 for locking body "Medium"
  - n° 1 for locking body "Large"

- n° 1 for selection type of locking (Mobile support)

LIMIT SWITCH " HOOK COMPLETELY EXTENDED "

The limit switch indicates the position of the hook lever completely extended, when the hooklift is in horizontal position.



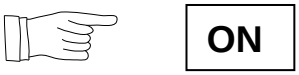
It must be positioned on the fixed part of the equipment (frame) and it must be activated with the complete extension of the hook lever or the Articulated arm.

Its activation contributes with the other sensors to the telescopic functioning. Its function changes, from red to green, the light positioned upon the visualizer to indicate the correct position of the hooklift for the road march.

4.2. CONTAINER ROLL ON

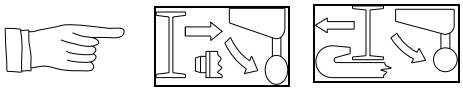
Before starting the movement is should check the type of containers to be moved. If the container is the LARGE type, position on the hydraulic locking of the special guide brackets.

Position vehicle, by reversing, near the front of the container to be lifted at a distance of 2 metres, aligning as much as possible the vehicle with the container. Keep engine running, engage the parking brake and set gear to idle;

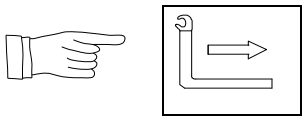


Controls active.

P.T.O connected .

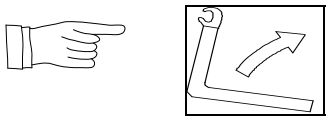


Roller Down/ Locking Deactivated



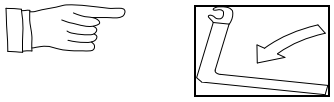
Retraction of Telescopic jib arm

Note: This operation lets the tilting frame free through a special device and allows the arm and the telescopic jib arm to move independently from the tipping frame.



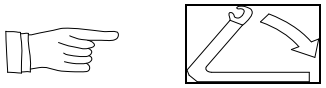
Rear rotation of arm and hook arm;

Disengage the parking brake and move very slowly in reverse until the container pin locates into the jib hook.

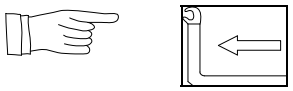


Roll on of theContainer.

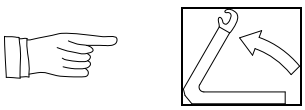
Check at this point that the counterweight locking device against accidental exit of container is positioned correctly.



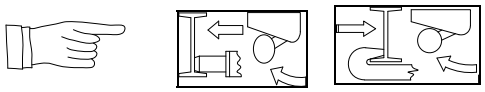
In this phase the lever articulated arm can be manoeuvred in order to reduce the container inclination.



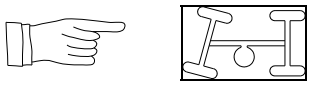
Telescopic arm Hook lever (advancing)



Front articulated arm Hook lever (advancing)



Roller Up / Locking activated



Disconnect P.T.O.

At this point, with all the red lights off and all green lights on, the vehicle, with the container on, may be put on the road.

Deactivate the control panel

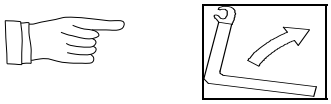
At this point the signalling lights on the controls panel are off.

4.3 TIPPING OF CONTAINER

Position vehicle in reverse next to the tipping area. Keep the engine running. Engage the parking brake. Set gear in neutral.

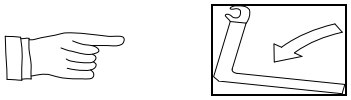
Controls active.

P.T.O connected.



Tipping

Continue until you have achieved the necessary angle to empty all the material from the container.



Return to rest position

At this point, with all red lights off and all green lights on, the vehicle, with the container on, may be put on the road.

Deactivate the control panel

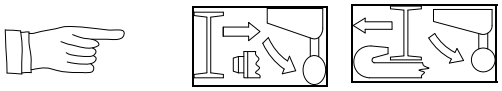
At this point the signalling lights on the control panel are off.

4.4 CONTAINER ROLL OFF

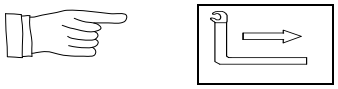
Position vehicle in reverse near the area where you want to place the container. Keep the engine running. Engage parking brake. Set gear to neutral.

Controls active.

P.T.O connected .

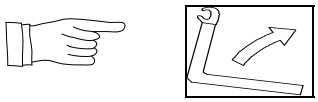


Roller Down / Locking Deactivated

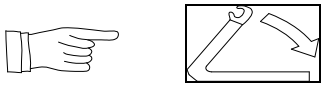


Retraction of Telescopic jib arm

Note: This operation lets the tipping frame free through a special lock and allows the arm and the telescopic jib arm to move independently from the tipping frame.

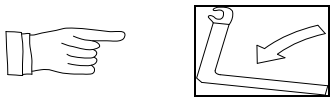


Roll container off.

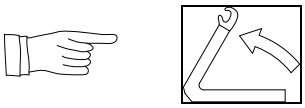


In this phase the lever articulated arm can be manoeuvred in order to reduce the container inclination.

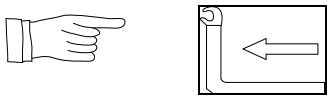
When the operation is completed, disengage parking brake. Detach hook from container. Advance vehicle slowly for about 1 metre.



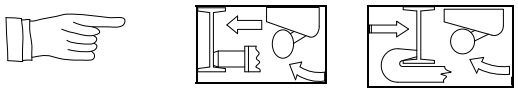
Forward rotation of Arm / Telescopic jib arm.



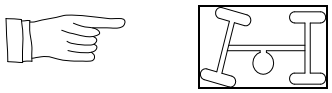
In this phase the lever articulated arm can be manoeuvred in order to reduce the container inclination.



Reach out Telescopic jib arm (forward).



Lift rear stabilizer / Activate Locking



Disengage P.T.O.

At this point, with all red light off and all green light on, the vehicle, with the container on, may be put on the road.

Deactivate the control panel

At this point the signalling lights on the control panel are off.

*** The operator must ensure that all containers to be handled are in good working order and are equipped with devices that make them compatible with the attachment and with the vehicle used**.

4.5 CABIN CONTROLS

A B C D E F G H

A) Stop Emergency button
B) YELLOW Light : insertion PTO

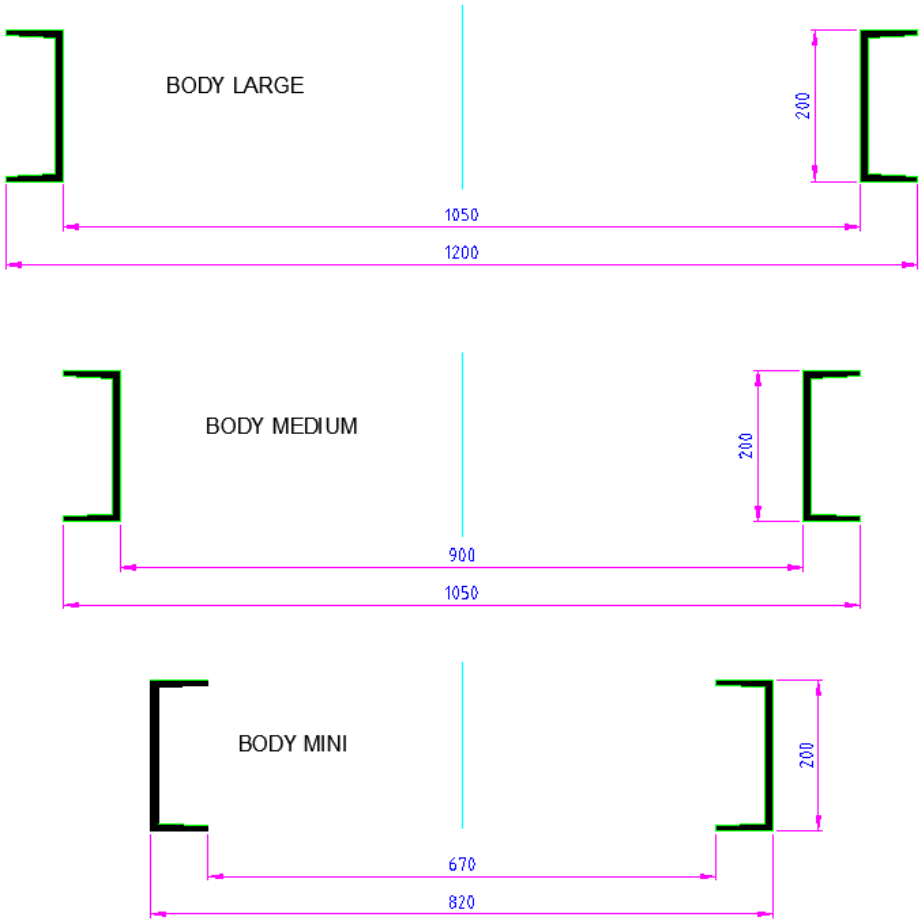
Neutral Light :
RED (hooklift not in position)
GREEN (position OK for March)

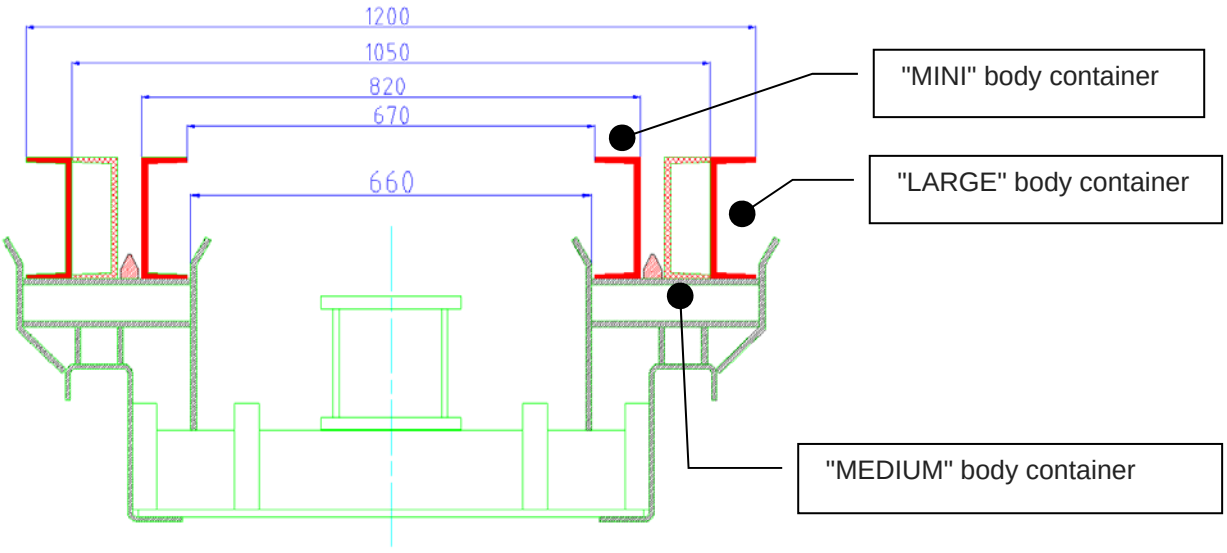
C) Switch for Hook security
D) Lever for Auxiliary function
E) Lever for Hydraulic Locking
F) Lever for Articulated Arm
G) Lever for Telescopic Arm

CHAPTER 5 : HOOKLIFT USE INSTRUCTION

5.1 TYPE OF BODY

Before starting the movement is should check the type of containers to be moved. If the container is the LARGE type, position on the hydraulic locking of the special guide brackets. (see chapter 4)





5.2 FOREWARNING

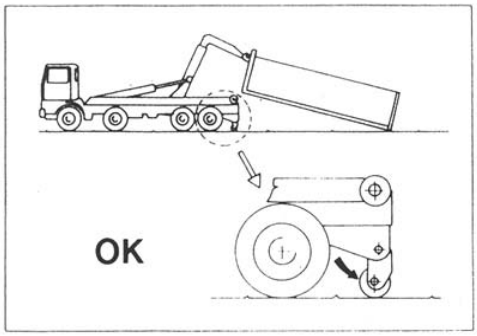
- The operator of the attachment must have the appropriate Driving Licence and must have read carefully and understood all information contained in this manual. After acquiring knowledge of all controls, he must then practice with the attachment itself until the correct use is achieved.

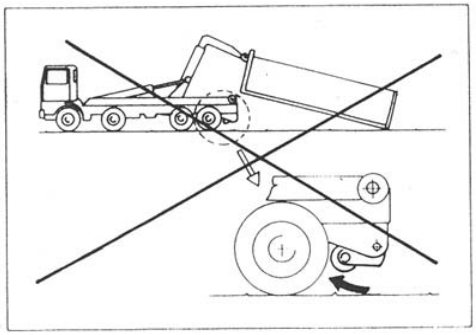
- The operator, from his driving position, should have a direct view and rear mirrors view of the operation area

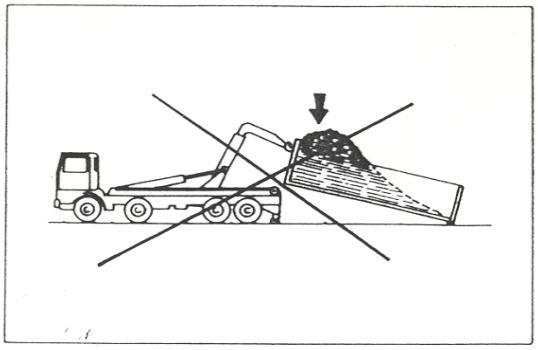
The operator must always ensure that there is no person or animal in the operating area , indicated on table 2.2.1 , before starting the manoeuvre.

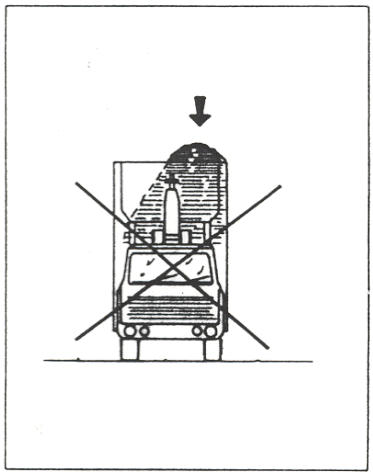
5.1.1 WARNING ON THE WORKING OPERATIONS

Never carry out Roll On or Roll Off of containers without having lowered the stabiliser roller first or locked the suspensions.



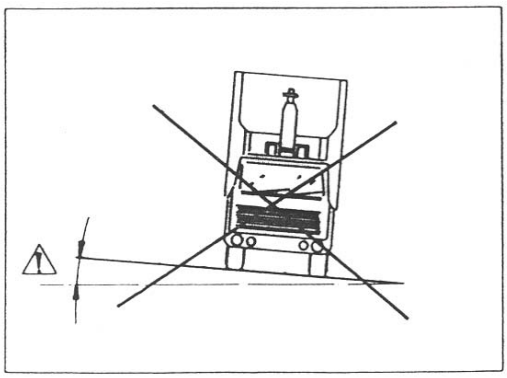




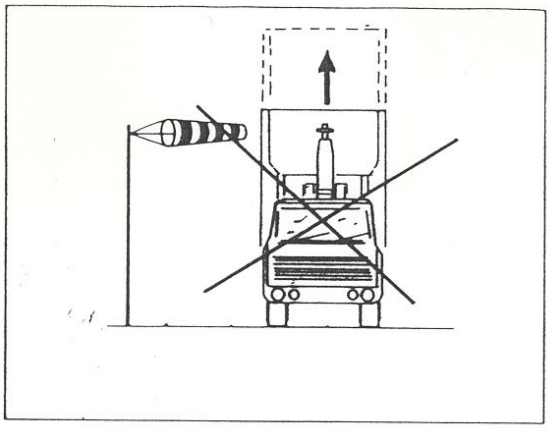


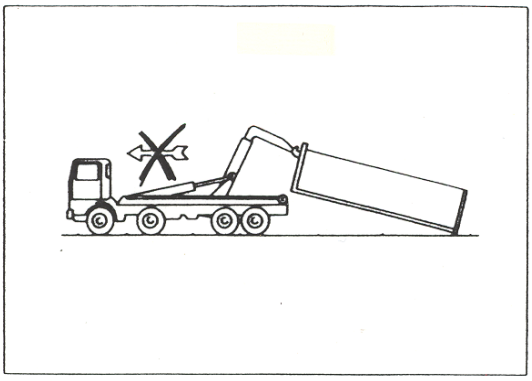
Do not Pick Up containers with uneven loads both lengthwise and across.

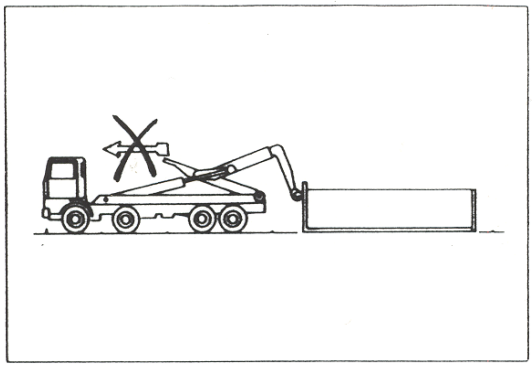
Do not Pick Up or Set Down Containers on terrain with a cross gradient.



When Tipping be careful in strong winds

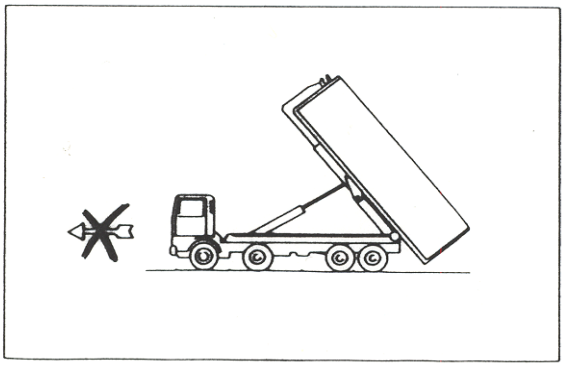




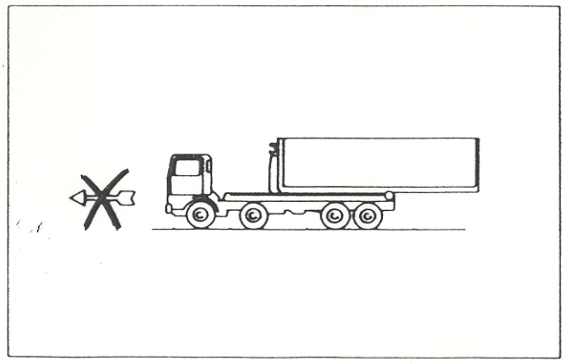


Never drag a container fully laden even if partially lifted.

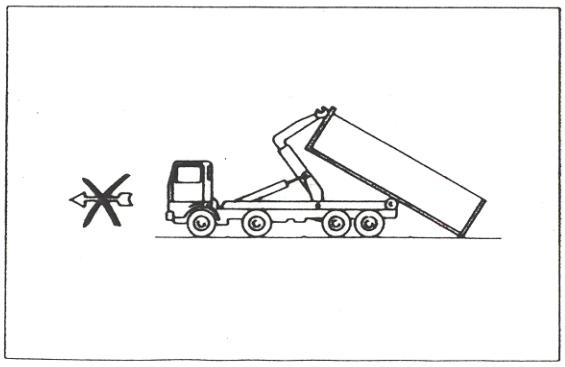
Never move vehicle during tipping operations.



Never move vehicle when picking up a container



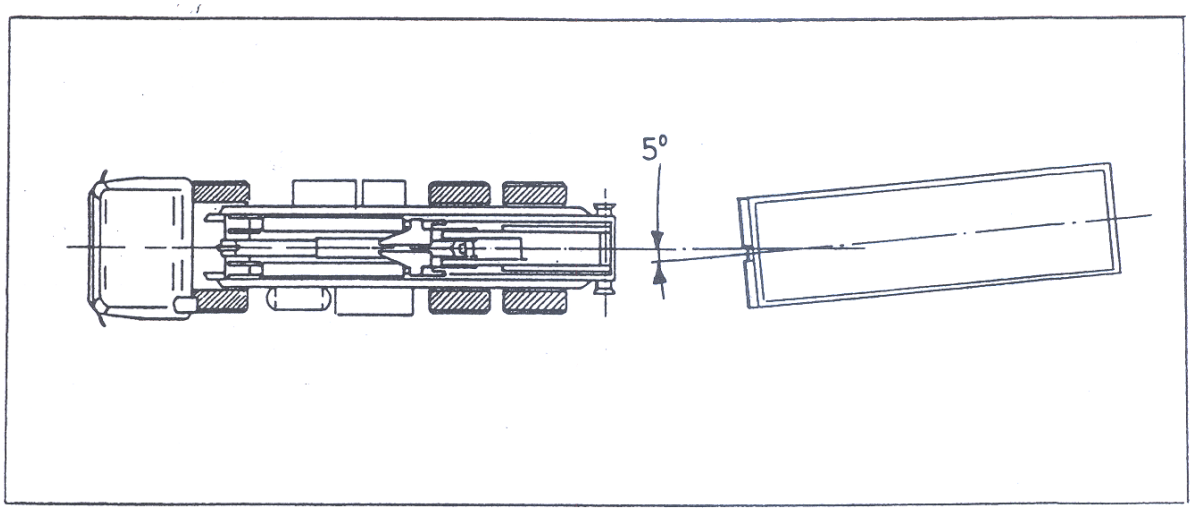
Never move vehicle during lowering of containers.



* Never pick up containers when vehicle and container are not properly aligned.

Badly aligned vehicles may cause the failure of engagement of container to the cradle and on to sliding rollers of the equipment with a risk of sideways fall of container.

Maximum difference of axial inclination between vehicle and container is about 5°.



CHAPTER 6 : EQUIPMENT "OUT OF SERVICE"

6.1 FOREWORD

* By **"equipment off service"** we mean the procedure to be followed each time a roll on/off operation has been completed and the vehicle with or without a container on is ready to go on the public road or else at the end of the working day when the vehicle is totally left unattended.

The equipment must be "off service" always, before moving the vehicle on the road. Always follow the procedure below.

6.2 OPERATION TO PUT THE EQUIPMENT OFF SERVICE

a) Position telescopic jib arm fully forward, behind cab, at rest:

telescopic jib arm fully forward

b) Check the correct position of the roller stabilizer or of the suspensions locking:

roller fully up

suspensions locking lifted

c) Check the correct position of the containers locks (if a container is carried)

Containers locks activated

d) Disengage P.T.O. acting on the P.T.O. lever

P.T.O. disengaged

e) Deactivate the control panel

The Electric Installation and the controls panel are off

CHAPTER 7 - MAINTENANCE

7.1 FOREWORD

When ordinary and extraordinary maintenance is not carried out according to the prescribed schedule you compromise the proper functioning of the attachment which in turn may cause malfunctions and damage to other parts with possible serious consequences. Warranty lapses when ordinary or extraordinary maintenance is not carried out.

* Maintenance operations must be carried out by trained personnel who are acquainted with the contents of this manual, are capable of operating the attachment and are familiar with maintenance operations.
When the maintenance operato has to move the vehicle and perform manoeuvres, must have appropriate driving licence for that vehicle.

*** Persons younger than 16 who are not acquainted with the content of the Use and Maintenance manual must not approach the machine nor take part to maintenance and /or repair operations.**

Safety and total machine reliability considerations demand the preventative replacement of all worn or damaged parts.
During maintenance, dismantling and reassembly operations, the repair man must protect himself with adequate clothing such as leather protective gloves, high boots, steel capped and soled boots and any other necessity to avoid risk and work in total safety.

7.2 OPERATIONS REQUIRING SKILLED PERSONNEL

- Replacement and or repair of base frame and its parts;
- Replacement and or repair of tilting frame o its parts
- Replacement and or repair of arm and its parts;
- Replacement and or repair of telescopic jib arm and its parts;
- Replacement and or repair of main cylindres and their parts;
- Replacement and or repair of telescopic jib arm movement cylinder or its parts;
- Replacement and or repair of hydraulick loscks and their parts;
- Replacement and or repair of stabilizer roller and its parts;
- Replacement and or repair of all components of the hydraulic circuit;
- Replacement and or repair of all components of pneumatic circuit;
- Replacement and or repair of electric circuit;
- Replacement and or repair of hydraulic pump and its parts;
- Replacement and or repair of Power Take Off and its parts;
- Replacement and or repair of controls and their parts.

7.3 OPERATIONS THAT MAY BE CARRIED OUT BY THE OPERATOR

* All ordinary maintenance and checks listed below may be carried out by ordinary non specialized personnel but must be acquainted with the contents of this manual.

* Ordinary maintenance and periodical checks are chargeable to the user who must ensure that they are carried out at the intervals and in the manner prescribed in this manual or, if the need arises, more frequently.

Any cleaning, checking and maintenance operation and or repair must be absolutely carried out with the attachment off service, with the vehicle parked on dry, flat and hard ground (max 3° gradient).
The attachment is considered disactivated and off service when it is placed in the position required for that specific operation:

- parking brake engaged to avoid any accidental movement;
- the controls panel of the hooklift is deactivated by the special key, which is then removed from it;
- the vehicle engine is switched off and the ignition key has been removed;
- the control-block on the equipment and manoeuvrable from the ground is protect by the apposite cover that is closed with a key;

* If for the purpose of cleaning, checking and maintaining the machine, the attachment need to be operated, this must be only done by a trained and qualified attachment operator.

*** Maintenance activities that require the activation of the equipment may be carried out with external controls but the operator must always ensure personally that no person or animal is present around the "danger zone" of the machine. If there are, these must first be removed.**

7.4 PERIODICAL CHECKS

Note: by "cycle" is meant :

One complete roll off operation or One complete tipping operation or One complete Roll on operation

Maintenance periods	30 cycles	120 cycles	360 cycles
1 - Check hydraulic oil level		*	
2 - Replace hydraulic oil level		see note (a)	
3 - Check hydraulic oil filter (b)		*	*
4 - Replace hydraulic oil filter (c)			
5 - Grease rear slide rollers		*	
6 - Grease tipping frame pivoting pin		*	
7 - Grease tipping frame/pivoting arm pin		*	
8 - Grease main cylinders joints		*	
9 - Grease arm skid pads pins		*	
10 - Grease main cylinders pivoting bushes		*	
11 - Grease frame sliding surfaces		*	

a) depending on the degree of contamination of the environment in which the truck operates; when operating in dusty environments, a complete oil change is advisable;

b) after 30 cycles, the first time, every 120 cycles thereafter.

c) unless needed more frequently.

7.5 LEVEL CHECK, TOP UP, REPLACEMENT OF OIL AND FILTER

* **Check for level, top up and replacement of oil from tank, for capacities see table 6.6.1.**

Oil level check is done visually through the indicator placed on the side of the tank. Top up is carried out from the ground (see figure 7.5.1) through the filling collar, **taking care to close well the cap** when completed. The replacement is carried out by emptying, through the drain tap, the tank and refilling as per topping up.

6.5.1.

Do not carry out topups and oil replacement climbing on the attachment installed on the vehicle (see fig 7.5.2)
Use a stand whose height is less than 1.5 metres from the filling cap height and procede with the operation (figure 7.5.1).

6.5.2.

***Using non recommended or contaminated oils may damage irreparably some components of the attachment and causes a lapse of warranty. Oil specifications are listed in paragraph 7.8.**

7.6 FILTER CARTRIDGES

* Replacement filter cartridges must be of adeguate size and have a filtering capacity of

from 30 to 50 MICRONS

7.7 OIL TANK CAPACITIES

table 7.7.1

Model	**Front tank**	**Side tank**
	litres	litres
AT. 16 – 20 – 22 - 25	120	120
AT. 30	140	150

7.8 SUGGESTED OILS

* Replacement oils must conform to one of the following specifications:

- DIN 51.524/ cat. HPL - 51.525
- CETOP RP 91 H (77) cat. HM
- ANFOR NF E 48.600 (74) cat HM - NF e 48.603
- VDMA 24318
- DENNISIN HF 2A
- BS 4231 cat.HDS
- ISO 6743/6744 - HV 32 ISO

SUGGESTED: KINEMATIC VISCOSITY AT 40° C = 46 cST (ASTMD445)

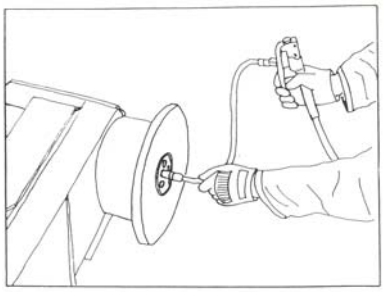
GROUP: HL - HLP - HLPD

DIN 51 5247 and T2

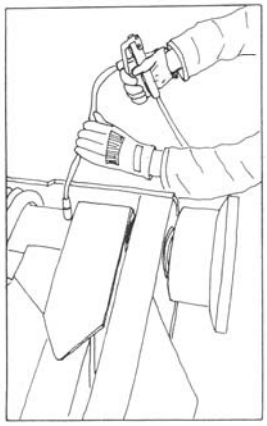
7.9 GREASING AND LUBRICATION

* Greasing is carried out periodically as indicated in table 7.4.1 for all parts indicated using an appropriate greasing gun.

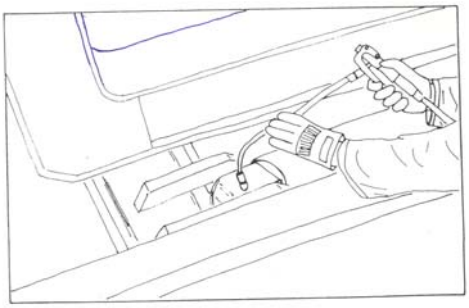
GREASING SLIDING ROLLERS



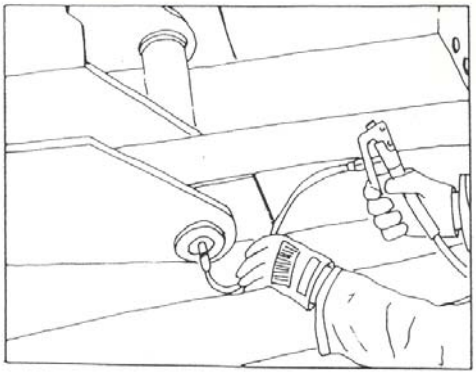
GREASING MAIN PIN TIPPING FRAME/ BASE FRAME



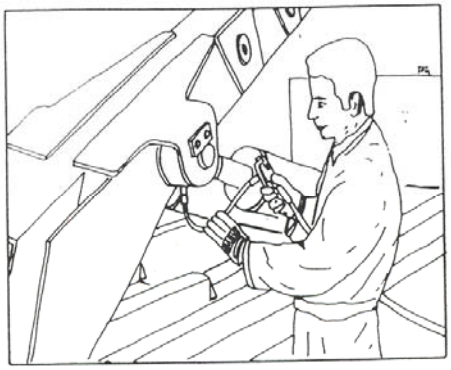
GREASING PINS BETWEEN BARE FRAME AND CYLINDERS



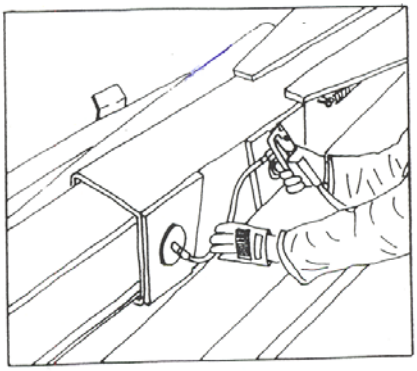
GREASING PIN BETWEEN TILTING FRAME AND ARM



GREASING SWIVEL HEADS ON CYLINDERS



GREASING SLIDING PARTS



GREASE OR OIL, EVEN WITH OLD OIL, AND USING A BRUSH, THE SLIDING RAILS OF FRAME TO ASSIT THE SLIDING ACTION OF THE FRAME CRADLE DURING ROLL ON AND ROLL OFF.

CHAPTER 8 : MANUAL

8.1 SAFEKEEPING THIS MANUAL

this manual of use and maintenance must be read by the operator of the attachment and must be kept for future reference.

8.2 REQUESTING A REPLACEMENT MANUAL

Should this manual be damaged or lost you may acquire a new manual from the manufacturer or your Dealer quoting the following details:

- model
- type
- serial number
- year of manufacture

8.3 MANUAL UPDATES

The manufacturer reserves the right to change specifications without notice and with them the relative use and maintenance manual without having to update previous issues.

8.4 FURTHER INFORMATION AND CLARIFICATION

The installer, user, operator, owner, maintenance person or repairer may at anytime contact the manufacturer should he need further clarification regarding installation and
proper use of the attachment as well as the advice on repair and maintenance.

CHAPTER 9 : WARRANTY

9.1 Warranty lasts 12 months.

9.2 It covers spares and labour carried out by an authorized Dealer or Repairer who will demand the warranty certificate. This is issued by the selling Dealer and is signed both by the Dealer and by the user.
The date of issue of the warranty certificate is the date of delivery of the vehicle fitted with the attachment.

9.3 A.T.I.B. responds for anomalies concerning the kit as supplied and its accessories.
All other materials used during the fitting of the attachment on the vehicle and other authorised modifications and labour carried out by the installer, must be guaranteed by the installer in a similar manner as A.T.I.B. warranty.

9.4 Warranty escludes all wearing parts.

9.5 LAPSE OF WARRANTY

The manufacturer shall consider himself relieved from any liability and from warranty liability in case of:

a) improper use of the equipment.

b) use of the hooklift by untrained person.

c) uses that contravene the highway code.

d) uses that contravene other national laws.

e) failure to carry out the prescribed maintenance.

f) non authorised repairs or modifications.

g) use of non original spare parts or parts.

h) total or partial non observance of instructions.

i) unpredictable circumstances.