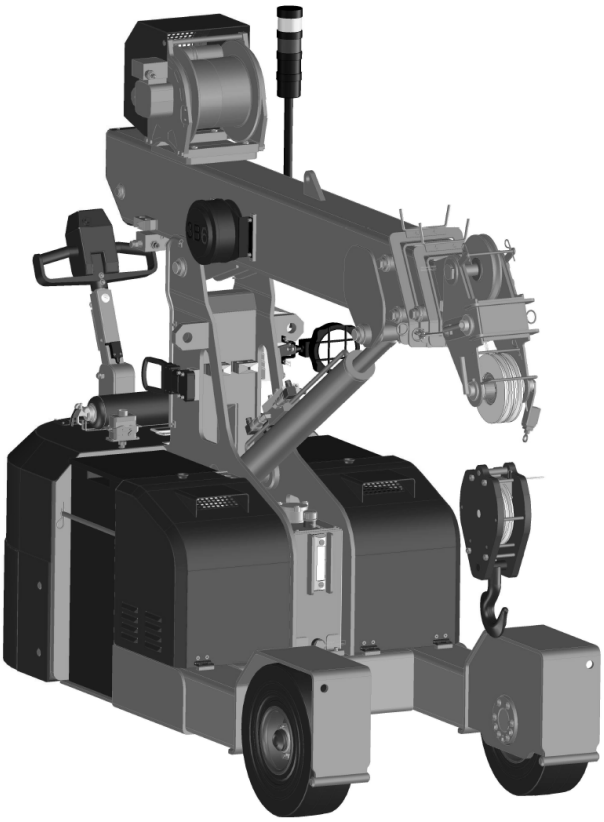


VALLA MOD. **25E** Serial no. **9468** MOBILE CRANE

***USE AND MAINTENANCE MANUAL***

***SPARE PARTS***

**MANITEX VALLA s.r.l.**
**Sede legale / Seat / Sitz / Siège social / Domicilio social:**
Via Verdi 22, 41018 San Cesario sul Panaro (MO) +39 059 936811
**Sede operativa / Operational headquarters / Productionsstät / Siège d'Exploitation / Centro de operaciones:**
Via Leonardo da Vinci 12, 29016 Cortemaggiore (PC)
**www.valla.com - info@valla.com**

**COD. 150110**

*Dear Customer,*

*thank you very much for choosing one of our products.*

*We recommend reading this manual and, most of all, to have it read by the person who will operate the crane so that he is aware of the main instruction and maintenance rules.*

*The crane you have purchased has been designed and manufactured according to the highest standards as regards safety, functionality and toughness.*

*We are sure that, if you comply with the use and maintenance instructions described in this manual, this machine will help you to work with great satisfaction for a long period of time.*

*Thanks again.*

*MANITEX Valla s.r.l.*

# INDEX

# 1 FOREWORD

The crane you have purchased has been designed and manufactured using the most advanced techniques and complies with the European regulations in force.
**The crane described in this manual is intended exclusively for load lifting, lowering and transport operations.**
This instruction manual includes:

- instructions for the operator to use the machine correctly;
- instructions for the maintenance operator to maintain the crane properly.



## *1.1 Conventional signs*

Obligation sign. This symbol, found in the warning instructions, reminds the operator that he needs to consult the instruction manual to get further information.

Obligation sign. This symbol, found in the instructions, highlights the compulsory operations to be carried out in order to avoid situations of risk.

Danger sign. This sign, found in the warning instructions, highlights conditions that are a serious risk for the safety of people and things.

Prohibition sign. It indicates the actions which are forbidden in order to prevent running into dangerous situations.

## *1.2 How to read and use the instruction manual*

- This instruction manual is strictly reserved for the Customers who own a Valla crane.
- In accordance with the directive on machinery (2006/42/EC) the instruction manual is considered an integral part of the machine.

**ATTENTION!**
*Before carrying out any operation on a Valla crane the operator **MUST READ THIS MANUAL THOROUGHLY AND CAREFULLY and UNDERSTAND ITS CONTENTS.***
*If the instructions provided herein should be unclear or incomplete and one or more parts of the manual should not be perfectly understandable, please call MANITEX Valla S.r.l. for all the supplementary information.*

- The information in this instruction manual is subject to modifications without prior advice and it isn't binding for **MANITEX Valla S.r.l**
- Don't remove, tear or rewrite any parts of this manual for any reason whatsoever.
- Keep the instruction manual with care in a place protected from humidity and heat.
- The instruction manual should always be available on the crane for consultation.
- In case of sale of the crane, it must be complete with this instruction manual and the relative annexes.
- Keep the instruction manual for future reference.

## *1.3 Recipients of this manual*

This manual is intended for:

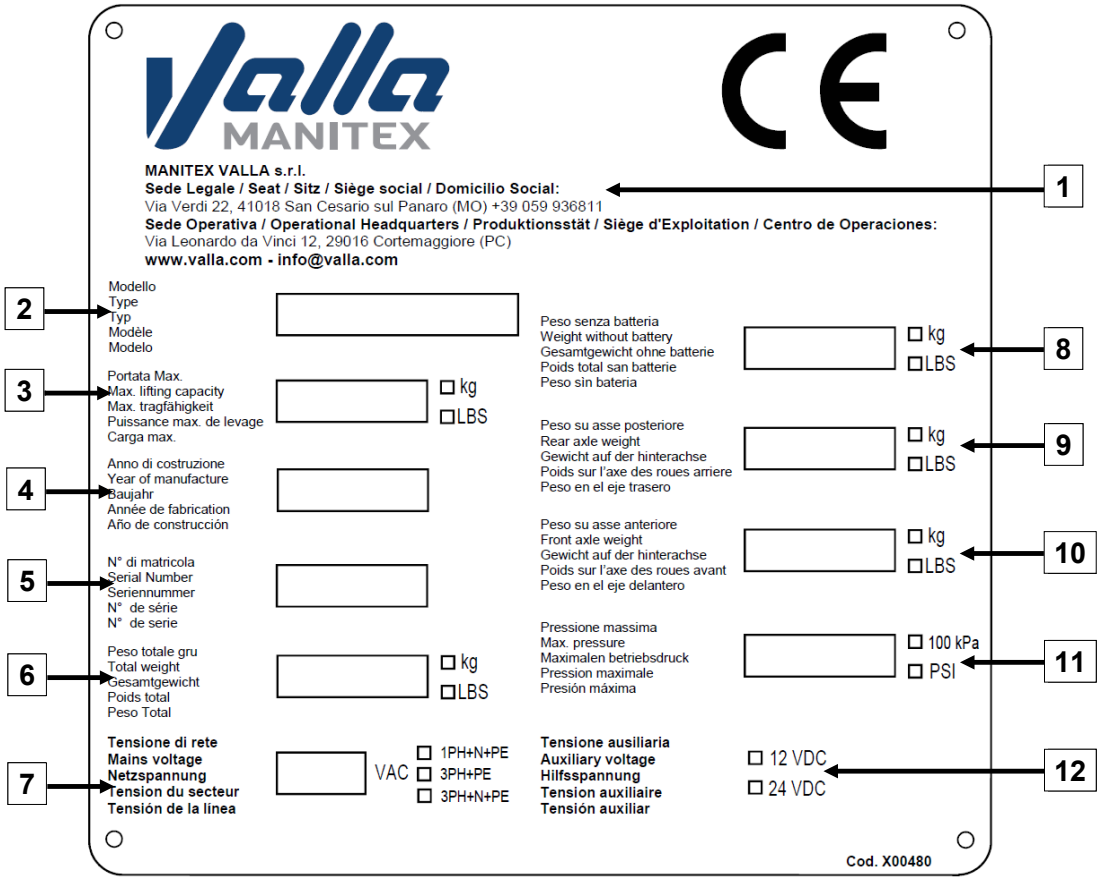
- the Company's manager
- the Prevention and Protection Service manager (RSPP)
- the Head of Department
- the operator
- the personnel in charge of maintenance
- the carrier
- the person in charge of demolition.

## 1.4 General information

**Manufacturer's identification:** *see first page*

**Machine identification:** *see first page and machine identification plate*

**WARNING!**
*The identification plate must always be kept clean and legible. Any uses different from those indicated herewith are NOT allowed.*
*DON'T work on the machine with procedures, operators or qualifications different from those indicated in this manual.*




The identification plate is on the crane frame; it contains all the data required to identify the crane:

1. name and address of the crane manufacturer;
2. crane model;
3. Maximum lifting capacity;
4. Year of manufacture;
5. crane serial number;
6. Total weight;
7. Mains voltage;
8. Weight without batteries;
9. Rear axle weight;
10. Front axle weight;
11. Hydraulic system max. pressure;
12. Auxiliary voltage.

## 1.5 Symbols used

Danger sign. It indicates the danger of contact with parts under tension which might cause death or serious injuries. All covers with this sign should be removed by skilled personnel.

Danger sign. It indicates the danger of contact with battery acids which may cause serious injuries.

Danger sign. It indicates the danger of fall with serious risks for the people's safety .

Danger sign. It indicates the danger caused by suspended loads. Lingering or passing in the dangerous area might cause serious injuries or death.

Danger sign. It indicates the danger of getting squashed and the risk of serious injuries to people.

Danger sign. It indicates danger of having the upper limbs squashed with the risk of serious injuries.

Danger sign. It indicates the danger of having the lower limbs squashed with the risk of serious injuries.

Danger sign. It indicates the danger of losing control of the machine. Lingering or passing in the dangerous area might cause serious injuries or death.
This sign is used on machines with a remote control.

Danger sign. It indicates the danger of explosion of gas mixtures with the risk of serious injuries.

Prohibition sign. It indicates prohibition of passing or lingering under suspended loads. People lingering or passing in this area might be seriously injured or die.

Prohibition sign. It indicates prohibition of having live flames, white-hot objects, sparks, cigarettes and similar items near.

## 1.6 Personnel's qualification

The installation, maintenance and use of Valla cranes is reserved for qualified and skilled personnel who know the accident prevention standards and the technical safety rules.
Anyone who deals with the above mentioned crane must read and understand this instruction manual.

## 1.7 Personnel's training

**ATTENTION!**
*It is essential to use this manual to update the skills of the personnel in charge of operating the crane.*

This section specifies the degree of training required for the personnel assigned to work on or with the crane. They are sub-divided as follows:

1. Crane operators;
2. Maintenance operators;
3. Skilled technicians.

Information about the training of the personnel included in position "3" is not provided as the operations involved are reserved to highly skilled personnel working for the authorized After Sales Service.

- **CRANE OPERATOR**

"The person trained to use the machine correctly and who is informed about any dangers due to irregular behavior. This operator is also informed about the safety devices installed, the working conditions and is well-informed on the safety measures in place and the accident prevention rules".
Crane operators should be a minimum of 18 years old and medically fit (sight, hearing, not suffering from vertigo or mental disorders, not using drugs or alcohol, good mental balance and sense of responsibility).
The Operators must be able to read the language of the machine instructions and plates.
Every operator must be thoroughly informed on the content of this instruction manual.

- **CRANE MAINTENANCE OPERATOR**

"The person who, based on their training and work experience, has a good technical knowledge of the crane and can work safely on the machine and its components. This operator is sufficiently informed on accident prevention rules and good practice criteria".
In addition to the essential operators' requirements, crane maintenance operators must also have good manual work ability and have mechanical skills. This means they should:

- have significant experience in the mechanical sector;
- participate in technical training courses;
- have a secondary technical school certificate;

If crane operators have the above qualifications, they can also work as maintenance operators.

## 1.8 Conventional maneuvering signals

1. Characteristics:

   A hand signal should be clear, simple, wide, easy to carry out and understand and clearly different from any other hand sign.

   The two arms should be used symmetrically and simultaneously for a single hand signal.

   All gestures used, in accordance with the above specified characteristics, may slightly vary or be more detailed with respect to the representations described at point 3, provided that the meaning and understanding are more or less the same.

2. Special regulations for use:

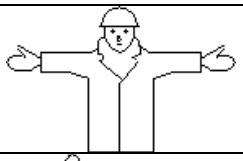
   2.1. The person who makes the signals, called “signal operator”, provides the maneuver instructions to the recipient, who is called “operator”.
   2.2. The signal operator must be able to see all the maneuvers without incurring risks from the maneuver themselves.
   2.3. The signal operator must direct his attention exclusively to controlling the maneuvers and the safety of the workers nearby.
   2.4. If the requirements mentioned in point 2.2 are not satisfied, one or more auxiliary signal operators should be provided.
   2.5. When the operator can’t carry out the orders with the due safety guarantees, he must stop the maneuver in progress and ask for new instructions.
   2.6. Conditions of hand signals:
   - The signal operator must be easily individualized by the operator.
   - The signal operator must wear or have one or more suitable identification elements such as a jacket, a helmet, sleeves, armbands or paddles.
   - The identification elements are brightly colored and the signal operator should preferably use a single color.

3. Gestures to be used (conform to 92/58/EEC Annex IX).

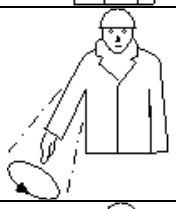
   *Foreword*

   The list of the most conventional gestures described in the following pages doesn’t stop you using different coding systems which are applicable in the European community, especially in sectors where the same maneuvers are used.

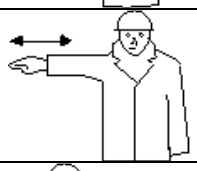
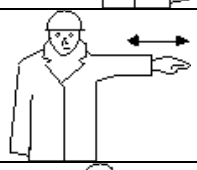
## GENERAL GESTURES

| MEANING | DESCRIPTION | FIGURE |
|---|---|---|
| START<br>Attention.<br>Taking the lead. | The arms are opened horizontally with palms facing forward. |  |
| HALT.<br>Interruption.<br>End of movement. | The right arm is held straight upwards with palm facing forward. |  |
| END of operations. | The hands are joined at chest-height. |  |

## VERTICAL MOVEMENTS

| MEANING | DESCRIPTION | FIGURE |
|---|---|---|
| LIFTING | The right arm is held straight upwards, with the right palm facing forward and moving slowly in the shape of a circle. |  |
| LOWERING. | The right arm is held straight downwards, with the right palm facing the body and slowly moving in the shape of a circle. |  |
| VERTICAL DISTANCE. | The hands show the distance. |  |

## HORIZONTAL MOVEMENTS

| MEANING | DESCRIPTION | FIGURE |
|---|---|---|
| MOVING FORWARD. | Both arms are bent with the palms facing backwards; the forearms make slow movements towards the body. |  |
| MOVING BACKWARDS. | Both arms are bent with the palms facing forward; the forearms make movements away from body. |  |
| TO THE RIGHT with respect to the signal operator. | The right arm is straight, more or less horizontal and with the right palm facing downwards, making little slow movements to the right. |  |
| TO THE LEFT with respect to the signal operator. | The left arm is straight, more or less horizontal, with the left palm turned downwards making little movements to the left. |  |
| HORIZONTAL DISTANCE | The hands show the distance. |  |

## DANGER

| MEANING | DESCRIPTION | FIGURE |
|---|---|---|
| DANGER<br>Halt or emergency stop. | Both arms are straight upwards, the hand palms are facing forward. |  |
| QUICK MOVEMENT. | The conventional gestures used to show movement are done faster. | |
| SLOW MOVEMENT. | The conventional gestures used to show the movements are done very slowly. | |

## 1.9 Instructions, dangers and prohibitions

**INSTRUCTIONS**

| | |
|---|---|
| | **The crane can be operated and maneuvered only by authorized personnel.** |
| | Provide the operator with the safety instructions required. |
| | Always wear safety shoes. |
| | Wear personal protective equipment (especially eye protections) when carrying out inspection and maintenance operations. |
| | **Check the efficiency of safety devices before every work shift.** |
| | **Inspect the machine every day before starting the work shift to check for any leaks, worn or damaged parts.** |
| | Periodically check for wear and tear of pins, dowels, wheels and rims. |
| | **Use only the hook (or block) to hook and lift loads.** |
| | If the load to be handled is out of the visual range, the presence of a signal operator is compulsory. |
| | When the load is hooked, always move it near the ground at minimum speed and lean the load onto the frame (on front mudguards) if possible. |
| | Always use the longest boom section to lift the load. |
| | When using optional equipment, read the relative instructions provided in this instruction manual carefully. |
| | Keep the machine clean. The excess of dirt, oil and grease can create situations of risk. |
| | Clean or replace all decals which can't be read easily to help preventing accidents or personal damages. |
| | It is possible to run short distances **without load** up or down a slope whose max. gradient is 10% (propelling motor for max. 10 seconds). |
| | Move downhill at minimum speed (also apply the brake). The excessive speed may damage the propelling motor. |

**DANGERS**

| | |
|---|---|
| | Use of any lifting system is intrinsically dangerous. Always operate the crane by strictly complying with the capacity and extension values indicated. Always determine the machine capacity before lifting a load. Have full knowledge of the capacity diagram and refer to it. |
| | **All crane operations (including parking) must be carried out on firm, flat, load-bearing, HORIZONTAL grounds. The crane can be used only in normal conditions of visibility and lighting.** |
| | **The centrifugal force created on a bend may create dangerous swinging of the load. Always be careful when handling a load on a bend and drive at minimum speed.** |

| | |
|---|---|
| | Sudden movements of the load can overload the bearing structures and unbalance the crane. Avoid sudden lowering and load drops. |
| | Bad slinging may cause the load to fall. Before lifting always make sure that the load is properly slung. |
| | Any contact with obstacles may make the load fall or damage the load. Before lifting always make sure that the work area is free. |
| | During the operations keep your hands, feet and body away from winches, pulleys or any moving device. |
| | Wind may compromise the stability of the crane. Never operate the crane if the wind speed is more than 28 Km/h. |
| | The high voltage lines are a serious danger, even if you don't come into contact with them. Never operate the crane or handle the load near electric lines; always keep at a safety distance in accordance with the regulations in force. |
| | The machine moving parts can create serious injuries to people. Never carry out any maintenance interventions while the motor is running or when there are any machine moving parts. |
| | The battery acids can cause serious burns. Never let the battery fluid come into contact with the skin, eyes, fabrics or painted parts. In the case of contact, wash with plenty of water and go to the doctor. |
| | **Risk of explosion.** During the charge phase, the battery emits a highly flammable gas mixture of hydrogen and oxygen. Keep away open flames, white hot objects, sparks, cigarettes or similar objects. Don't charge the battery and/or don't use in narrow spaces. |
| | **Risk of explosion or fire.** Don't short-circuit the battery, its components or the plug. |
| | Any high-pressure leaks may cause serious injuries to people. Don't use the crane if you notice that the hoses of the hydraulic circuit are worn or if there are oil leaks. |
| | Electrical malfunctions can cause injuries to people. Don't use the crane if you notice any electrical problems. |
| | Risk of loss of control. Leave the crane operation area after inserting the parking brake and disconnecting the main battery plug. |
| | **Damages to the rope, even if slight, may compromise its mechanical resistance with the subsequent risk of load drop. Never use damaged ropes. Always check the condition of the rope in accordance with the regulations in force and check that there are no hook-ups, rust, frayed parts or knots.** |
| | Damaged wires or strands may cause hand injuries. Always wear gloves when handling the rope. |
| | Water may cause short-circuit damages to the electric system. Don't use a steam jet to wash the crane. |
| | Keep a fire extinguisher at hand and learn to use it.<br>Have the fire extinguisher checked periodically to make sure that it is always in good working order. |
| | The crane can't work in explosive environments. |
| | Deposits of mud or dirt on the motors may cause overheating and thus damage the motors themselves. Remove them immediately. |
| | Sand, abrasive dust and salt may damage the crane boom and cause wear on the pads in the long term. Don't use the crane in the presence of such materials and remove them immediately if you find any. |

| | |
|---|---|
| ⚠ | Solvents, oils, fuel, acids and alkaline solutions may damage the parts of the electric and hydraulic system. Don't let such substances come into contact with the crane components. |
| ⚠ | **The electric equipment of a machine can emit non-ionising electromagnetic radiations which may alter the correct functioning of any medical equipment used by the operator (hearing aid, pacemaker, etc.). Ask the doctor and/or the manufacturer of the device to know if it can be used near the machine.** |
| ⚠ | As regards what is not expressly foreseen, always keep to the safety regulations in force. |

## PROHIBITIONS

| | |
|---|---|
| 🚫 | **DON'T USE THE CRANE TO LIFT PEOPLE FOR ANY REASON WHATSOEVER.** |
| 🚫 | Don't drive on gravelly, muddy or unstable ground which might be dangerous for the machine balance. |
| 🚫 | Don't drive on slopes (up or down) on slippery grounds (wet, dirty or greasy). |
| 🚫 | **Never leave the crane unattended on sloping grounds.** |
| 🚫 | Never travel, even without a load when the boom is lifted. |
| 🚫 | Don't tow. |
| 🚫 | Don't let the load swing. |
| 🚫 | **Don't lift and/or handle any loads when there are people underneath.** |
| 🚫 | **Don't pull the load sideways. Before lifting a load, put the hook vertical with respect to the weight.** |
| 🚫 | **Don't hit, push or pull any objects by means of the crane boom.** |
| 🚫 | **Don't leave the crane with a suspended load.** |
| 🚫 | Don't carry out any load lifting maneuver without braking the crane. |
| 🚫 | Don't tamper with the safety hydraulic valves for any reason whatsoever. |
| 🚫 | Don't replace the wheels with others whose size or model are different from those described in this instruction manual. |

**IN THE EVENT OF MALFUNCTIONS IN THE L.M.I. SYSTEM ( Load Moment Indicator )**

***CALL VALLA'S AFTER SALES SERVICE IMMEDIATELY***

**AND DON'T USE THE CRANE FOR ANY REASON WHATSOEVER.**

## 1.10 Limits of validity of the " CE "mark

Every machine-operator interaction has been duly and carefully analyzed by Manitex Valla s.r.l. to find suitable precautions adopted during the design phase and when drawing up this **instruction manual and which the operator must comply with.**
All related risks and, consequently, all safety devices, protections and possibilities of intervention on the crane have been studied and created only for the specific purpose described in this instruction manual. In this sense the machine conforms to all the regulations in force as expressly indicated by the appropriate mark.

## 1.11 Safety devices

The crane has been designed with a completely closed and encased structure, with round edges to reduce the risks during operation.
The emergency stop push-button allows the operator to stop all functions immediately and simultaneously in case of danger.
The safety push-button on the steering bar prevents the possibility of operator getting entrapped between the crane and a fixed hindrance. It does this by reversing the direction of travel
The L.M.I. system checks that the crane is not subject to excessive loads and locks all the movements that may create an overload.
The crane is provided with protections against any electric overload.
A detailed description of the safety devices and the instructions for their correct use are written in the following chapters.

**Strictly keep to the warning and danger signs placed on the Valla crane. Check that all safety devices are efficient at least ONCE A MONTH.**

## 1.12 Non-provided use

A Valla crane can be used only by suitably trained personnel.
The instructions for use, the residual risks and the operations to be avoided are clearly described in the chapters on all of the crane components and functions.
The crane is equipped with a L.M.I. safety system, which protects the machine from any structural overload and has been designed taking into consideration overloads that can be reasonably foreseen according to UNI EN 13000.
This system, however, does not exonerate the operator from applying all the accident prevention and safety rules.
Use of the crane according to methods different from those described herein is expressly forbidden.

**MANITEX Valla S.r.l. DOESN'T take any responsibility in case of damage to people or things in the event of use of the crane according to procedures that are not provided for in this manual or not expressly allowed.**

## 1.13 After sales service

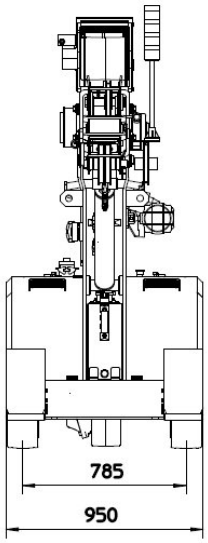
If necessary, you can contact us at :

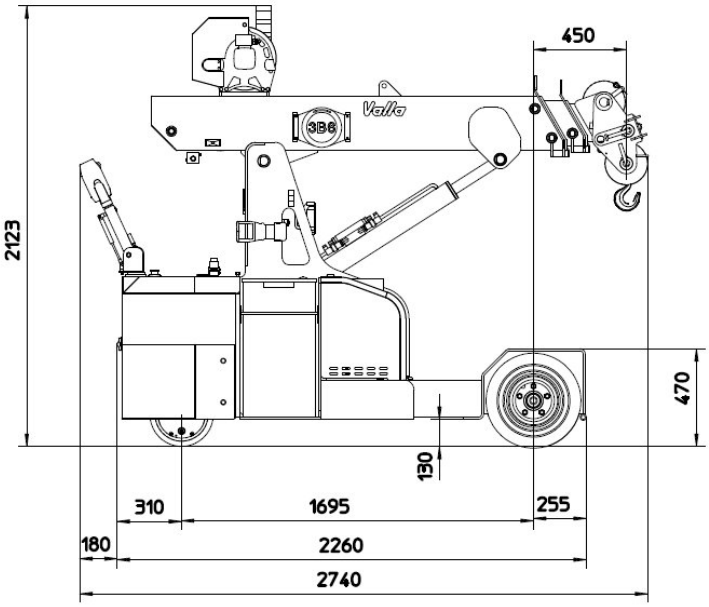
**MANITEX VALLA s.r.l.**
**Sede legale / Seat / Sitz / Siège social / Domicilio social:**
Via Verdi 22, 41018 San Cesario sul Panaro (MO) +39 059 936811
**Sede operativa / Operational headquarters / Productionsstät / Siège d'Exploitation / Centro de operaciones:**
Via Leonardo da Vinci 12, 29016 Cortemaggiore (PC)
**www.valla.com - info@valla.com**

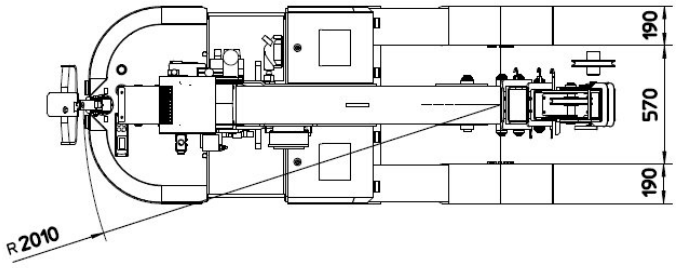
# 2 HOISTING, TRANSPORT AND FIRST SETTING AT WORK OF THE CRANE

## 2.1 Main dimensions and weights

| | |
|---|---|
| MAX. LENGTH WITH THE BOOM COMPLETELY RETRACTED AND STRAIGHT DRIVING UNIT | **2,70 m** |
| MAX. WIDTH WITH STRAIGHT REAR UNIT | **0,95 m** |
| MAX. HEIGHT WITH THE BOOM COMPLETELY DOWN | **1,8 m** |
| TOTAL WEIGHT WITH TRACTION BATTERY (unloaded) | **2.390 kg** |



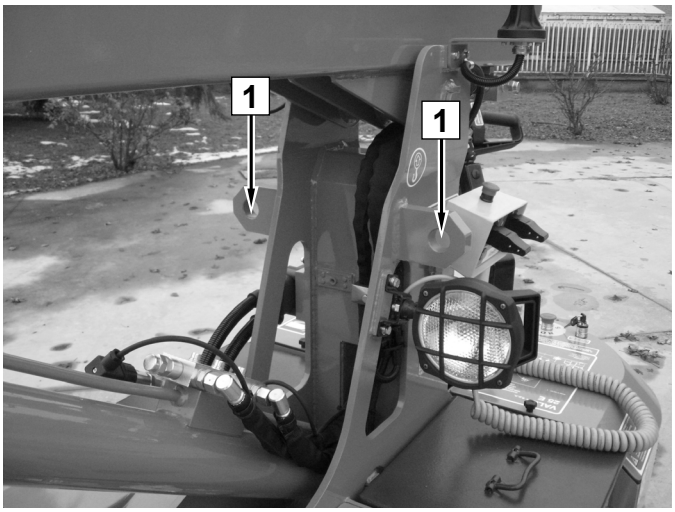



## 2.2 Hooking points for hoisting

Operate as follows when you need to hoist the crane for maintenance and/or transportation purposes:

1. Start the crane and move the boom at rest (lower and retract it completely).
2. Stop the crane by turning the start switch **anti-clockwise**.
3. Disconnect the battery plug from the electronic adjustment socket.
4. Use a lifting device having a suitable size and capacity, hook to the lifting points (pos.1) located next to the bearing column.
5. By means of a suitable hoisting device (crane, bridge crane, etc.) tie up an equalizing bar with appropriate size and capacity to the lifting points (pos.1); lift the crane as required.




**ATTENTION!**
*Use of equipment and or hoisting devices unsuitable because of type and/or capacity and lack of skill on the part of the operators may cause the crane to fall during loading.*

**ATTENTION!**
*Hoisting the crane with hanging loads is strictly forbidden.*

**ATTENTION!**
*Hoisting and/or handling the crane above people is strictly forbidden.*

**ATTENTION!**
*Maintenance interventions at the bottom of the crane while keeping the crane lifted with the anchoring points is strictly forbidden.*

- *Hoist and handle the crane slowly, by keeping it as near as possible to the ground and avoiding uncontrolled movements.*
- *Don't let the crane hit anything and, if required, hold it back with guide ropes.*
- *Use safety shoes during crane loading.*

*In case of maintenance interventions on the lower part of the crane, put it on supports of suitable dimensions and capacity. Check that the crane and supports are steady and keep the crane fastened to the hoisting system used.*

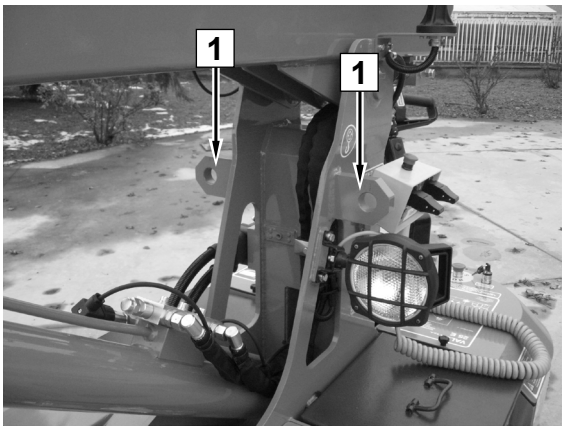
*Put the crane on the ground gently and pay the utmost attention in order not to damage the crane mechanical parts.*

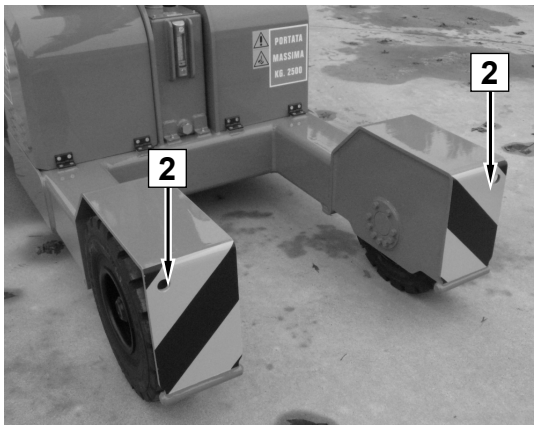
**ATTENTION!**
*Handling and transportation of the crane, whether they are packaged or not, must be carried out by skilled personnel (fork lift truck drivers, crane operators or other trained operators).*

## 2.3 Fastening points for transportation

Operate as follows when you need to transport the crane:

1. Hoist the crane as described in paragraph ***2.2***.
2. Put the crane on a transport vehicle of suitable size and capacity.
3. Fasten the crane onto the transport vehicle transport at points indicated at pos.1 and pos.2




**ATTENTION!**
*Fastening points (pos.2) are to be used* ***only and exclusively*** *for fixing during the transportation of the crane.*

**ATTENTION!**
*Hoisting the crane using the points at pos.2, dedicated to transportation, is strictly forbidden.*

## 2.4 First setting at work

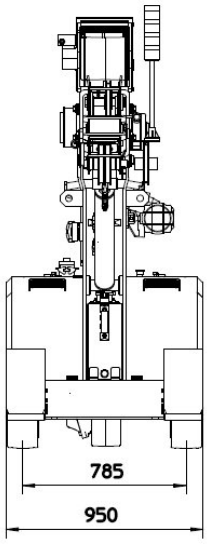
After the crane has been delivered, follow the procedure below before setting the machine at work:

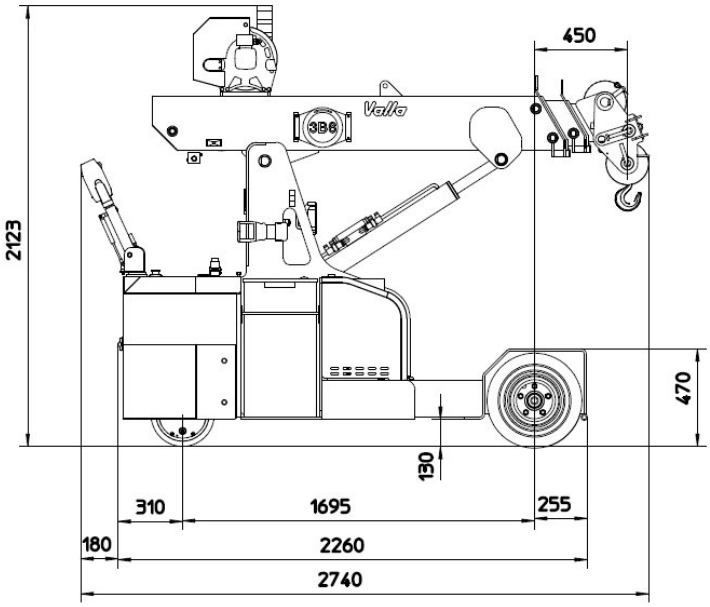
- Check the crane conditions and that the equipment is complete.
- Install the battery if required.
- Check the level of the hydraulic oil, lubricants and electrolyte in the battery.
- Check the battery charge and carry out a complete recharge if required.
- Check that there are no leaks of oil or other fluids.
- Check that the wheel nuts are tight.
- Test the safety systems, the maneuvers and the equipment as described in the following chapters in an area free of people and hindrances.

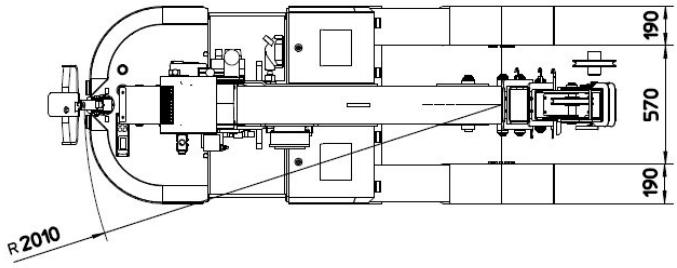
# 3 OVERALL DESCRIPTION

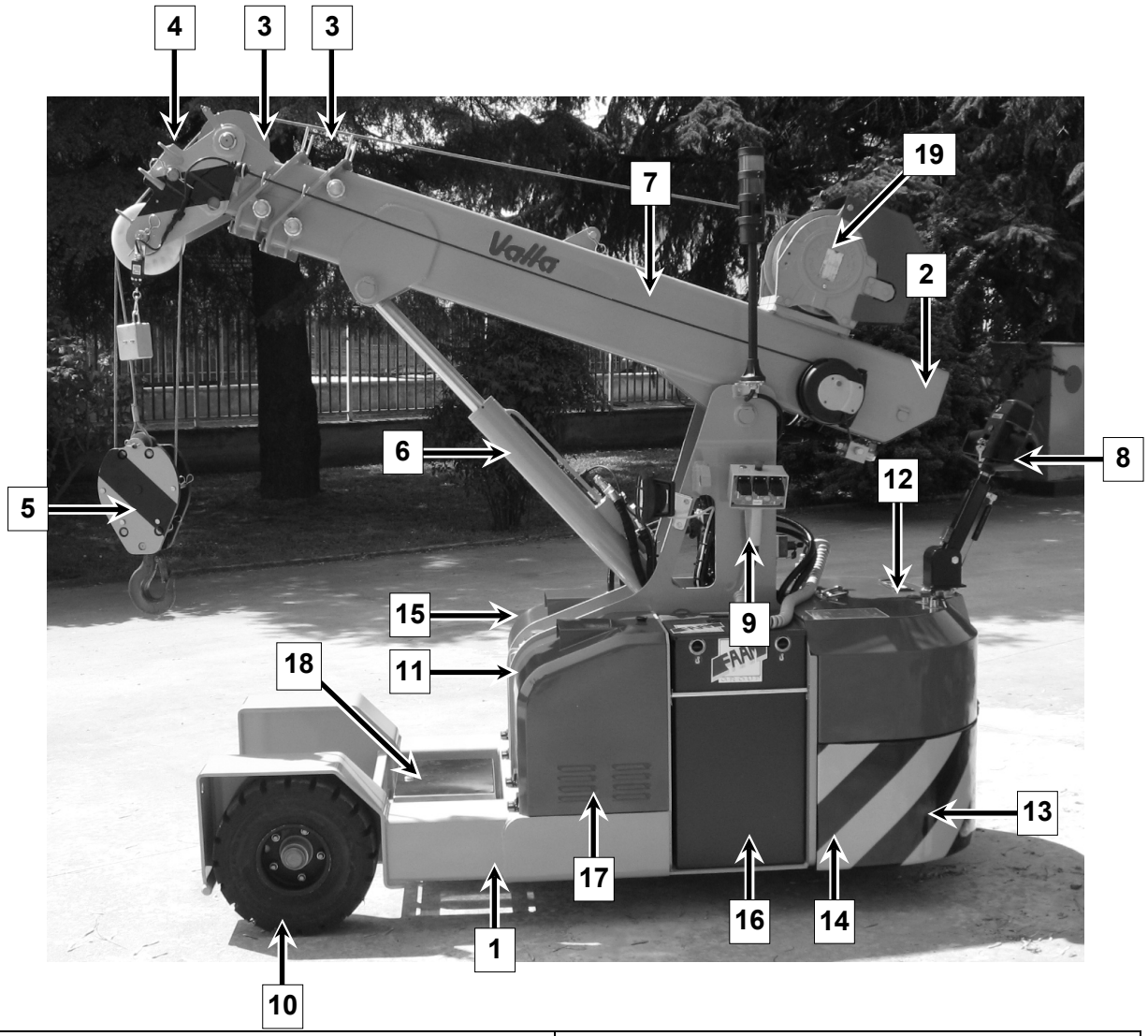
## *3.1 Crane major parts and technical characteristics*

| | |
|---|---|
| MOBILE CRANE MODEL | **25E** |
| SERIAL NUMBER | **9468** |
| MAX. CAPACITY | **2.500 kg** |
| CRANE TOTAL WEIGHT WITH TRACTION BATTERY (unloaded crane) | **2.390 kg** |
| WEIGHT ON FRONT WHEEL AXLE (unloaded crane) | **890 kg** |
| WEIGHT ON REAR WHEEL(S) AXLE (unloaded crane) | **1.500 kg** |
| HEIGHT OF COMPLETELY LIFTED STRAIGHT BOOM | **5,02 m** |
| HEIGHT OF COMPLETELY LIFTED RETRACTED BOOM | **3,13 m** |
| HEIGHT OF HOOK FROM GROUND WITH HORIZONTAL BOOM | **1,3 m** |
| MAX. EXTENSION OF BOOM (MEASURED FROM HINGING PIN) | **4,27m** |
| MIN. EXTENSION OF BOOM (MEASURED FROM HINGING PIN) | **1,98 m** |
| MAX. GRADE OF COMPLETELY LIFTED BOOM | **55°** |
| MAX. SPEED | **1,87 mph** |






| | |
|---|---|
| 1. BEARING FRAME | 11. HYDRAULIC OIL TANK |
| 2. BOOM ADJUSTABLE SECTION | 12. LOAD MOMENT INDICATOR (LMI) |
| 3. BOOM HYDRAULIC TELESCOPING SECTIONS | 13. REAR DRIVING WHEEL |
| 4. SWINGAWAY HOOK-HOLDER HEAD | 14. REDUCTION GEAR |
| 5. HOOK | 15. ELECTRONIC ADJUSTMENT |
| 6. LIFTING CYLINDER | 16. TRACTION BATTERY |
| 7. TELESCOPING CYLINDERS INSIDE THE BOOM | 17. ELECTROPUMP |
| 8. STEERING BAR | 18. BATTERY CHARGER |
| 9. HYDRAULIC DISTRIBUTOR CONTROL LEVERS | 19. WINCH |
| 10.FRONT IDLE WHEELS | |

**MOTOR:**
electric AC, 48V – 3kW – type 173x120 – 1000 RPM.

**STEERING MOTOR:**
electric AC, 48V – 700W – type 110x80 – 2300 RPM.

**OPERATION:**
AC2 + AC2 48V – 450A electronic adjustment (see attached manual).

**STEERING CONTROL:**
EPS AC WG 48-80V 50A electronic adjustment (see attached manual).

**ELECTROPUMP CONTROL:**
MHYRIO FLASH 48V electronic adjustment (see attached manual).

**BATTERY:**
2 (two) - 24V – 200Ah, 195 kg each.

**TRANSMISSION:**
reduction gear in oil bath (1:17.8 overall reduction).

**DRIVING:**
hand controlled with control head and steering bar

**BRAKE:**
electromagnetic on driving shaft, controlled by the electronic adjustment; also working as a parking brake. Electronic braking.

**WHEELS:**
Front idle and bearing: 2 (two) 18x7x8” super-elastic rings;
rear driving and steering: 1 (one) 260x95 mm vulkollan ring.

**BOOM:**
3 sections with hydraulic extension of middle section and hook-holder section.

**CRANE HYDRAULIC CIRCUIT:**
Approx. 5.28 gallon oil tank. 48V - 5kW - 2000 RPM electropump with 4 $cm^3$/rev. gear pump delivery. Double-acting 3-element distributor to control the boom extension cylinder, boom lifting cylinder and the hydraulic winch, max. pressure valve set to 2631 PSI (18 MPa), single cut-off valve, equilibrium slide valve, double cut-off valve, overcenter valve. 60µ filter on oil return flow.

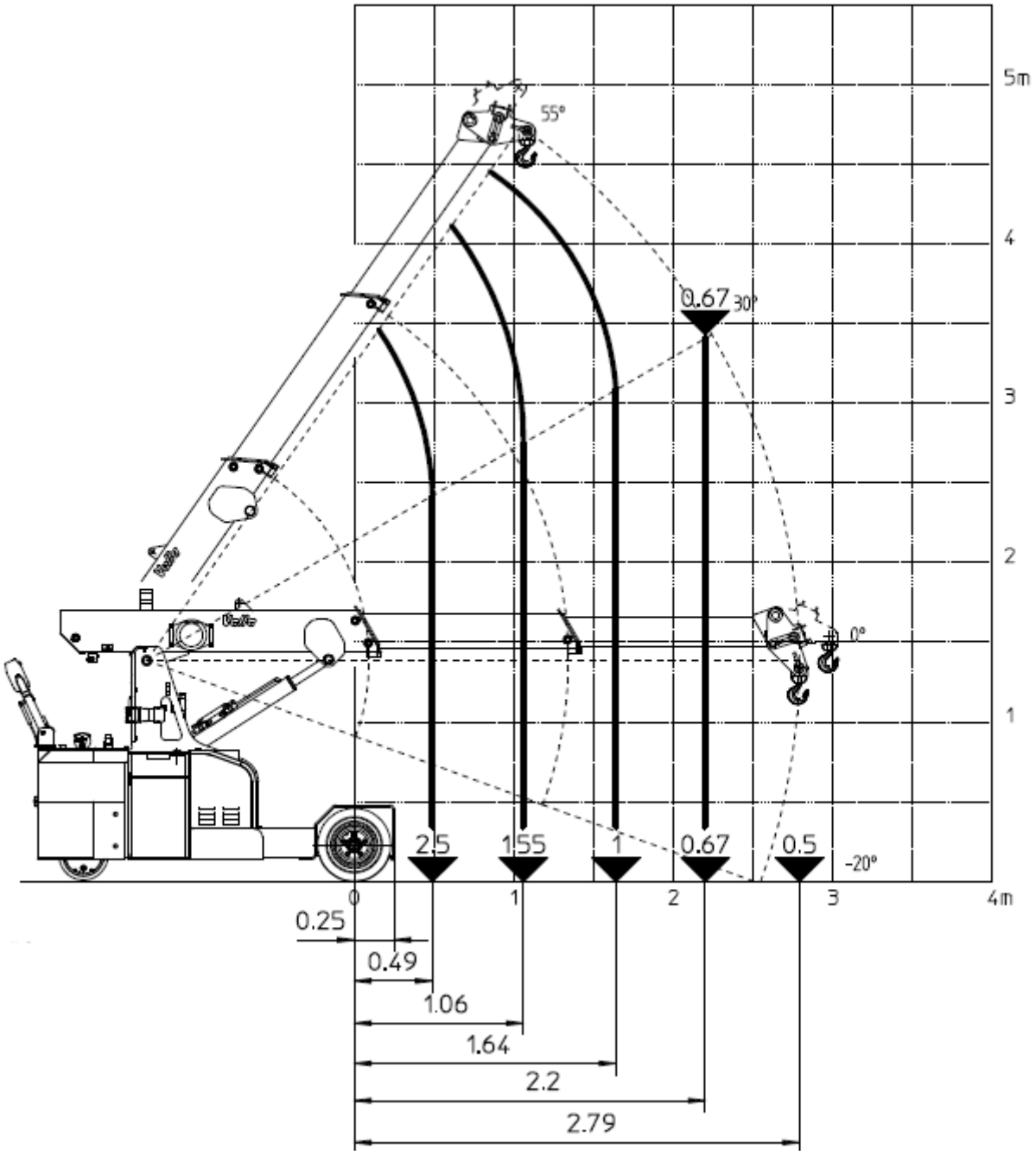
**BOOM EXTENSION CYLINDER:**
2 (two) double-acting cylinders.

**BOOM LIFTING CYLINDER:**
1 (one) single-acting cylinder.**ADMITTED CONDITIONS OF USE:**
Temperature range

- During operation: from 5 °C to 40°C
- When at a stand-still: max 45 °C

Note: to get the battery max. life and best performance we recommend keeping a temperature from 15 °C to 35 °C.

## 3.2 Capacity diagram

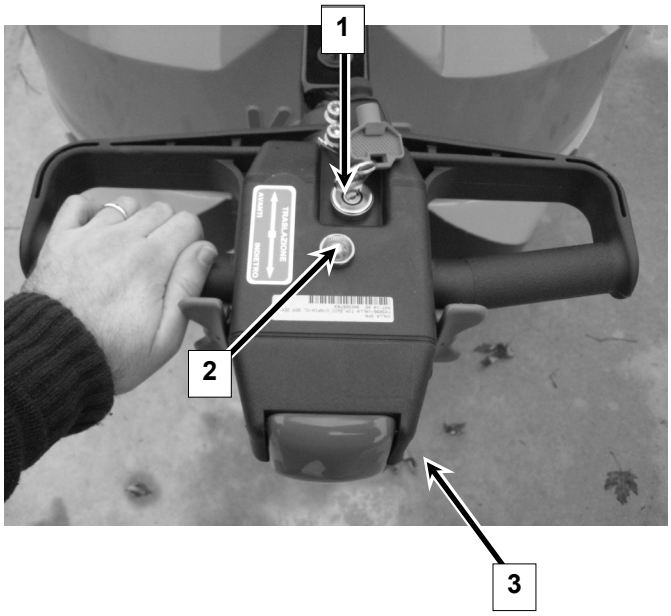


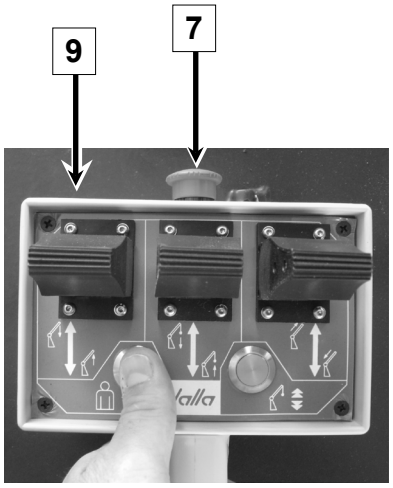

When lifting and transporting loads, always follow the procedure below:

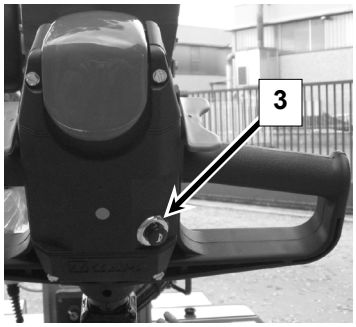
1. lift the load;
2. retract the boom (the load should be as close as possible to the crane deck, which has been designed to support the load);
3. lower the load (it should be as close as possible to ground level) and move (without rotation).

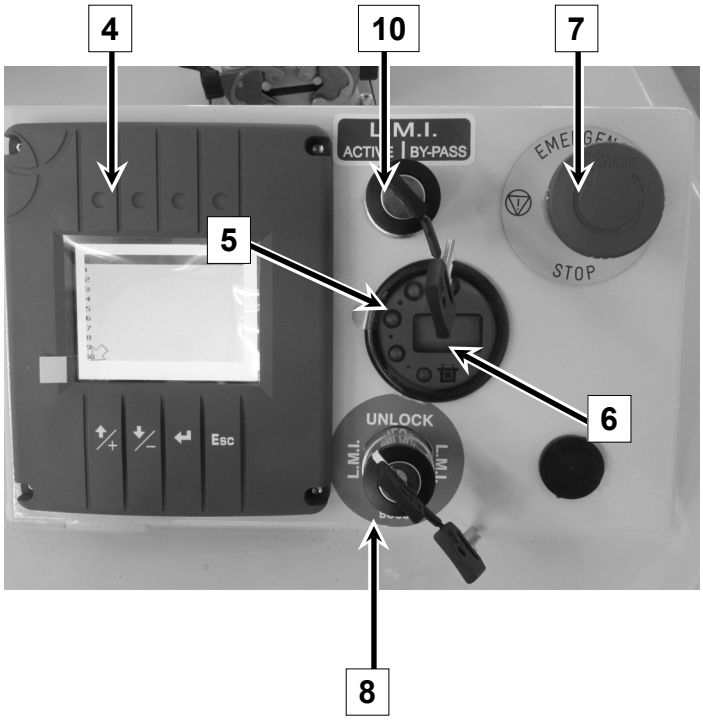
# 4 INSTRUCTIONS FOR USE

## *4.1 Control instruments*



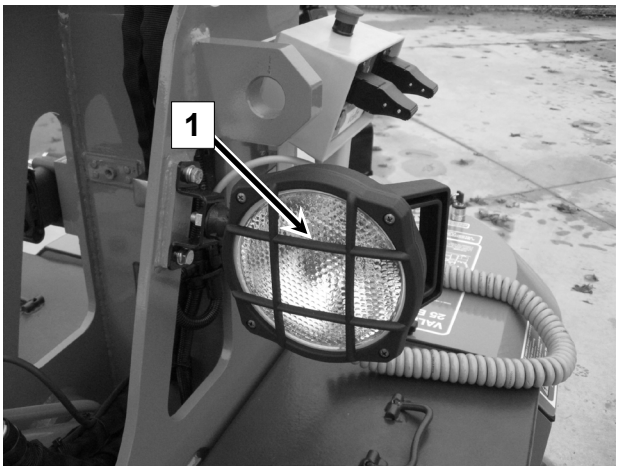



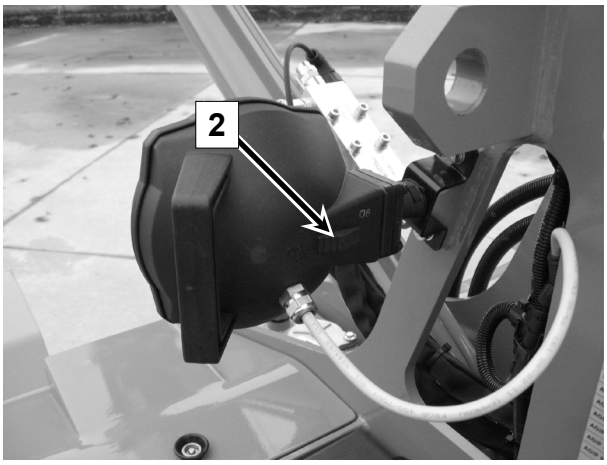




1. Start key switch.
2. Green light (on).
3. Horn push-button.
4. Control display of Load Moment Indicator (L.M.I.).
5. Battery charge indicator.
6. Hour meter.
7. Emergency push-button.
8. Boost capacity key.
9. Boom movements control
10. Exclusion L.M.I..

## 4.2 Work light



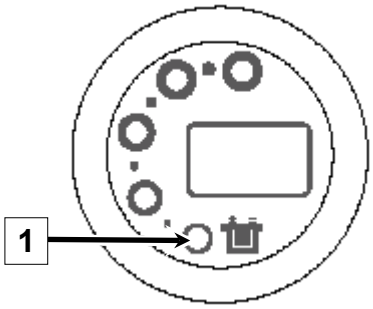




1. Work light.
2. Switch on dash-board.

If lighting is not sufficient, turn on the work light using the appropriate switch (pos. 2).
Use the grip placed to the rear of the light (pos. 1) to direct the work light as required.

## 4.3 Safety device against excessive discharge of traction battery

When battery charge is insufficient to guarantee the appropriate and safe operation of the crane (when the battery charge is about 20% or all the four (4) green led battery indicators are off), the red led (pos.1) will turn on and a safety device will be engaged to slow down the crane propulsion and warn you that the battery needs to be recharged immediately.




**ATTENTION!**
*Don't operate the crane when the battery is flat.*

The battery level indicator also has some other essential functions as described below:

**HOUR METER**

In the middle of the indicator there is an alphameric liquid crystal display showing the number of working hours.

**OTHER INFORMATION**

Operators must be aware of the significance of following symbols:

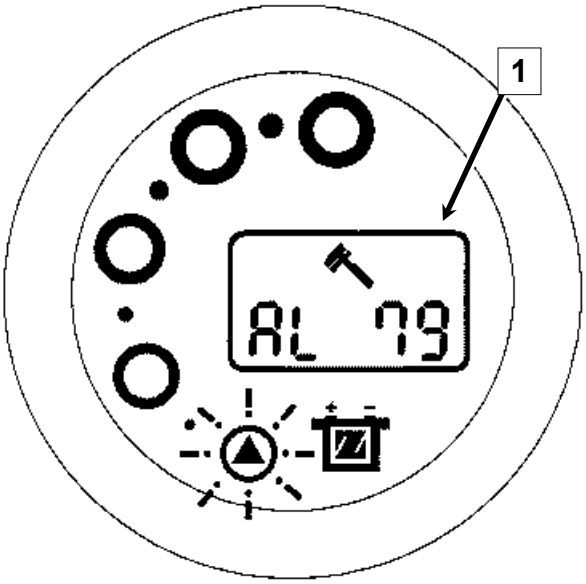
Turtle: it indicates that the "slow" operation mode is on i.e. maximum speed and reduced acceleration.

Wrench: it indicates an alarm status, which is also identified by the relative code. This information is extremely useful for the after sales service as it helps the operator to identify the machine malfunctions (troubleshooting) and makes the problem solving easier.

Hour-glass: when blinking it shows that the hour meter is working.

## 4.4 Electronic adjustment control check

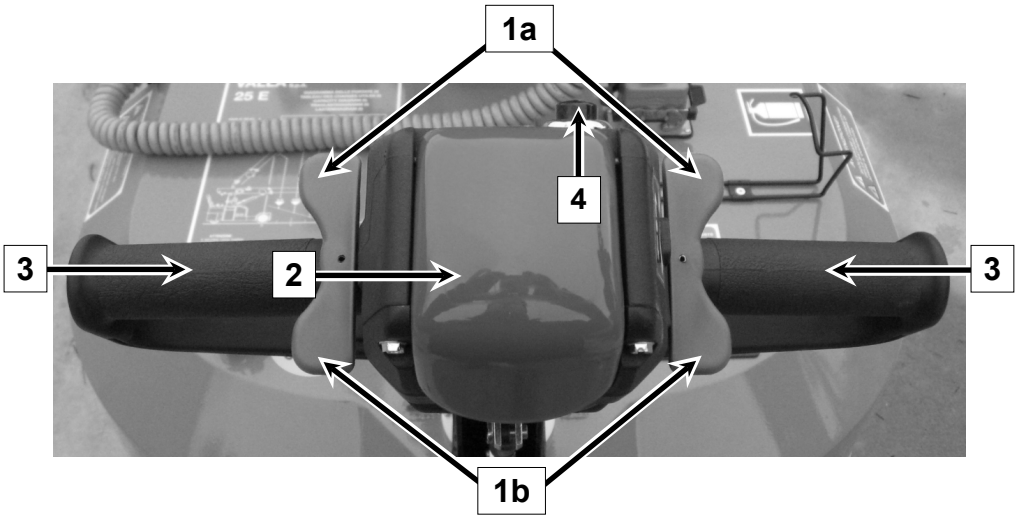
The MDI battery level indicator provides information about the electronic adjustment alarm by displaying the relative alarm code.
In case of alarm, the red led flashes to attract the operator's attention and the wrench symbol with the alarm identification code are displayed.

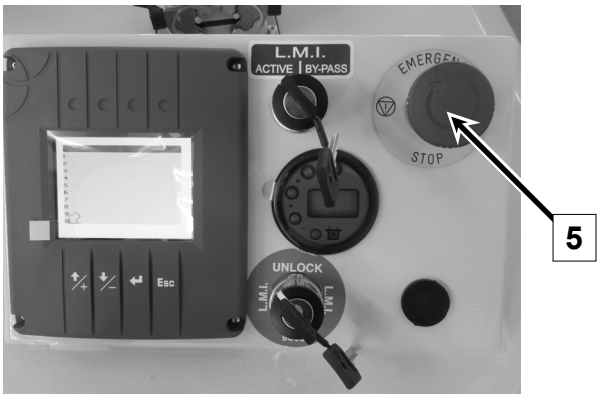



Thanks to the alarm reference ("AL" followed by a number - pos. 1) and after consulting the table below, the operator can solve the problem (if the malfunction is not too serious). He just needs to read the paragraph dedicated to the alarms in the manual about the electronic adjustment (enclosed).
If the alarm has signaled a serious malfunction, the operator can provide the after sales assistance with some useful information to save time and money.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| AL 00 | NONE | AL 26 | RIGHT VMN LOW | AL 52 | PUMP I=O EVER | AL 78 | VACC NOT OK |
| AL 01 | CHOPPER RUNNING | AL 27 | RIGHT VMN HIGH | AL 53 | STBY I HIGH | AL 79 | INCORRECT STARTER |
| AL 02 | NO COMMUNICATION | AL 28 | PUMP VMN LOW | AL 54 | LEFT STBY HIGH | AL 80 | FORW + BACK |
| AL 03 | UNKNOWN CHOPPER | AL 29 | PUMP VMN HIGH | AL 55 | RGT STBY I HIGH | AL 81 | BAD STEER 0 SET |
| AL 04 | CONSOLE EEPROM | AL 30 | VMN LOW | AL 56 | PUMP STBY I HIGH | AL 82 | ENCODER ERROR |
| AL 05 | SERIAL ERROR 2 | AL 31 | VMN HIGH | AL 57 | HIGH FIELD CURR | AL 83 | BAD ENCODER SIGN |
| AL 06 | SERIAL ERROR 1 | AL 32 | VMN NOT OK | AL 58 | NO FIELD CURR | AL 84 | STEER SENSOR KO |
| AL 07 | CHOPPER NOT CONFIG | AL 33 | NO FULL COND | AL 59 | HIGH BRAKING I | AL 85 | STEER HAZARD |
| AL 08 | WATCHDOG | AL 34 | RGT NO FULL COND | AL 60 | CAPACITOR CHARGE | AL 86 | PEDAL WIRE KO |
| AL 09 | FIELD FF FAILURE | AL 35 | LFT NO FULL COND | AL 61 | HIGH TEMPERATURE | AL 87 | PEDAL FAILURE |
| AL 10 | EEPROM DATA KO | AL 36 | PU NO FULL COND | AL 62 | TH PROTECTION | AL 88 | TRACTION BRUSHES |
| AL 11 | EEPROM PAR KO | AL 37 | CONTACTOR CLOSED | AL 63 | THERMIC LEVEL 2 | AL 89 | PUMP BRUSHES |
| AL 12 | EEPROM CONF KO | AL 38 | CONTACTOR OPEN | AL 64 | PUMP TEMPERATURE | AL 90 | DRIVER 1 KO |
| AL 13 | EEPROM KO | AL 39 | BRAKE DON'T CLOSED | AL 65 | MOTOR TEMPERATURE | AL 91 | DRIVER 2 KO |
| AL 14 | EEPROM OFFLINE | AL 40 | BRAKE CONT OPEN | AL 66 | BATTERY LOW | AL 92 | DRIVER 1 SC KO |
| AL 15 | LOGIC FAILURE 5 | AL 41 | DIR CONT CLOSED | AL 67 | BATTERY LEVEL 2 | AL 93 | DRIVER 2 SC KO |
| AL 16 | LOGIC FAILURE 4 | AL 42 | DIR CONT OPEN | AL 68 | BATTERY LEVEL 1 | AL 94 | INPUT ERROR 6 |
| AL 17 | LOGIC FAILURE 3 | AL 43 | RIGHT CONT CLOSED | AL 69 | CURRENT SENS KO | AL 95 | INPUT ERROR 5 |
| AL 18 | LOGIC FAILURE 2 | AL 44 | RIGHT CONT OPEN | AL 70 | POWER FAILURE 4 | AL 96 | INVERSION |
| AL 19 | LOGIC FAILURE 1 | AL 45 | LEFT CONT CLOSED | AL 71 | POWER FAILURE 3 | AL 97 | POSITION HANDLE |
| AL 20 | FORW VMN LOW | AL 46 | LEFT CONT OPEN | AL 72 | POWER FAILURE 2 | AL 98 | INPUT ERROR 2 |
| AL 21 | FORW VMN HIGH | AL 47 | MAIN CONT CLOSED | AL 73 | POWER FAILURE 1 | AL 99 | INPUT ERROR 1 |
| AL 22 | BACK VMN LOW | AL 48 | MAIN CONT OPEN | AL 74 | DRIVER SHORTED | | |
| AL 23 | BACK VMN HIGH | AL 49 | I=O EVER | AL 75 | CONTACTOR DRIVER | | |
| AL 24 | LEFT VMN LOW | AL 50 | LEFT I=O EVER | AL 76 | COIL SHORTED | | |
| AL 25 | LEFT VMN HIGH | AL 51 | RIGHT I=O EVER | AL 77 | COIL INTERRUPTED | | |

## 4.5 Driving and controls




1. **CONTROL THROTTLES:** they change travel speed according to the pressure exercised on them (the more you press, the higher the speed). When the throttles are released, the electromagnetic brake is engaged. Select the travel direction:

   **a:** forward

   **b:** reverse; during reverse travel an alarm sound goes out.

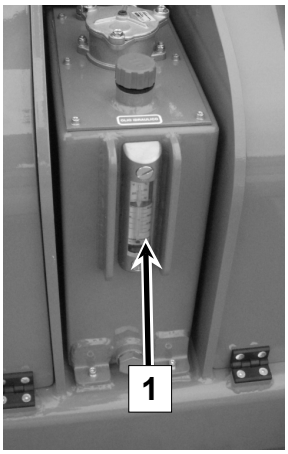
2. **SAFETY PUSH-BUTTON:** it is engaged and changes the travel direction if the operator is hit by the control head during reverse.
3. **STEERING BAR GRIPS:** they are used to move the crane in the direction required; to steer turn the control head rightwards or leftwards.
4. **HORN.**
5. **EMERGENCY PUSH-BUTTON:** press to switch the crane off. Turn the push-button clockwise to reset the system.

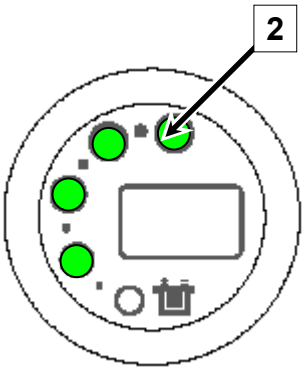
## 4.6 How to drive the crane

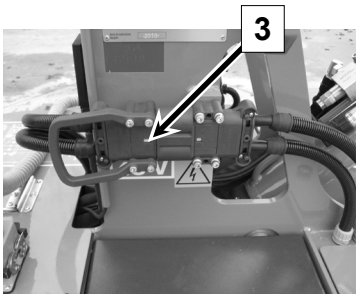
### 4.6.1 Before starting the crane.

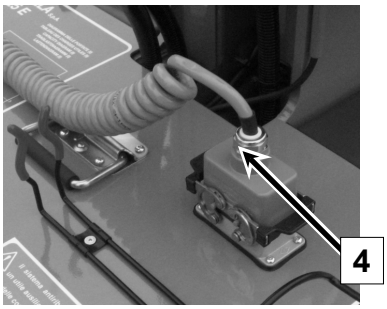
Before starting the crane motor, make sure that:

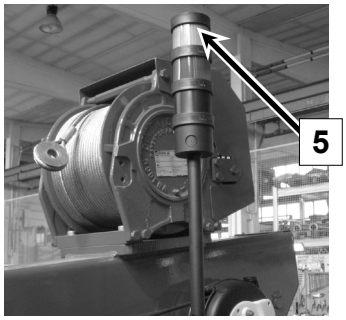
- The level of hydraulic oil in the tank (Position 1) is maximized with the boom at rest (all down and retracted).
- The battery plug is in the main power socket (Position 3).
- The remote control plug (Position 4) is in the appropriate socket.
- The battery is charged. Check that the green LEDs on the MDI display (Position 2) are sufficiently on to guarantee operation.




### 4.6.2 Driving the crane.

*Check that the emergency push-buttons on the control dashboard and on remote control are not pressed. If they are, turn them clockwise to unlock them.*

1. Start the crane by completely turning the start key clockwise. The yellow strobe light (Position 5) on the signal tower will start flashing.
2. Grasp the steering bar grips.
3. Press the control throttles **gently** and **slowly** and move them in the direction required until you achieve your travel speed.
4. Bring the throttles **gently** and **slowly** to neutral position to brake.
5. Only in the event of an emergency braking, release the control throttles quickly. The machine will stop abruptly.
6. Turn the start key anti-clockwise to turn the crane off.

Before driving the crane, the operator must:

- Inspect the route carefully to know which areas have obstacles or where traveling may be difficult;
- **Check that the ground, floor or floor slab has sufficient bearing capacity to support the crane and load weight at the same time;**
- Warn the people on the route directly or using the horn when traveling, so that anyone near has time to move to a safe area.

*When the load is hooked, always move it towards the ground at minimum speed and with the load leaning against the frame (on front mud guards).*

*When a load is hooked, always brake smoothly to avoid uncontrolled movements that may be dangerous.*

*Leave the driving seat only after turning the crane off by turning the start key counter-clockwise.*

*If the crane is not used for a long time, remove the battery plug from the electronic adjustment socket.*

**ATTENTION!**
*Risk of squashing. Heavy loads weigh on the crane wheels and safety shoes may be ineffective.* ***Always keep at safety distance from the wheels and don't try to brake using your feet.***

***ATTENTION!***
*Never brake by suddenly reversing. This maneuver may damage the reduction gear and the propelling motor.*

### 4.6.3 Driving behavior

The operator must always drive at a speed that is suitable for the local conditions. Speed should be reduced on bends, when approaching narrowing in roads and if visibility is poor.
In particular, the visibility in the travel direction should always be good. In the event of bulky loads which may reduce the visibility, the crane must go in reverse; as an alternative another operator should walk before the crane to signal any hindrances.
The operator should always keep a safety distance between the moving crane and any people who may be there.

### 4.6.4 Driving the crane in reverse.

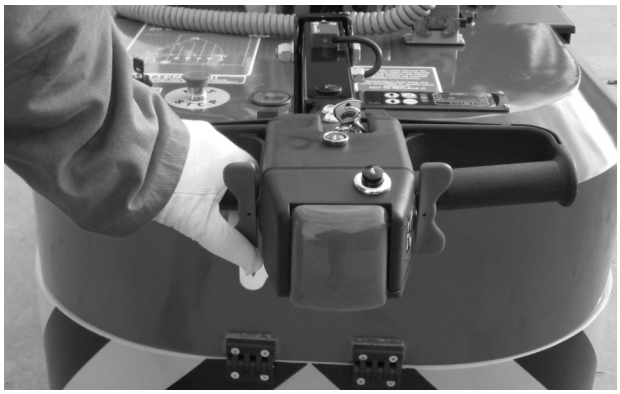
**ATTENTION! RISK OF CRUSHING**
*Driving the crane in reverse is dangerous because some hindrances on the way may not be seen when walking backwards.*

When the operator needs to travel long distances in reverse, he must change his posture. In particular he mustn't keep both his hands on the steering bar because in that position he faces the machine and must walk backwards with the machine behind him.
When walking backwards the operator won't have a good view of the ground and he may:
- stumble over a low hindrance and lose his balance;
- find himself between the moving crane and a high hindrance.

If the operator loses his balance, he may run the risk of falling and losing control of the crane that is moving towards him, with the subsequent risk of getting squashed.
If the operator finds himself between the crane and a high hindrance he may get squashed. Remember that the crane is equipped with a safety system to automatically reverse movement if the operator bumps into the steering bar. Therefore the only real risk is if the machine is partially broken down. However, the operator should not put himself in situations of danger.

The correct position of the operator when driving in reverse is keeping to the left or to the right of the machine (depending if the operator is right-handed or left-handed) at steering-bar height, facing the traveling direction, with his arm straight holding one of the two grips (see fig.1 ) and his thumb on the throttle to control the crane speed.

Fig. 1

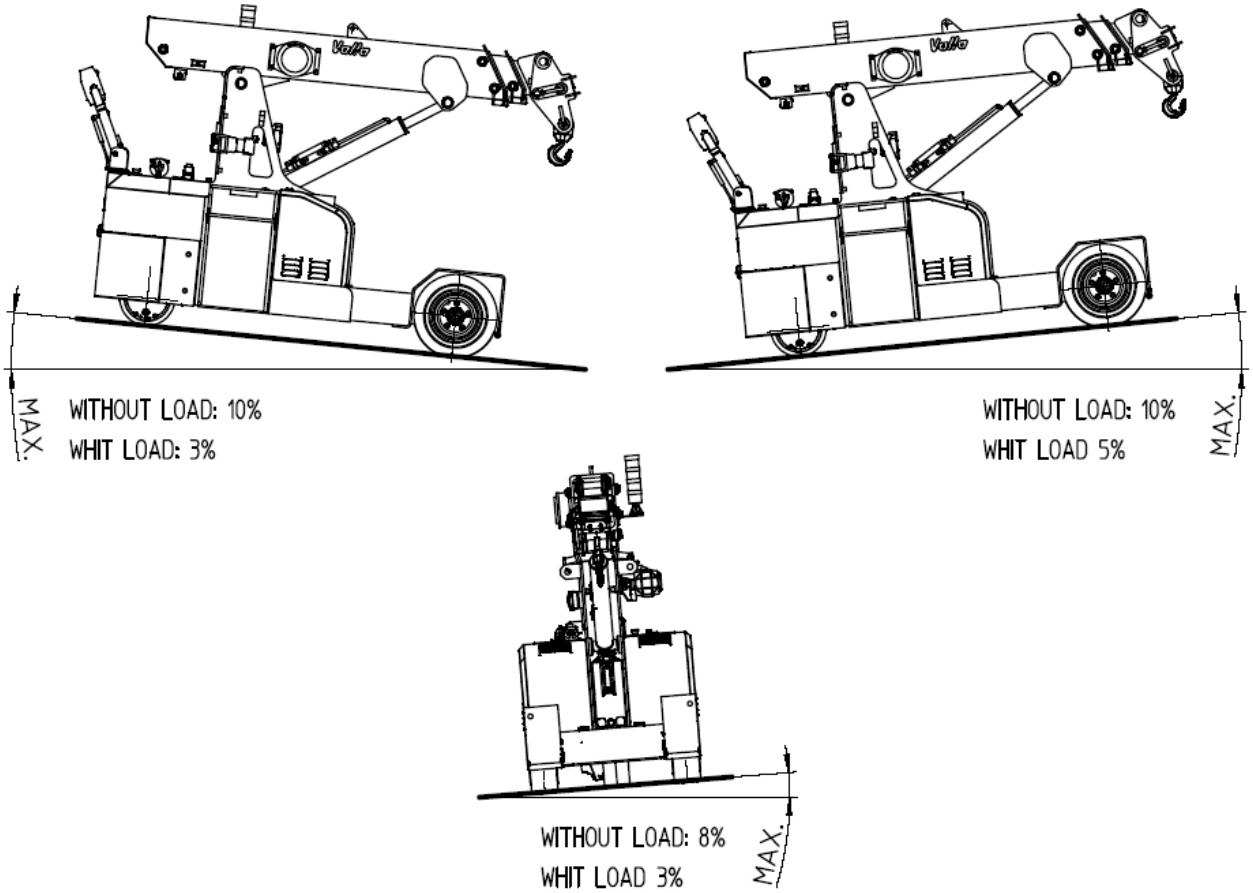


Keep both hands on the steering bar to position/park the machine in narrow areas where movements are restricted within a one-meter range at low speed.

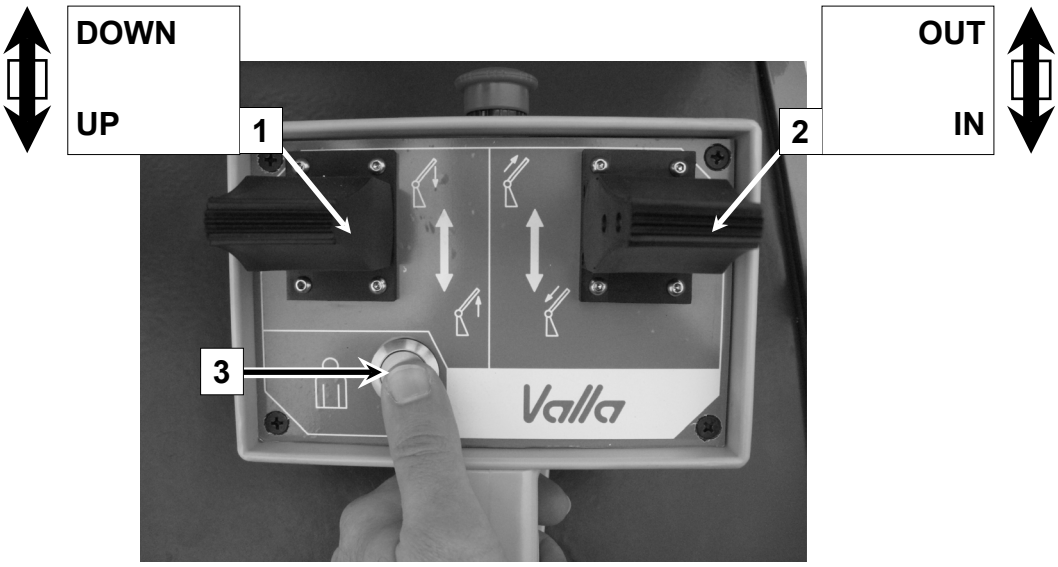
*Unskilled operators should get familiar with the driving system practising the different maneuvers many times in free areas.*

### 4.6.5 Operating on ramps

The crane has been designed to be operated on flat ground. However, it is possible to travel short distances uphill (10 sec.) or downhill on ground with a good holding by going up the ramp in the direction of maximum slope and following the instructions below.
Nevertheless going in reverse, stopping and/or parking on sloping grounds and traveling in a different direction from that of maximum slope is forbidden.



## 4.7 How to move the crane boom




1. JOYSTICK FOR BOOM LIFTING AND LOWERING
2. JOYSTICK FOR BOOM EXTENSION AND WITHDRAWAL
3. DEAD-MAN (MOMENTARY SWITCH)

- Keep button -3- pressed and operate lever -1- upwards (“UP”) to lift the boom; keep button -3- pressed and operate lever -1- downwards (“DOWN”) to lower the boom.
- Keep button -3- pressed and operate lever -2- outwards (“OUT”) to extend the boom; keep button -3- pressed and operate lever -2- inwards (“IN”) to withdraw the boom.

*Before operating the crane boom, read the general description of the L.M.I. system.*

***ATTENTION!***
***Don’t operate with a Load Moment Indicator setting non complying with the crane working setting. The operator is responsible for crane setting.***

***ATTENTION!***
*Never operate the control joysticks at the same time. .*

***ATTENTION!***
*Never travel while operating the control joysticks at the same time.*

*When lifting loads, refer to the load capacity diagram affixed on the machine and described in this manual.*

**ATTENTION!**
*Always assess the weight of the load to be lifted and the distance from the barycenter.*

*Always use the boom longest section to lift a load.*

**ATTENTION!**
Always assess the weight of the load to be lifted and the distance from the barycenter.

*Always use the boom longest section to lift a load.*

## 4.8 How to Lift and Move the Load

When lifting and moving loads, follow the procedure below:

1. **Lift the load;**
2. **Retract the boom** (the load must be as close as possible to the crane platform. The platform has been designed to support the load);
3. **Lower the load** (as close as possible to the ground level) and **move** it.

## 4.9 How to Change the Hook-Holder Head Inclination

***To change the inclination (from position in Figure 1 to that in Figure 2) operate as follows:***

1. Withdraw the pin and the corresponding safety pin (Position 1).
2. Rotate the head by hand as indicated in Figure 1 until the hole (Position 2) coincides with the boom hole.
3. Keeping the head in position, insert the pin (Position 1) and the corresponding safety pin again.

***To change the inclination (from position in Figure 2 to that in Figure 1) operate as follows:***

1. Withdraw the pin and the corresponding safety pin (Position 1).
2. Rotate the head by hand as indicated in Figure 2 until the hole (Position 3) coincides with the boom hole
3. Insert the pin (Position 1) and the corresponding safety pin again.

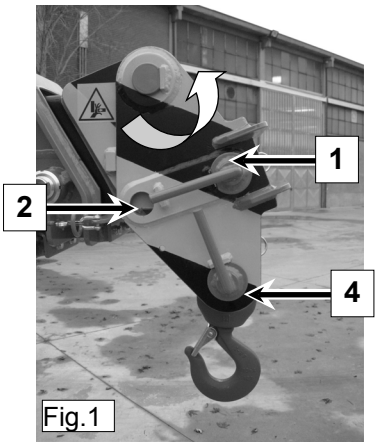


Fig.1

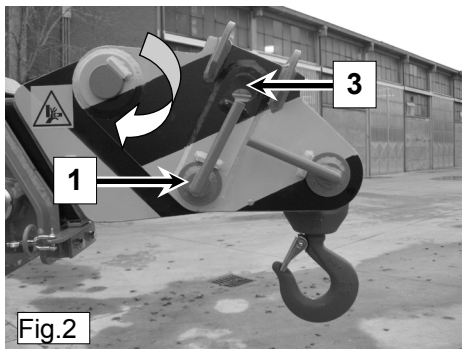


Fig.2

**ATTENTION!**
*Change the head inclination by hand paying the utmost attention not to squash your hands.*

## *4.10 How to lift and move the load*

When lifting and moving loads, follow the procedure below:

4. **lift the load;**
5. **retract the boom** (the load must be as close as possible to the crane platform. The platform has been designed to support the load);
6. **lower the load** (as close as possible to the ground level) and **move** it.

## 4.11 How to Recharge the Battery

*Before charger is put in service it is essential to adjust the charger to the correct battery capacity (as described in the battery handbook enclosed).*

*Before charging the crane's battery, consult the manufacturer's instructions for the battery and battery-charger (handbook enclosed in this manual).*

1. Move the crane near the battery charger - see instructions supplied by the manufacturers in the handbook enclosed.
2. Stop the vehicle.
3. Keep the boom still (lower and retract it fully). In case of load hooked, place the load on the ground.
4. Switch the crane off by turning the ignition key counterclockwise.
5. Connect the battery charger input to electric socket.
6. Remove the traction battery plug (Position 1) from the main power plug (Position 2) as indicated in Figure 1, and insert the plug in the battery charger output plug (Position 3) (as indicated in Figure 2).

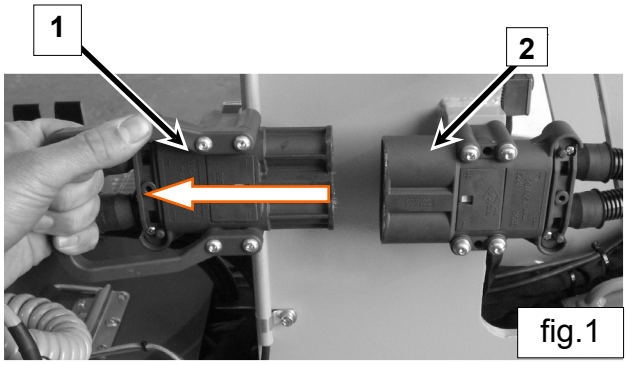


fig.1

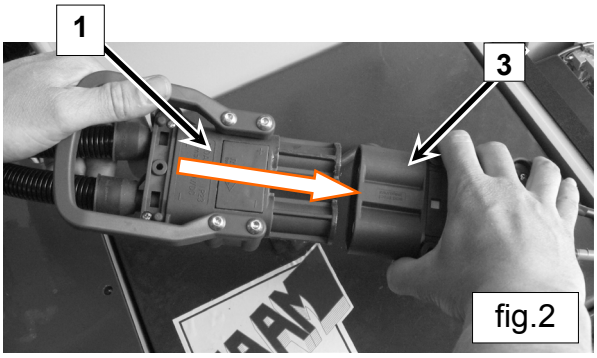


fig.2

7. When the charge is complete, remove the traction battery plug (Position 1) from battery charger plug (as indicated in Figure 3), and insert the plug in the main power plug (as indicated in Figure 4).

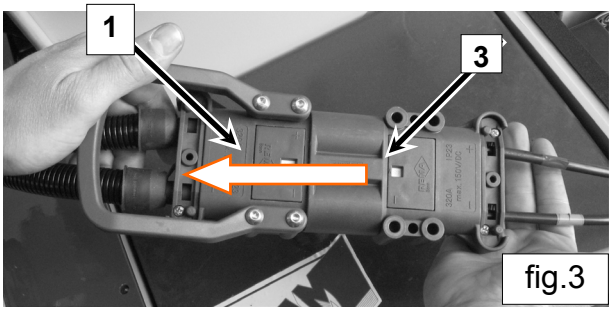


fig.3

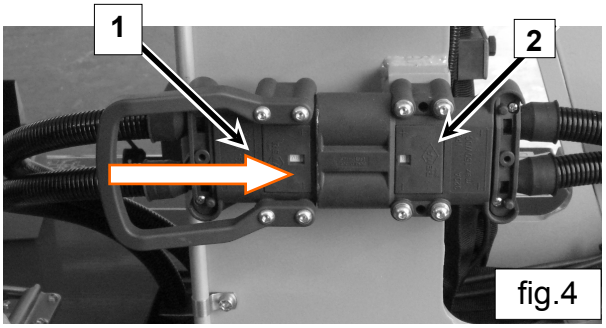


fig.4

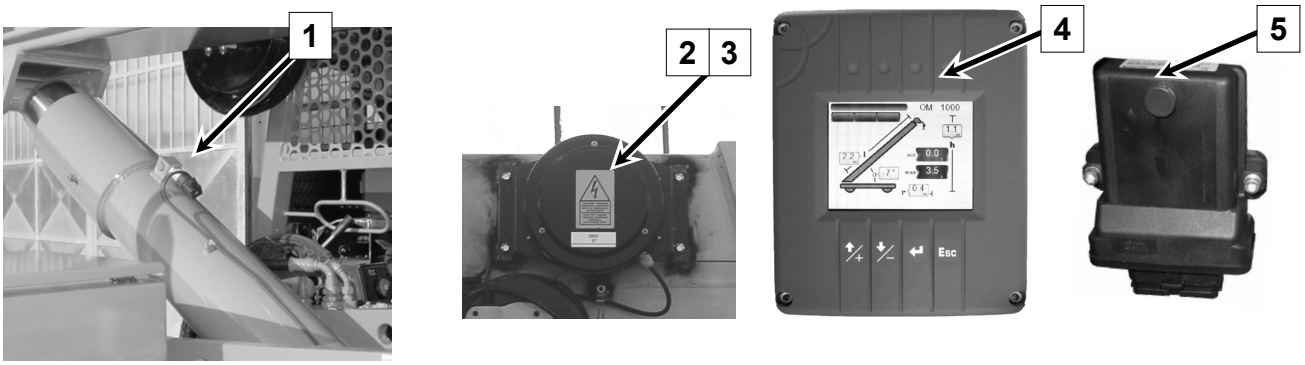
8. Remove the battery charger input from the electric line socket.

# 5 LOAD MOMENT INDICATOR SYSTEM (L.M.I.)

## 5.1 General description of the system

The crane is fitted with a ***LOAD MOMENT INDICATOR SYSTEM*** - ***L.M.I.,*** a helpful instrument for the operator to assess the operating conditions when lifting a load. The system consists of:

- Two pressure transducers on boom lift cylinder (Position 1);
- Angle (Position 2) and boom stroke (Position 3) meters;
- Data display and programming keypad (Position 4).
- Main unit (pos.5)




The load moment indicator is an electronic device designed to help the operator use the machine safely by warning him with visual and acoustic signals when approaching a potentially dangerous situation. **However, this device is an aid and cannot replace the operator's own skill, knowledge and judgment in using the machine properly.** In any case the operator is responsible for the safety of the machine operations and for complying with applicable safety regulations.
The operator must be able to assess if the data provided by the indicator are correct and consistent with reality.

## 5.2 Functional description of the limiter

The 3B6 limiters have been designed to perform the safety functions of the crane.
The limiter automatically compares the lifted load to the maximum load indicated in the chart and provides the operator with the data required to operate safely.
The major parameters provided are:

- lifted load
- admissible load
- tilting percentage
- lights (green, yellow, red)
- operating range
- operating mode
- equipment in use
- angle
- boom section length
- other particular conditions.

The system determines the lifted load by calculating it according to the data measured by the pressure, angle and extraction sensors. The lifted load is continuously compared to the maximum liftable load indicated in the table with the capacity data.

## 5.3 Capacities

The value achieved by the load applied is displayed:

a) by means of a bar indicator at the top of the screen (pos. 1) whose length varies in proportion to the load applied (from 0 to 100% of admissible load).
b) by means of three (3) light indicators.

- **GREEN LIGHT** (pos. 2) – “safety”: there are no sound signals, which means that the lifted load is less than 90% of the maximum load.
- **YELLOW LIGHT** (pos. 3) – “pre-alarm”: the buzzer emits an intermittent sound (pre-alarm situation). The signal comes out when the lifted load is greater than 90% and lower than 100% of the maximum load.
- **RED LIGHT** (pos. 4) – “alarm”: the buzzer emits a continuous sound; this is a blockage, that is the lifted load is greater than the admissible weight. In this case all maneuvers are locked:
  ⇒ Boom lifting and lowering
  ⇒ Boom extension
  ⇒ Hoisting of the block (if any)

Boom retraction and winch block descent (if any) are not locked by the limiter because they allow the operator to recover the crane safe conditions.

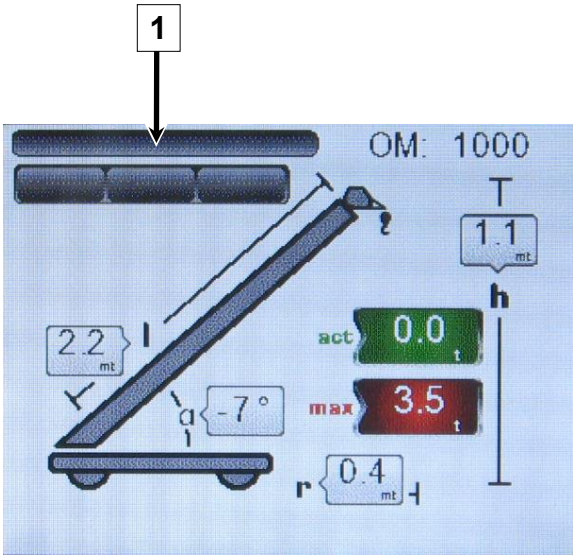



fig.1


fig.2

## 5.4 How to set the load moment indicator according to machine working set up.

Before starting work or whenever the work order is to be changed, select the correct program in the LMI system.
Follow the procedure below:

a. if the machine is not running, start it and wait until the system has completed the self-diagnosis (Valla logo shown). Then the operative mode selection menu appears

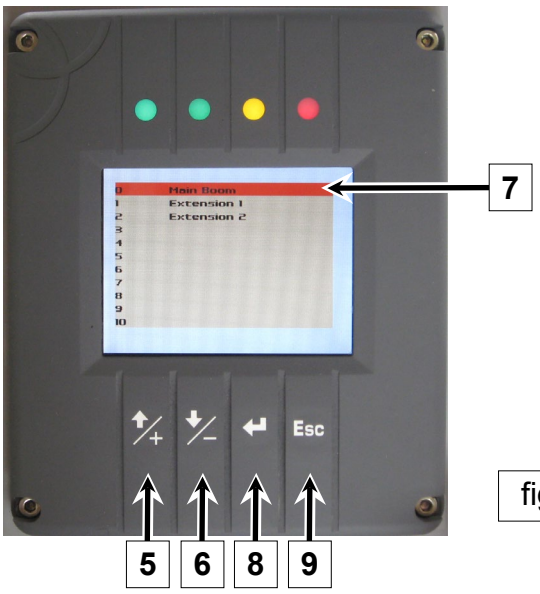



fig.3

b. press button **+** (pos. 5) or button **-** (pos. 6) until the selection bar (pos. 7) shows the desired operative mode:

⇒ select the ***HOOK*** operating mode to start working with the main hook

For all operative mode, the system automatically recognize the power group unit is extract/retract

***NOTE: For machine with only one operative mode. When the self-diagnosis is completed, the system will charge the only program stored automatically.***

***ATTENTION!***
*Don't move the crane boom when the L.M.I. system is undergoing the self-diagnosis phase.*

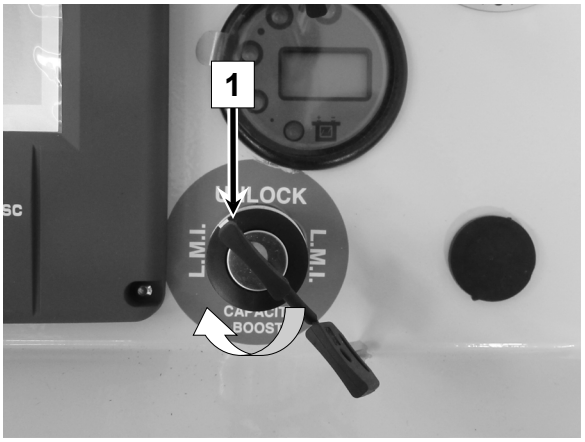
***ATTENTION!***
*Don't work with a LMI system setting that doesn't comply with the crane working order. Setting is the operator's responsibility.*

*The L.M.I. system cut-out key must be given to the Prevention and Protection Service Manager (RSPP); ask him if you need it.*

## 5.5 Temporary increase load capacity (power up)

Moving loads close to the maximum limit's of curve may happen that the LMI system engage (causes by load swinging, uneven ground, etc.. etc..) and stop the boom's movements to salve this problem there is the possibility to increase the load capacity of 10% over a period of 30 seconds to get this increase act on the control key (item 1) by turning it clockwise and execute the maneuvers required, after 30 seconds the machine returns to its rated capacity.

**ATTENTION!**
*The load capacity of the machine is only that one shown ed on the capacity diagram, The temporary capacity power up is only a tool designed to avoid* ***occasionally*** *bad working conditions. Reason why it must be used with extreme caution*

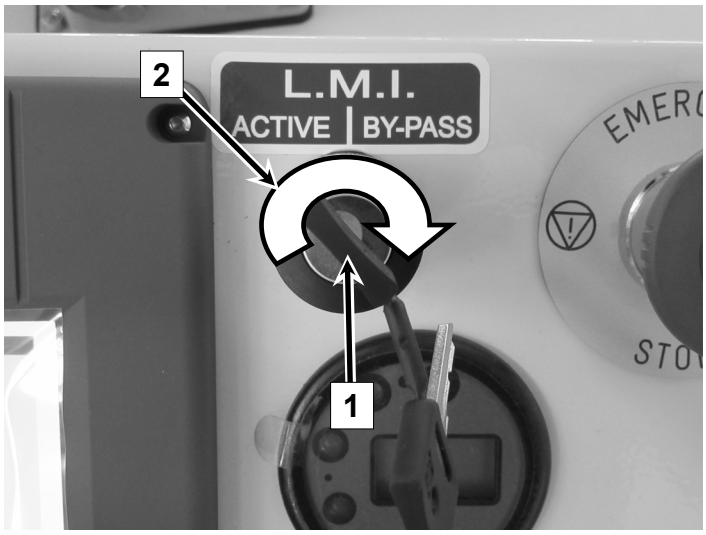


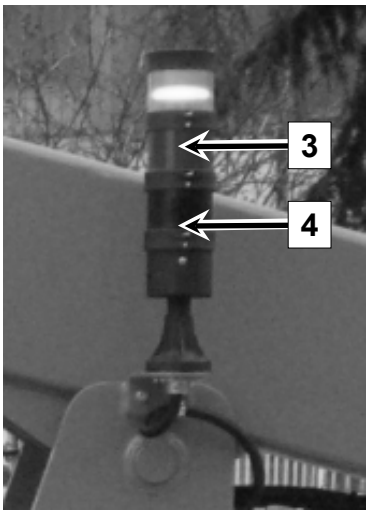
## 5.6 Anti-overturning system cut-out control

***When exceeding the loading limit*** and the L.M.I. system is working (visual/sound alarm active and boom movements locked), it is possible to reset crane operation for a short time **only to reset the crane into safe working conditions.**

**Follow the procedure below to unlock the system:**

- Identify the crane movement(s) that can put the crane in safe working conditions as soon as possible and without risks.
- Inform any person in the crane working area that the machine is going to be operated in potentially dangerous conditions.
- When you are ready, insert the control key (Position 1) on the unit (Position 2) and turn it clockwise. The system will immediately reset the boom movements, start a visual alarm (red light Position 3), a sound alarm (Position 4) and start timing the working time up to a T1 pre-set limit.
- Carry out the above described maneuver as quick as possible within T1 time.
- When safe conditions are reset, the visual and sound alarm will stop (Positions 3 and 4) and the alarm signal displayed by LMI system will stop, too.
- After T1 time has passed, the system will start timing a blackout time T2, during which it will be impossible to cut the LMI out. Even if you try to put the transponder key on the reading unit again, the operation will be ignored.
- Only after T2 time has passed, can you repeat the cut-out maneuver.




***Pre-set times:***

T1 : 300 sec

**ATTENTION!**
*The maneuver to reset safe working conditions must be carried out exclusively within T1 time. If the L.M.I. system is still in alarm when T1 time has passed, it will be impossible to reset the machine operation until the next T2 time has passed.*

**ATTENTION!**
*CUTTING OUT THE L.M.I. SYSTEM IS A VERY DANGEROUS PROCEDURE because it allows the operator to work in conditions of overload and with a reduced or null margin of stability.*
*Cutting out the L.M.I. system should be an EXCEPTIONAL procedure to be used only to prevent the crane remaining locked in conditions of overload.*
*NEVER CUT OUT THE L.M.I. SYSTEM TO IMPROVE THE MACHINE PERFORMANCE.*
*Cutting out the L.M.I. system is an operation to be carried out only by authorized personnel, who must previously inform the Prevention and Protection Service Manager* (RSPP).

**WARNING!**
*The control key must be kept away from the machine. The key can be read by the relative unit even if the LMI system is not in alarm and consequently the timing of T1 and T2 would start and this may result in the unavailability of the LMI system cut-out control when this control is required.*

**WARNING!**
***The Load Moment Indicator is meant to be used as an auxiliary device to help the operator assess the working conditions. It can't replace the operator, who is responsible for working in safe conditions with loads whose weights don't exceed the values indicated in the capacity diagram.***

**SHOULD YOU NOTICE ANY MALFUNCTION IN THE LOAD MOMENT INDICATOR**

***CONTACT VALLA AFTER-SALES SERVICE***

**AND DON'T OPERATE THE CRANE.**

## 5.7 Alarm codes and actions to take

| Alarm code | Description | Operation |
|---|---|---|
| 101 | Eprom memory error | • Stop the machine and then start it again.<br>If the alarm persists, please, contact Technical Assistance. |
| 102 | Flash memory error | • Stop the machine and then start it again.<br>If the alarm persists, please, contact Technical Assistance. |
| 103 | Program error | • Stop the machine and then start it again.<br>If the alarm persists, please, contact Technical Assistance. |
| 104 | Not used | |
| 105 | Memory error | • Stop the machine and then start it again.<br>If the alarm persists, please, contact Technical Assistance. |
| 106-109 | Not used | |
| 110 | Length transducer (A) open circuit | Check that there isn't an open circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the length sensor integrity. |
| 111 | Length transducer (A) short circuit | Check that there isn't a short circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the length sensor integrity. |
| 112 | Length transducer (A) reading lower than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>• Check that the measuring rope wasn't cut or disconnected.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the length sensor integrity. |
| 113 | Length transducer (A) reading higher than maximum value | |
| 114 | Length transducer (B) open circuit | Check that there isn't an open circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the length sensor integrity. |
| 115 | Length transducer (B) short circuit | Check that there isn't a short circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the length sensor integrity. |
| 116 | Length transducer (B) reading lower than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>• Check that the measuring rope wasn't cut or disconnected.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the length sensor integrity. |
| 117 | Length transducer (B) reading higher than maximum value | |
| 118-145 | Not used | |
| 146 | Angle transducer (A) reading lower than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the angle sensor integrity. |
| 147 | Angle transducer (A) reading higher than maximum value | |

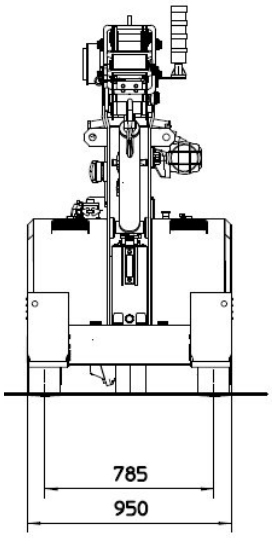
| | | |
|---|---|---|
| 148 | Angle transducer (A) reading lower than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the angle sensor integrity. |
| 149 | Angle transducer (A) reading higher than maximum value | |
| 150-154 | Not used | |
| 155 | Length reading alarm | • If the alarm persists, please contact Technical Assistance. |
| 156-163 | Not used | |
| 164 | Pressure transducer low chamber (A) open circuit | Check that there isn't an open circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 165 | Pressure transducer low chamber (A) short circuit | Check that there isn't a short circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 166 | Pressure transducer low chamber (A) reading lower than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the pressure sensor integrity. |
| 167 | Pressure transducer low chamber (A) reading higher than maximum value | |
| 168 | Pressure transducer low chamber (B) open circuit | Check that there isn't an open circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 169 | Pressure transducer low chamber (B) short circuit | Check that there isn't a short circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 170 | Pressure transducer low chamber (B) reading lower than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the pressure sensor integrity. |
| 171 | Pressure transducer low chamber (B) reading higher than maximum value | |
| 172 | Not used | |
| 173 | Pressure transducer high chamber (A) open circuit | Check that there isn't an open circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 174 | Pressure transducer high chamber (A) short circuit | Check that there isn't a short circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 175 | Pressure transducer high chamber (A) reading higher than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the pressure sensor integrity. |
| 176 | Pressure transducer high chamber (A) reading higher than maximum value | |

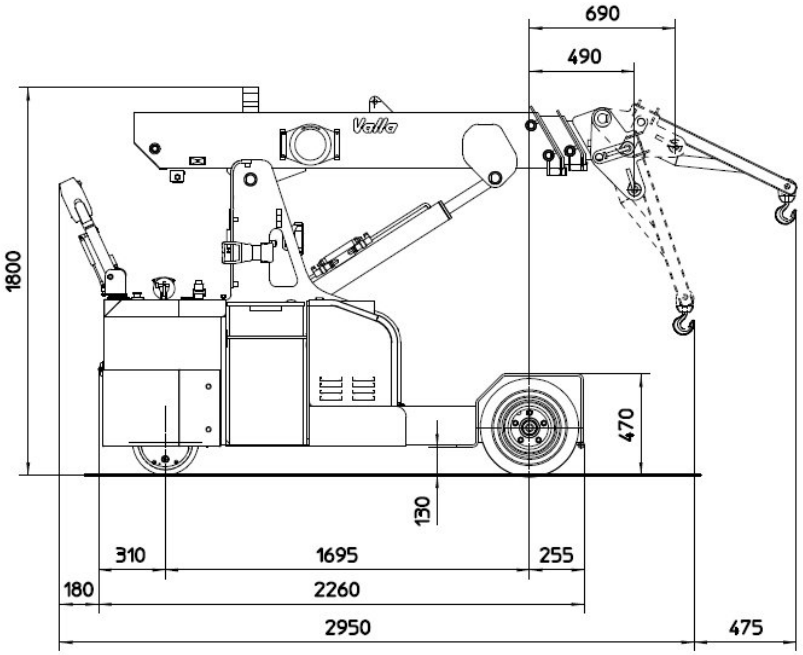
| | | |
|---|---|---|
| 177 | Pressure transducer high chamber (B) open circuit | Check that there isn't an open circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 178 | Pressure transducer high chamber (B) short circuit | Check that there isn't a short circuit in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance:<br>• Verify the pressure sensor integrity. |
| 179 | Pressure transducer high chamber (B) reading higher than minimum value | • Check that there isn't a damage in the connection cable or in the connectors.<br>If the alarm persists, please contact Technical Assistance to:<br>• Verify the pressure sensor integrity. |
| 180 | Pressure transducer high chamber (B) reading higher than maximum value | |
| 181-199 | Not used | |
| 200 | Pressure tr. low chamber reading error | • If the alarm persists, please contact Technical Assistance. |
| 201 | Pressure tr. high chamber reading error | • If the alarm persists, please contact Technical Assistance. |
| 202-208 | Not used | |
| 209 | Internal error CPU0 | • If the alarm persists, please contact Technical Assistance. |
| 210 | Eprom error CPU0 | • If the alarm persists, please contact Technical Assistance. |
| 211-217 | Not used | |
| 218 | Internal error CPU1 | • If the alarm persists, please contact Technical Assistance. |
| 219 | Eprom error CPU1 | • If the alarm persists, please contact Technical Assistance. |
| 220-226 | Not used | |
| 227 | Timeout alarm CPU0 | • If the alarm persists, please contact Technical Assistance. |
| 228 | Timeout alarm CPU0 | • If the alarm persists, please contact Technical Assistance. |
| 229 | Timeout alarm CPU0 | • If the alarm persists, please contact Technical Assistance. |
| 230 | Timeout alarm CPU1 | • If the alarm persists, please contact Technical Assistance. |
| 231 | Timeout alarm CPU1 | • If the alarm persists, please contact Technical Assistance. |
| 232 | Timeout alarm CPU1 | • If the alarm persists, please contact Technical Assistance. |
| 233-244 | Not used | |
| 245 | Overload 1 alarm | • Maximum load exceeded: reduce load according to the load chart |
| 246 | Overload 2 alarm | • Maximum load exceeded: reduce load according to the load chart |
| 247 | Overload 3 alarm | • Maximum load exceeded: reduce load according to the load chart |
| 248-250 | Not used | |
| 251 | By-pass in cab alarm | • Boost key ON |
| 252 | By-pass out cab alarm | • Exclusion key ON |
| 253-300 | Not used | |
| | | |

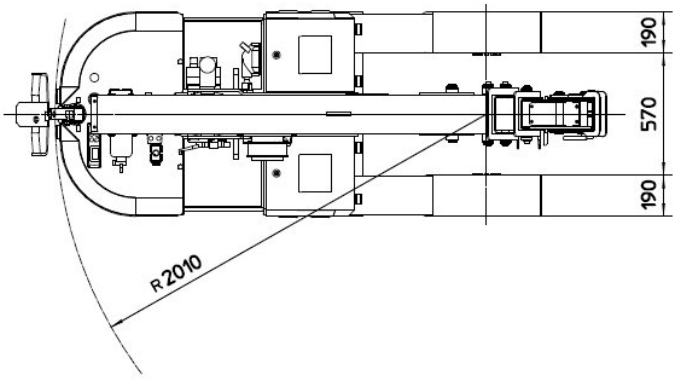
# 6 OPTIONAL EQUIPMENT (JIB) 1T

## *6.1 General description jib*

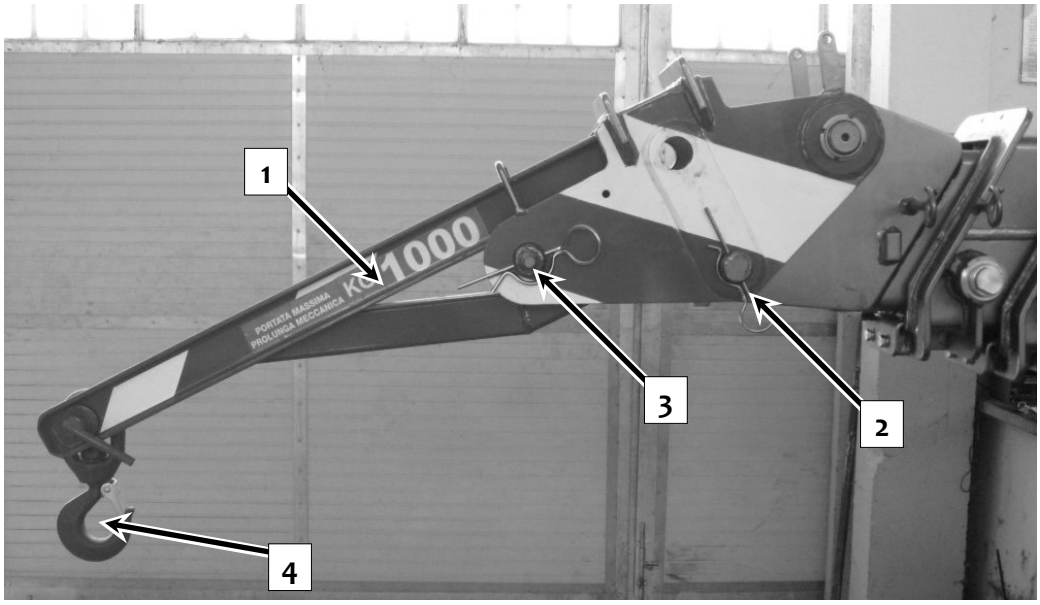
| | |
|---|---|
| VALLA TYPE | **25E** |
| SERIAL NUMBER | **9468** |
| MAX CAPACITY (CRANE + JIB) | **1.000 kg** |
| WEIGHT OF THE JIB | **30 kg** |
| MAX LENGHT CRANE + JIB | **3,42 m** |



## 6.2 Main elements




1. Jib extension
2. Pin for head inclination
3. Pin for jib installing
4. Hook

## 6.3 Safety Measures

***ATTENTION !***
*Never touch objects with the extesion. If so, make sure that the extension sections are not damaged before lifting any load*

***ATTENTION !***
*Never translate and move the hydraulic joistik at the same time*

***ATTENTION !***
*Don't operate with a load moment indicator (L.M.I.) setting non complying with the crane working setting. The operator is responsible for crane setting*

**ATTENTION !**
*Remember to determine the load weight exactly as well as the distance between load barycentre and range reference point.*

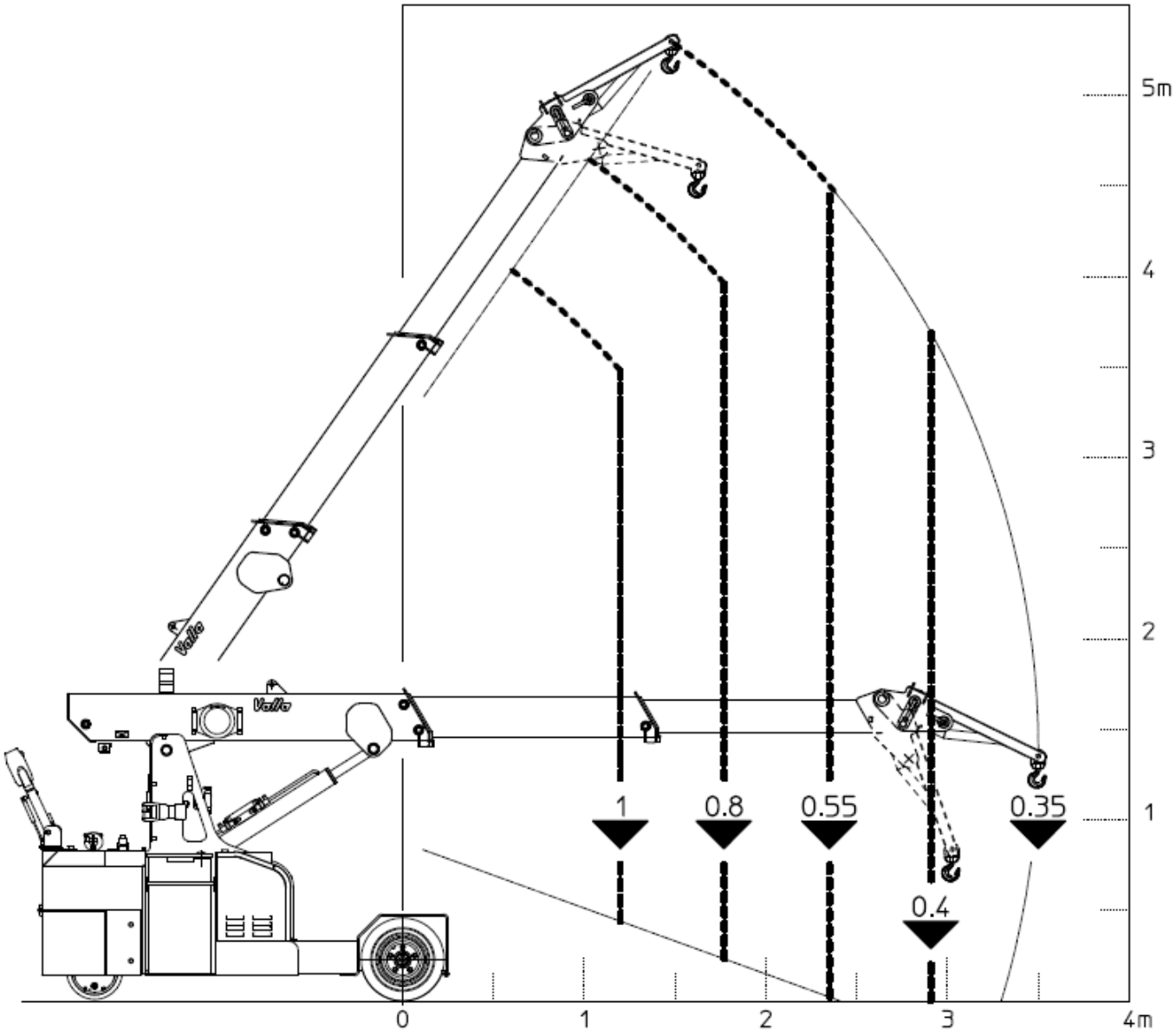
**ATTENTION !**
*Deduct the equipment weight from the capacity values shown in the diagram*

*Refer the capacity diagram for any loading*

*Before operating the crane boom, read general description of the L.M.I. system*

*When lifting loads, refer to the load capacity diagram affixed on the machine and described in this manual.*

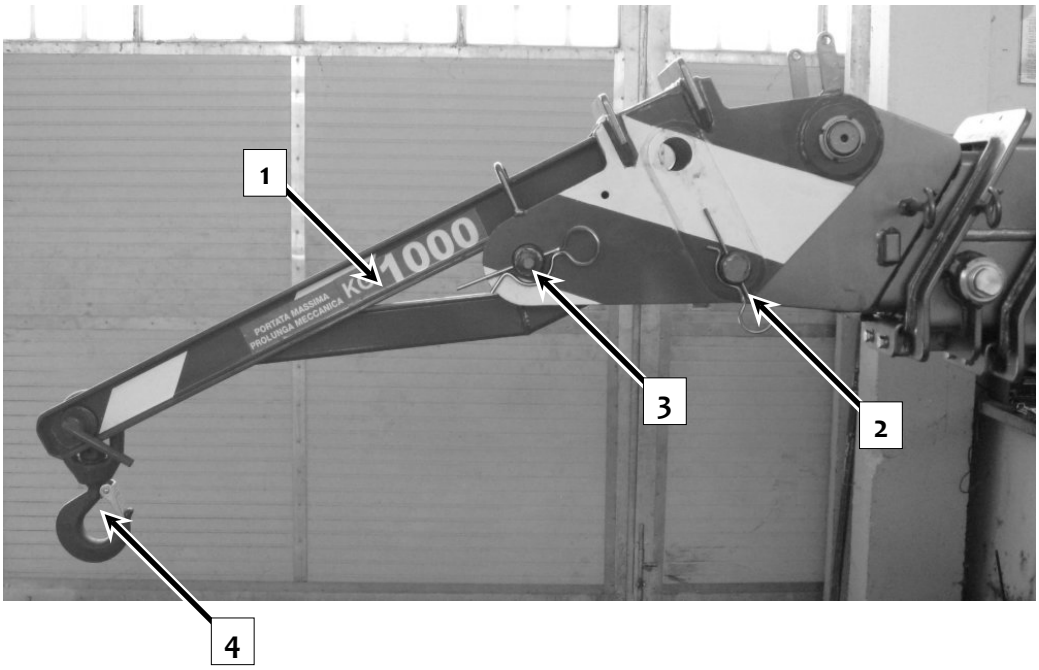
## 6.4 Capacity Diagram




When lifting and transporting loads, always follow the procedure below:

1. lift the load;
2. retract the boom (the load should be as close as possible to the crane deck, which has been designed to support the load);
3. lower the load (it should be as close as possible to ground level) and move (without rotation).

## 6.5 How to install the jib




To install the jib act as follows:

1. Turn ON the crane and select the correct operating mode by L.M.I. display.
2. Put the boom of the machine totally down and in.
3. Turn OFF the crane
4. Remove the main hook from the head of the boom
5. Using suitable lifting equipment lift the jib by lifting point and move it near the boom's head
6. Move the jib untill the lower hole on the extension match the lower hole on the boom's head (pos.3).
7. insert pin and secure with safety pin. (pos 3)

To remove the jib from the head pf the boom follow the previous instruction opposite way.

***ATTENTION!***
*Removing the pin of the boom's hook can have uncontrolled movement for a while, keep a safety distance*

## 6.6 How to change the jib inclination

Due to the fact that the jib is mounted directly on the head of the boom to change the jib's inclination please refer to the paragraph 4.8 of this manual.

### 6.7 How to use the jib

Due to the fact that the jib is mounted on the boom's head it's movements depend on the boom movements, please refer to paragraph 4.7 of this manual.

### 6.8 Maintenance Operations

Every 30 hours of work lubricate the fixing bolts with grease (AGIP GR MU 2).

**ATTENTION!**
*All maintenance instructions for basic crane apply*

## 7 HYDRAULIC ROPE WINCH

### 7.1 General Description

| | |
|---|---|
| VALLA TYPE | **25E** |
| SERIAL NUMBER | **9468** |
| MAX CAPACITY, MACHINE+EQUIPMENT | **2.500 kg** |

### 7.2 Rope Characteristics

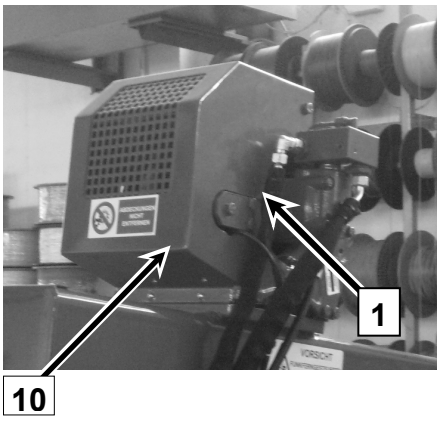
| | |
|---|---|
| CERTIFICATE N. | |
| ROPE TYPE | **AZNNRHD24** |
| LENGHT | **65 m** |
| ROPE DIAMETER | **Ø 8 mm** |
| OUTER WIRES DIAMETER | **Ø 0,52 mm** |
| WEIGHT PER METER | **0,27 kg** |
| CONSTRUCIOTN | **24x7** |
| TYPE OF LAY | **RIGHT LANGS LAY** |
| TENSILE STRENGHT | **2160,00 N/mm2** |
| STRANDS | **NOT COMPACTED** |
| PREFORMED | **YES** |
| STEEL WIRES | **CARBON** |
| PROTECTION OF WIRE ROPE | **GALVANIZED CLASS "B"** |
| MINIMUM BREAKING LOAD | **56 kN; 5,600 daN; 12,566 lb** |

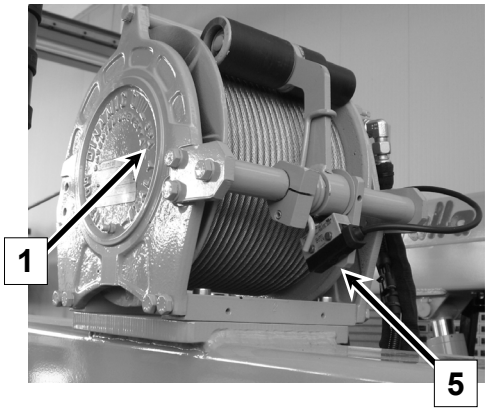
### 7.3 Safety Measures

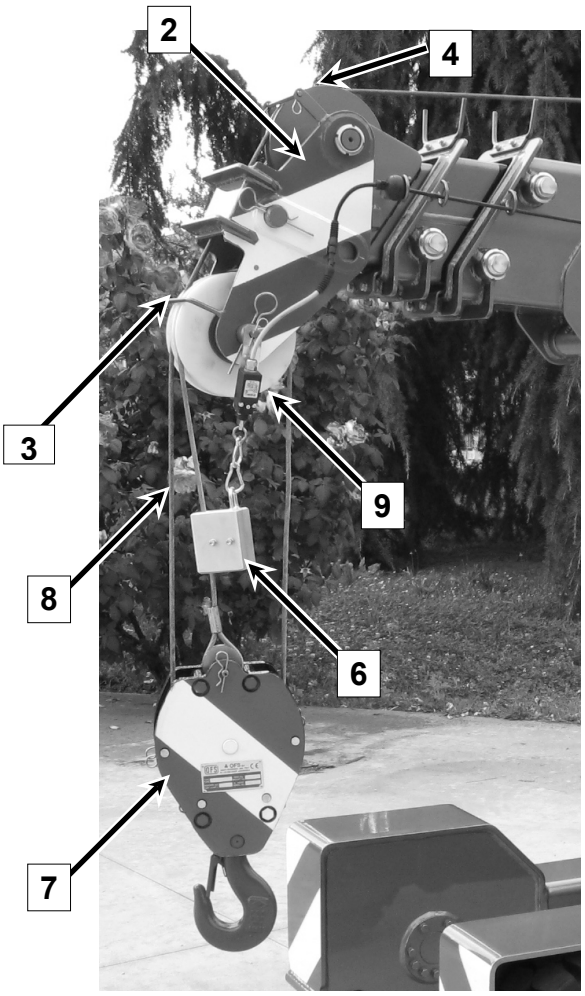
LIFTING PERSONS IS STRICLTLY PROHIBITED

- Check rope regularly (at least once a month): in case it is damaged, rusted, unravelled, knotted or weak change immediately. Wear safety gloves when touching rope.
- Use "pry bar" or similar devices to slide rope onto pulleys or the winch's drum. Always wear safety gloves when sliding rope.
- Do not twist the rope and do not pull the rope to remove a twist (risk of rope damage)

## 7.4 Main Elements

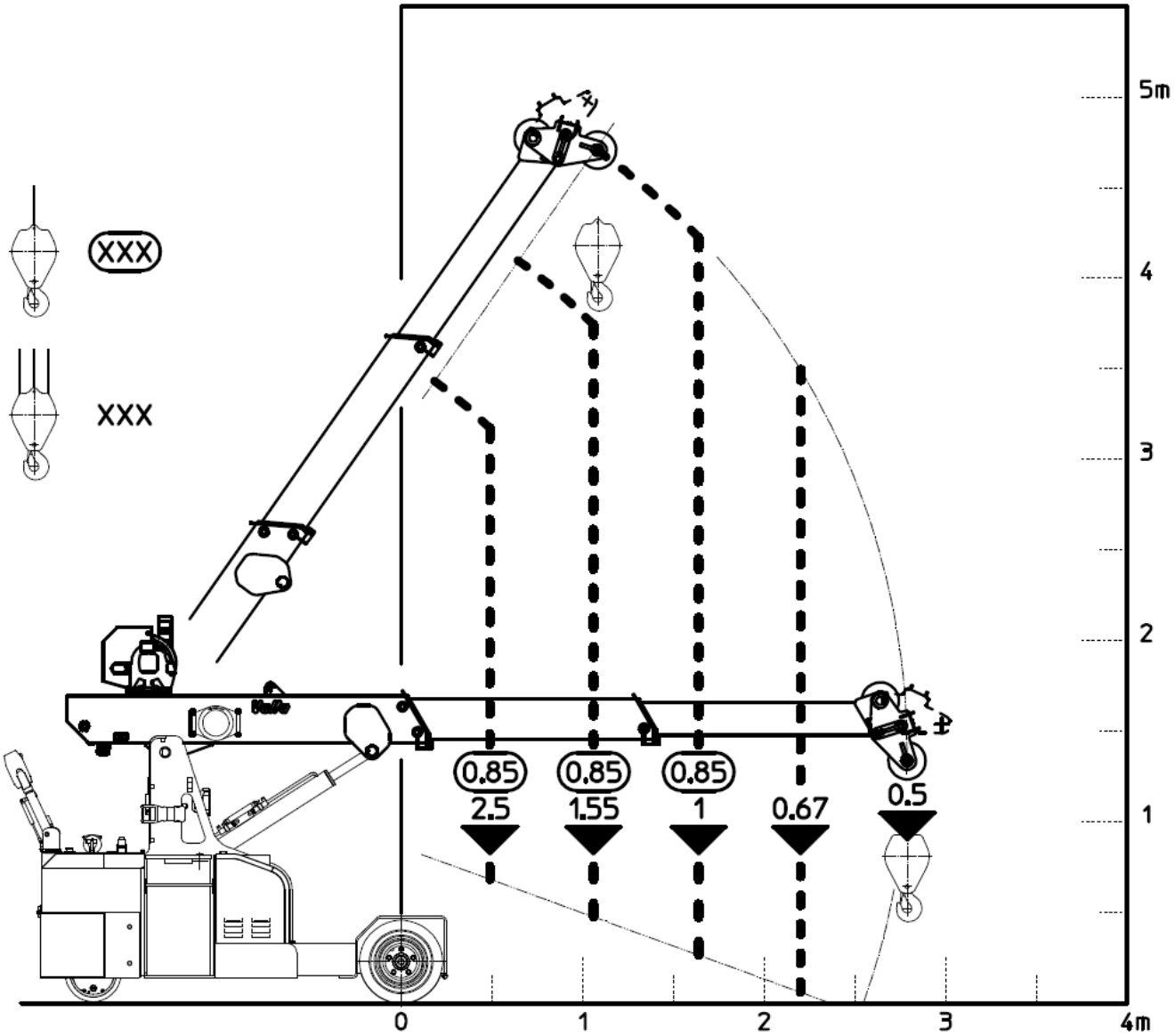



5. HYDRAULIC WINCH
6. HEAD OF THE BOOM
7. BOOM PULLEYS
8. BOOM PULLEYS
9. TENSIONER AND DEVICE AGAINST THE EXCESSIVE UNROLLING OF THE ROPE
10. BLOCK BUMPER
11. HOOCK BLOCK 2.5T
12. ROPE
13. ANTI-TWO SWITCH
14. WINCH SAFETY CASING

## 7.5 Capacity Diagram




**When lifting and handling a load operate as follows**

1. Lift the load;
2. Retract the boom; and
3. Lower the load and move the machine.

The weight of the hook-block and all the parts of rigging are considered parts of the load. You must deduct all attachments from the listed rated capacity on the chart.

## 7.6 Using the Winch - 3 Ropes

1. Put the boom of the machine totally down and in.
2. Use the hand-held or remote control to unroll the rope from the winch drum. Continue to unroll the rope keeping it in tension until you have nearly 120 inches of rope off the end of the boom.
3. Put the block under the end of the boom and stand in front of the boom facing the machine.
4. Insert the cable into the pulley-cable guide groove (Position 5), insert the 2 pins into its holes and fix them with safety pins (Position 6).
5. Thread the rope down the front of the pulley (Position 1); make sure the rope is under the fixed guide. Bring the rope down into the front side of the block (Position 2). Thread the rope into the block from the back to the front side (Position 3)
6. Thread the rope again through the top pulley (Position 7) making sure the rope is under the fixed rope guide (Position 4).
7. Put rope in the thimble (fig. B), insert wedge from smaller part into rope hook. Pull rope ends till wedge blocks them -10 cm. loose rope shall be allowed;
8. Use an adjustable clamp to block rope loose end (position 14).
9. Attach the rope eye to the hook-block using the pin (Position 8) secure the pin with the safety clips (Position 13).
10. Assemble the anti-two block switch (Position11). Connect the switch plug.
11. Attach the chain (Position 12) and weight, test the system by lifting the weight by hand; the horn will sound.
12. Lift the boom until the block is off the ground before you operate the winch. Failure to do so may damage the rope.

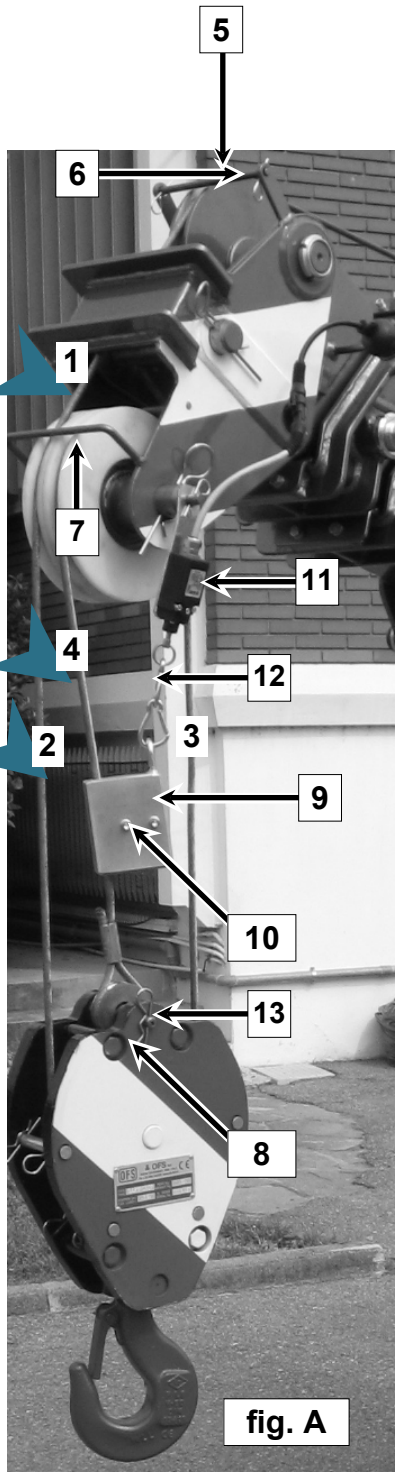


fig. A

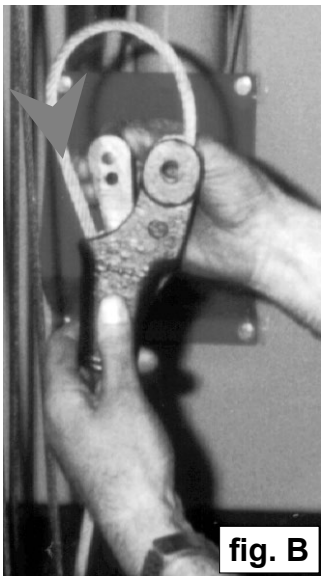
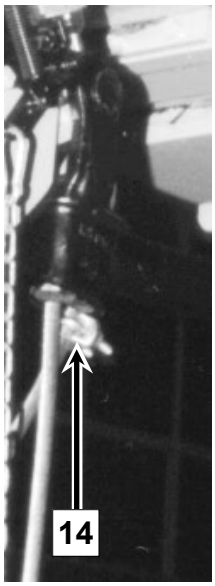


fig. B



Operate the winch only when the rope is loaded and in tension (i.e. the hook-block is not on the ground). Lift the boom until the cable is tight, then operate the winch.

Before operating the crane the operator must read and understand the instructions fro the L.M.I. system.

## 7.7 Using the Winch – Direct pull

1. Make sure to have the direct pull single pulley (Position 11) installed on the head of the boom.
2. Put the boom of the machine totally down and in.
3. Use the hand held or remote control to unroll the rope from the winch drum. Continue to unroll the rope keeping it tight until you have nearly 120 inches of rope off the end of the boom.
4. Put the hook-block directly below the end of the boom. Put yourself in front of the boom looking at the machine.
5. Insert the rope into the pulley groove (Position 2). Insert the two pins into their holes and attach them with safety pins (Position 3). Make sure the rope is under the fix guide.
6. Thread the rope down the front of the pulley (Position 4) and make sure the rope is under the fixed guide.
7. Put rope in the thimble (fig. B), insert wedge from smaller part into rope hook. Pull rope ends till wedge blocks them - 10 cm. loose rope shall be allowed;
8. Use an adjustable clamp to block rope loose end (position 14).
9. Attach the rope eye to the hook-block using the pin (Position 5) and secure the pin with the safety clip (Position 6).
10. Assemble the anti-two block weight (Position 8) with screws (Position 10) in the direction shown in Figure B.
11. Install the anti-two block switch (Position 9). Connect the switch plug.
12. Attach the chain (Position 10) and weight, test the system by lifting the weight by hand and the horn will sound.
13. Lift the boom until the block is off the ground. It may be necessary to extend the boom to get the block off the ground before you operate the winch. Failure to do so may ruin the rope.

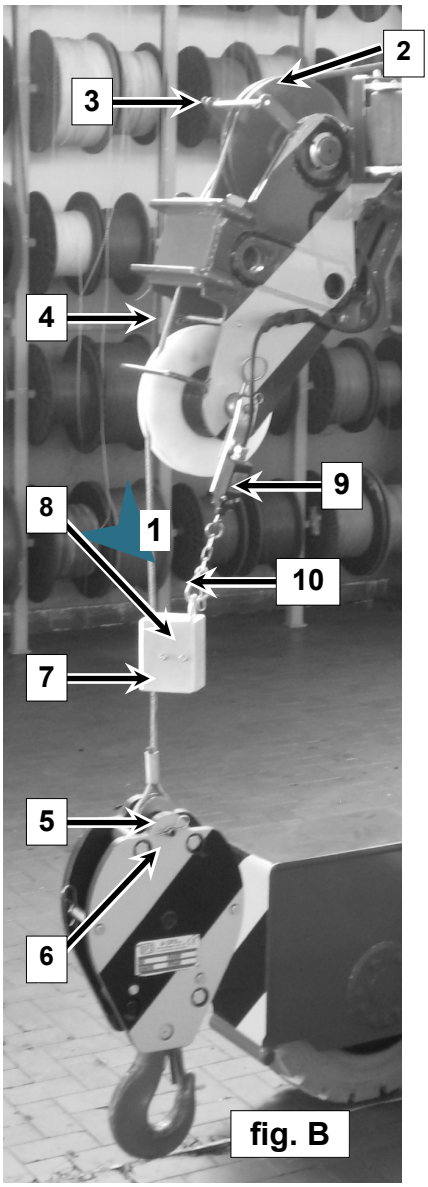
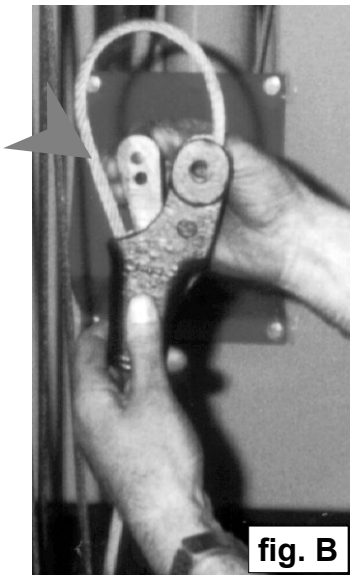
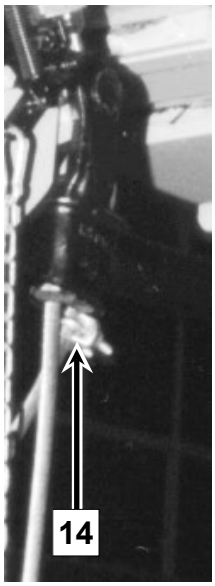


fig. B



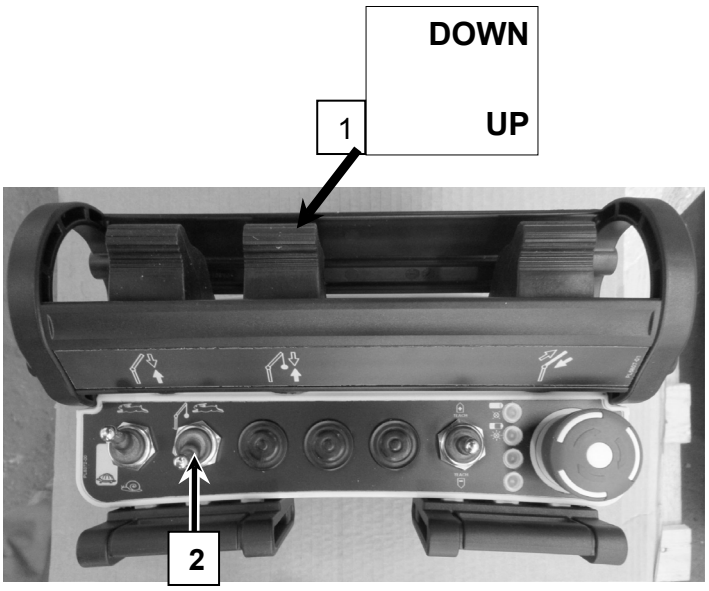

Operate the winch only when the rope is loaded and in tension (i.e. the hook-block is not on the ground). Lift the boom until the cable is tight, then operate the winch.

Before operating the crane the operator must read and understand the instructions fro the L.M.I. system.

## 7.8 Using the Hook Only

1. Fully retract and lower the boom, lay the hook-block on the ground.
2. Disconnect the anti-two block electrical connection. Install the by-pass plug.
3. Un-hook the anti-two block weight from the chain and disassemble to remove it from the rope.
4. Remove anti-two block switch assembly by pulling safety pin.
5. Remove rope from block and crane, except the very top pulley.
6. Remove two safety clips and one pin top pulley. Use hand-held or remote controller, slowly winch up. You must keep the rope tight. One person can do this, but two is better; holding the rope end rewind the extra rope onto the drum. You will see an anchor on top of the base section, slowly bring the rope eye end to anchor point, attach the rope eye to anchor using the pin and secure it with safety clip. Very gently winch up loose rope and stop, do not over tighten.
7. Support the lower pulley and remove shaft. The pulley can now be removed completely.
8. Locate the hook and bushing. Slide the hook to the center of bushing, align the pin and bushing, slide pin in and secure with safety clip. **NOTE**: Install pin and safety clips in top pulley area to prevent loss.
9. Before using the crane look for loose or forgotten safety pins and clips.
10. Set LMI system according to hook use.

## 7.9 Hydraulic Winch Controls With Wireless Remote




1. LEVER FOR LIFTING AND LOWERING THE HOOK BLOCK OF THE WINCH
2. SECOND SPEED FOR WINCH (IT DERATES THE MAX. CAPACITY, USE ONLY WITHOUT LOAD)

- Connect the wireless remote control transmitter to the receiver as explained in paragraph 4.7.2 of this manual
- Operate the lever -1- UPwards/DOWNwards for lifting/lowering the hook block of the winch

*Before operating the crane boom, read the general description of the L.M.I. system.*

***ATTENTION!***
***Don't operate with a Load Moment Indicator setting non complying with the crane working setting. The operator is responsible for crane setting.***

***ATTENTION!***
*Never operate the control joysticks at the same time. .*

***ATTENTION!***
*Never travel while operating the control joysticks at the same time.*

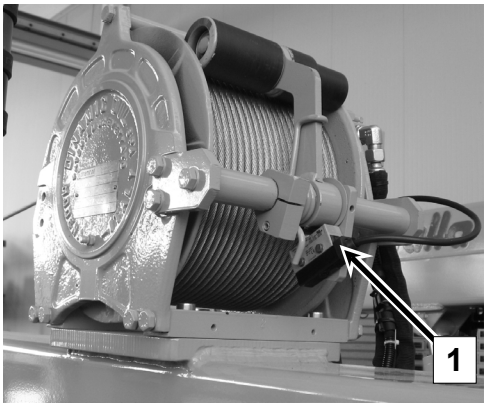
**ATTENTION!**
*Always assess the weight of the load to be lifted and the distance from the barycenter.*

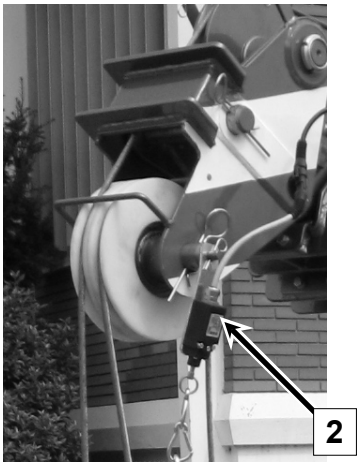
*When lifting loads, refer to the load capacity diagram affixed on the machine and described in this manual.*

*Always use the boom longest section to lift a load.*

*All operations shall be effected from the crane seat*

## 7.10 Safety Devices and Strokes




1. The winch has a low rope safety switch. When the rope reaches its lowest limit, the switch will activate stopping the lowering action. An alarm will sound. Lift the hook-block to correct the situation.
2. Anti-two block system protects the lower pulleys from coming into contact with the hook-block. When the hook-block touches the weight, the system is activated and stops the lifting action. An alarm will sound. Retract the boom or lower the hook-block to correct the situation.

. *Check all safety devices before every work shift*

## 7.11 Maintenance Operations

**ATTENTION!**
*All maintenance instructions for basic crabe apply*

ROPE: check rope and thimble wear and tear before every work shift. In case any damage is detected, do not use the winch. Damaged components must be replaced. Lubricate every 60 hours using rope specific grease: fully unwind rope and load hook. Also, spray lubricant oil on winch drum while rewinding the rope.

# 8 MAINTENANCE AND ADJUSTMENTS

## *8.1 Introduction*

Proper lubrication and maintenance are essential to ensure long life and good working conditions for the crane.
The parts to be checked and greased as well as the fluid levels to be maintained are described here below.
Operating time depends on the amount of work and environment and operating conditions (climate, temperature, ground, etc.) where the crane is working. Maintenance intervals described below refer to standard working conditions, therefore the crane operator may change them if required.

*Never extend the intervals recommended herein.*

*All maintenance operations must be carried out when the machine is not working, with main battery plugs disconnected and no moving parts.*

***Carry out the electronic adjustment, the battery, battery charger and winch maintenance strictly following the instructions provided by the manufacturers in the relative use and maintenance manuals.***

*When replacing the traction batteries, the weight of the new batteries must not be lower than indicated in this manual.*

*When replacing the tires, the new tires must have the same characteristics as indicated in this manual.*

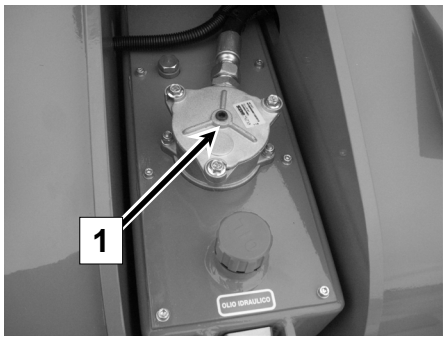
## 8.2 Lubricants

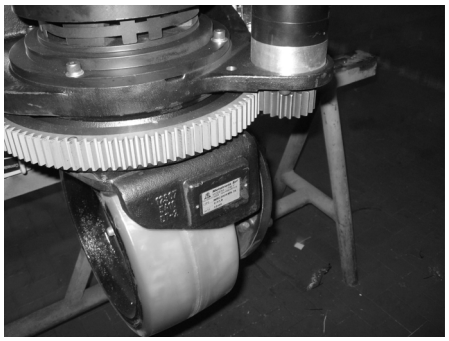
| PART | RECOMMENDED FLUID OR LUBRICANT | QUANTITY |
|---|---|---|
| Greasers, wear pads, boom and pins | AGIP GR MU 2<br>LITHIUM GREASE EP/2 | As required |
| Reduction gear | VANGUARD GEARING EP 100 | 2 l |
| Boom hydraulic circuit | AGIP ARNICA 46 | 20 l tank.<br>Circuit: 27 l |
| Hook bearing | SAE 140 OIL | As required |

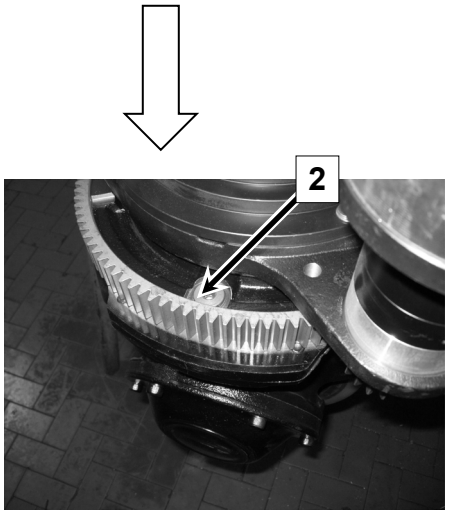
## *Running in and routine checks*

### 8.2.1 Running in:

- During the first 10 working hours, never lift the maximum load and don't use the crane at full operating speed.
- After the first 10 working hours, check bolt tightening of front idle wheels (driving torque ~25 kgm) and of rear drive wheel (driving torque ~16 kgm).
- After the first 20 working hours, check all bolts and joints of the hydraulic system and tighten if required.
- After the first 30 working hours, clean the oil filter of the crane oleo-dynamic circuit and unscrew the locking screws of the oil filter cover, remove the cover and the compression spring of the filter cartridge, extract the oil filter cartridge, dip the cartridge thoroughly in a container with grease solvent, leave it immersed for about 5 minutes, then extract the cartridge and remove all deposits and any foreign bodies by means of compressed air. If any deposits of dirt are still present in the cartridge, repeat the operation. Before reassembling the cartridge, check that it is perfectly dry and clean. Put the cartridge in the filter, reposition the compression spring and cover, then tighten the locking screw again.

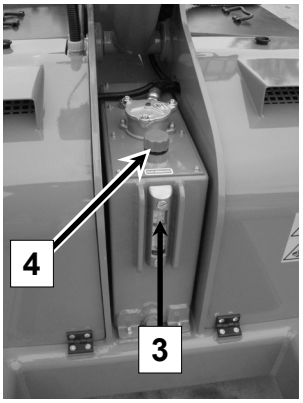


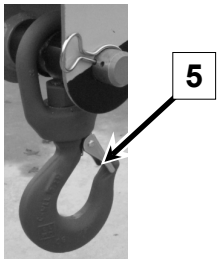





### 8.2.2 After running-in:

- Check the oil level of the end reduction gear and top it up if required.
  Check oil level when the machine has stopped for at least 10 minutes. Start the crane, rotate the steering bar completely leftwards, then stop the crane. Unscrew the level plug (pos. 2) and check that the oil level is at the hole height. If it isn't, top it up until the oil level is regular. Screw up the plug again (pos. 2) and check that it is tight.
- Check the oil level of the crane hydraulic circuit and top it up if required.
  Check oil level with the boom at rest (completely down and retracted) and with oil at ambient temperature. Check that the oil level is regular; if it isn't, unscrew the tank plug (pos. 4) and top it up until the level is regular, then screw the plug up again.



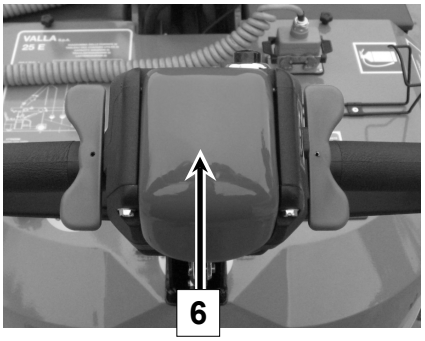

***ATTENTION!***
*Don't operate the crane if oil levels are not correct.*

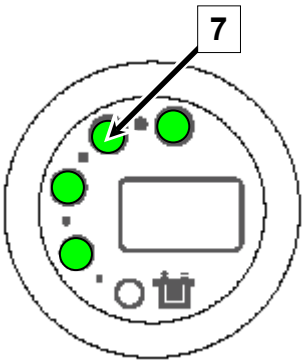
***ATTENTION!***
*Oils contain substances that pollute the soil and the ground water tables. Apply all due cautions to avoid wastes. Comply with the regulations in force as regards oil use, storing and disposal.*

### 8.2.3 Before every work shift

- Check that all safety devices are efficient:
  - Safety device against the accidental release of load: check spring and tab tightness (pos. 5);
  - Inspect the crane boom structure to detect any damages, material wear and breaks. If you should find any DON'T USE THE CRANE until the boom has been fixed. Contact local VALLA After-Sales Service for repair.
  - Check that there is no wear, damage or rupture of pins, plugs or hook and relative safety device. If you should find any, replace damaged parts.
  - Check that the joints and rubber pipes of the oleo-dynamic circuit are tight and not worn. If you should find any oil leaks, damage to joints, cracks or any rubber pipes giving way, DON'T USE THE CRANE until the joints have been tightened or replaced and the rubber pipes have been replaced.

- Check the pin plugs of the hook support and the boom manual telescopic element;
- Check the efficiency of the safety device against operator being squashed whilst going in reverse (it is placed on the steering bar): drive the crane in reverse slowly and carefully and press the button (pos. 6) with body; the crane should start going in reverse even if the throttles remain pressed. As long as the throttles are pressed the machine continues moving forward. To restart the crane in normal operating mode release the throttles.
- Check that the solenoid valve that prevents the boom descent when there is no driving power is efficient: apply a load to the crane hook (i.e. 500 kg) and lift the load; start lowering the boom and, without releasing the distributor lever, turn the machine off by rotating the start switch counter-clockwise. The crane boom should stop immediately and remain still. Perform the same test with the boom completely straight up; start the maneuver to retract the boom and, without releasing the distributor lever, turn the machine off by rotating the start switch anti-clockwise. Boom retraction should stop immediately and the boom should be still. In the event of malfunctions during the two tests, contact immediately the local Valla After-Sales Service.



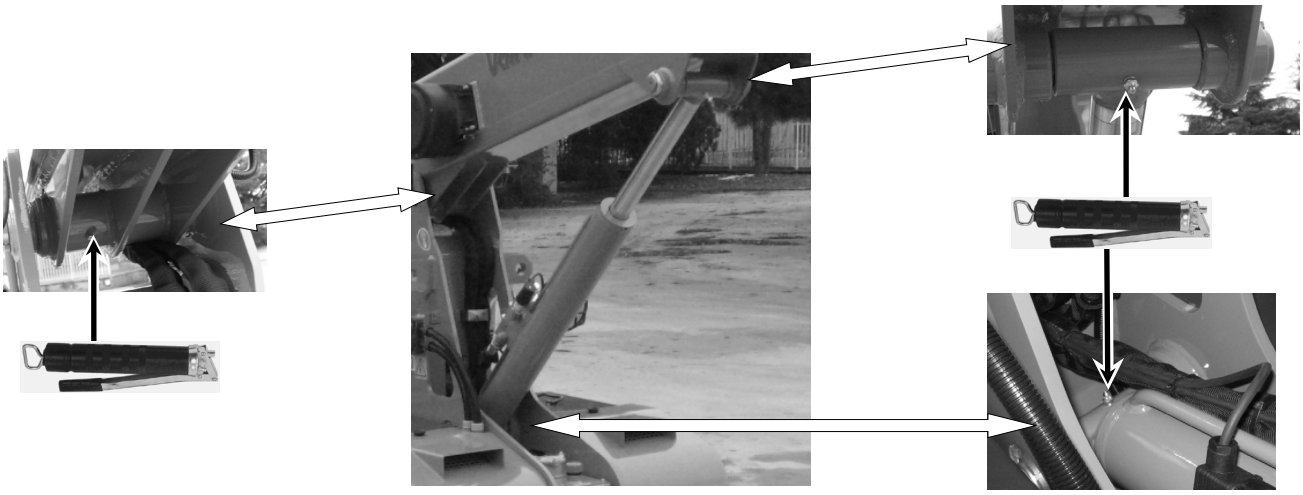



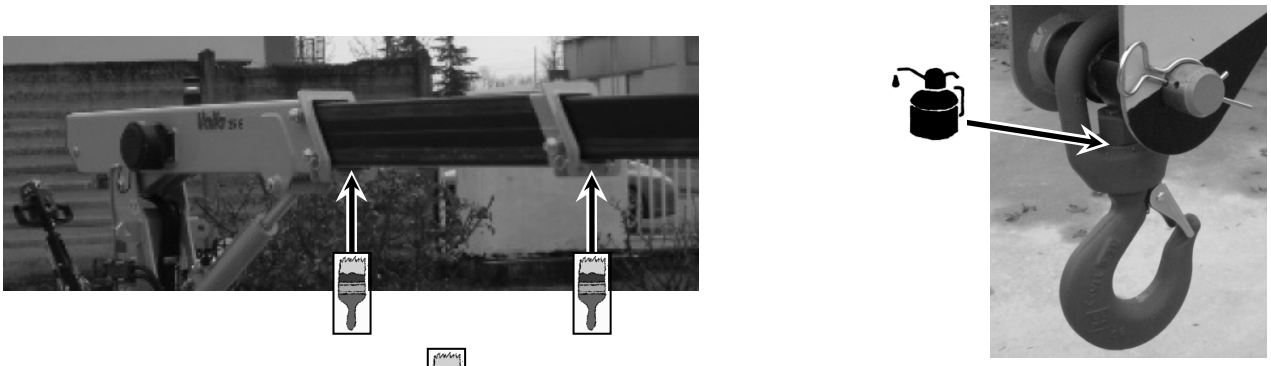

- Battery: check the charge on the indicator (pos. 7), which turns on when the machine is running; in any case the real battery charge level is measured when the machine is not running (traction motor and electropump off). Check the level and density of the electrolyte referring to the instructions provided by the manufacturer of the battery.
- Wheels: check their integrity and wear and tear. If you should find any trouble, replace them.

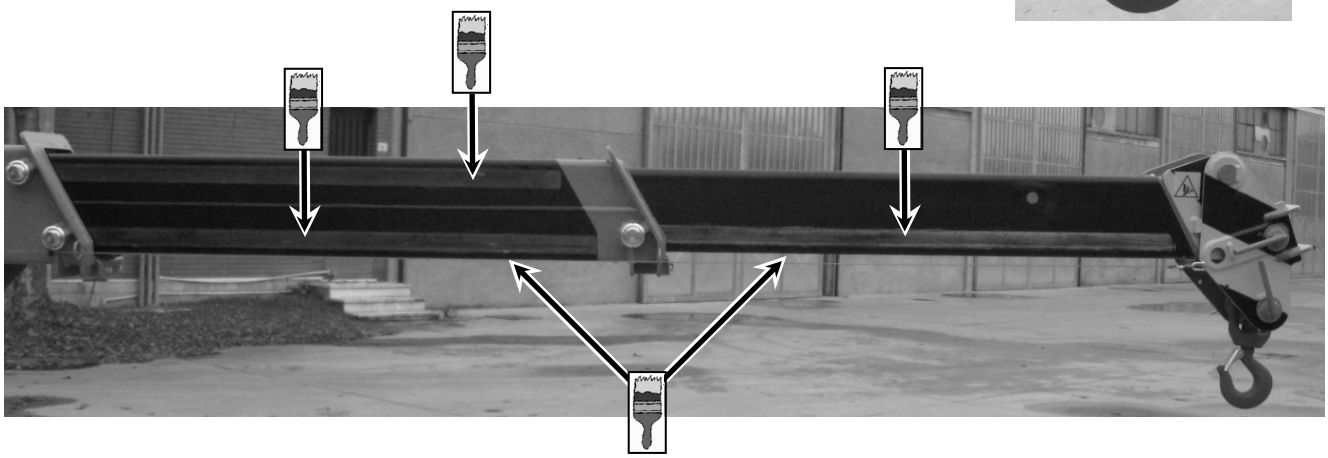
## 8.3 Periodical maintenance

### 8.3.1 Every 30 hours:

- Lubricate or grease lubrication points as indicated.







- Clean the traction motor with compressed air to remove dirt and incrustations.
- Check that the bolts of both the front idle wheels (driving torque ~25 kgm) and the rear driving wheel (driving torque ~16 kgm) are tight

### 8.3.2 Every 250 hours:

- Clean the oil filter of the crane oleodynamic system: loosen the locking screws of the oil filter cover, remove the cap and the compression spring of the filter cartridge, extract the oil filter cartridge, dip the cartridge thoroughly in a container with grease solvent, leave it immersed for about 5 minutes, then extract the cartridge and remove all deposits and any foreign bodies using compressed air. If any deposits of dirt are still present in the cartridge, repeat the operation. Before reassembling the cartridge, check that it is perfectly dry and clean. Put the cartridge in the filter, reposition the compression spring and cover, then tighten the locking screws again.

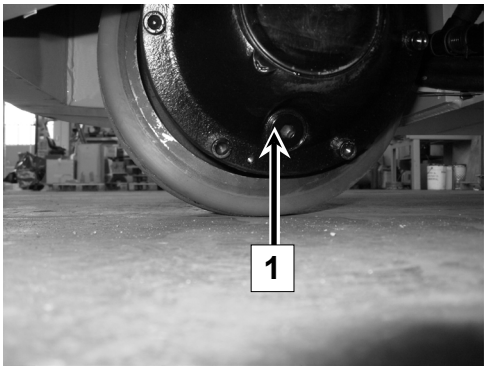
When using solvents, strictly comply with the safety instructions recommended by the manufacturer of the solvent.

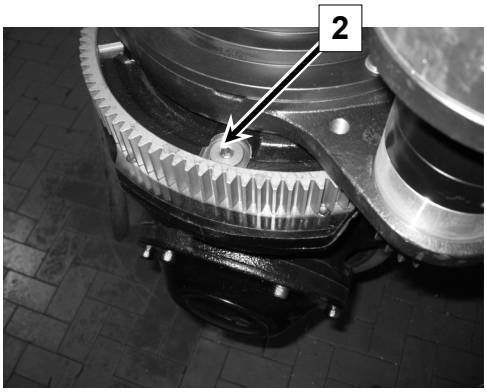
- Clean the terminals of the traction battery according to the instructions provided by the manufacturer of the battery.

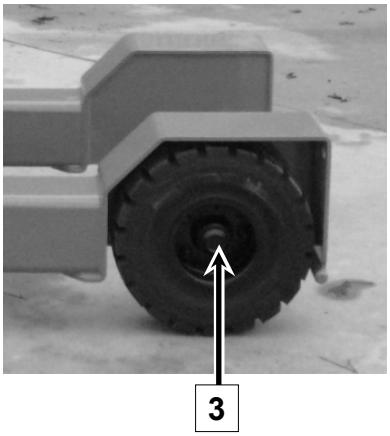
When cleaning the terminals of the traction battery don't let the two poles "+" and "-" come in contact with each other. In the event of a contact, there is a risk of fire or explosion with damage to people and things.

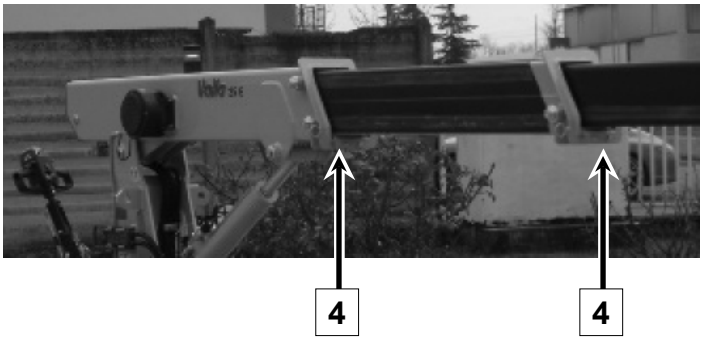
### 8.3.3 Every 1500 hours:

- Replace the end reduction gear oil . Unscrew the oil drain plug of the reduction gear (pos.1) and empty the tank thoroughly. Screw up the plug again (pos. 1). Unscrew the oil top up plug (pos.2) and fill the reduction gear with oil up to the correct level, then screw the plug up again (pos.2).
- Lubricate the wheel bearings (pos.3):remove the wheel hub cover by putting a screwdriver between the hub and the ring at the base of the cover, remove the grease on the cover, on the bearing and the wheel pin screw. Put some new grease in the wheel hub cover and reassemble it.
- Check that the thickness of the wear pads (pos.4) of the boom is never less than 7 mm. If replacement is required, contact the local Valla After-Sales Service.






### 8.3.4 Every 3000 hours:

General overhaul at an authorized Valla technical assistance center.

**MANITEX VALLA s.r.l.**
**Sede legale / Seat / Sitz / Siège social / Domicilio social:**
Via Verdi 22, 41018 San Cesario sul Panaro (MO) +39 059 936811
**Sede operativa / Operational headquarters / Productionsstät / Siège d'Exploitation / Centro de operaciones:**
Via Leonardo da Vinci 12, 29016 Cortemaggiore (PC)
**www.valla.com - info@valla.com**

## 8.4 Troubleshooting

| MALFUNCTION | CAUSE | REMEDY |
|---|---|---|
| TRACTION MOTOR DOESN'T RUN | FLAT BATTERY | RECHARGE |
| | MOTOR OVERLOAD | DECREASE LOAD AND/OR AVOID TRAVELLING ON SLOPES |
| | ELECTRIC CIRCUIT CUT-OFF | CHECK AND REPLACE FUSES |
| | THE ELECTROMAGNETIC SWITCH DOESN'T WORK. NO POWER IN THE CIRCUIT. | CHECK ELECTROMAGNETIC SWITCH: REPAIR OR REPLACE |
| | FAULTY STEERING BAR MICROSWITCH | CHECK AND REPLACE |
| | BRAKED MOTOR | ADJUST BRAKE |
| | | CHECK BRAKE SOLENOID |
| | ELECTRONIC CONNECTION CUT-OFF | CHECK THAT ALL POWER AND SERVICE WIRES ARE PROPERLY CONNECTED ONTO THE TERMINALS AND CONNECTORS ARE PROPERLY INSERTED |
| | MOTOR FAILURE | REPAIR OR REPLACE |
| TRACTION MOTOR IS NOT RUNNING OR SPEED CAN'T BE ADJUSTED | ELECTRONIC CONTROL FAILURE | HAVE IT CHECKED AT A SPECIALIZED CENTER. REFER TO RELATIVE MANUAL |
| | FAULTY STEERING BAR THROTTLES | REPAIR OR REPLACE |
| MOTOR LACK OF POWER | BATTERY | CHECK CHARGE |
| | | CHECK BATTERY CONDITION |
| | MOTOR OVERLOAD | DECREASE LOADS |
| | | REDUCE SLOPES |
| | BRAKED MOTOR | ADJUST BRAKE |
| | | CHECK BRAKE SOLENOID |
| TRACTION MOTOR OVERHEATING | MOTOR ENGAGEMENT TIME IS TOO LONG | REDUCE ENGAGEMENT TIMES DEPENDING ON THE LOAD |
| | BRAKED MOTOR | ADJUST BRAKE |
| | | CHECK BRAKE SOLENOID |

| MALFUNCTION | CAUSE | REMEDY |
|---|---|---|
| STERING MOTOR IS NOT RUNNING | FLAT BATTERY | RECHARGE |
| | LOCKED WHEEL | GO AWAY FROM HINDRANCES AND POTHOLES |
| | ELECTRIC CIRCUIT CUT-OFF | CHECK AND REPLACE FUSES |
| | FAULTY MICROSWITCH ON STEERING BAR | CHECK AND REPLACE |
| | ELECTRONIC CONNECTION CUT-OFF | CHECK THAT ALL POWER AND SERVICE CABLES ARE PROPERLY FIXED ONTO THE TERMINALS AND THAT CONNECTORS ARE PROPERLY INSERTED |
| | POTENTIOMETER OUT-OF-TUNE | HAVE IT CHECKED AT A SPECIALIZED WORKSHOP |
| | MOTOR FAILURE | REPAIR OR REPLACE |
| STEERING IS INACCURATE | ELECTRONIC ADJUSTMENT FAILURE | HAVE IT CHECKED AT A SPECIALIZED WORKSHOP. REFER TO THE ADJUSTMENT SYSTEM MANUAL PROVIDED BY THE RELATIVE MANUFACTURER. |
| | POTENTIOMETER OUT-OF-TUNE | HAVE IT CHECKED AT A SPECIALIZED WORKSHOP. |
| TRACTION MOTOR OVERHEATING | MOTOR ENGAGEMENT TIME IS TOO LONG | REDUCE ENGAGEMENT TIME. |

| MALFUNCTION | CAUSE | REMEDY |
|---|---|---|
| PUMP MOTOR NOT RUNNING | FUSE | CHECK AND REPLACE IF REQUIRED |
| | ELECTROMAGNETIC SWITCH | CHECK ELECTROMAGNETIC SWITCH: REPAIR OR REPLACE |
| | OPERATOR CONSOLE | HAVE IT CHECKED BY A SPECIALIZED WORKSHOP. |
| BOOM DOESN'T LIFT | NO HYDRAULIC OIL | TOP UP |
| | FEED PUMP PIPE IS CLOGGED | CLEAN OR REPLACE |
| | PUMP JOINT IS BROKEN (motor is running but there's no pressure) | CLEAN OR REPLACE |
| | WORN PUMP | CLEAN OR REPLACE |
| | FAULTY DISTRIBUTOR | CLEAN OR REPLACE |
| | FAULTY MAX. PRESSURE VALVE | CHECK THAT VALVE OPENS AT SET PRESSURE (setting 185 bar) |
| | WORN SEAL GASKETS | SERIOUS OIL LEAK IN ONE CYLINDER: REPLACE GASKETS |
| | PUMP MOTOR NOT RUNNING | *(see "PUMP MOTOR NOT RUNNING")* |
| | L.M.I. SYSTEM ENGAGEMENT | Refer to L.M.I. system operation paragraph |
| BOOM DOESN'T LOWER | FAULTY DISTRIBUTOR | REPAIR OR REPLACE |
| | FAULTY SAFETY VALVE | REPAIR OR REPLACE |
| BOOM WITH HANGING LOAD WON'T KEEP STILL | FAULTY SAFETY VALVE | REPAIR OR REPLACE |
| | FAULTY DISTRIBUTOR | REPAIR OR REPLACE |
| | RESIDUAL AIR IN THE HYDRAULIC CIRCUIT | BLEED THE SYSTEM |

| MALFUNCTION | CAUSE | REMEDY |
|---|---|---|
| THE TELESCOPIC ARM DOES NOT CARRY OUT EXTRACTION OPERATION | NO HYDRAULIC OIL | TOP UP |
| | FEED PUMP PIPE IS CLOGGED | CLEAN OR REPLACE |
| | PUMP JOINT IS BROKEN (motor is running but there's no pressure) | REPAIR OR REPLACE |
| | WORN PUMP | REPAIR OR REPLACE |
| | FAULTY DISTRIBUTOR | REPAIR OR REPLACE |
| | FAULTY MAX. PRESSURE VALVE | CHECK THAT VALVE OPENS AT SET PRESSURE (setting 185 bar) |
| | WORN SEAL GASKETS | SERIOUS OIL LEAK IN CYLINDER: REPLACE GASKETS |
| | PUMP MOTOR NOT RUNNING | *(see "PUMP MOTOR NOT RUNNING")* |
| | L.M.I. SYSTEM ENGAGEMENT | Refer to L.M.I. system operation paragraph |
| TOO MUCH CLEARANCE AT BOOM ARTICULATION JOINT OR AT LIFTING CYLINDER ARTICULATION | WORN BUSH | REPLACE |
| BOOM DOESN'T LIFT, LOWER OR EXTEND. ONLY MANEUVER ALLOWED IS RETRACTION | L.M.I. SYSTEM ENGAGEMENT | Refer to L.M.I. system operation paragraph |
| *AS FOR ALL MALFUNCTIONS FOUND DURING TRACTION PHASE, REFER TO THE ELECTRONIC ADJUSTMENT MANUAL PROVIDED BY THE RELATIVE MANUFACTURER.* | | |

## 8.5 Crane demolition

When crane excessive wear and prolonged maintenance operations prove that the machine can no longer work safely, you must dismantle.
The final demolition of the crane must be carried out according to the regulations in force.

NOTE

- ⇒ if the machine has been registered at a Public Office, crane demolition shall be duly notified and all identification plates shall be returned, cancelled or destroyed according to the regulations in force;
- ⇒ crane due to dismantling shall be properly and safely stored to avoid any damage to people, animals, things as well as environmental pollution;
- ⇒ demolition and dismantling shall be made by authorized and specialized companies;
- ⇒ crane major components are made of steel, cast iron, aluminum, copper, bronze, lead, plastic, rubber (tires and super-elastic rings), mineral or vegetal oils, hydraulic oils and paints.
- ⇒ Dead batteries contain lead and acids, therefore they should be treated as poisonous toxic waste.

Pb

All the above instructions refer to dismantling regulations in force when the crane was sold. Different regulations might be in force when dismantling the crane and hence they shall be complied with, even if they are different to the instructions provided above.

# 9 NOISE EMISSION

The level of noise pressure of the crane is $L_{WA} 86db(A)$ in accordance with the standard 2014CE.

# 10 ELECTROMAGNETIC COMPATIBILITY

MANITEX Valla confirms that the crane complies with the limit values as regards electromagnetic disturbances in accordance with UNI EN 12895.