



WIRELESS MOBILE COLUMN LIFT

ATEMC019

OPERATION AND MAINTENANCE MANUAL



ATLAS Automotive Equipment
www.AtlasAutomotiveEquipment.ca

(866) 284-8604

INDEX ENGLISH

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READ ALL INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

1. Read all instructions.
2. Care must be taken as burns can occur from touching hot parts.
3. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged until it has been examined by a qualified service person.
4. Do not let a cord hang over the edge of the table, bench, or counter or come in contact with hot manifolds or moving fan blades.
5. If an extension cord is necessary, a cord with current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
6. Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.
7. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.
8. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (e.g. gasoline).
9. Adequate ventilation should be provided when working on or operating internal combustion engines.
10. Keep hair, loose clothing, fingers, and all parts of the body away from moving parts.
11. To reduce the risk of electric shock, do not use on wet surfaces exposed to rain.
12. Use only as described in this manual. Use only manufacturer's recommended attachments.
13. **ALWAYS WEAR SAFETY GLASSES.** Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.

SAVE THESE INSTRUCTIONS

Symbols used in the manual

The signage (ISO) indicated below is used within this manual to focus attention on those operations that must be performed carefully in order to guarantee safety during installation.

	GENERAL DANGER	Indicates that, when performing the operation, great care must be taken to prevent the onset of events that could cause serious injury or damage.
	ELECTRICAL DANGER	Indicates that, when performing the operation, an event (of an electrical nature) could arise leading to injury or damage.
	DANGER OF PINCHING	Indicates that, during installation or transport of system components, suitable lift equipment must be used and utmost attention applied.
	DANGER OF FALLING	Indicates that, during installation, the operator crosses zones where there is high risk of falling; always be particularly careful.
	IMPORTANT	Indicates that the indications or instructions described in the text must be followed to the letter. Non-compliance with the indications can be dangerous for the operator and can damage the system.
	PROHIBITION	Indicates that the specific activity or operating sequence must be avoided

1. GENERAL INFORMATION

1.1. *Marking data*

Table identification plate:

1.2. *Assistance*

Please use the following contact details for assistance requests :

TEL. +1 (866) 284 - 8604
ATLAS Automotive Equipment of Canada

customercare@atlasautoequipment.ca

1.3. *Description of personnel*

TERMS AND DEFINITIONS

- OPERATOR/SPECIALISED TECHNICIAN:
the person(s) appointed to:
 - o install,
 - o set up,
 - o adjust
 - o perform maintenance on,
 - o clean,
 - o repair
 - o transport the lift.
 - o perform certain maintenance operations that require specific preparation and expertise in the mechanics, electrical, electronic, oil-hydraulic and pneumatic fields.

The specialised technician is aware of any risks present on the machine and the procedures to be followed to avoid damage to his/herself or others during such maintenance operations.

- EXPOSED PERSON: any person wholly or partly in a hazardous area.
- HAZARDOUS OR RISKY AREA: any area inside and/or close to a machine in whose presence an exposed person constitutes a risk for his/her health and safety.
- USER: anyone who buys or possesses the lift in any way (on loan, hire, lease, etc.), with the intention of using it as indicated by the manufacturer.

- MAINTENANCE: all activities, which shall be done to keep the system in efficiency and in good condition.
- DPI: (PPE) Personal protection equipment.

2. DESCRIPTION OF THE MACHINE

Destinatari:

- UTILIZZATORE;
- OPERATORE/TECNICO SPECIALIZZATO.

2.1. Intended use

The function of the vehicle lift is to lift motorized vehicles, which have the distribution of the loading according the standards in force.

The accessories indicated in the relating chapter can be used.

The lift has to be used to lift and lower vehicles for repair, maintenance and cleaning during normal workshop operation, according to the technical specifications.

Standing or working under suspended load is permitted.

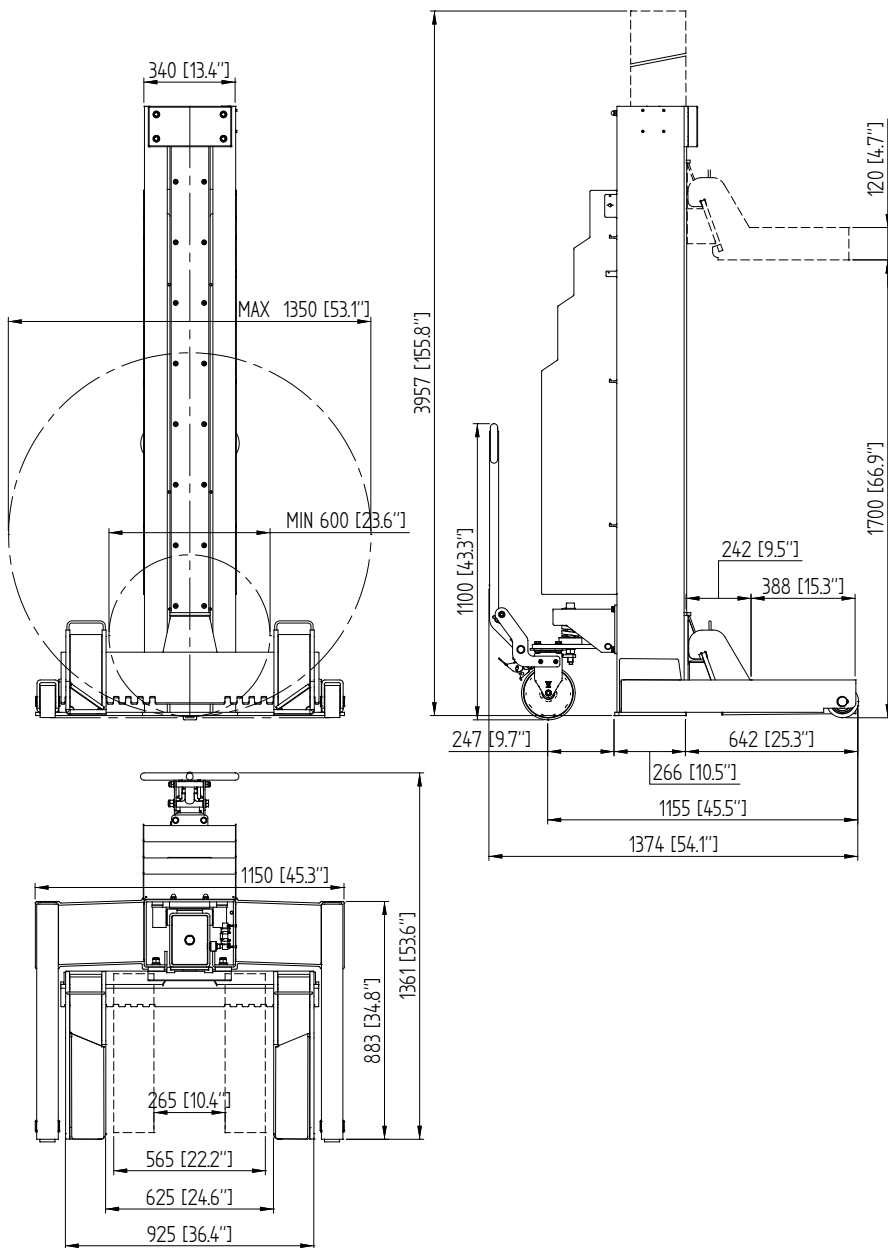
2.2. Technical data

Capacity	➤ 8600 kg / 19000 lbs
Lifting stroke	➤ 1700 mm / 66.9"
Speed	➤ 2 cm / s - 0.8" / s ➤ Up / down about 80 s at 85 % of the load and full battery voltage
Fork Adjustment Positions	➤ 5
Relief Pressure	➤ 220 Bar
Working Pressure	➤ 200 Bar
Oil volume	➤ 12 lt
Column weight	➤ 750 Kg / 1650 lbs
Operation	➤ Touch screen interface with pushbuttons ➤ Up / down ➤ Slow speed ➤ Operation modes : single / pair / all ➤ Integrated control panel with LCD screen display ➤ Max. 10 column

Lifting System	➤ Inverted Rod Hydraulic Cylinder ➤ Hydraulic lifting system with electronic synchronization ➤ DC motor 3 kW
Column guide	➤ Roller bearings with flange, long life seals
Control	➤ Low voltage control 24 V dc ➤ Double system height control for increased safety , by encoder + step control ➤ Quick connect cable with can interface ➤ IP 54 protection
Safety features	➤ Flow control valve ➤ Hydraulic burst valve ➤ Mechanical safety lock ➤ Overload relief valve ➤ Emergency stop mushroom ➤ Main lockable switch suitable to cut off the batteries ➤ Automatic stop at the highest position
Power source	➤ Batteries 24 V dc , 80 Ah ➤ Integrated battery charger : 100/240 V – AC – 230 W; 50 /60 Hz , 8A DC ➤ Wire charging socket integrated on each column
Support wheels	➤ Rear wheel with steering handle ➤ Rear : spring loaded wheel , with locking brake ➤ Front : fixed nylon wheels with bearings
Optional	➤ Lighting
Noise Level [db(A)]	➤ 80
Ambient Temperature	➤ 5.. 40°C
Use	➤ This product is intended for indoor use only in a dry location.

NOTE :

A qualified person should be consulted to address seismic loads and other local or state requirements.

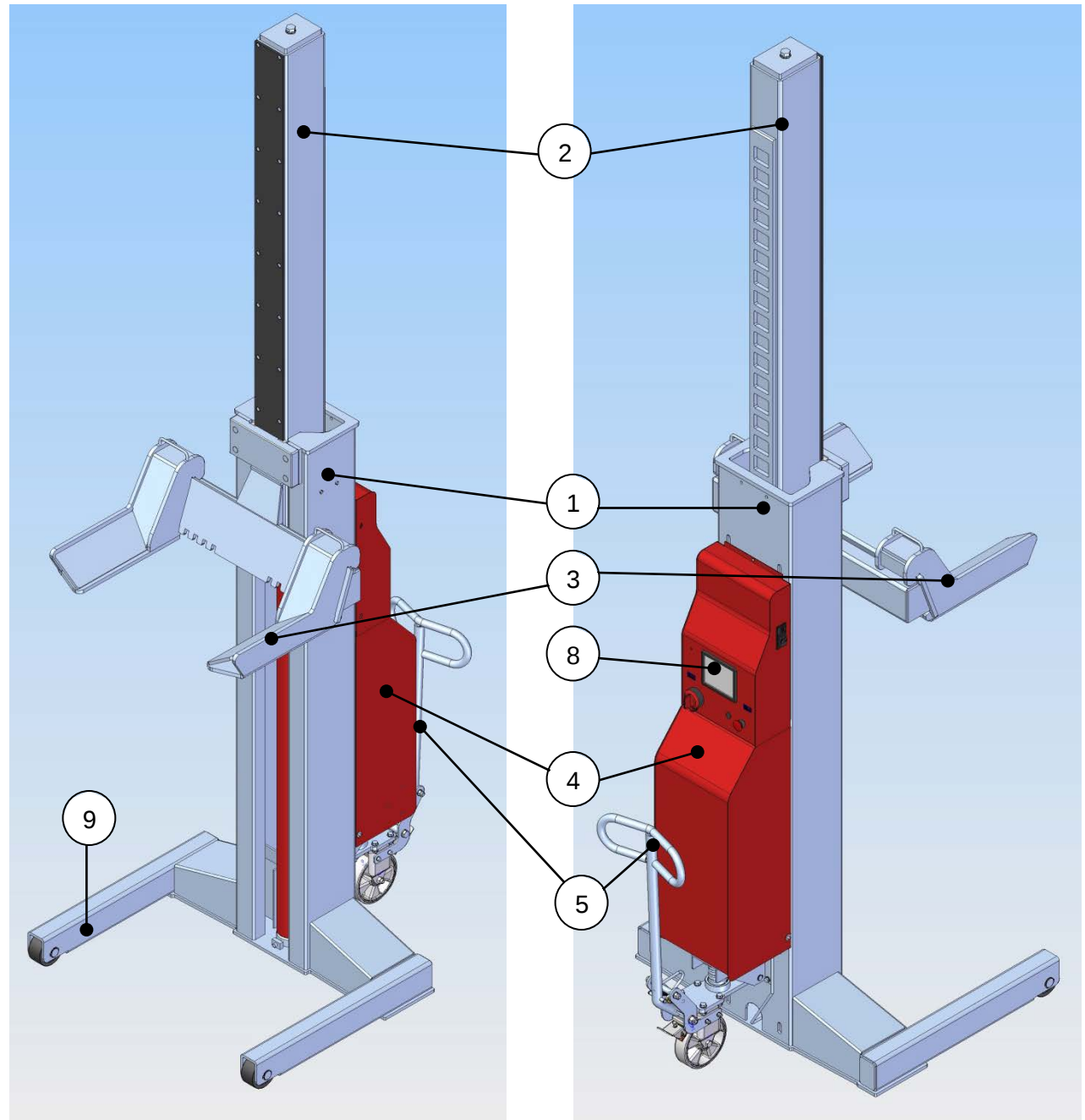
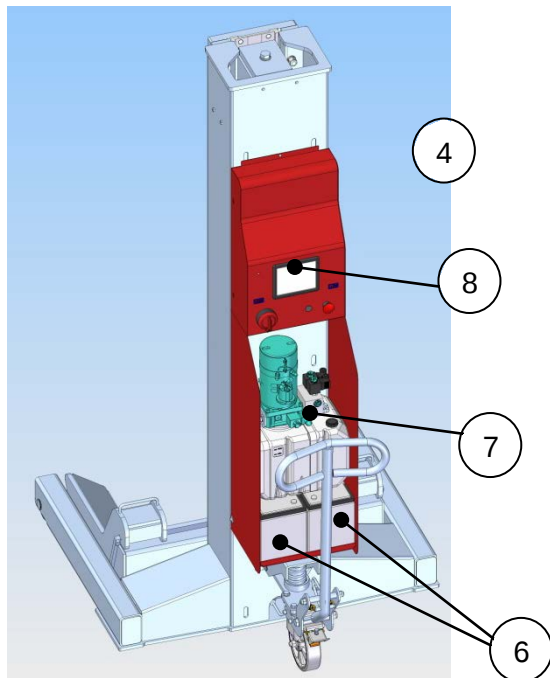


2.3. Nomenclature

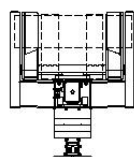
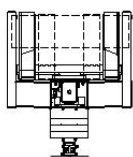
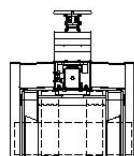
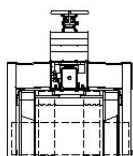
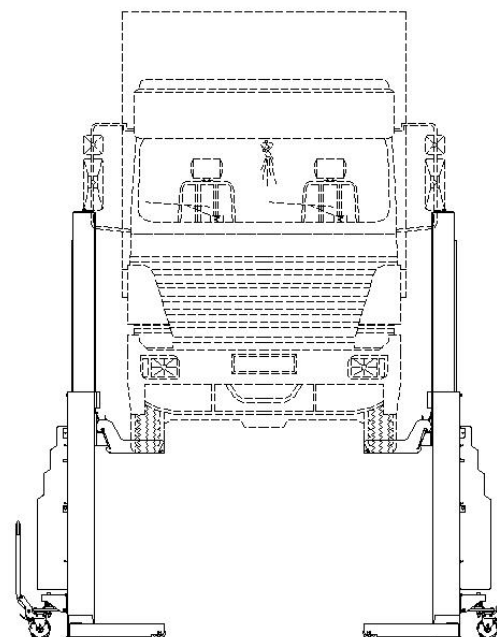
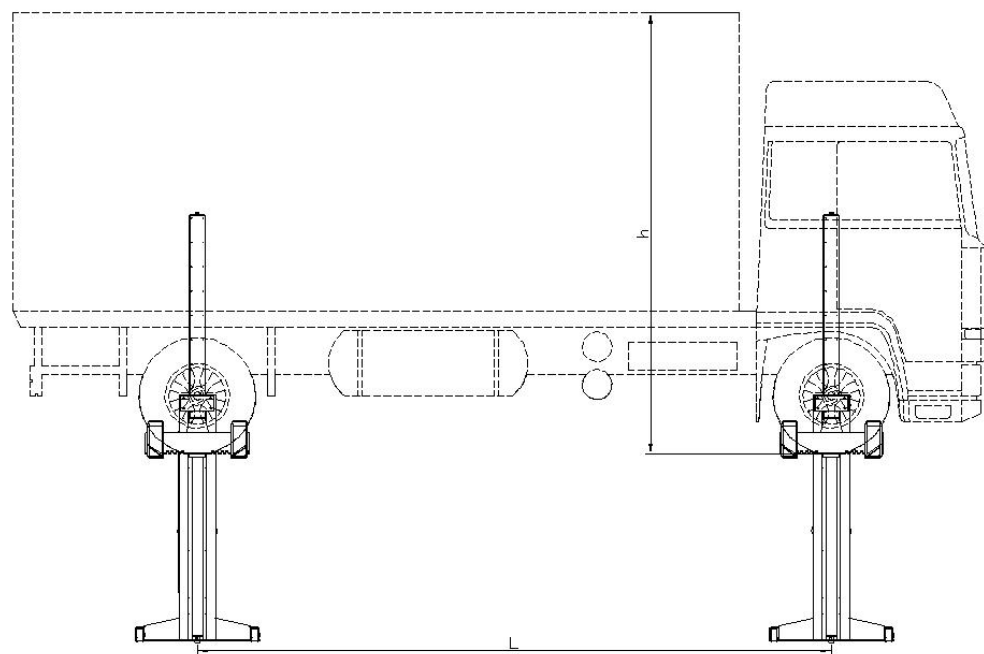
MODEL KEY:

TYPE	DESCRIPTION
STD	WITH CABLE CONNECTION AMONG THE COLUMNS

N°	DESCRIPTION
1	Column
2	Shoulder
3	Forks
4	Control unit
5	Wheel & handle assembly
6	Battery
7	Hydraulic unit
8	Touch screen
9	Wheels
10	
11	
14	
15	
16	
17	



2.4. Overall dimensions



**Minimum ceiling height
H=69"+
Greatest Vehicle Height.**



**The bay dimensions depends
on the size of the lifted
vehicle.
A suitable clearance of about
30"all around the vehicle has
to be provided before lifting.**

FMC000004010A

2.5. *Loading conditions*

The maximum load capacity of one lifting column is 19000 lbs (8600 kg) and must not be exceeded.
The permissible load distribution in or against drive direction is 2:1.



The load on each column must be distributed so that it is compliant with the standard load distribution in order to guarantee the synchronization of the columns joined into a group :

- FRONT – REAR: 2/3 and 1/3 of the nominal load , and vice versa.
- RIGHT - LEFT: the load difference must not exceed 30%.of the nominal load

A uniform load of the columns joined in a group allows to lift a load made by the sum of the max. capacity of each column lift

3. SAFETY

Addressees:

- USER;
- OPERATOR / SPECIALISED TECHNICIAN.

3.1. General safety regulations

The machine should be used by authorised, trained personnel only. The user (owner and/or employee) must make sure that the fitter has provided:

- all accessories
- the spares provided with the lift
- this use and maintenance manual

Deliver the lift-specific, operation, inspection, and maintenance instructions to lift owner/user/employer along with the other instructional materials furnished with the lift.



“Before proceeding with installation, operating, servicing, or maintain the lift, the user must read the manual carefully...”

Use as described in this manual only. Always use the accessories recommended by the manufacturer.

ATLAS Automotive Equipment declines all responsibility for non-compliance with the indications given in this manual.



Improper behavior can cause danger to life and health of persons working in the vicinity of the lift.

The manufacturer is not responsible for damages caused by use against regulations and misuse.

3.2. Precaution

INSTRUCTIONS



For instant consultation by the operator, this manual must:

- be kept in a well known, easily accessible place
- be kept in good condition

Before proceeding with installation and use of the machine, the user must read the manual carefully, especially the safety rules.

Read all instructions in this manual before operating the lift unit in order to avoid **severe injury or death**. Contact customer service at the numbers and/or address printed on the back cover of this manual if you have any questions about this unit or its instructions and warnings **NOT** use this product unless you are well trained and capable of using the MCO safely.



Read all instructions carefully.



The lift comes complete with an instruction manual and warnings designed to last over time. Ask the manufacturer for a replacement immediately if damaged or destroyed.

Replacement (or extra) copies of the manual are available at ATLAS.

PERSONNEL

	The equipment must be used by specifically trained and authorised personnel only. All personnel involved in the use and operation have to be competent, trained, and qualified in the safe operation of this equipment and its proper use when servicing motor vehicles and their components. As part of training, the employer, owner, and manager should have all personnel practice normal and emergency operating procedures without loads prior to using the MCO Never allow unauthorized or untrained persons to position vehicle/lift or operate the MCO This lift system has been designed to be easy to use, but it requires thoroughly trained and knowledgeable personnel to use it safely. Failure to operate this lift system according to the warnings and instructions can result in severe injury or death
	Any modifications to the lift must be authorised by the manufacturer.

LABELS

	When loading the lift never exceed the capacity shown on the ID plate on the lift.
	The employer, owner, and manager are responsible for maintaining the Labeling should be legible and intact at all times. The Contact ATLAS to receive replacement labeling.

RISK

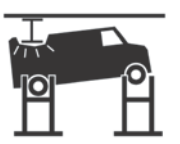
	Avoid all risks that involve crushing/shearing of the feet.
	Avoid contact between parts of the body and/or clothing and moving parts. Keep hair, loose clothing, fingers, and all parts of body away from moving parts. There are potential pinch points that can injure hands and fingers or possibly grab clothing and pull body parts into pinch points
	ALWAYS WEAR SAFETY GLASSES. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
	Do not tamper with the lift's upstroke and downstroke speeds, which have been adjusted by ATLAS during factory tests in compliance with applicable legislation.
	If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled Put the main switch to the zero position when the machine is not in use. Never pull the electric cable to remove the plug from the socket. Grasp plug and pull to disconnect
	Inspect your lift daily.

PROHIBITED

	 Never lift people.
	Never stand under the lift while moving. The lift work area is off limits to children and animals and other obstacles.
	Never use the lift to wash a vehicle. Never direct water stream at control box or cable connections.
	Do not use the lift in the event of hindrances to operation or hazardous conditions.
	Presence of not authorized persons from being in shop area while lift is in use.
	Lifting of vehicles loaded with hazardous goods
	Lift installation in explosive areas
	The use of the lift if it malfunctions or if it has broken or damaged parts

	DO NOT use the MCO to raise a vehicle by the frame or structural member. Lift vehicles with the MCO only by the vehicle's wheels (except when using special-purpose adapters for their intended application).
	DO NOT drive over or pinch electrical cables
	Lift only on same axle. DO NOT stagger between axles.
	DO NOT raise one end of a vehicle if the opposite end is supported by stands or another lifting device. When using two MCO units to raise one end of a vehicle, the opposite end of the vehicle must be in contact with the ground, transmission in neutral and parking brake released
	Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged – until it has been examined by a qualified serviceman

PLACE

	To reduce the risk of fires, avoid using the lift close to open drums of inflammable liquid (such as gas oil) and/or in explosive environments. This motor has internal arcing or sparking parts. To minimize the Risk of Explosion, DO NOT expose to flammable vapors.
	Make sure the work area is adequately aired when using internal combustion engines. Adequate ventilation should be provided in the work area.
	This product is intended for indoor use only in a dry location. To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.
	Be sure that the floor is strong enough to support the lift before operating. Do not use the lift on asphalt surfaces, as the lift will sink if the vehicle is on the lift for any extended period of time
	Be sure that you have enough room to raise the vehicle without the top of the vehicle coming into contact with any obstruction. Adequate overhead clearance is provided to raise vehicle to desired height.
	Verify the ground slope in longitudinal and transversal directions where the columns will be positioned before lifting the vehicle
	Always keep area around lift free of tools, debris, grease and oil

CAUTION

	Check the lift carefully after long periods of inactivity before putting it back into service.
	Before using the lift, check that the mechanical safety devices (jacks) are working properly.
	Before using the lift, check that the acoustic warning system (beeper) is working properly.
	Do Not perform any maintenance on the control panels until the power has been shut off to the lift
	Do Not block open or override self-closing lift controls, they are designed to return to the Off or Neutral position when released
	Proper lift synchronization requires that all columns have at least a 500kg. load
	Become familiar with the lift controls by running the lift through a few cycles before loading a vehicle on lift.
	Always keep the covers closed on the lift units
	Care must be taken as burns can occur from touching hot parts
	Do Not hit or run over lift forks or base. This could damage lift or vehicle.
	DO NOT use blocks, non-factory supplied adapters or cribbing devices with the MCO
	Use only qualified lift service personnel and genuine parts to make repairs

LIFTING CAUTIONS	
	Position lift units to provide an unobstructed entrance and exit
	Comply always with the capacity of lift is shown on nameplate affixed to the lift. Vehicle individual axle weight does not exceed two lift columns combined capacity
	Avoid excessive rocking of vehicle while on lift.
	Ensure tires are properly inflated before lifting. DO NOT exceed tire load rating when raising vehicle
	Always check the stability of hoisted vehicle.
	Note that the removal or installation of some vehicle parts may cause a critical load shift in the center of gravity and may cause the vehicle to become unstable. Refer to the vehicle manufacturer's service manual for recommended procedures
	DO NOT raise or lower only one side of a vehicle. Lift units should ALWAYS be used in pairs to lift wheels on opposite ends of the same axle.
	SINGLE WHEEL OPERATION Be very careful when doing this operation that the vehicle remains stable and that the side of the vehicle does not come in contact with the column
	PAIR OPERATION Be sure that the set of wheels on the ground is free to move as the effective distance between the front and rear wheels becomes less as one pair of wheels is higher or lower than the other pair. Keep the height difference between pairs as low as practical
	Remove tool trays, stands, etc. before lowering lift.
	Clear area if vehicle is in danger of falling.
	Clear underneath the lift and the vehicle before lowering

3.3. Owner/Employer obligations :

The Owner/Employer ;

- Shall ensure that lift operators are qualified and that they are trained in the safe use and operation of the lift using the manufacturer's operating instructions; ALI/SM 07-1, ALI Lifting it Right safety manual; ALI/ST-05 ALI Safety Tips card; ANSI/ALI ALOIM-2008, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; ALI/WL Series, ALI Uniform Warning Label Decals/Placards; and in the case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts.
- Shall establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2008, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and The Employer Shall ensure that lift inspectors are qualified and that they are adequately trained in the inspection of the lift.
- Shall establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2008, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and The Employer Shall ensure that lift maintenance personnel are qualified and that they are adequately trained in the maintenance of the lift.
- Shall maintain the periodic inspection and maintenance records recommended by the manufacturer or ANSI/ALI ALOIM-2008, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance.
- Shall display the lift manufacturer's operating instructions; ALI/SM 07-1, ALI Lifting it Right safety manual; ALI/ST-05 ALI Safety Tips card; ANSI/ALI ALOIM-2008, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and in the case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts; in a conspicuous location in the lift area convenient

to the operator.

- Shall provide necessary lockout/tagout means for energy sources per ANSI Z244.1-1982 (R1993), Safety Requirements for the Lockout/Tagout of Energy Sources, before beginning any lift repairs.
- Shall not modify the lift in any manner without the prior written consent of the manufacturer.

3.4. Safety device features

SAFETY DEVICE	COMPOSED OF	POSITION	IN THE EVENT OF ...	EFFECT ON MAIN LIFT
MECHANICAL ANTI-FALL DEVICE	Rack jack	On each column	Leakage on the hydraulic circuit or breakage of a component	Accidental descent is blocked with a maximum displacement of 70 mm.
ANTI-SHEARING DEVICE	Buzzer	Electric panel of each column. It's activated at prefixed quote.	Descent on last stretch.	The platform lowering stops at 500 mm (18 inches) from the ground. To end the lowering press the following buttons together  The buzzer sounds during the last lowering phase.
PLATFORM ALIGNMENT CONTROL DEVICE	Electronic levelling system	Encoder	Maximum misalignment of 20 mm between the columns.	The lift stops moving.
HYDRA.IC PARACHUTE DEVICE	Parachute valve	On each hydraulic cylinder of the columns.	Breakage of hoses.	The valve blocks descent when the speed reaches a value preset by the Manufacturer.
EMERGENCY STOP MUSHROOM	Red mushroom button	On the control consolle	Operator danger	Stops all the movements and releases the mechanical locks of each column
SIGNALS	Stickers and plates	See paragraph: <i>Stickers and plates</i>	-	Draw attention to residual risks and precautions for use.

3.5. *Stickers and plates*

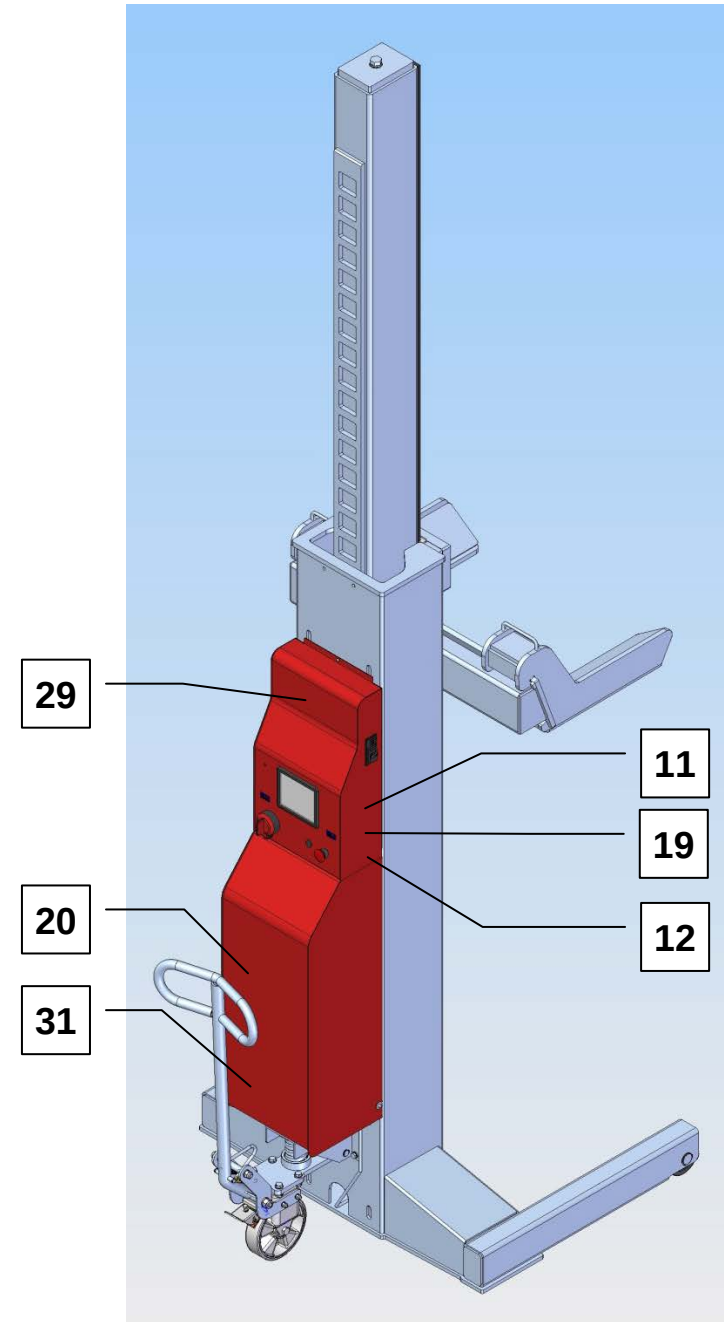
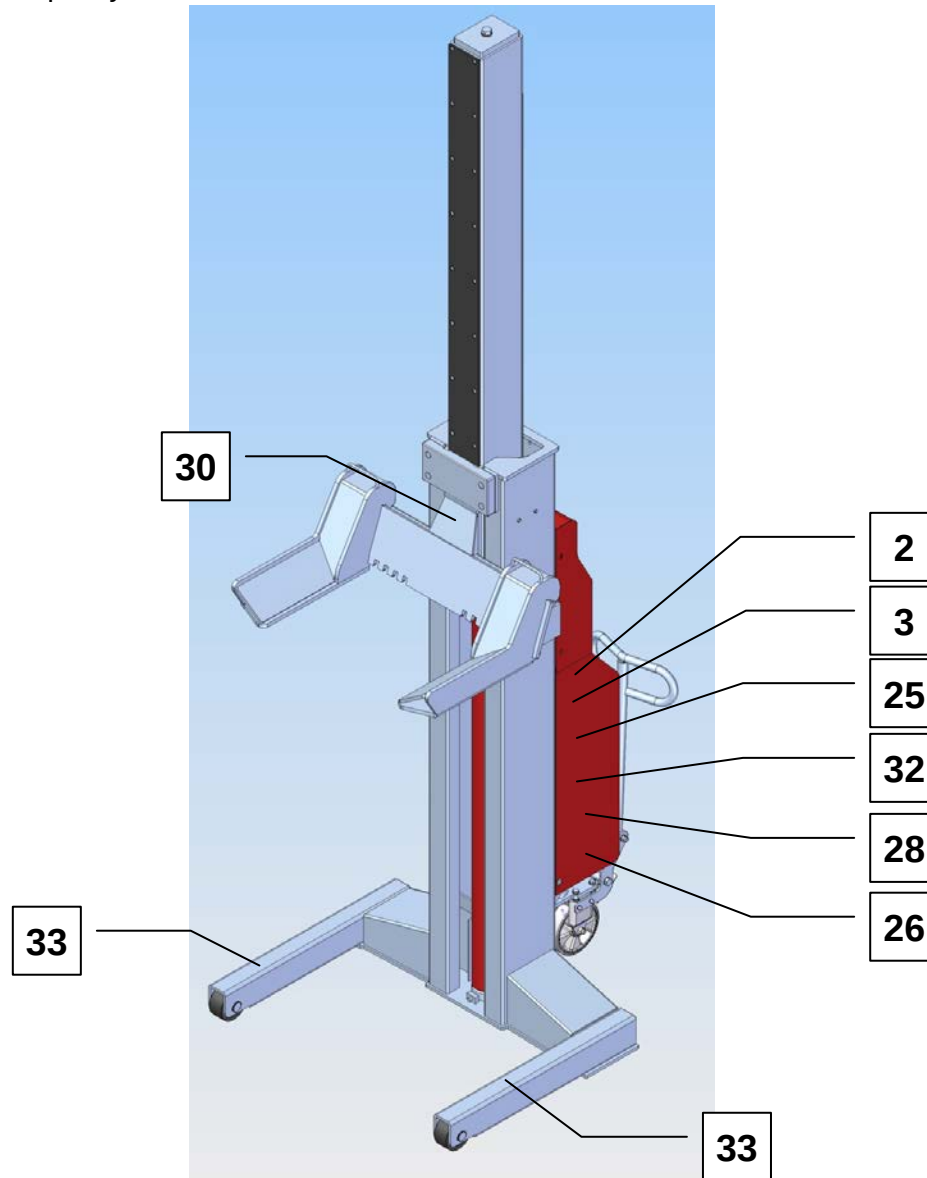
The labels must be readable and permanently attached to the equipment.

The labels that will be furnished with the equipment, together with their relevant positions, listed here below:

N.	Plate description
2	Risk of electric shock
3	Risk of explosion
11	Serial number plate
12	GOLD LABEL
19	Electrical supply data
20	Logo ATLAS MCO
25	Duty cycle time
26	Lifting beam capacity
28	WARNING – CAUTION – SAFETY INSTRUCTIONS
29	CAUTION: electromagnet
30	CAUTION: wheels load positions
31	CAUTION: brake the wheel before lifting
32	DO NOT USE BELOW GARAGE FLOOR OR GRADE LEVEL
33	YELLOW / BLACK STRIPES

COLUMN

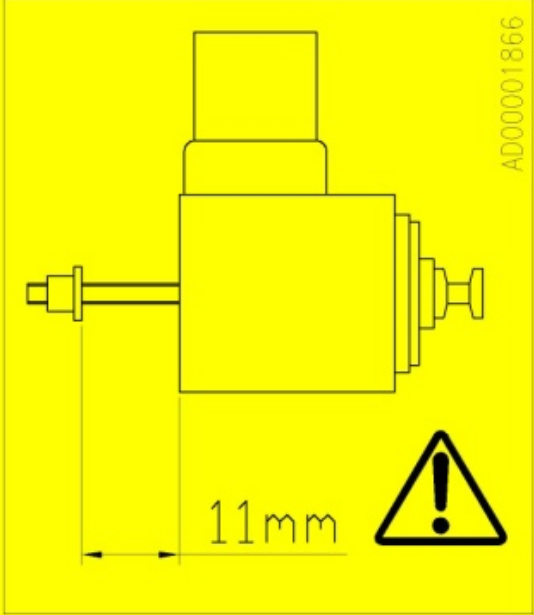
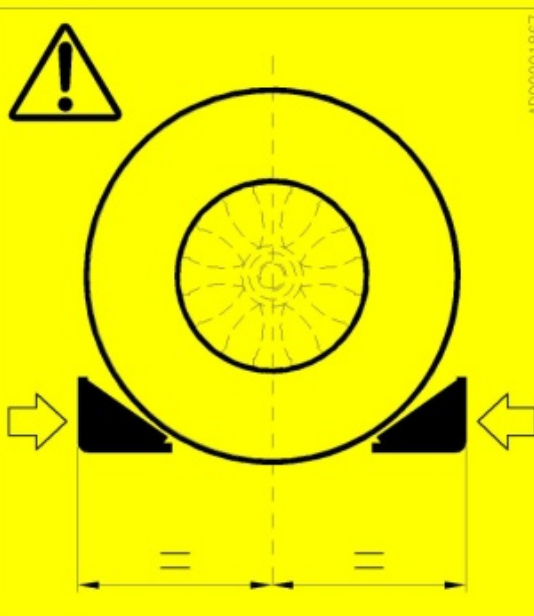
- Maximum capacity for an individual lift unit is listed on the lift unit's ID decal.

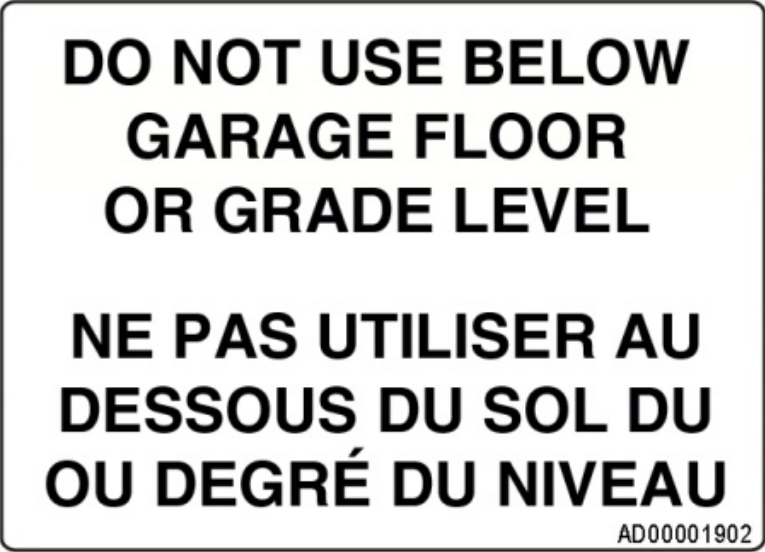


LABEL 2	“CAUTION: RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.” AD00000488
LABEL 2A	“ATTENTION: RISQUE DE CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. PAS DE PARTIES EMPLOYABLES POUR L'OPERATEUR A L'INTERIEUR. DEMANDER ASSISTANCE AU PERSONNEL QUALIFIE.” AD00001002
LABEL 3	“WARNING: RISK OF EXPLOSION. THIS EQUIPMENT HAS INTERNAL ARCING OF SPARKING PARTS WHICH SHOULD NOT BE EXPOSED TO FLAMMABLE VAPORS. IT SHOULD NOT BE LOCATED IN A RECESSED AREA OR BELOW FLOOR LEVEL.” AD00000490
LABEL 3A	“ATTENTION: RISQUE D'EXPLOSION. CE DISPOSITIF CONTIENT DES PARTIES QUI PORRAIENT ETRE EXPOSEES A DES VAPEURS INFLAMMABLES. IL NE DEVRAIT DONC PAS ETRE PLACE DANS UN LIEU FERME OR AU-DESSUS DU NIVEAU DU SOL.” AD00001003

LABEL 11	
LABEL 12	
LABEL 19	110 - 230 ac ~ SEE THE INSTRUCTION MANUAL FOR THE PROPER SELECTION OF THE POWER SUPPLY CORD OR PLUG

LABEL 20		LABEL 26	
LABEL 25		LABEL 28	Automotive Lift Institute, Inc. WL400 Series Label Kit  The messages and pictographs shown are generic in nature and are meant to generally represent hazards common to all automotive lifts regardless of specific style. Funding for the development and validation of these labels was provided by the Automotive Lift Institute, PO Box 85, Cortland, NY 13845. Replacement label sets may be obtained from the original lift manufacturer and ALI member companies. They are protected by copyright. www.ali.org © 1995 by ALI, Inc. ALI.org/ALI

LABEL 29	 Diagram of a mechanical component, likely a brake assembly, with a dimension of 11mm indicated. A warning symbol (exclamation mark in a triangle) is present. The label number AD00001866 is visible on the right side.
LABEL 30	 Diagram of a wheel with a warning symbol (exclamation mark in a triangle) and dimension lines indicating the width of the wheel. The label number AD00001867 is visible on the right side.

LABEL 31	 Diagram of a wheel with a warning symbol (exclamation mark in a triangle). The text reads: FRENARE LA RUOTA PRIMA DEL SOLLEVAMENTO, BRAKE THE WHEEL BEFORE LIFTING, BREMSEN DAS RAD VOR DAS HEBEN, FREINER LA ROUÉ AVANT DU LEVAGE, FRENAR LA RUEDA ANTES DEL LEVANTAMIENTO. The label number AD00001868 is visible on the right side.
LABEL 32	 DO NOT USE BELOW GARAGE FLOOR OR GRADE LEVEL NE PAS UTILISER AU DESSOUS DU SOL DU OU DEGRÉ DU NIVEAU AD00001902
LABEL 33	 Yellow and black diagonal hazard stripes.

4. INSTALLATION

Addressees:

- OPERATOR / SPECIALISED TECHNICIAN.



WARNING:

- Lift start-up must be performed by a skilled operator able to certify that the lift and all mechanical and electrical safety systems are functioning properly.
- The instructions contained in the chapter entitled INSTALLATION are written for authorized technicians only. Never allow anyone not authorized by the manufacturer to perform any operations.
- The manufacturer shall be held harmless and not liable for any damages caused by failure to follow the instructions indicated above. Failure to do so voids warranty.

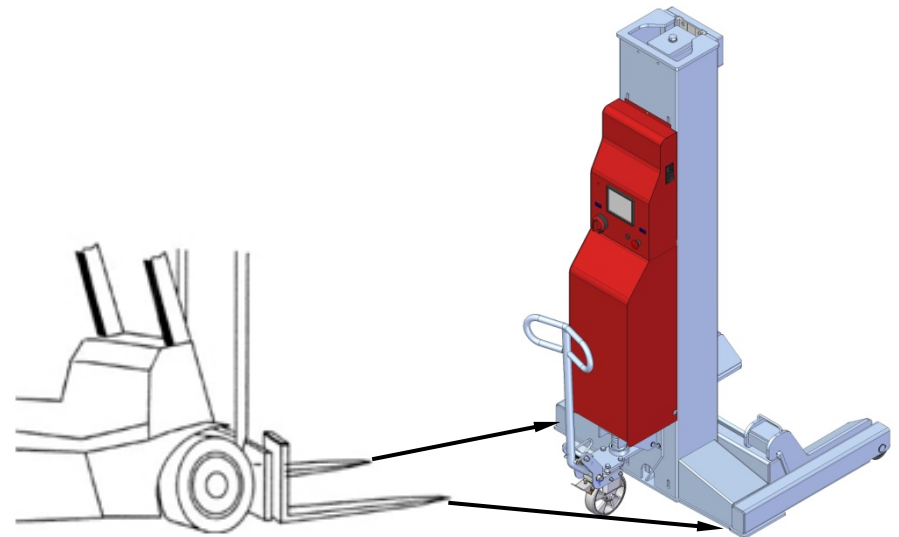
4.1. *Transport and handling*

The packaged lift must only be transported using dedicated hoisting equipment with a greater capacity than the lift to be handled.

The equipment is wrapped in bubble pack to protect the components wooden board or pallets (optional) are used in special cases.

PROCEED AS FOLLOWS:

- protect the electric control panel from exposure to the elements
- protect against blows and do not use the electronic control panel for hoisting
- protect the corners and ends of the piece to be transported with suitable material (Bubble pack - cardboard).
- harness using dedicated straps



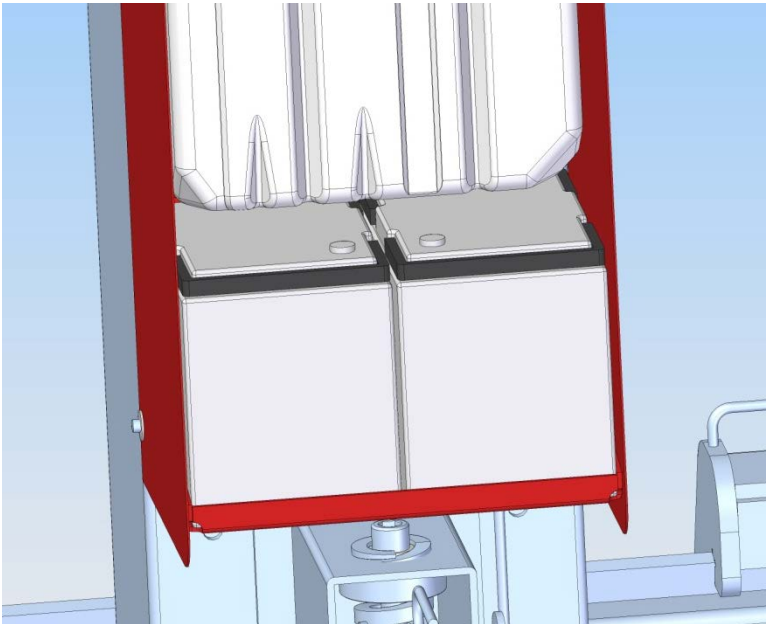
- Unloading: Mobile Lift System units are shipped in the vertical position.
- After unloading, remove and discard protective wrapping.
- **NOTE: Unit is shipped without power unit fluid. Installation of fluid MUST be completed prior to lift operation. Failure to do so will result in air entering the system.**
- To move the column, remove protective banding and wheel clamps from wheel support.
- Open power unit cover by removing the cover
- Fill power unit tank with ISOAW46 or ISOAW32 hydraulic oil. Tank capacity is approximately 12 liters.; refill when required. Short filling may cause vapor lock to occur.
- Connect two batteries in location as shown in the electrical diagram,
- Battery wires are clearly marked/labeled inside the unit itself.
- Install the locking plate on batteries as shown.
- Re-install the cover and fix it.
- **The unit will then have to be bled by performing some cycling up and down of the column in order to discharge the air into the tank** (the single movement can be done only by the maintenance engineer by using the proper access code)

4.2. Battery characteristics

Different batteries meeting the below specifications may be used but performance can vary.

Recommended Battery Specifications:

- 12V DC Sealed Deep Cycle Battery AGM type
- 80 AH Capacity (At 20 AH Rate)
- Stud Terminals with Stainless Steel Wing nuts



WARNING:

THE BATTERIES ARE READY FOR USE WITHOUT ADDING ANY COMPONENT INSIDE

4.3. Connecting the lift's commands



In case of connection of the battery charger , the electrical systems must be up to standard and prepared by a qualified electrician who is to make certain that there is an efficient ground.

The column has all the internal cables already installed

The only cable to be provided is the one needed to supply the battery charger.

A suitable cord has to be provided according the power supply required to charge the batteries, as follows :

Minimum recommended wire size for various length extension cords used with each battery charger:				
Length of Cord	meters	7.5	15	30
Cross Section	mm ²	1.3	2.5	4.0
Make sure cord is located so that it cannot be stepped on, tripped over, or otherwise subjected to damage or stress				

Only connect the machine to type approved sockets with an earth cable of proven efficiency.

Periodically have qualified personnel check the correct tightening of the electric cables of the various components.

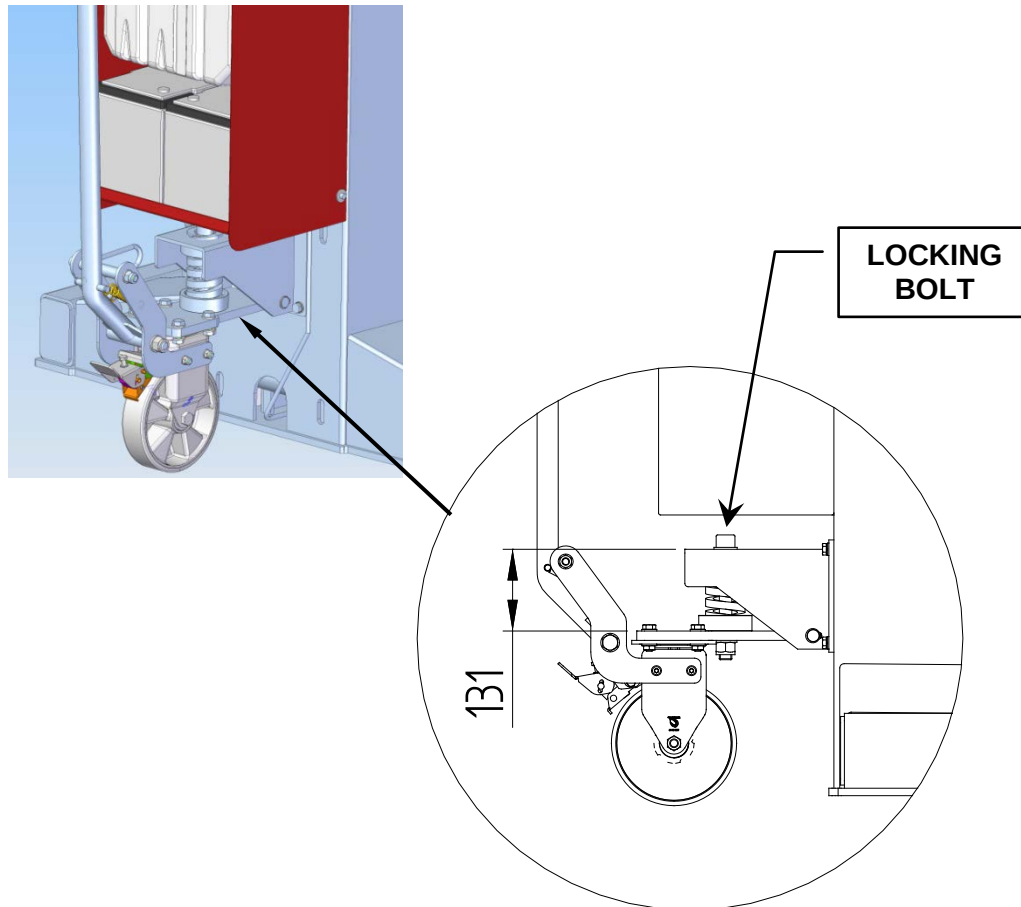
4.4. *Rear wheel adjustement*

The position of the rear wheel is prefixed during the assembling at the manufacturer premise.

To change the gap between the base of the column and the earth , the locking bolt has to be tightened accordingly.

The base preloaded length of the spring is 131 mm.

Such preloaded length assure that the column rests on the base when loaded , avoiding displacements due to the friction with the ground.



4.5. **Oil filling**

Add ISOAW46 or ISOAW32 hydraulic oil to the tank , until it reaches the full mark on the tank.

4.6. **Air bleeding**

To bleed the air, perform some cycle by lifting and lowering the column and by increasing the height each time (about 250 mm or 10 “)

4.7. **Ground requirements**

The service area must be clear of all personnel before the vehicle is positioned.

Locate lift on level concrete surface with a minimum strength of 20.6 MPa.



WORK AT A ROOM TEMPERATURE OF
-10 TO 40 ° C.

A different range may result in degraded
performance and reduced service life

To install the anchor capsules, the foundation must be suitable to support the local load and with the following characteristics:

CONCRETE RESISTANCE CLASS	≥ C 25
SIDE TO SIDE SLOPE	± 10.5 mm/ m
FRONT TO REAR SLOPE	+/- 21 mm / m

MAX. PRESSURE UNDER THE CENTRAL PLATE	Kg/cm ²	≤ 2,5
	psi	≤ 35



WARNING: DO NOT use on a suspended floor structure without specific approval from structural engineer.

4.8. Final testing

The static and dynamic load tests with overloads have been performed on the certified unit.

The user may perform nominal load tests (with a $\pm 10\%$ tolerance admitted for maximum valve calibration) with distribution of the loads as described in the *Loading conditions* paragraph of the installation, use and maintenance manual.

Tests can be carried out with the following “overloading factors”:

STATIC TEST	100 %	of the nominal load
DINAMIC TEST	100 %	of the nominal load

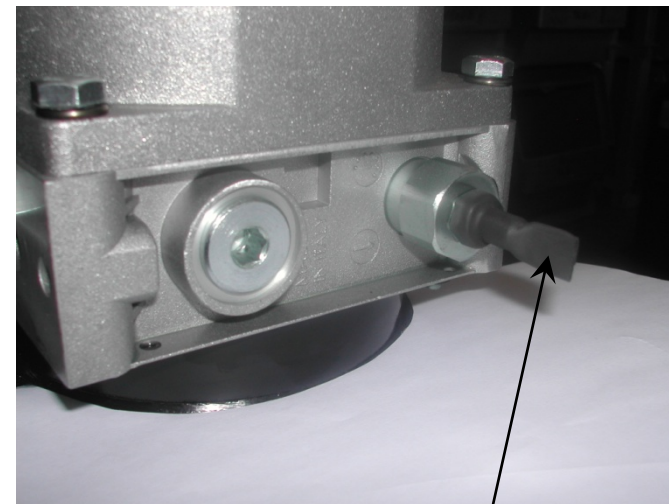
With loading distributed according the foreseen scheme of the machine in the charter “*Loading conditions*”.

To test the unit, the maximum valve calibration pressure must be check and adjust, checking the value on a manometer (not supplied).

NOTE :

To avoid any tamper of the setting the overpressure valve is protected by a sheath.

After the test the valve has to be protected again against unauthorized modification



**OVERPRESSURE VALVE
ANTI TAMPER PROTECTION**

5. **USE**

5.1. ***COLUMN POSITIONING***

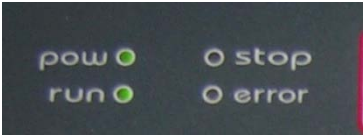
Adressees:

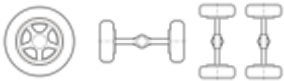
- USER;
- OPERATOR / SPECIALISED TECHNICIAN

- Position the vehicle in the location where it is to be lifted
- Adjustable forks must be equally spaced off centerline of lift carriage, and adjusted to properly accommodate the tire/wheel size.
- Position lift forks to fully contact the vehicle tires as far as possible
- Load vehicle on lift carefully.
- Release parking break on vehicle.
- Turn on the Power Up Switch
- Using the Control Panel set up the column parameters if not already done
- Position next column at second wheel using loading instructions from the previous step
- Turn on second column. Again, using the Control Panel
- Go on until all the columns are positioned

5.2. Column parameter setup

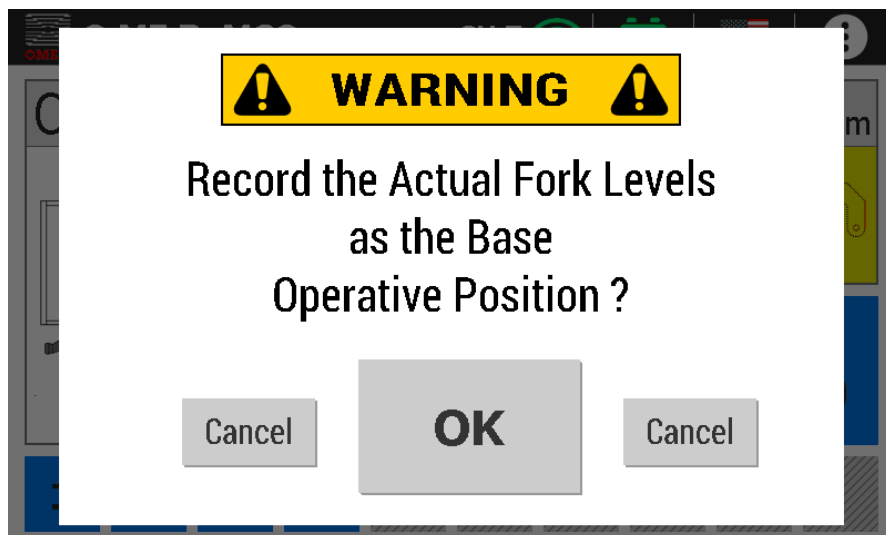
The start working with the columns, the following sequence has to be activated for each column

Turn on the main switch	
The led power turns on	
Choose the language	
Verify the batteries status	
Choose the number of columns to be joined together	

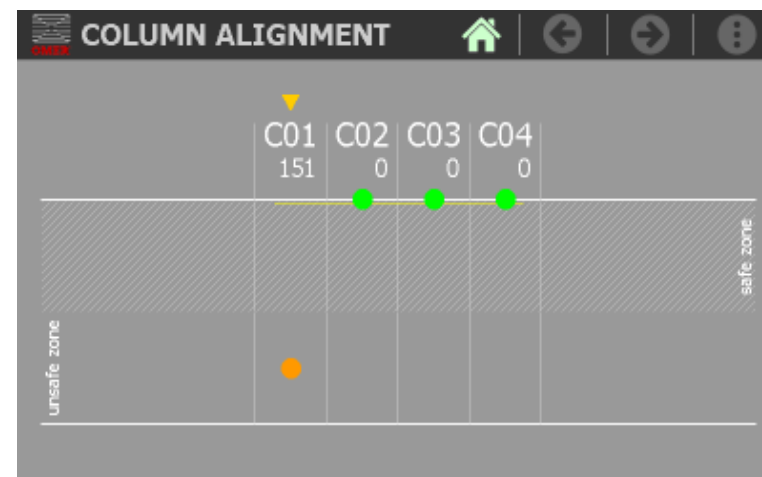
Choose the working status : - o Single - o Pair - o Group	
Choose the working height if different from the preset	
Define the master column	
Start lifting	

5.2.1. NOTE: Starting position

Before starting a lifting operation with the master column, the operator has to confirm the actual position of the forks by using the actual fork difference levels as the “ground “ starting level



The meaning of the screen is that the system records the actual columns position as show into the:



If you want to change the actual column position, use the column as a single column inside a group and lift or lower the fork according what needed.

5.2.2. Lifting

- When the entire system of columns is complete, press the System Configuration Lock/Unlock button to lock the lift configuration for operation.
- Raise lift until tires clear the floor.
- Check lift forks for secure contact with vehicle tires at all the columns
- Raise lift to desired working height.
- Press the Lower To Locks Button to lower columns onto the locking latches



While Using Lift: Avoid excessive rocking of vehicle while on the lift.



**Do Not go under vehicle unless all tires are in secure contact with forks.
Lower lift and repeat vehicle and/or lift spotting and loading procedure if required.**

5.2.3. Lowering

- Before Lowering Lift: Remove tool trays, safety stands, etc. from area
- To Lower Lift: Press the Lower Button to lower lift.
- Observe that all columns are lowering and vehicle remains level
- Ensuring that the System Configuration Lock/Unlock light is green, press the Raise Button to raise lifts off the locks
- Remain clear of forks and vehicle when lowering.
- Observe pinch point WARNING decals.
- When the vehicle has been completely lowered , reset the parking brake.
- Move all lift units away from the vehicle to provide an unobstructed exit before removing the vehicle.
- Remove the vehicle



**While cycling the lift, you may observe the individual columns slowing down and speeding up along the vertical stroke
This is a normal characteristic of the lift leveling system.
Monitor the safety locks while raising the lift by listening for the mechanical lock clicking and on the display of the column where the operator is operating the column group**

5.3. **Commands:**

- The lift is used to lift heavy vehicles for maintenance, cleaning or repair to optimum working height.
- Operation is carried out with a mobile control panel.
- Electronic controls ensure level lifting of the vehicle.

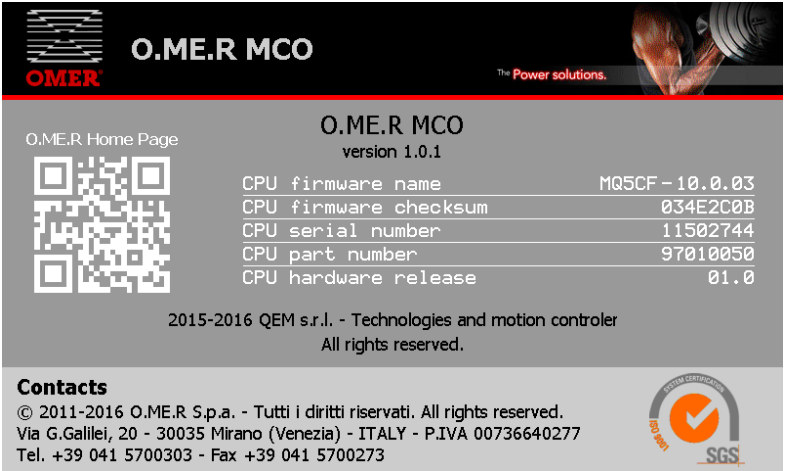
I	SYSTEM MAIN SWITCH: Activating this switch in 1 position, the control panel in enable.
	LOWERING ON THE MECHANICAL LOCKS : by pressing the button , the columns sit down on the mechanical locks The icon  blinks during the movement and at the end of  the operation the icon is displayed <i>The operation is allowed over 18 “ only and when the icon of the lock is green</i>
	LOWERING ON AUXILIARY STANDS : by pressing the button , the columns lower on auxiliary stands by using the levelling system The icon  blinks during the movement
BZ	The buzzer will be operated in the following conditions : A) Column joined to a column group , working together • In the first 500 mm (18 “) from the ground when lowering B) Column joined to a column group , working alone or combined with the column of the same axle • The buzzer is on along all the travel of the column

	LIFTING BUTTON : the lift starts lifting when pressing the button The icon  blinks during the movement As soon as one column reaches the max height the icon becomes  or  according the set up of the working height
	LOWERING BUTTON : the lowering sequence is as follows : - The columns lift a little bit in order to disengage the mechanical locks - After a while, the columns lower The icon  blinks during the movement - At 18 “ from the ground , the lift stops The icon  is displayed - To go on up to the ground level, the buttons  and  have to be pressed together The buzzer turns on - As soon as one column reaches the ground level , the columns stop The icon  is displayed

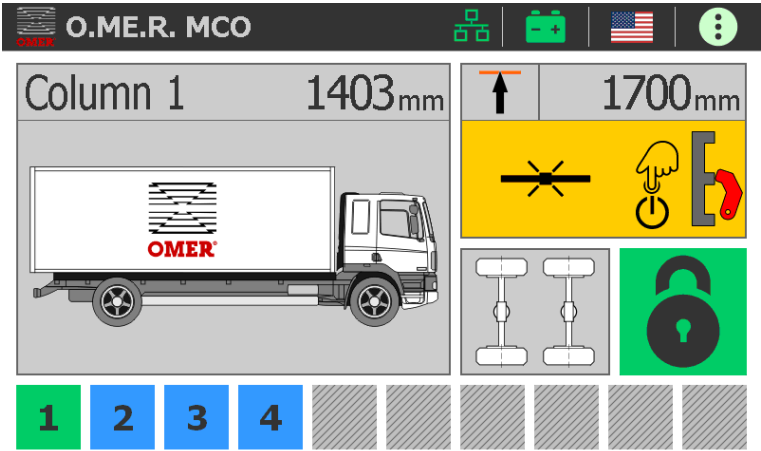
5.4. CONTROL TOUCH SCREEN

The information for the operator are shown by the touch screen display
The operator access the setting pages by touching the images of the screen
Devoted menu and questions are displayed, that drives the operator during the setting of the MCO for the operation required
The colored images helps the operator in recognizing the status of the columns and make easy and friendly the interface

The operator turns on the main switch
The batteries supply the system and after few seconds a starting window is displayed



By touching the window the main window menu appears



WARNING:

The commands are on for a defined time
Without movement the commands become off

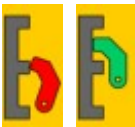
To turn on the commands again, press the icon

- To confirm the command, the button has to be pressed for two seconds at least
- The time can be changed from the menu at level 2

The main menu window appears again by pressing the icon



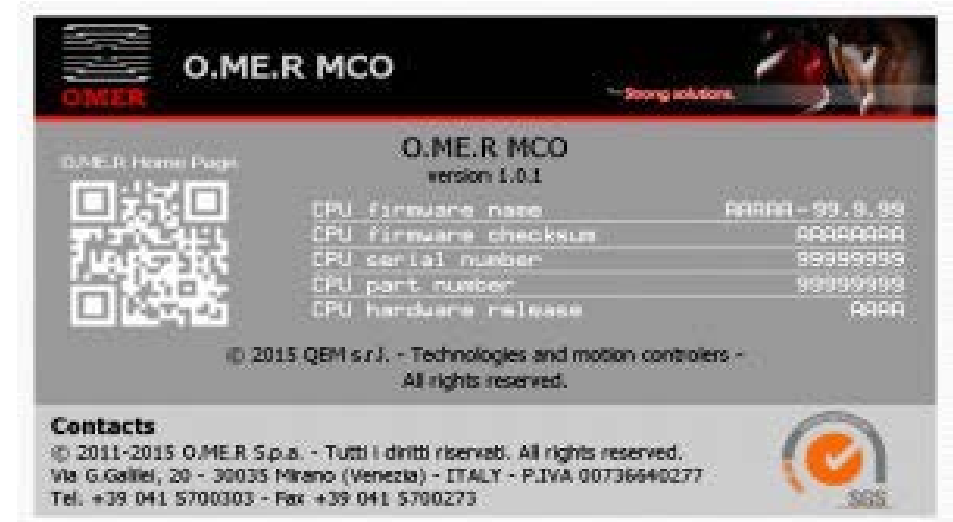
Each command must be pressed for 1.5 second at least in order to confirm the command and avoid unintentional misuse

ICON	MAIN PAGE DESCRIPTION
	THE BATTERY CHARGING LEVEL
	THE TYPE OF CONNETION : • WIRED
	THE LANGUAGE
	THE DATA MENU WINDOW
	THE COLUMN NUMBER ANT ITS VERTICAL LEVEL
	THE NUMBER OF COLUMN OF THE GROUP
	THE MAX WORKING LEVEL
	THE COLUMN STATUS
	THE STATUS OF THE MECHANICAL LOCK
	THE WORKING CONFIGURATION (GROUP, AXLE OR SINGLE)
	MASTER COLUMN BUTTON
	THE CONNECTION STATUS OF THE COLUMNS

5.4.1. General system information

The system information page shows the main reference data of the Hw and Sw release.

These information are very useful in case of maintenance.



5.4.2. Language selection

Press the flag to change the language

Select the Message Language

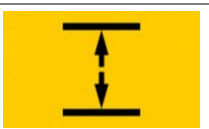


5.4.3. Mechanical lock status

The system controls the position of the locks and of the locking positions of all the columns and displays the corresponding icon in order to show the locks position to the operator

	The system checks that all the columns are in the same condition The locks are in the wrong position to sit down the columns on the locks
	The system checks that all the columns are in the same condition The locks are in the right position to sit down the columns on the locks
	The system checks that all the columns are in the same condition the locks are not in the right position to sit down the columns on the locks
	The system checks that all the columns are in the same condition The locks are sit down the columns on the locks

5.4.4. Column status

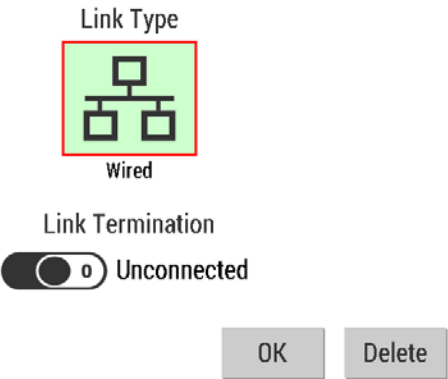
	The column is standstill
	The column is moving upward During the movement the arrow is blinking
	The column is moving down ward During the movement the arrow is blinking
	The column is moving downward at low speed up to sit on the mechanical locks (locks closed) During the movement the arrows are blinking
	The column is moving downward at low speed During the movement the arrows are blinking

5.4.5. Connection type

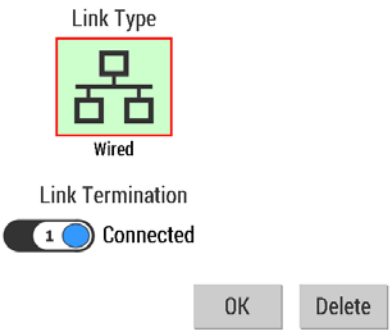
	The wired connection is off No other columns are joined together.
	The wired connection is on Other columns are joined together.

By pressing the icon  the operator can verify or modify the column configuration.

In case a cable connection has been chosen, the first and the last column has a link termination to be switched on



When turning on the columns, the window shows the status of the other columns working together.
When the column is connected the column number becomes blue



In case the system finds another column and with the same number, a warning window is displayed

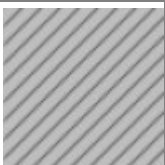


If the operator goes on by setting the column set, an alarm window is displayed

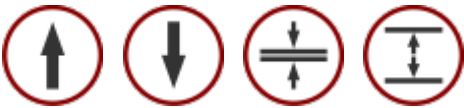


5.4.6. Connection status

The status of the column is identified by the corresponding icon as follows

	The column is not included into the used columns.
	The column is on but it is not yet connected to the other columns of the group
	The column is on and it is connected to the other columns of the group.
	The column is on and it is connected to the other columns of the group. The column is the master one in the group configuration and all the movements are allowed from this column
	The column is on and it is connected to the other columns of the group. The column is the master one in the axle configuration and all the movements are allowed from this column
	The column is on and it is connected to the other columns of the group but the column is in the alarm status

As soon as a column is locked and becomes the master of the group , any parameter can be changed in any column
The icon of the column turns green
Only the buttons of the master column

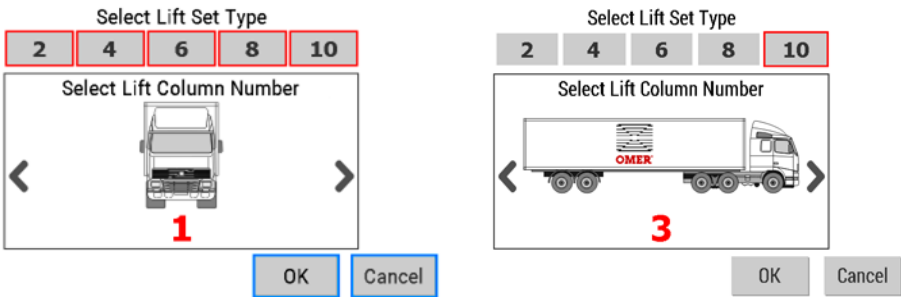


are available to operate the colum group.

The column has to be unlocked in order to change the set up parameters and the icon turns blue again.

5.4.6.1. Column number

By pressing the icon  the operator chooses the number of the columns that work together



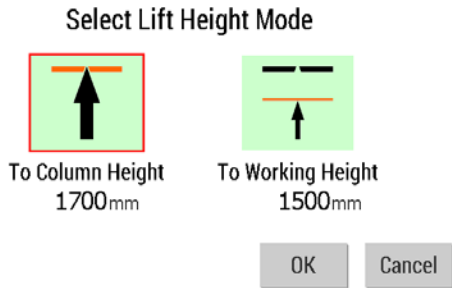
The columns numbers became highlighted at the bottom of the touch screen display

5.4.6.2. Max working height selection

By pressing the column height



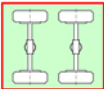
The height working window appears



The operator can change the max working height according the actual needs

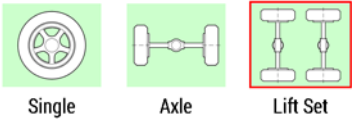
WARNING: *the height has to be changed on all the columns of the group ; the max working height can be changed only at level 2.*

5.4.6.3. Lifting mode selection

By pressing the icon  the operator chooses the lifting configuration

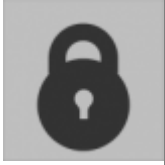
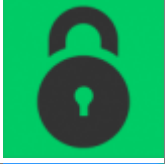
- Single column
- Axle
- All together

Select Lift Column Mode



	After a group of columns has been identified, a single column can be moved During the movement the buzzer is on always
	After a group of columns has been identified , two columns of the same axle can be moved together Select the slave column as first Select the master column as second
	After a group of columns has been identified, all the columns are moved together

5.4.6.4. Master command button

	The column is not allowed to command The lock becomes gray when another column has been chosen as the master one
	The column is allowed to become the master one Press the lock for two seconds .
	The column is now the master one in the group configuration All the movements are allowed from this column
	The column is now the master one in the axle configuration All the movements are allowed from this column

5.4.6.5. Axle Master column identification

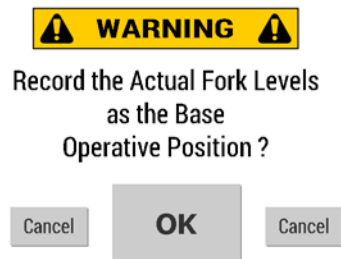
By pressing the button with the column number where the operator is standing, he confirms that the column is the master one of the two columns of the axle
The other columns become slave and can not be operated until the master column has been turned off

Press the Button Below
if You Want to Choose for This Column
to Be the Master in Axle Column Mode



5.4.6.6. Starting position

Before starting a lifting operation with the master column, the operator has to confirm the actual position of the forks



By confirming the fork position the operator say to the system that the actual fork level is the starting position stored for all the following operations and erase the level error of the forks
If the operator does not confirm, the system recover the last fork positions as starting position including the level errors of the columns .

5.5. Column menu

By pressing the icon  a window is shown , where it is possible to access to information windows, suitable to understand the status of the column and for maintenance purposes



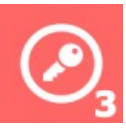
Operator level

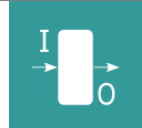


Maintenance engineer level



Manufacturer level

	Level of data access
	Setup parameter windows
	setup movement parameter windows.
	Setup encoder windows
	Setup batteries parameter windows.
	Procedure for the alignment of a column out of range

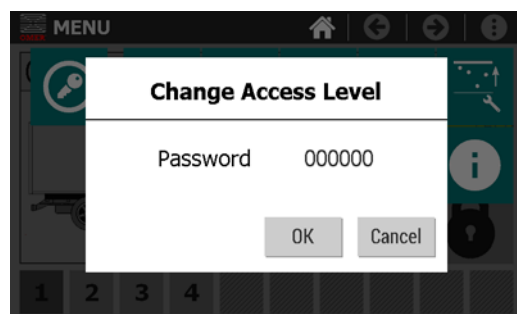
	i/o status windows.
	Alarm windows
	Vertical position of the column group.
	Column working data window.
	Hw and sw data windows
	Manufacturing data windows.
UP DOWN	Manual movement of the column alone, not joined to the other Allowed only at level 3

The main menu window appears again by pressing the icon	
---	---

5.5.1. Access level

The internal parameter of the MCO can be modified by using suitable password

Different level of passwords are available according the skills of the operator and maintenance engineers



The level are as follows :

	Operator or end user
	Maintenance engineer
	Manufacturer and Sw engineer



WARNING:

To reset the access level digit again the pwd.



The access level as to come back to

The accessible windows and the relevant data are accessible as follows :

DESCRIPTION	LEVEL 1		LEVEL 2		LEVEL3	
	R	M	R	M	R	M
SET UP PARAMETERS	X		X	X	X	X
REG.ATION PARAMETERS	X		X		X	X
ENCODER PARAMETERS	X		X	X	X	X
BATTERIES PARAMETERS	X		X	X	X	X
WORKING DATA	X		X		X	X
ALARM LIST	X		X	X	X	X
DATA RESET					X	X

R = READ

M = MODIFY

5.5.1. Columns displacement info

The window is accessible at level 1

The page shows :

- the actual vertical position of the column
- the max vertical difference of height among the columns detected during the movement.
- The actual difference of level among the columns

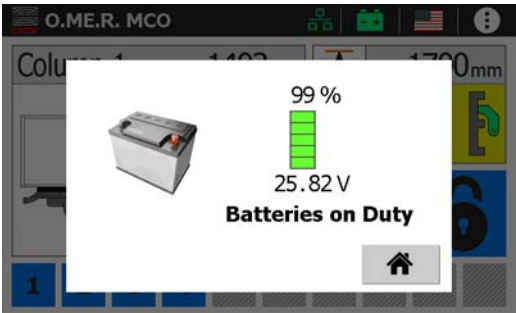
COLUMNS INFO									
► C01	1683 mm	Σ01	6	Δ01	0				
C02	1695 mm	Σ02	17	Δ02	11				
C03	1694 mm	Σ03	16	Δ03	10				
C04	1693 mm	Σ04	15	Δ04	8				
C05	1694 mm	Σ05	16	Δ05	5				
C06	1693 mm	Σ06	15	Δ06	5				
C07	1689 mm	Σ07	13	Δ07	5				
C08	1688 mm	Σ08	12	Δ08	4				
C09	1691 mm	Σ09	16	Δ09	3				
C10	1686 mm	Σ10	18	Δ10	1				

5.5.2. Battery level

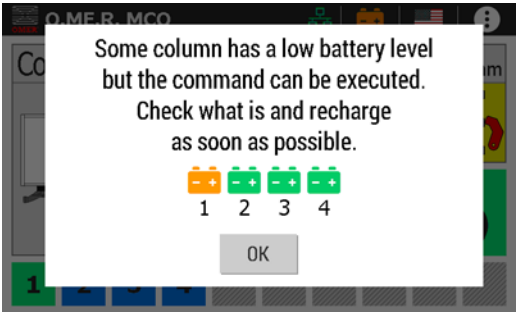
5.5.2.1. Battery status



By pressing the icon the charging level of the batteries, a percentage, is shown

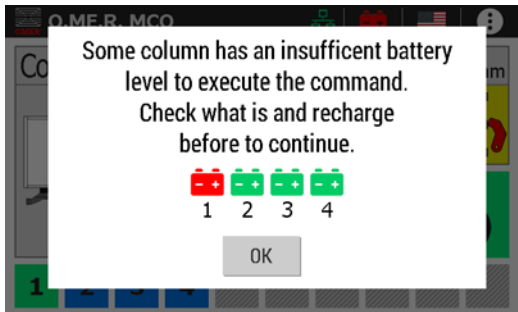


When the voltage of the batteries drops below the set value a charging warning window is shown



An other operation can be done, but the battery charging is strongly advised.

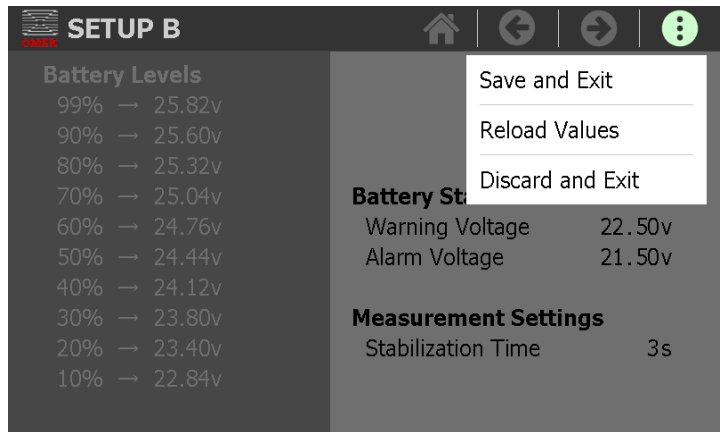
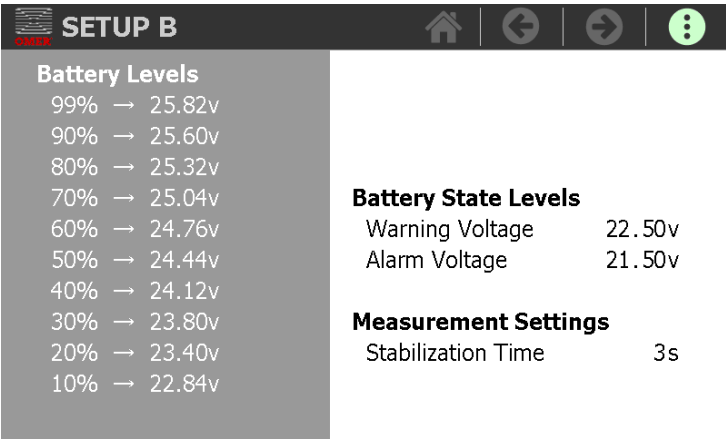
When the voltage of the batteries drops below the set value a charging alarm window is shown



The column is stopped and no other operations are allowed.

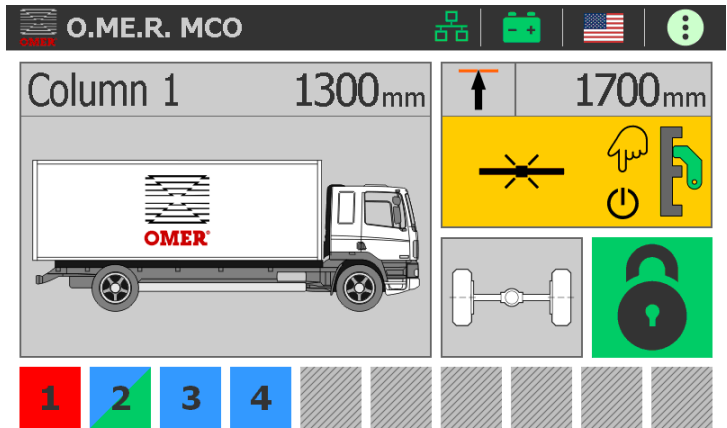
5.5.2.2. Setting

The menu is accessible at level 2 by a password
It allows the warning and alarm figures of the batteries voltage according the manufactures datasheets



5.5.3. Column manual leveling

In case a column overcomes the alignment range, the column number becomes red

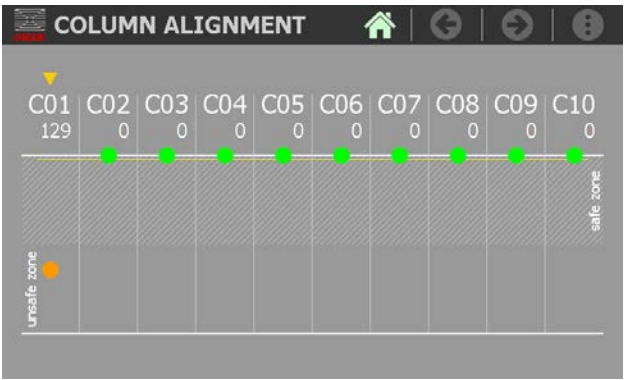
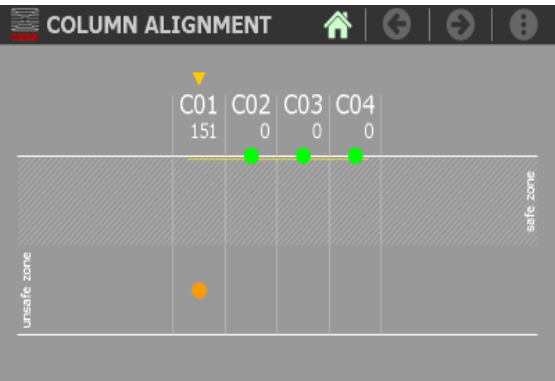


Press the red number of the column
To adjust the column height inside the alignment range , the alarm message has to be erased
Then

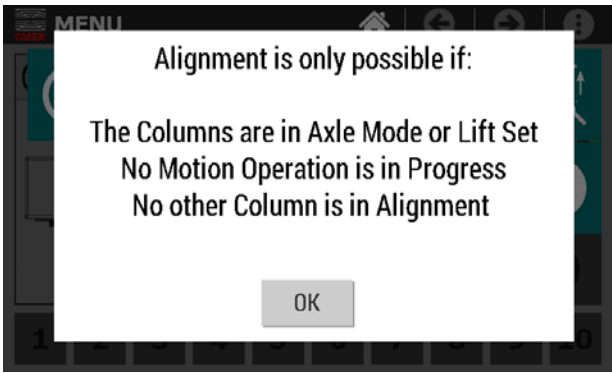


Press the icon

The operator by pressing the up bottom moves the column within the alignment range and stops within the levelling range
The actual relative position of the columns is displayed
The column ball colour shows the position inside the alignment range
When all the balls are green the operation can go on

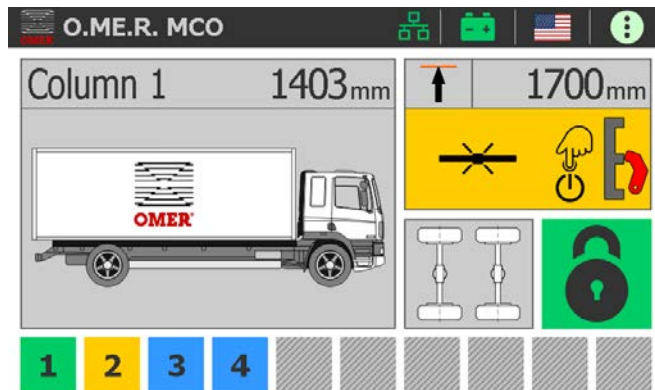


A warning window appears before allowing the manual leveling operation



Note :

- The alignment procedure can be done one column at a time
- When doing the alignment procedure on one column, the following page is displayed on the other columns (yellow number of the column)



5.5.4. Column working data

The pages are accessible at level 1 by pressing the icon . It shows the data that sum up the amount the work done by the column as :

- Number of operations
- Length of the displacement
- Time on
- others

COLUMN STATISTICS		
Column Statistics		
PS Activations	4	
PD Activations	0	
PC Activations	0	
PA Activations	1	
-- empty --		

COLUMN STATISTICS		
Column Statistics		
Liftings	2	
Distance Traveled	51 m	
C1 Active Time	0d 0:17:44s	
EVR Activations	11984	
EVR Active Time	0d 0:16:17s	

COLUMN STATISTICS		
Column Statistics		
CPU Active Time	0d 18:02:11s	
LCD Active Time	0d 10:04:48s	
Radio Active Time	0d 17:08:58s	
Buzzer Active Time	0d 0:00:11s	
-- empty --		

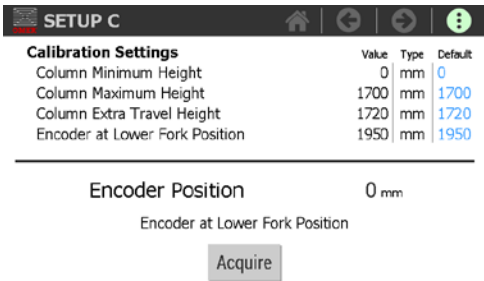
COLUMN STATISTICS		
Column Statistics		
PS Active Time	0d 0:00:07s	
PD Active Time	0d 0:00:00s	
PC Active Time	0d 0:00:00s	
PA Active Time	0d 0:00:13s	
-- empty --		

5.5.5. Vertical displacement setting

This menu is accessible at level 2 by a password



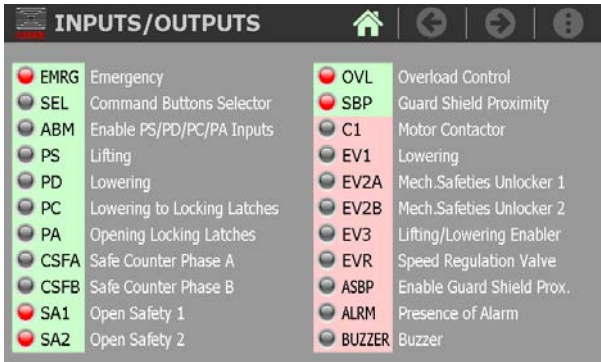
Press the icon
It allows to store the actual figure of the encoder



Check that all the columns are in the lowest position before recording the encoder actual figure.
If needed discharge the oil by opening manually the hydraulic valves.

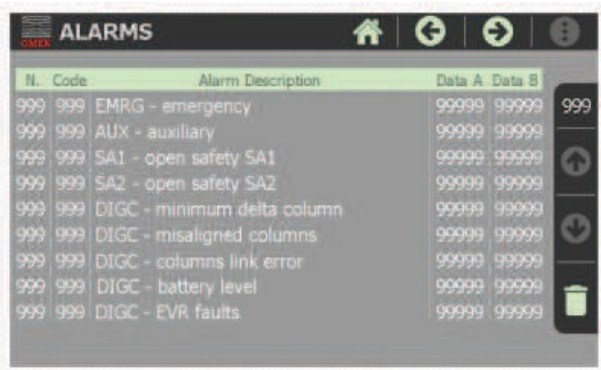
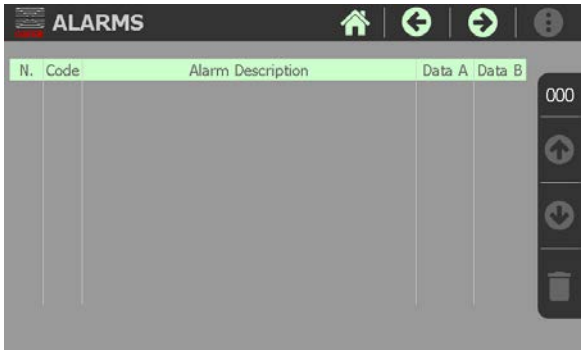
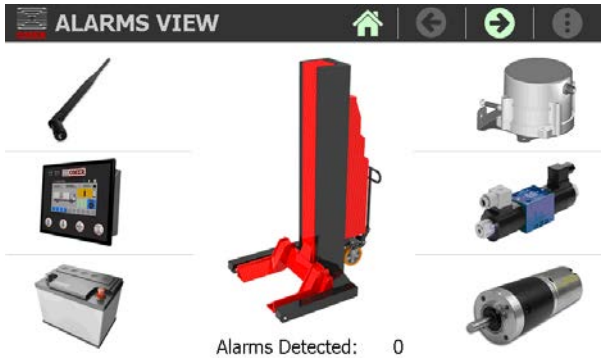
5.5.6. Component status

The component status is accessible at level 2 by a password
It shows the which component is on or off and the presence of alarms as a consequence of a fault

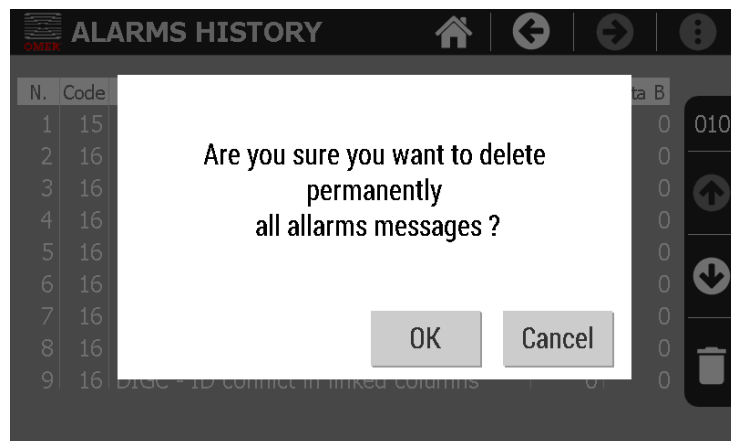


5.5.7. Alarm list

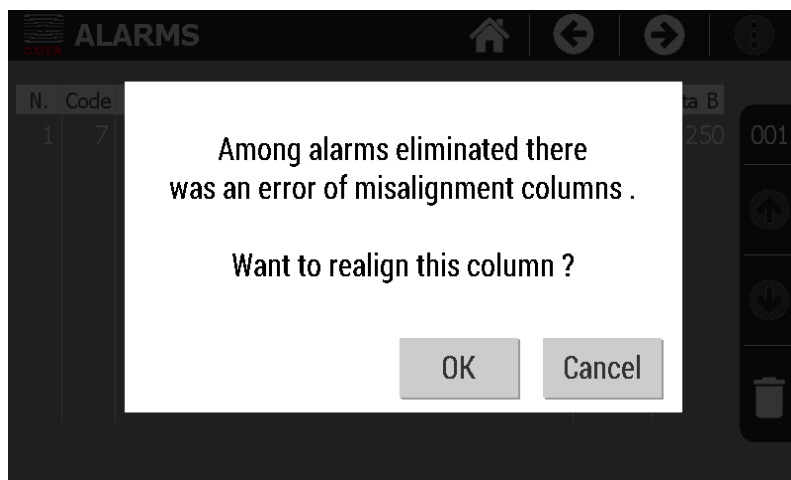
The menu is accessible at level 2 and 3 and shows where a fault has been detected



To delete the alarms , press the button “delete” and then “OK”



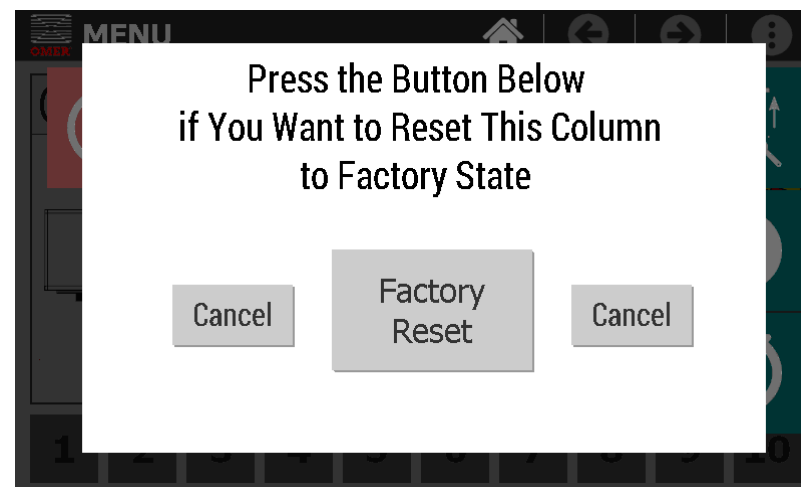
When deleting alarms, this window can appear in order to proceed with the alignment procedure



5.5.8. Data reset



By pressing the icon at access level 3 ,a window is displayed in order to reset all the data to the manufacturer issue



5.6. Residual risks



	HAZARD	WHO	CONDITION	RISK
	PIPE BREAKING	Maintenance technician	MAINTENANCE	Contact with squirts of pressurised oil
	AIR ELIMINATION FROM CYLINDERS			
	PIPES LOOSENING			
	ELECTRIC SHOCK	Maintenance technician	MAINTENANCE	Contact with live components
	SHEARING	Maintenance technician Operator	MAINTENANCE OPERATION	Shearing of hands and feet with lift is in movement.
	LOAD INSTABILITY	Maintenance technician Operator	MAINTENANCE OPERATION	Overturning or displacement of the column or the load
	TIPPING OVER OF THE LOAD	Maintenance technician	MAINTENANCE	During manual lowering, check that the load moves smoothly, without being thrown out of balance. Operate the valves so that the bridge is realigned step by step.
	REDUCED VISIBILITY	Operator	OPERATION	Possible third-party damage

5.7. Emergency Procedures



The “unlocking procedure” has to be carried out from specialized people and authorized from the manufacturer.

5.7.1. Emergency Stop

A power disconnecter is positioned on the column cover to be used in case an emergency stop is required

It is red in color and simply needs to be turned anticlockwise to halt the column and as a consequence all the columns working together.

The power disconnecter cuts the battery supply
It is lockable in the open condition

5.7.2. Emergency (no power) Lowering:

- Remove tool trays, safety stands, etc. from area.
- Remain clear of forks and vehicle when lowering
- During lowering of lifts, ensure that vehicle does not move into an inclined position.
- Lower columns equally.

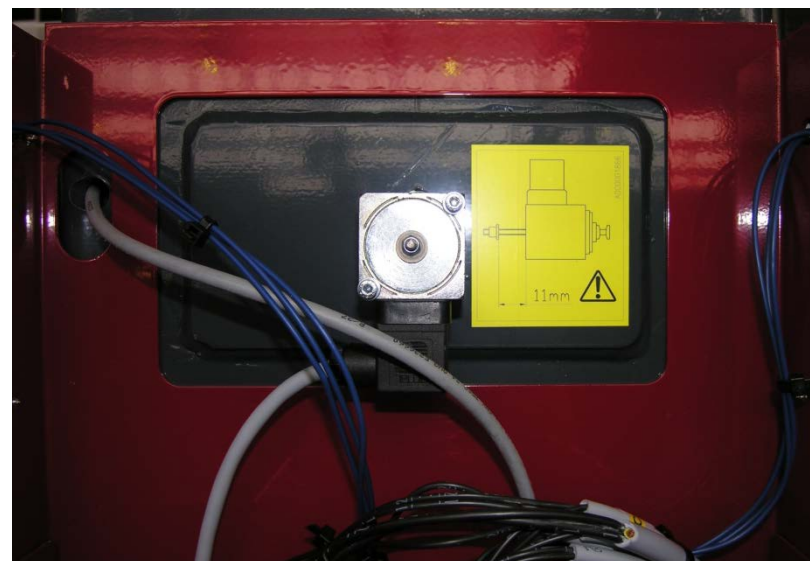
NOTE: In the event batteries become fully discharged, plug the columns into electrical outlet for approximately 30 minutes to achieve adequate charge for one operation cycle. Length may vary based on battery type, condition, etc.

5.7.3. Emergency lowering sequence

- Remove the Unit Cover.
- Pull lock open.
- Pull the Manual Lowering Valve Button and the carriage will begin lowering.

- o If lift is on locks, slightly lift carriage until lock is free.
- o Lower each carriage a small increment at a time keeping the vehicle level.

- o Release the Manual Lowering Valve Button and the downward movement will stop.
- After lowering is finished, close and re-install the Unit Cover.
- If lift is not operating properly, Do Not use until operation is corrected or repairs are made by qualified lift service personnel.



5.7.3.1. Emergency lowering sequence near ground position

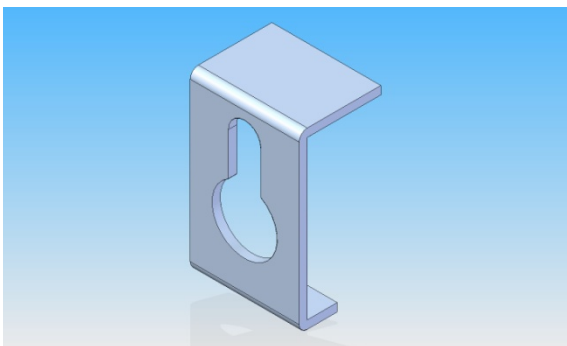
Up to 50 mm from the ground level the forks can be lowered

- to free the wheel
- and or set the zero reading of the encoder

by following the Emergency sequence (see previous paragraph) without opening the lock because it is not needed.

5.7.4. Manual lock of the main Column Lock

To lock in position the lock , a locking plate has to be positioned on the back side of the magnet, in order to avoid movement of the magnet axle
In such a way the main lock of the column is maintained in open position

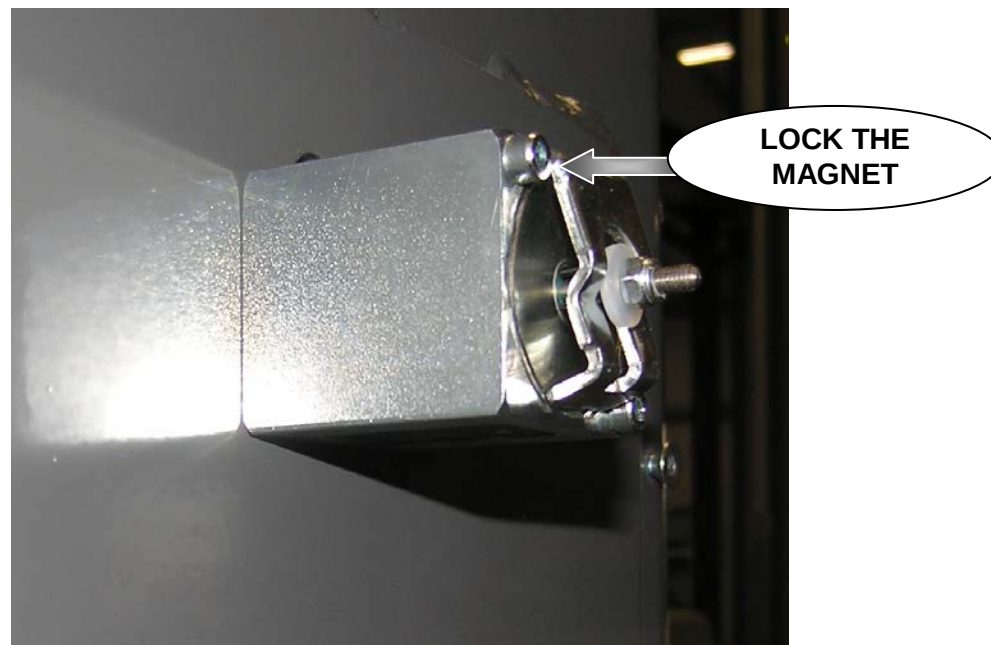


Locking plate

To insert the docking plate, verify that the lock is free to move
Otherwise lift a little bit the column in order to free the lock



- *Remove the locking plate before restarting the column*
- *Close the control panel*





6. MAINTENANCE

Addressees:

- OPERATOR / SPECIALISED TECHNICIAN.

6.1. Manual scope

This manual provides the information needed by the:

- owner
- maintenance contractor
- any other qualified and authorized party,

regarding maintenance of the lift platform.

It defines the operations to be performed to ensure correct platform maintenance in compliance with current safety standards.

Maintenance must be performed by a qualified maintenance contractor.

All modifications and parts replacements must be recorded in the special section of this manual.

Only original parts can guarantee safety and proper operation.

The manufacturer of the platform will be pleased to help with any problem you may have regarding the use and maintenance as well as requests for upgrading.



All scheduled maintenance operations must be performed by adequately trained personnel able to work in full safety.

The lift bodies, control devices and safety devices must be periodically checked by the user to ensure that the unit is always in good condition

6.2. Safety standards for maintenance

Before starting the maintenance and inspection procedures, always perform the following operations:	
	• pick-up the technical documentation for the system; • check that the documentation and system match ;
	Always wear adequate clothing and accident-prevention equipment during the various phases of maintenance. In particular: - Overalls with snug-fitting cuffs - Goggles/safety glasses - Gloves - Helmet - Dust mask - Safety Harness - Safety shoes
	Always use equipment that is in good condition
	• have on hand a portable lamp to light the areas under maintenance.
	• identify system cut-off switches; • Cut off power to the electrical system before performing any operation near or on moving mechanical parts or before performing any operation on powered parts of the system. • Lock the cut-off switch in the open position using a padlock • make certain that the system is not repowered while the works are in progress
	• NEVER operate directly on control breaker • NEVER lubricate parts while they are moving

 MACHINE OUT OF SERVICE machine undergoing maintenance	• post signs reading “DO NOT PERFORM ANY OPERATIONS, machine undergoing maintenance”
	During maintenance or replacement of hydraulic system components, • always prevent any foreign bodies, even very small ones, from entering the circuit as this could lead to malfunction. • Vent hydraulic pressure before loosening the connections
	Cut off power to the machine panel before performing any welding operations on the platform. Platform welding operations can seriously damage electric, electronic instrumentation and equipment if they are powered.

6.3. *Maintenance Instructions*



WARNING:

To Avoid Personal Injury: Permit only qualified personnel to perform maintenance on this equipment.

Contact factory for devoted instructions when needed

- o Always keep locking latch free.
- o Always keep all bolts tight.

All inspection and maintenance procedures must be performed **after** the equipment has been removed from service.

6.4. *Routine maintenance*

We recommend the following ordinary routine maintenance operations

	WHERE	WHAT	MACHINE STATUS	HOW	TYPE OF LUBRICANT
Daily		Check locking latch movement	Make sure latch operates freely.	By clicking of the lock	
		Check for oil leakage		Visually	
		Check forks and carriage for damage		Visually	
Monthly		Tank filling	Lower lift check oil level in oil tanks on each column:	Open Power Unit Cover.	If necessary, add ISOAW46 or ISOAW32 hydraulic oil, until it reaches the full mark on the tank
		Examine Cords	Check the condition of the charging cord and the communication cords on each column.	Replace worn or broken cords as required.	
		Inspect battery terminal connections	Make sure they are clean and residue free	Visually	
		Check that the down stop catch pawl rotates forward and backward freely		Manually	
		Inspect structure for damage to contact surfaces, excessive wear, damaged or cracked welds and/or any abnormal conditions that could affect performance		Visually	
		Review all cables and cable connections for damage		Visually	
		All warning and capacity labels should be readable and complete.	Wash external surfaces of lift, labels, and decals with a mild soap solution.	Visually	
2 years		Change Fluid		See procedure 6.4.1.	

Periodically check the electrical safety devices and report any faults to the Service Centre.

6.4.1. Oil change procedure

- Columns must be completely lowered.
- Remove cover panel from power unit.
- Clean around the surface of the oil fill plug
- Remove oil from power unit tank.
- Refill with approximately 12 liters of hydraulic oil meeting ISOAW46 or ISOAW32, into the tank.
- Check oil level in oil tanks on each column, add if necessary.
- Allow at least 1" of air gap at the top for fluid expansion and to prevent spilling when moving the lift unit.
- Install the oil fill plug and clean up any spilled oil and operation.
- Install the cover
- Dispose of waste oil according to legal regulations

To restart the column, perform some cycling in order to bleed the air from the hydraulic circuits.

Note:

- o Do not use brake or transmission fluid
- o Use of the wrong fluid can deteriorate the seals and corrosion problems will occur.
- o If the lift carriage does not rise to full height before the pump cavitates, or jumps check for air in the system.
- o See for instructions on how to bleed air from the hydraulic system.

6.4.2. Bleeding air from hydraulic

By filling the tank and the cylinder by oil the first time, a certain amount of air remains trapped inside and the lift carriage can jump.

To remove the trapped air perform some cycling, avoiding to reach the end of the stroke of the cylinder

There are two procedure that can be used :

- a) By using the column as an operator, connect two columns on a group and move one single column at a time
- b) By entering at level 3 , move a single column alone

6.5. BATTERY

6.5.1. Battery Charging

Battery chargers have to be plugged when needed.

Life of the battery depends from the regular charging (for example, after every use), and not allowed to be fully discharged.

The charging level is indicated by a symbol on the operator display

The supplied battery charger is intended for use with any type of batteries.

The front panel shows the status of the battery charging level; a yellow light indicates that the battery is partly discharged and should be recharged.

A red light indicates that you are near the end of the battery capacity and may not have enough energy left to complete a fully loaded lift cycle; the batteries must be recharged.

A green light indicates a full charge instead.

As a reference, a fully discharged battery will need to be recharged overnight to be fully restored.

If a single lift is required, a short charge time (such as 30 minutes) should restore the batteries enough for a fully loaded lift cycle.

Battery performance will depend on

- the brand of battery selected,
- the battery specifications,
- the battery maintenance
- the number of charging operations of the batteries.

CAUTION: The area should be well ventilated when charging batteries

The battery charger provided on each lift unit is a “smart” charger. The battery charger automatically goes through several different stages of charging to properly charge the batteries.

The lights on the battery charger indicate the current stage of charging.

A flashing or solid yellow light indicates the charger is in the bulk

charging mode.

A flashing or solid green light indicates the battery is fully charged and the charger has switched to its maintenance charge mode.

The battery charger can be left plugged in indefinitely without harming the batteries.

NOTICE:

Only use the supplied battery charger to charge the batteries.

The supplied battery charger is designed for the type of the lift batteries.

Do not use a different charger in order to avoid under or overcharging and reduce the life and capacity of the batteries.

6.5.2. Battery Information

6.5.2.1. Battery Type

Each lift unit is equipped at the factory with two wet cell, deep cycle batteries.

These batteries have been selected to match the usage conditions found on the lift unit.

If replacement batteries are needed, it is recommended to use only the same brand and model of batteries originally supplied with the lift unit.

Do NOT mix old and new batteries or use different types/brands of batteries on the same lift unit.

6.5.2.2. Battery Maintenance

REFER TO THE MAINTENACE INSTRUCTIONS OF THE BATTERIES SUPPLIED WITH THE COLUMN

According to the main international standards a battery is considered at the end of its service life whenever delivering less than 80% of its nominal capacity.

All Lead Acid Batteries emits gases during the charge process. FIAMM VRLA batteries have a high recombination efficiency (>98%) and for cells operated at 20°C under normal operating conditions venting is virtually negligible.

The quantity of gas given off in the air (it basically consists of 80-90% hydrogen) is very low and thus it is clear that FIAMM VRLA batteries can be installed in rooms containing electric equipment with no explosion danger or corrosion problems under normal conditions. In any case these rooms or cabinets must have a natural or forced ventilation and not be fully sealed.

6.5.2.2.1. SAFETY

is recommended that full precautions be taken at all times when working on batteries.

The safety standards of the country of installation must be risk, explosives gasses, heavy components,

Protective Equipment

Make sure that the following equipment is available to personnel working with batteries:

- o Instructions manual.
- o Tools with insulated handles.
- o Fire extinguisher.
- o PPE (Personal Protective Equipment) must be worn (glasses,

gloves, aprons etc ...).

To avoid static electricity when handling batteries, material of clothing, safety boots and gloves are required to have a surface resistance $0 \leq 108 \Omega$, and an insulation resistance $\geq 105 \Omega$

- o First aid equipment must be available.

Safety Precautions

Observe the following precautions at all times:

- o Batteries are no more dangerous than any other equipment when handled correctly
- o Do not allow metal objects to rest on the battery or fall across the terminals (even when disconnected, a battery remain charged!).
- o Never wear rings or metal wrist bands when working on batteries.
- o Do not smoke or permit open flames near batteries or do anything to cause sparks.
- o Do not try to remove the battery cap to add water or acid into the cell(s).
- o Never lift or pull up the battery at the terminals.
- o Air exchange must be provided to prevent the formation of explosive hydrogen concentration.
- o For further information please refer to EN 50272-2
- o Safety requirements for secondary batteries and battery installations Part 2: Stationary batteries.

Battery Disposal

Lead acid batteries must be disposed according to the country law. It is strongly recommended to send batteries for recycling to a lead smelter. Please refer to the local Standards for any further information, these batteries need to be collected separately for waste disposal. As of the 31st of December 1994, all Valve Regulated Lead Acid (VRLA) battery has to have the following symbols present in conformance to EG-guideline 93/86/EWG Pb

6.5.2.2.2. MAINTENANCE

Battery care

GASES GIVEN OFF BY BATTERIES ON CHARGE ARE EXPLOSIVE! DO NOT SMOKE OR PERMIT OPEN FLAMES OR DO ANYTHING TO CAUSE SPARKS NEAR BATTERIES.

1. Keep the battery and surroundings clean and dry.
2. Make sure that bolted connections are properly tightened (see table in INSTALLATION paragraph).
3. Usually it is not necessary to apply grease on the bolts and connectors, in any case "No-oxide" grease increase the protection against corrosion.
4. Should any corrosion of the connections occur because of spilled acid, etc., carefully remove corrosion materials, thoroughly clean and neutralize with diluted ammonia or baking soda.
5. Keep the battery at the recommended charge voltage (see CHARGING section).
6. The room in which the battery is installed should be well ventilated and its temperature as close as possible to 20°C.
7. Do not try to open the cover valve.

Cleaning

When necessary, batteries could be cleaned using a soft dry antistatic cloth or water-moistened soft antistatic cloth paying attention not to cause any ground faults.

No detergent nor solvent-based cleaning agents nor abrasive cleaners should be used as they may cause a permanent damage to the battery plastic container and lid.

Voltage checks

All voltage measurements should be made when the whole battery has stabilized on floating, at least 7 days after battery installation or after a discharge/ charge cycle.

To facilitate voltage reading in the correspondence of each block terminal

protection covers are designed with a safe and proper hole. Measure and record individual block voltages on float once a year. It is normal to have a spread of block voltages at 20°C up to 2.27 +0.2/-0.1 V (13.62 +0.54/-0.29 for a 12 volt battery) particularly in the first year of operation. No corrective action is required in this case. Maintaining a correct battery charging voltage is extremely important for the reliability and life of the battery. So it is advisable to carry out a periodical checking of the overall float voltage to verify any possible defect of charger or connections.

Cell Appearance

Any cells showing corrosion, container bulging, high temperature than the other cells, should be regarded as suspect. Such cells should be carefully examined and, expert advice should be obtained immediately from FIAMM.

Pilot Cell

For regular monitoring of the battery condition, select one or more cells of the battery as a "pilot" cell(s); for batteries comprising more than 60 cells, select one pilot cell for every 60 cells.

Periodic Inspections

Written records must be kept of battery maintenance, so that long-term changes in battery condition may be monitored. The following inspection procedures are recommended:

	WHAT	HOW
EVERY SIX MONTHS	Visual inspection on cells/racks	appearance, cracks or corrosion signs, electrolyte leakage.
	check and record the overall float voltage at the battery terminals	not at the charger!
	measure and record the pilot cell(s) voltage	
	measure and record the pilot cell(s) electrolyte specific gravity	
	measure and record the pilot cell(s) electrolyte temperature	
	electrolyte level	
	room ventilation	
YEARLY	check and record the voltage of all cells	
	measure and record electrolyte specific gravity of all cells	
	measure and record the pilot cell(s) electrolyte temperature	
	make sure all connection are torqued according to connection torque table; in case of frequent high discharge current please consider to check	
	visual inspection on cells/rack	electrolyte level, corrosion signs
	clean cells	

•

6.5.2.3. BATTERY CHARGER: Safety Information

IMPORTANT SAFETY INSTRUCTIONS KEEP THESE INSTRUCTIONS!

The battery charger is a powerful electrical device. If incorrectly installed, configured or operated, the battery charger can damage batteries and/or electrical equipment.

Please read thoroughly the instructions and safety information contained in this manual before operating the battery charger or lift.

Refer to manual, it contains important safety and operating instructions applicable to the safe and efficient use of your battery charger.
Every time pull by the plug rather than the cord when disconnecting the battery charger to avoid damages

Use this battery and battery charger only.
NEVER use the battery and the battery charger for any other purpose.

NEVER use an unapproved power source other than the battery to power the lift.

DO NOT attempt to service the battery charger —there are no serviceable items inside the unit.

Do not operate the battery charger with a damaged cord or plug.
Use of improper extension cord could result in a risk of fire or electric shock.

If extension cord must be used, make sure:

- Use an attachment recommended or sold by the battery charger manufacturer in order to avoid a risk of fire, electrical shock or injury to persons.
- That pins of plug of the extension cord are the same number, size and shape of those of the plug on the battery charger;
- That extension cord is properly wired and in good electrical condition;

- That wire in extension cord is proper size as follows:

Minimum recommended wire size for various length extension cords used with each battery charger:				
Length of Cord	meters	7.5	15	30
Cross Section	mm^2	1.3	2.5	4.0
Make sure cord is located so that it cannot be stepped on, tripped over, or otherwise subjected to damage or stress				



DO NOT expose the battery charger to rain or snow.

Do not operate the battery charger if it has received a sharp blow, been dropped or otherwise damaged in any way.

Do not disassemble the charger. Incorrect reassembly may result in a risk of electric shock or fire.

To reduce the risk of electric shock, unplug the charger from outlet before attempting any maintenance or cleaning.

Battery charger shall comply with the federal regulations.



The following warning statements are important for safe use of the battery and the battery charger.

6.6. ***LUBRICANT: Information and warnings***

Disposal of used oil

Do not pour used oil into the sewers, ditches or bodies of water. Keep it in special containers and deliver it to companies specialized in such disposal.

Leaks

Cover any lubricant leaks with soil, sand or other absorbent material. The contaminated area must be degreased with solvents and without leaving puddles or allowing vapours to form. The materials used for cleaning must be disposed of in compliance with current regulations.

Precautions

- Avoid contact with the skin
- Avoid the formation or spread of vapours in the environment
- Prevent spills
- Wash frequently without using aggressive cleansers
- Do not dry hands with rags soiled with oil
- Change any clothing that is dirty or greasy and always change clothes at the end of the workday
- Never smoke or eat with greasy hands
- Wear the following personal protection equipment:
 - Gloves resistant to mineral oils, and with internal lining
 - Eye protection vs. spraying of mineral oil
 - Resistant apron vs. sprays

First aid

- Ingestion: contact the nearest emergency centre and provide all information on the type of oil ingested
- Inhalation: in the case of exposure to high concentrations of fumes or oil vapours, bring the wounded outside and contact the nearest emergency centre
- Eyes: rinse thoroughly with water and contact the nearest emergency centre
- Skin: wash with soap and water.

6.7. Lift adjustment procedures

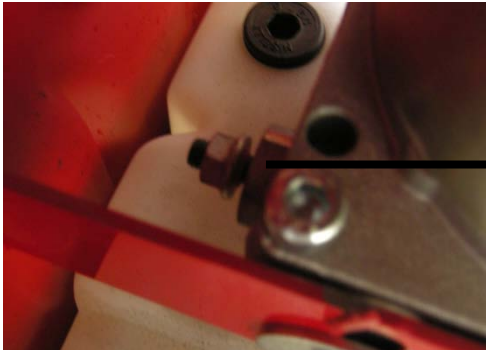
6.7.1. Maximum pressure valve calibration



The calibration of the valve must be execute by specialized people and authorized by the manufacturer.
After the calibration the valve must be sealed for example with sealing wax.

- 1) Connect a pressure gauge in line (see the slide)
- 2) Take the table to maximum height.
- 3) Loosen the nut by turning two revolutions anticlockwise (part. B)
- 4) Keeping the up command pressed, check the pressure on the pressure gauge.
- 5) Adjust pressure with a wrench : (part. C)
Turn clockwise to increase calibration pressure
Turn anticlockwise to reduce calibration pressure
- 6) When the pressure is equal to P, reassemble the loosened nut.

PRESSIONE	P	Bar	220
		LBS/INCH2	



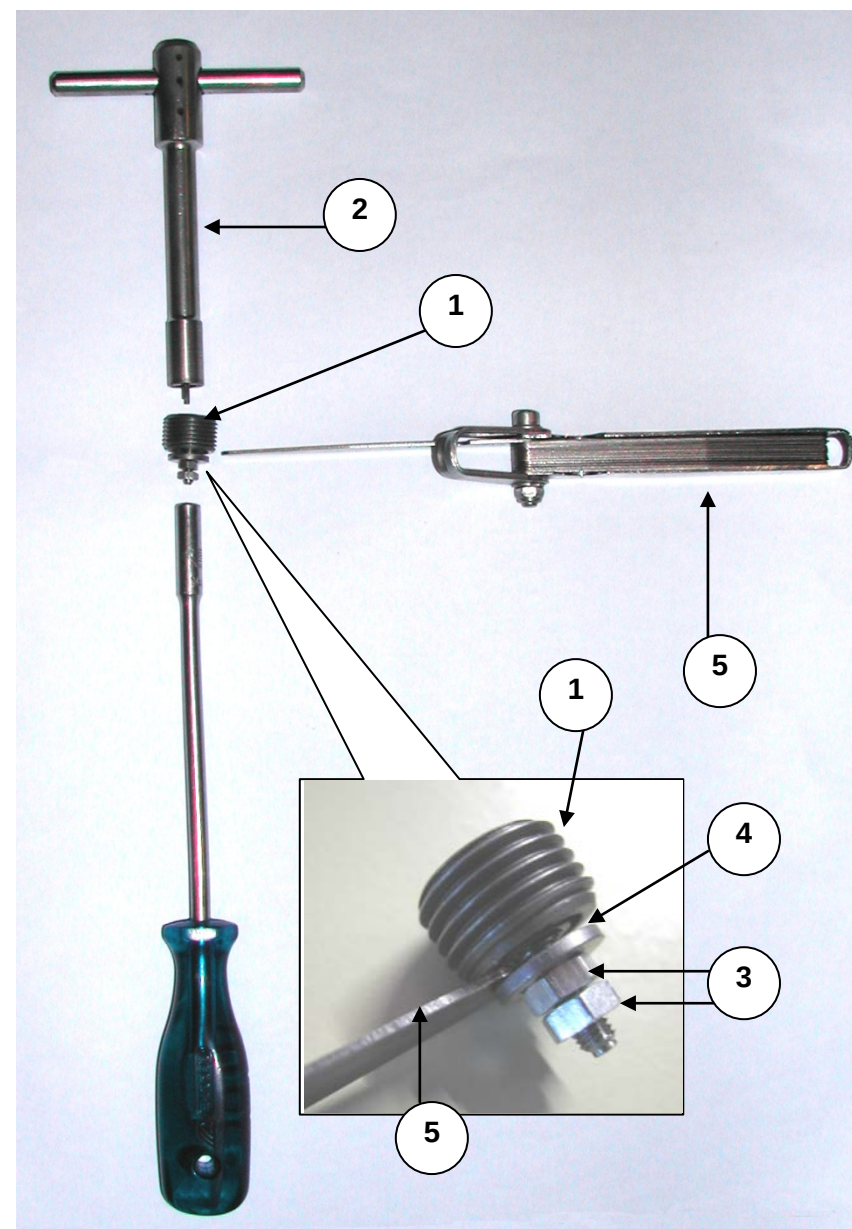
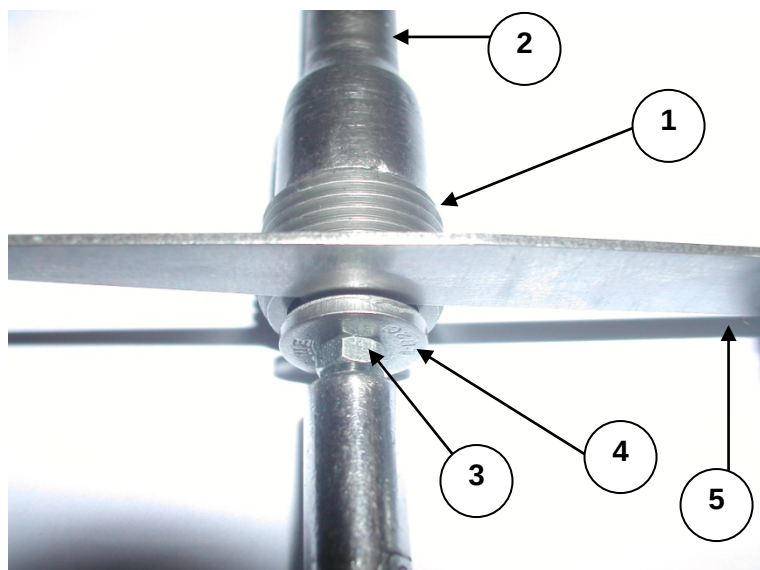
6.7.2. Parachute valve



The calibration of the valve must be executed by specialized people and authorized by the manufacturer.

THE CALIBRATION DISTANCES MUST BE ESTABLISHED BY THE MANUFACTURER.

1. Remove the valve (1) on the bottom of the piston using the key provided (2)
2. Loosen the washer and lock nut (3) beneath the valve.
3. Move the plate of the valve (4) closer or further away as desired, checking the height with the dedicated thickness gauge (5).
1. Reassemble and test.



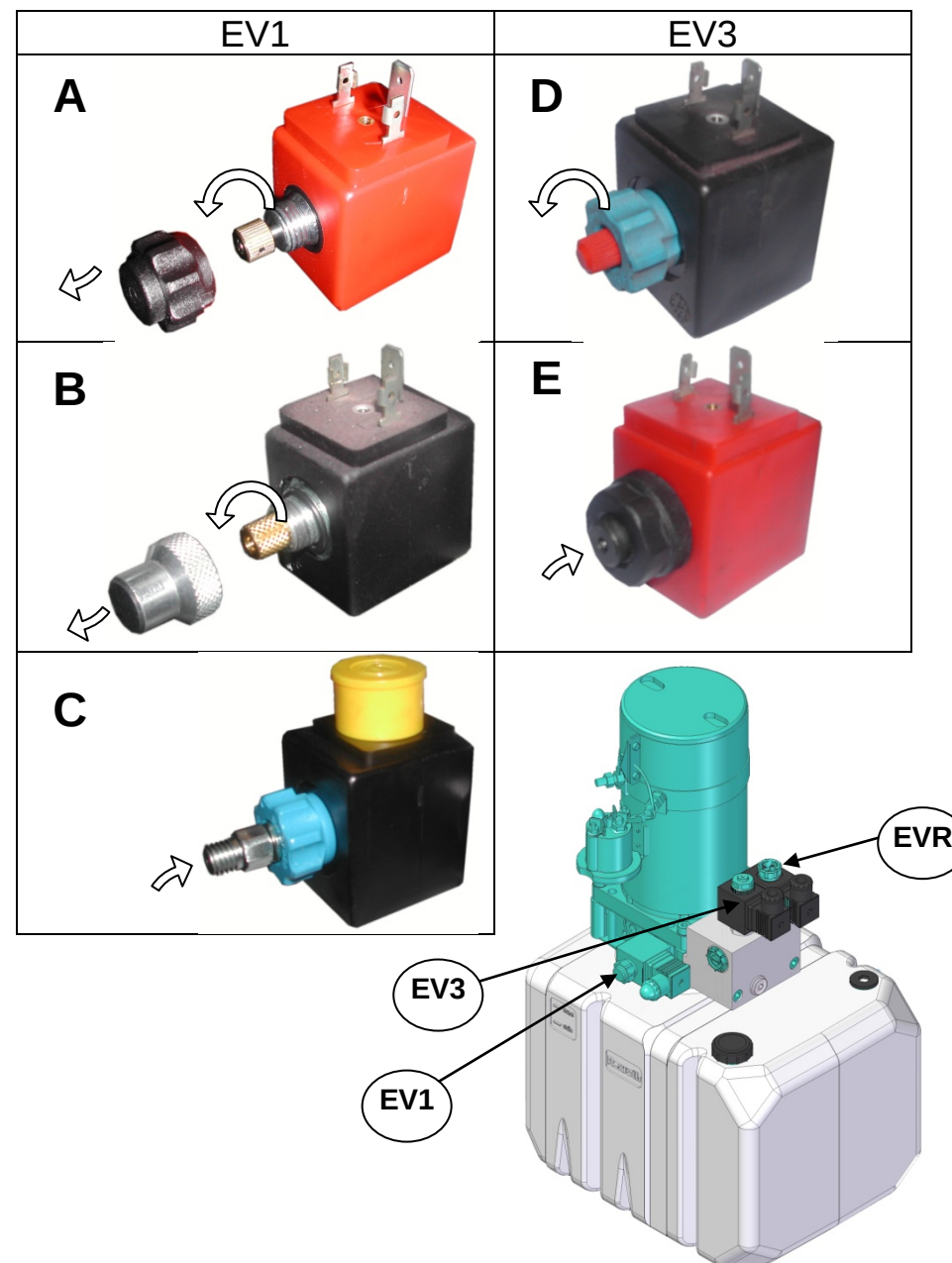
6.8. Safety manoeuvres

MANUAL DOWNSTROKE MANOEUVRE WITH HAND PUMP (accessory available on request)



Operations to be performed to lower raised platform with vehicle on in the case of a blackout:

- unscrew the lock nut on valve EV3, fully unscrew the knurled pin (see photograph) and allow the column to lower;
- Open manually the magnet of the lock and lock it in opened position (see figure)
If the lock cannot be opened, lift a little bit the column with a stand and then open the lock and lock it in opened position.
- Take away the stand carefully.
- Open manually the EV1 valve and lower few centimeters (less than 5) each column at a time
DANGER: Be carefull to maintain all the columns at the same level
- When all the columns are at the ground level:
 - o Close EV1
 - o Close EV3
 - o Free the lock
- Check carefully the reason of the stop by the trained maintenance engineer before using the columns again.
- Unlock the magnet and check the correct behaviour.



6.9. LOCKOUT/TAGOUT PROCEDURE

Purpose

This procedure establishes the minimum requirements for the lockout of energy that could cause injury to personnel by the operation of lifts in need of repair or being serviced. All employees shall comply with this procedure.

Responsibility

The responsibility for assuring that this procedure is followed is binding upon all employees and service personnel from outside service companies (i.e., Authorized Installers, contactors, etc.). All employees shall be instructed in the safety significance of the lockout procedure by the facility owner/manager. Each new or transferred employee along with visiting outside service personnel shall be instructed by the owner/manager (or assigned designee) in the purpose and use of the lockout procedure.

Preparation

Employees authorized to perform lockout shall ensure that the appropriate energy isolating device (i.e., circuit breaker, fuse, disconnect, etc.) is identified for the lift being locked out. Other such devices for other equipment may be located in close proximity of the appropriate energy isolating device. If the identity of the device is in question, see the shop supervisor for resolution. Assure that proper authorization is received prior to performing the lockout procedure.

6.9.1.1.1. Sequence of Lockout Procedure

- 1) Notify all affected employees that a lockout is being performed and the reason for it.
- 2) Unload the subject lift. Shut it down and assure the disconnect switch is "OFF" if one is provided on the lift.
- 3) The authorized lockout person operates the main energy isolation device removing power to the subject lift.
 - If this is a lockable device, the authorized lockout person places the assigned padlock on the device to prevent its unintentional reactivation. An appropriate tag is applied stating the person's name, at least 3" x 6" in size, an easily noticeable color, and states not to operate device or remove tag.
 - If this device is a non-lockable circuit breaker or fuse, replace with a "dummy" device and tag it appropriately as mentioned above.
- 4) Attempt to operate lift to assure the lockout is working. Be sure to return any switches to the "OFF" position.
- 5) The equipment is now locked out and ready for the required maintenance or service.

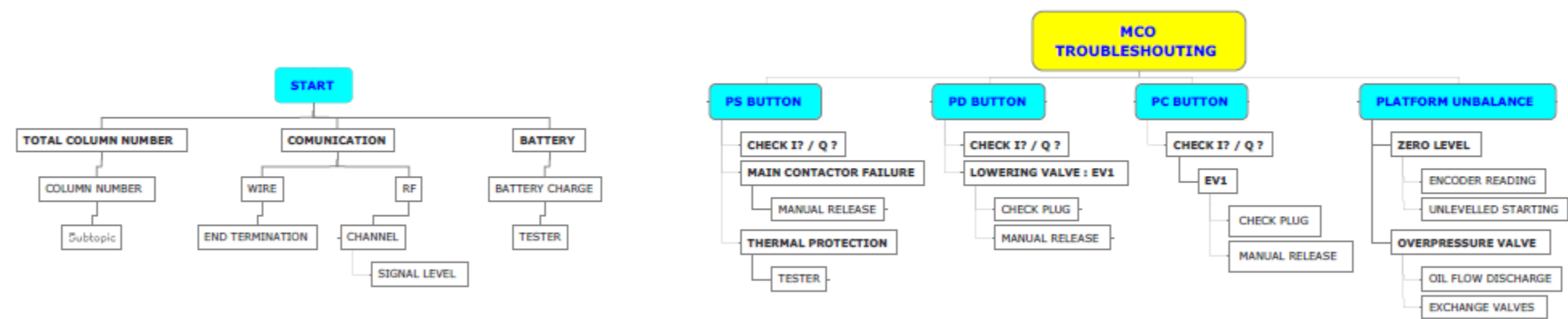
Restoring Equipment to Service

- 1) Assure the work on the lift is complete and the area is clear of tools, vehicles, and personnel.
- 2) At this point, the authorized person can remove the lock (or dummy circuit breaker or fuse) & tag and activate the energy isolating device so that the lift may again be placed into operation.

Rules for Using Lockout Procedure

Use the Lockout Procedure whenever the lift is being repaired or serviced, waiting for repair when current operation could cause possible injury to personnel, or for any other situation when unintentional operation could injure personnel. No attempt shall be made to operate the lift when the energy isolating device is locked out.

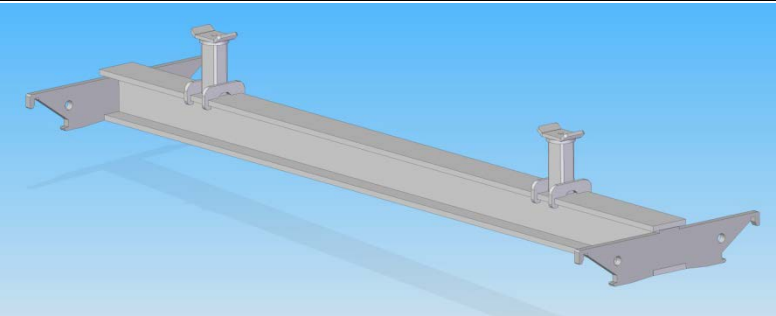
6.10. TROUBLESHOOTING



6.10.1. ALARM LIST

ID	English	DESCRIPTION
001	EMRG - emergency	The emergency pushbutton has been pressed
002		Not used
003		Not used
004	OVL - overload column	The column has been overloaded
005		Not used
006	DIGC - minimum delta column	The speed of the movement is outside the range (min and max)
007	DIGC - misaligned columns	The column misalignment is over the allowed range
008	DIGC – internal error in column link	Error of the transmission
009	DIGC - encoder error	Error of the encoder reading
010	DIGC - can bus faults	Error of the bus connection (encoder)
011	DIGC - battery level	Battery level too low
012	DIGC - EVR faults	Fault of the valve regulation output
013	DIGC - anomaly encoder count	Error between the two reading canne of the encoder
014	DIGC - encoder version not compatible	Encoder sw version non suitable
015	DIGC - configuration settings corrupted	Error of the data stored inside the memory of the control unit
016	DIGC - ID conflict in linked columns	The configuration of the column is not allowed : i.e. two column with the same number
017	DIGC – Safety chip link error	Error in the safety communication inside the control unit

7. ACCESSORIES

CODE	DESCRIPTION	PHOTO
	LONGER FORKS	
4033043100	LED LAMPS	
	WINDER SET	
	LIFTING BEAMS (for 2 columns)	
	FORK CONNECTION BEAM	

