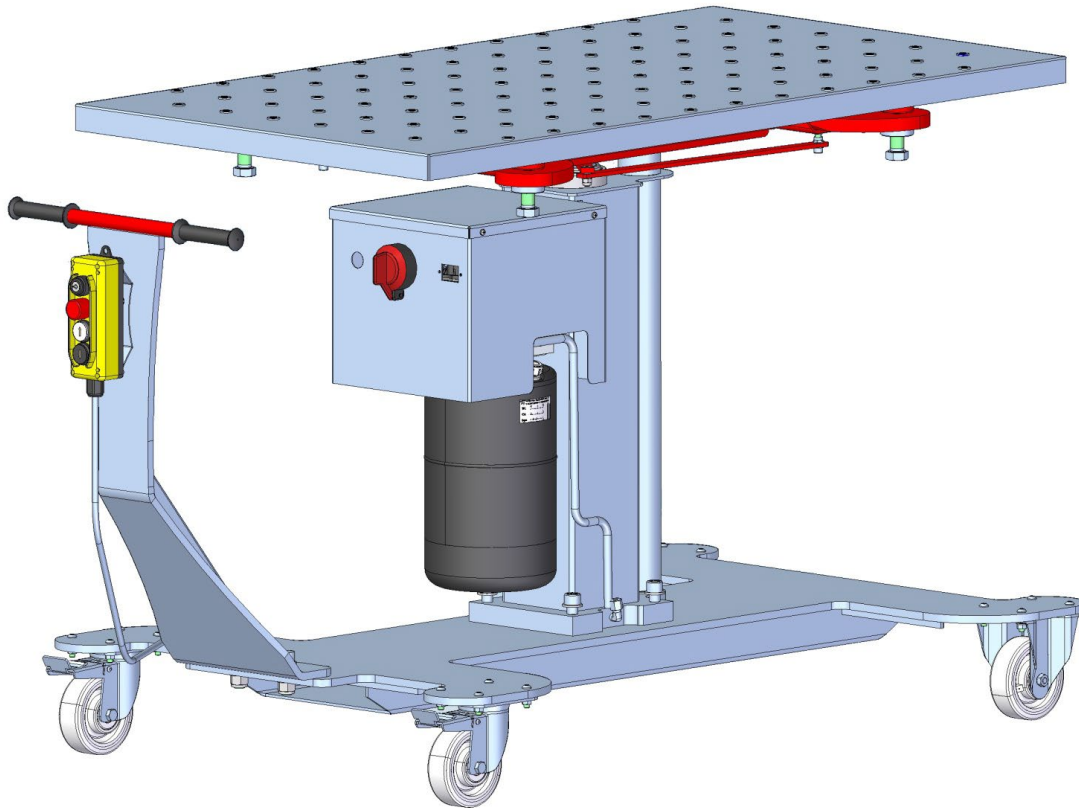


CL Challenger Lifts

Assembly, Operation & Maintenance Manual



Model BT3000

Lift Table

(3000 lb Capacity)

2311 South Park Road, Louisville, KY 40219

Email: sales@challengerlifts.com Web site: www.challengerlifts.com

Office 800-648-5438 / 502-625-0700 Fax 502-587-1933

Important: READ THIS MANUAL COMPLETELY BEFORE ASSEMBLY or OPERATING

INDEX

Symbols used in the manual..... 4




1.	GENERAL INFORMATION	5
1.1.	MARKING DATA.....	5
1.2.	DECLARATION OF CE CONFORMITY CE	5
1.3.	ASSISTANCE	6
1.4.	DESCRIPTION OF PERSONNEL	6



2.	DESCRIPTION OF THE MACHINE.....	7
2.1.	EXPECTED USE	7
2.2.	TECHNICAL DATA	7
2.3.	NOMENCLATURE	8
2.4.	OVERALL DIMENSIONS.....	9
2.4.1.	<i>Extension platform</i>	10
2.5.	LOADING CONDITIONS	11



3.	SAFETY.....	13
3.1.	GENERAL SAFETY REGULATIONS	13
3.2.	PRECAUTION.....	15
3.3.	 IMPROPER USE	17
3.4.	SAFETY DEVICE FEATURES	17
3.5.	STICKERS AND PLATES.....	ERROR! BOOKMARK NOT DEFINED.



4.	INSTALLATION.....	Error! Bookmark not defined.
4.1.	TRANSPORT AND HANDLING.....	ERROR! BOOKMARK NOT DEFINED.
4.2.	CONNECTING THE LIFT	ERROR! BOOKMARK NOT DEFINED.
4.2.1.	<i>Air bleeding from the volumetric circuit</i>	Error! Bookmark not defined.
4.3.	BATTERY	ERROR! BOOKMARK NOT DEFINED.
4.3.1.	<i>Battery Charging</i>	Error! Bookmark not defined.
4.3.2.	<i>Battery Information</i>	Error! Bookmark not defined.
4.3.3.	<i>BATTERY CHARGER: Safety Information</i>	Error! Bookmark not defined.
4.4.	FINAL TESTING	ERROR! BOOKMARK NOT DEFINED.
4.5.	LIFT OPERATIONAL TEST	ERROR! BOOKMARK NOT DEFINED.
4.5.1.	<i>Lift Operation</i>	Error! Bookmark not defined.
4.5.2.	<i>Caution</i>	Error! Bookmark not defined.
4.5.3.	<i>To Load a typical component</i>	Error! Bookmark not defined.
4.5.4.	<i>To Raise the Lift</i>	Error! Bookmark not defined.
4.5.5.	<i>To Lower the Lift</i>	Error! Bookmark not defined.









5.	USE.....	Error! Bookmark not defined.
5.1.	OPERATION COMMANDS.....	ERROR! BOOKMARK NOT DEFINED.
5.2.	AUXILIARY TABLE	ERROR! BOOKMARK NOT DEFINED.
5.3.	RESIDUAL RISKS	ERROR! BOOKMARK NOT DEFINED.



- 6. **MAINTENANCE** Error! Bookmark not defined.
 - 6.1. MANUAL SCOPE..... **ERROR! BOOKMARK NOT DEFINED.**
 - 6.2. SAFETY STANDARDS FOR MAINTENANCE**ERROR! BOOKMARK NOT DEFINED.**
 - 6.3. ROUTINE MAINTENANCE... **ERROR! BOOKMARK NOT DEFINED.**
 - 6.3.1. *LUBRICATION POINTS (repeat symmetrically)***Error! Bookmark not defined.**
 - 6.3.2. *LUBRICANT: Information and warnings***Error! Bookmark not defined.**
 - 6.4. TABLE ADJUSTMENT PROCEDURES**ERROR! BOOKMARK NOT DEFINED.**
 - 6.4.1. *Parachute valve*..... **Error! Bookmark not defined.**
 - 6.5. ABNORMAL OPERATION.... **ERROR! BOOKMARK NOT DEFINED.**
- 7. **ACCESSORIES** Error! Bookmark not defined.
- 8. **INSTALLATION REPORT** Error! Bookmark not defined.
- 9. **PERIODIC MAINTENANCE REPORT** Error! Bookmark not defined.

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

Model BT3000
 Assembly, Operation and Maintenance



1.  GENERAL INFORMATION

1.1. Marking data

Table identification plate:

 OMER. S.p.A. Made in Italy  Via Galileo Galilei, 20 30035 MIRANO (VENEZIA) Italy Tel. +39 0415700303 Fax 0415700273 OMER E-mail: info@omerlift.com - www.omerlift.com 	
MARTINETTO MOBILE	LEM
N. DI SERIE	
ANNO DI COSTRUZIONE	
PRESSIONE OLIO	35 bar
PORTATA (EN 1494)	1400 kg

1.2. Declaration of  conformity 

	SETTORE SOLLEVAMENTO VEICOLI VEHICLE LIFTING DPT. FZ. HEBEABTEILUNG DEPARTEMENT SOULEVEMENT VEHICULES	O.M.E.R. S.p.A. Cap. Soc. € 1.000.000,00 int. vers. 30035 MIRANO (VENEZIA) Italy Via Galileo Galilei, 20 Tel. 041.5700303 - Fax 041.5700273 E-mail: info@omerlift.com - www.omerlift.com REA VE 146912 - Reg. delle Imprese VE n°0073664027 Codice Fiscale e Partita Iva: 00736640277									
	DECLARATION OF CE CONFORMITY (in compliance with annex II A of the Machinery Directive 2006/42/CE) The company O.M.E.R. S.p.A. With headquarter in via G. Galilei, 20 – 30035 Mirano (VE) – ITALY HEREBY DECLARES UNDER ITS OWN RESPONSABILITY THAT THE PRODUCT										
<table border="1"> <tr> <td>Description</td> <td>MOBILE JACK</td> </tr> <tr> <td>Model</td> <td>LEM</td> </tr> <tr> <td>Serial nr.</td> <td></td> </tr> <tr> <td>Month/Year of manufacture</td> <td>/</td> </tr> </table>		Description	MOBILE JACK	Model	LEM	Serial nr.		Month/Year of manufacture	/		
Description	MOBILE JACK										
Model	LEM										
Serial nr.											
Month/Year of manufacture	/										
COMPLIES WITH THE BASIC SAFETY GUIDELINES GIVEN BY THE FOLLOWING DIRECTIVES: <ul style="list-style-type: none"> • 2006/42/CE MACHINE DIRECTIVE; • 2014/36/EU ELECTRIC SYSTEM WITH LOW VOLTAGE; • 2014/30/EU ELECTROMAGNETIC COMPATIBILITY DIRECTIVE; 											
COMPLIES WITH THE BASIC SAFETY GUIDELINES GIVEN BY THE FOLLOWING STANDARDS: <ul style="list-style-type: none"> • EN 1494:2000+A1:2008 Mobile or movable jacks and associated lifting equipment 											
Mirano,		O.M.E.R. S.p.A. Rossato Orietta (General Manager)									
<div style="border: 1px solid black; padding: 5px; font-size: small;"> The technical file is kept under the responsibility of O.M.E.R. SpA as a manufacturer and at the company headquarters in Via G. Galilei, 20 - 30035 Mirano (VE) - ITALY. The file or part thereof will be transmitted electronically or on paper in response to an adequate and reasoned request of national authorities. </div>											
cod. BLEM00000 92 0											

1.3. Assistance

Please use the following contact details for assistance requests :

TEL. 800-648-5438 / 502-625-0748

FAX. 502-587-1933

1.4. Description of personnel

TERMS AND DEFINITIONS

- OPERATOR/SPECIALISED TECHNICIAN:

the person(s) appointed to:

- install,
- set up,
- adjust
- perform maintenance on,
- clean,
- repair
- transport the lift.
- 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

Addressees:

- USER;
- OPERATOR / SPECIALISED TECHNICIAN.

2.1. Expected use

- The function of the **Moveable Jack** is to lift weights until maximum load,
- The load distribution must be according the label and the manual.
- Working on the raised platform.
- Transporting of loads in the lowered position.
- The handling of the moveable jack is done manually.

2.2. Technical data

LIFT CAPACITY	Lb	3000	
MOTOR POWER	Hp	1	
ELECTRIC POWER SUPPLY	V	24V	± 10 %
MAXIMUM PRESSURE OF HYDRAULIC POWER SUPPLY	Psi	510	
QUANTITY OF OIL	gal	2.6	
UPSTROKE/DOWNSTROKE TIME	s	35	
MIN/MAX OPERATING TEMPERATURE	°F	14-104	
SOUND EMISSION LEVEL	db(A)	< 80	
INSTALLATION		INDOOR	

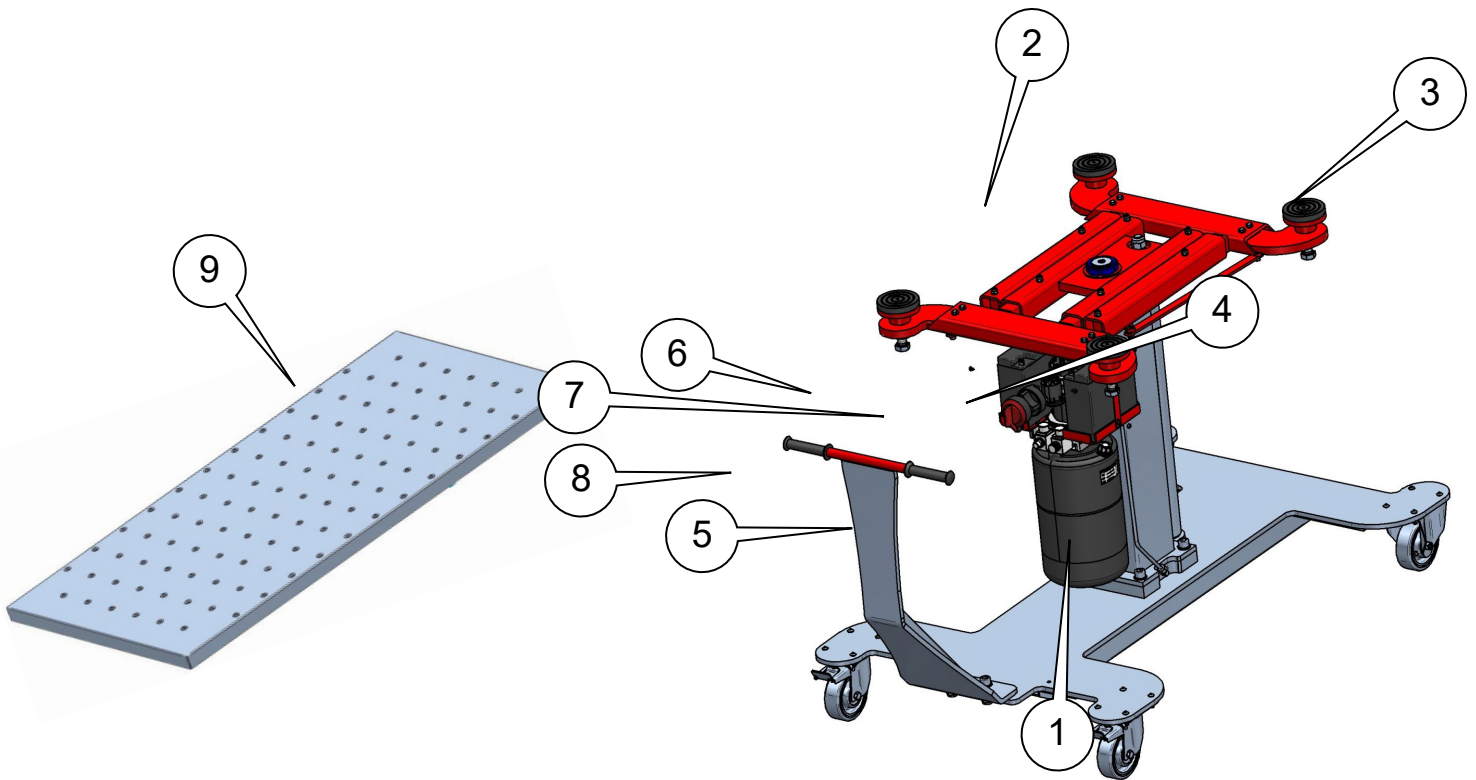
NOTE :

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

Model BT3000
Assembly, Operation and Maintenance

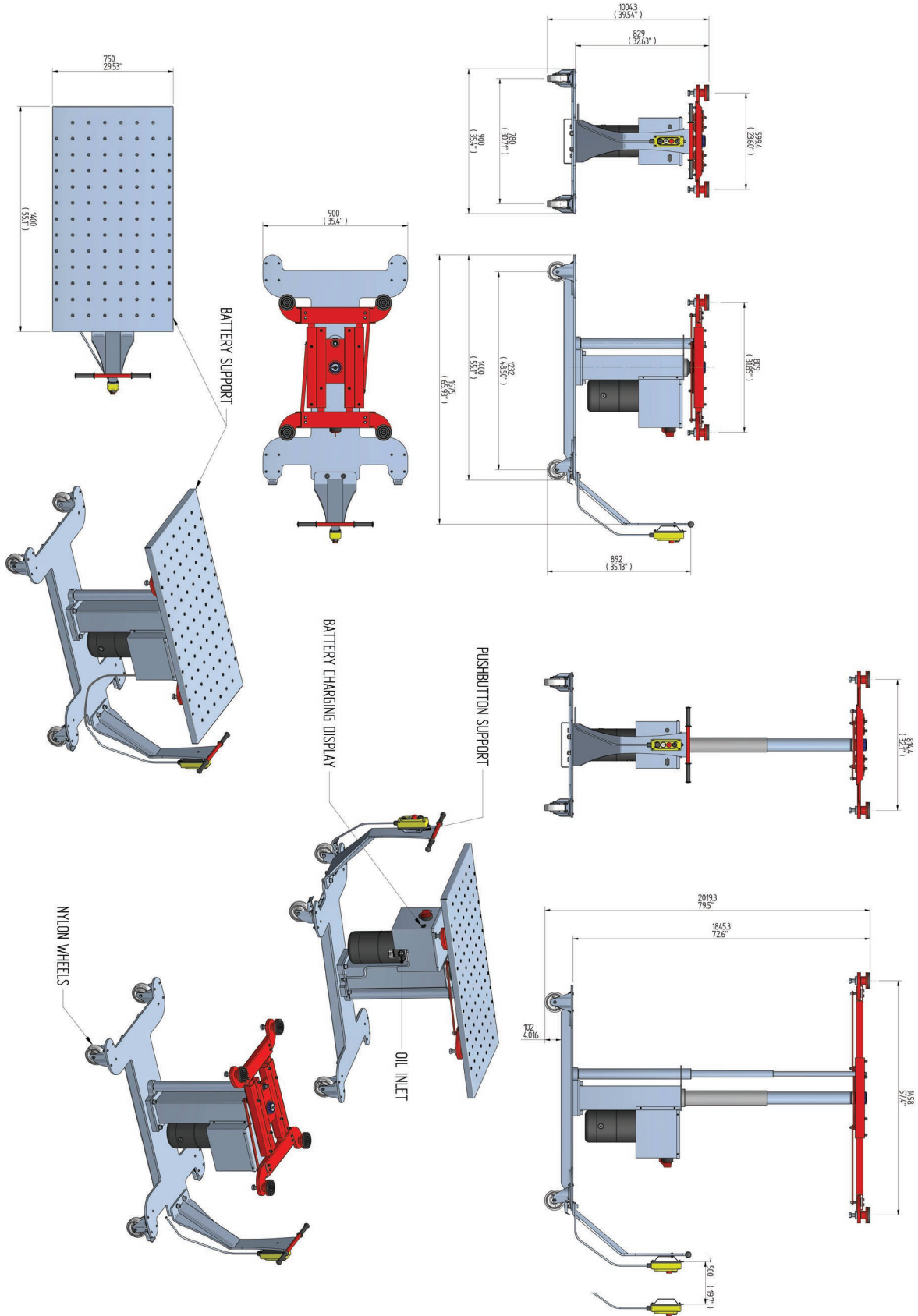
2.3. Nomenclature

N°	DESCRIPTION
1	Base
2	Platform
3	Extension platform
4	Cylinder
5	Hydraulic unit
6	Electric box
7	Battery
8	Handle
9	Aux. table for the installation of devoted support tools



Model BT3000
 Assembly, Operation and Maintenance

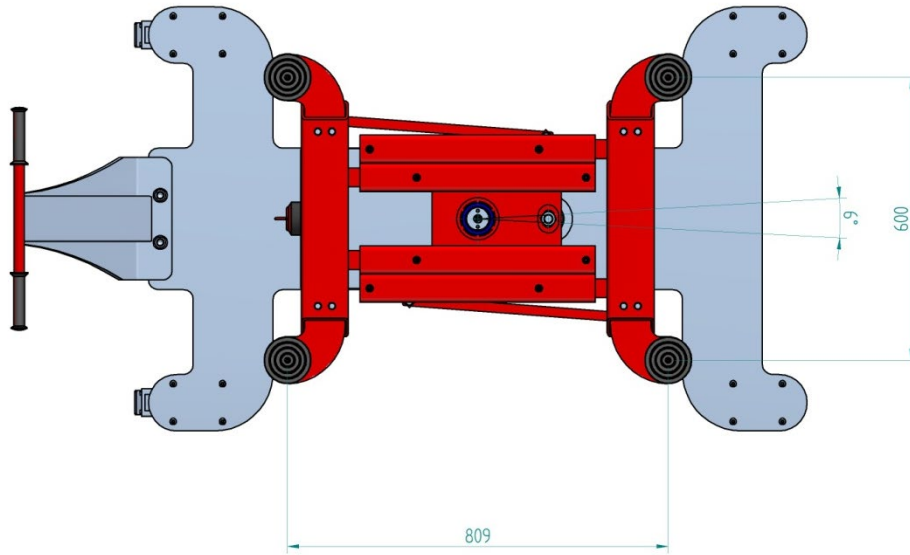
2.4. Overall dimensions



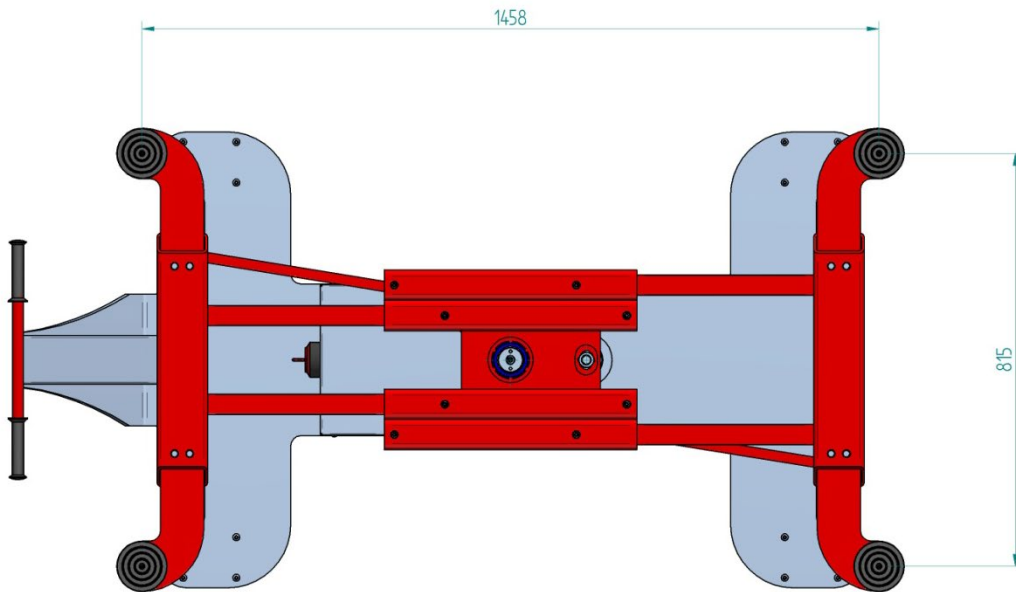
Model BT3000
Assembly, Operation and Maintenance

2.4.1. Extension platform

MINIMUM POSITION AND POSSIBLE DEGREE OF ROTATION



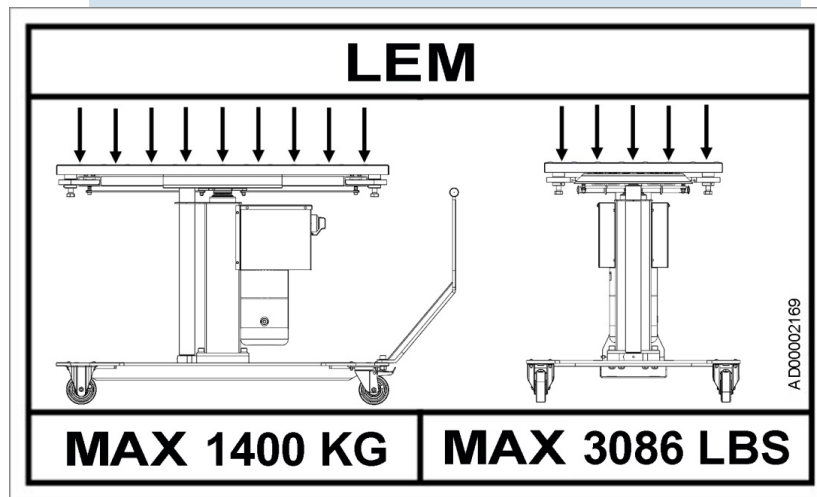
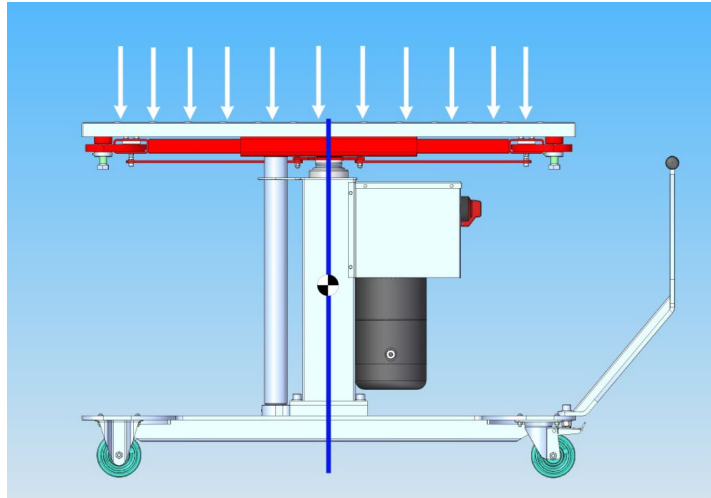
Maximum Position



Model BT3000
Assembly, Operation and Maintenance

2.5. Loading conditions

- Load should not overhang the platform.
- Unintentional shifting of the load should be prevented.
- Load must be evenly distributed (surface load)
- Position the load as centered as possible in correspondence with the lifting cylinder.



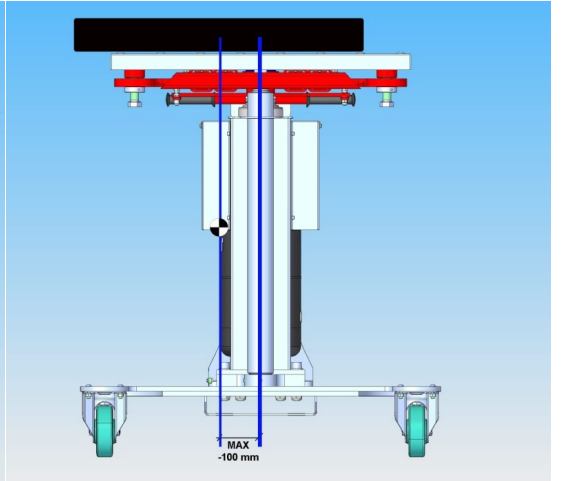
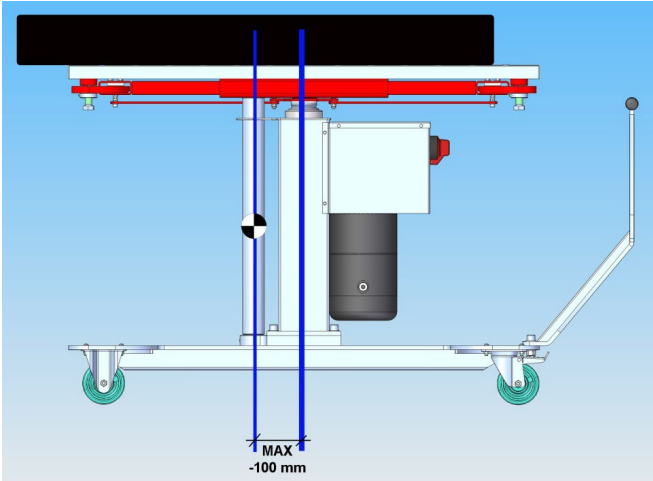
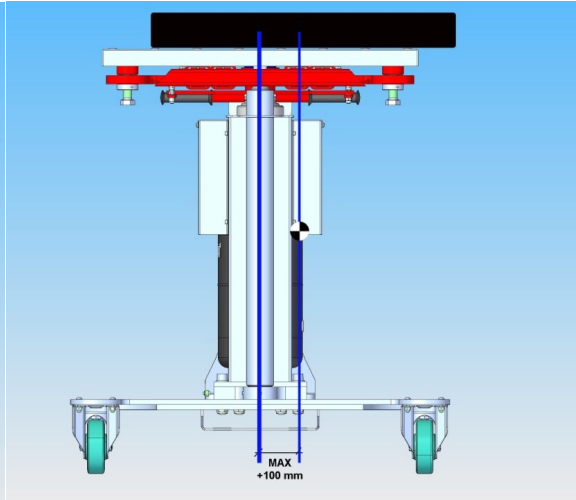
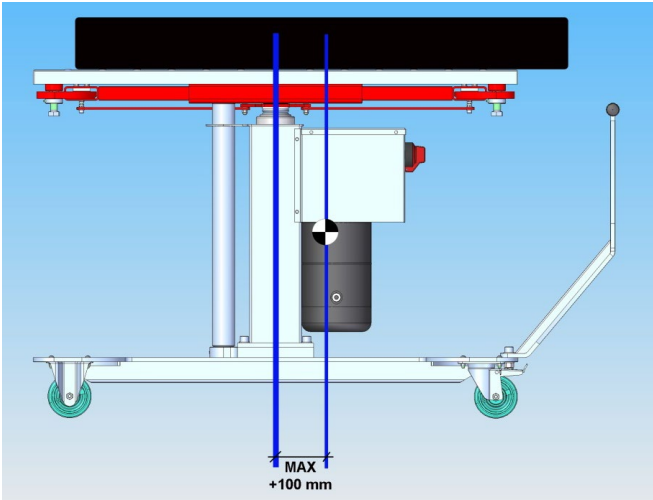
NOTE: The operator shall be provided with all necessary information about training and about pumping and translating forces.

The maximum manual forces required for jack operations (unloaded respectively loaded with rated load) shall not exceed the following figures:

- To start moving an unloaded movable or mobile jack:.....68 lbs
- To maintain the movement of the unloaded jack:45 lbs
- To start moving a loaded mobile jack:90 lbs
- To maintain the movement of the loaded mobile jack:68 lbs

COG DISPLACEMENT

Model BT3000
Assembly, Operation and Maintenance



3.  SAFETY

Addressees:

- USER;
- OPERATOR / SPECIALISED TECHNICIAN.

3.1. General safety regulations



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.

The machine should be used by authorised, trained personnel only.

The user (owner and/or employee) must make sure that the fitter has provided:






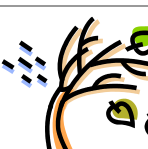
- all accessories
- the spares provided with the lift
- this use and maintenance manual

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

O.ME.R. S.p.A. declines all responsibility for non-compliance with the indications given in this manual.

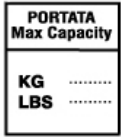







Model BT3000
Assembly, Operation and Maintenance

The main safety rules are shown below:







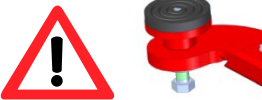
	Read all instructions carefully
	Put the main switch to the zero position when the machine is not in use. Never pull the electric cable to remove the plug from the socket.
	To reduce the risk of fires, avoid using the lift close to open drums of inflammable liquid (such as gas oil) and/or in explosive environments.
	Make sure the work area is adequately aired when using internal combustion engines.
	Avoid contact between parts of the body and/or clothing and moving parts.
	Protect the control unit adequately if used outdoors.

Model BT3000
Assembly, Operation and Maintenance





3.2. Precaution

	When loading the lift never exceed the capacity shown on the ID plate on the lift.
	Never lift people.
	Never stand under the lift while moving. The lift work area is off limits to children and animals and other obstacles.
	Any modifications to the lift must be authorised by the manufacturer.
	The equipment must be used by specifically trained and authorised personnel only.
	Do not tamper with the lift's upstroke and downstroke speeds, which have been adjusted by OMER during factory tests in compliance with applicable legislation.
	Never use the lift to wash a vehicle.
	Avoid all risks that involve crushing/shearing of the feet.

Model BT3000
 Assembly, Operation and Maintenance

	<p>Always check the stability of hoisted vehicle.</p>
	<p>Do not use the lift in the event of hindrances to operation or hazardous conditions.</p>
	<p>Check the lift carefully after long periods of inactivity before putting it back into service.</p>
	<p>Before using the lift, check that the acoustic warning system (beeper) is working properly.</p>
	<p>Before using the lift, check that the mechanical safety devices (jacks) are working properly.</p>
	<p>The keys that turn on the control panel must be used only by a skilled operator/technician.</p>
	<p>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.</p>
	<p>MANDATORY : LOCK THE WHEELS, OPERATOR SIDE BEFORE LIFTING THE LOAD</p>
	<p>Move the load only with load lowered up to the lowest position</p>
	<p>Use the rubber pads when lifting the load with the auxiliary plate to avoid the sliding of the load</p>

3.3.  IMPROPER USE

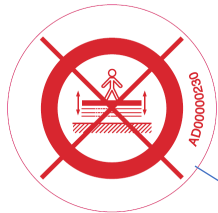
	It is not allowed to work under the raised load until it is secured by suitable means.
	Not use on sloped surfaces more than 1 degree
	Person must not be lifted
	No stand under the lifting arms and/or table

3.4. Safety device features

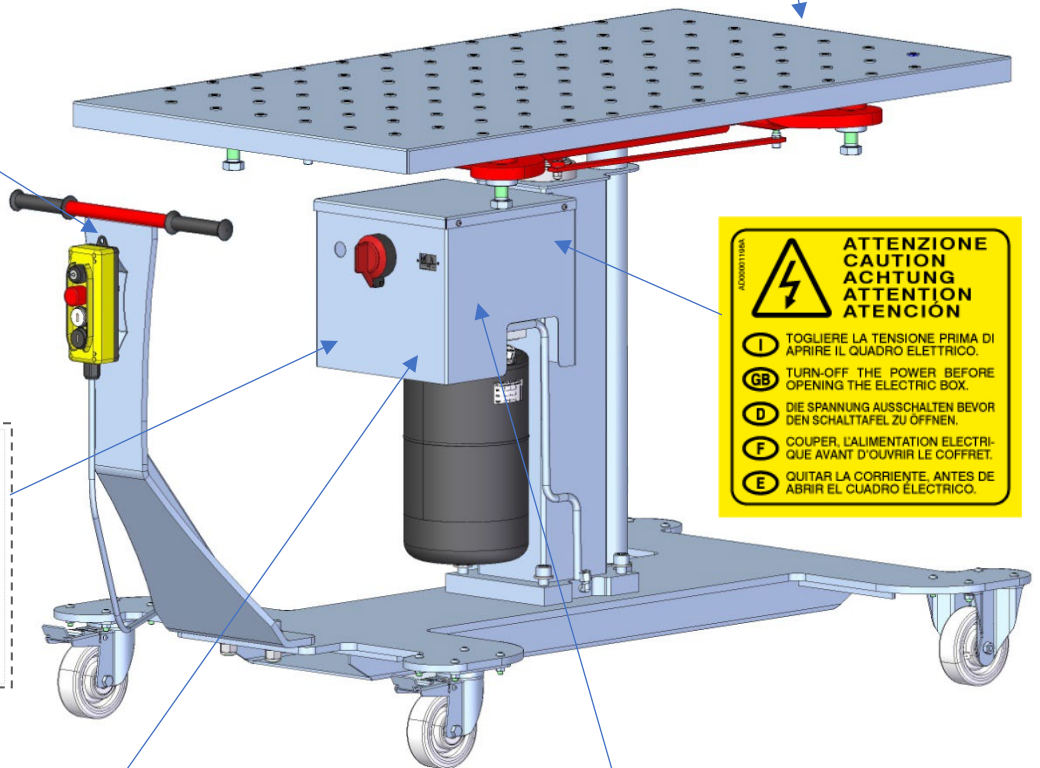
SAFETY DEVICE	COMPOSED OF	POSITION	IN THE EVENT OF ...	EFFECT ON MAIN LIFT
FLOW CONTROL VALVE	Flow regulating valve	Hydraulic unit	Lowering.	The lowering speed is maintained constant
HYDRAULIC PARACHUTE DEVICE	Parachute valve	On lifting cylinders	Breakage of hoses.	The valve blocks descent when the speed reaches a value preset by the Manufacturer.
ANTI –ROTATION SAFETY	Telescopic mast	Joined to the lifting cylinder structure	Lateral forces	Avoid the free rotation of the supporting arms and/or the platform
OVERLOAD RELIEF VALVE	Relief valve	Hydraulic unit	Overload	The lift stops moving.
MAIN SWITCH SUITABLE TO CUT OFF THE BATTERIES	Main switch	Electric unit	Emergency	The batteries turn off. The lift stops moving.
WHEEL PEDAL LOCK	Pedal lock	On the pivoting wheels, operator side	Free displacement of the jack	Avoid the free displacement of the jack
SIGNALS	Stickers and plates	See paragraph: <i>Stickers and plates</i>	-	Draw attention to residual risks and precautions for use.

Model BT3000
 Assembly, Operation and Maintenance

3.5. Stickers and Plates



OMER S.p.A. Made in Italy	
Via Galileo Galilei, 20 30035 MIRANO (VENEZIA) Italy Tel. +39 0415700303 Fax. 0415700273 E-mail: info@omerlift.com - www.omerlift.com	
OMER	
MARTINETTO MOBILE	LEM
N. DI SERIE	
ANNO DI COSTRUZIONE	
PRESSIONE OLIO	35 bar
PORTATA (EN 1494)	1400 kg



	ATTENZIONE
	CAUTION
	ACHTUNG
	ATTENTION
	ATENCIÓN
(I)	TOGLIERE LA TENSIONE PRIMA DI APRIRE IL QUADRO ELETTRICO.
(GB)	TURN-OFF THE POWER BEFORE OPENING THE ELECTRIC BOX.
(D)	DIE SPANNUNG AUSSCHALTEN BEVOR DEN SCHALTAFEL ZU ÖFFNEN.
(F)	COUPER L'ALIMENTATION ELECTRIQUE AVANT D'OUVRIR LE COFFRET.
(E)	QUITAR LA CORRIENTE, ANTES DE ABRIR EL CUADRO ELECTRICO.

LEM	
MAX 1400 KG	MAX 3086 LBS

A.D00002169

- LEM OPERATING INSTRUCTIONS:**
1. It is not permitted to step and ride on the load acceptance device.
 2. Lock the wheel brake before working.
 3. Authorized persons only are permitted to operate the lifting table.
 4. Take note of the detailed operating instructions.
 5. In case of trouble:
 - a. Press the Emergency push button
 - b. Turn OFF the Main switch
 - c. Inform the supervisor
 6. Do not exceed the nominal capacity indicated on the lifting table.
 7. The load must be positioned with the center of gravity as close as possible to the center of the device and according the load distribution indicated into the manual.
 8. Bystanders are not allowed into the working area.
 9. Prior to relocating the table the load platform must have been lowered fully.
 10. Watch always the load and lifting table during the movements. Avoid jerks that are dangerous.
 11. Works only with charged battery (green LED on the display).
- AD00002168EN**



4. Installation

Addressees:

- OPERATOR / SPECIALISED TECHNICIAN.

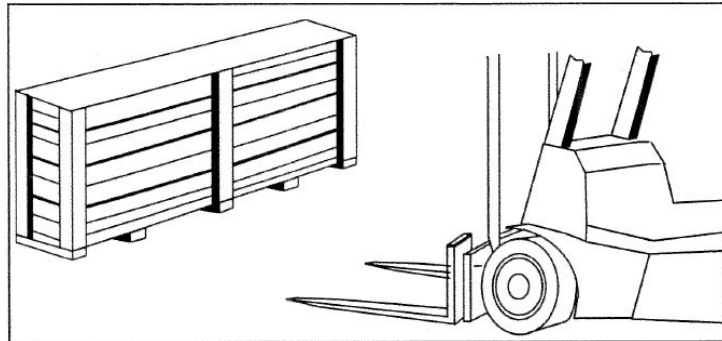


WARNING:

- Lift start-up must be performed by a skilled operator able to certify that the lift and all mechanical, pneumatic 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. Transporting 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 and placed in a wooden crate.

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).
- lift using suitable hoisting equipment
- harness using dedicated straps



NO LIFT THE JACK FROM THE SUPPORTING ARMS!

DEPRESSURE AND AIR INLET CAN BE GENERATED AND JUMPING MOVEMENT AS A CONSEQUENCE

Packing List

Model BT3000
Assembly, Operation and Maintenance

VERSION OF LIFT	NET WEIGHT kg	GROSS WEIGHT kg
BT3000	~320	~400



DURING TRANSPORT THE WOODEN CRATE, WITH THE LIFT INSIDE, MUST BE FIXED APPROPRIATELY TO PREVENT IT FROM MOVING AROUND ON THE FLOOR OF THE VEHICLE USED TO TRANSPORT IT.

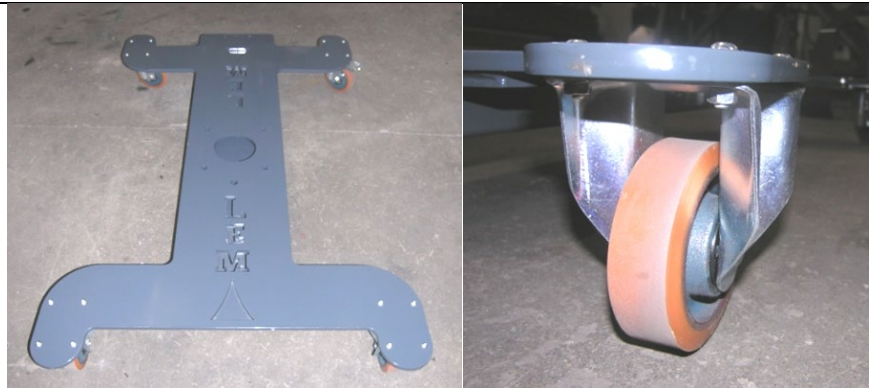
Model BT3000
 Assembly, Operation and Maintenance

4.2. Connecting the Lift

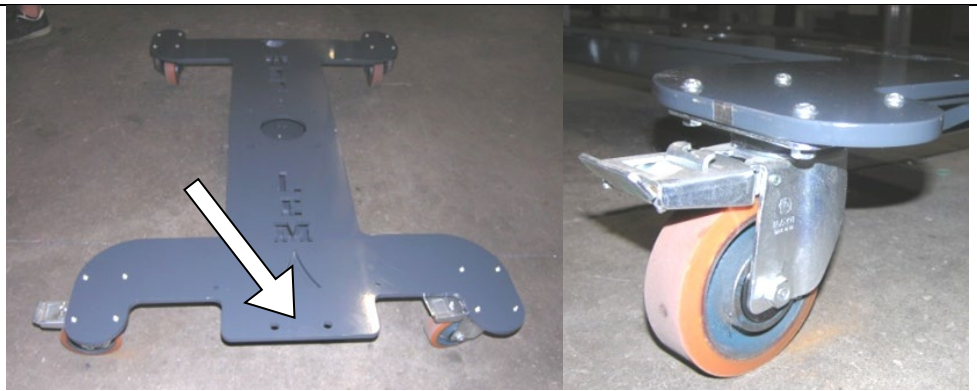
Fix the wheels to the base.

	DESCRIPTION	Qty
SCREW	M8x30	16
WASHER	M8	16
NUT	M8	16

TIGHTENING TORQUE=23 Nm



The wheels with the brake go to the side of the handlebar (front).



Brake the front wheels.

Place the control unit assembly over the 4 holes of the base.



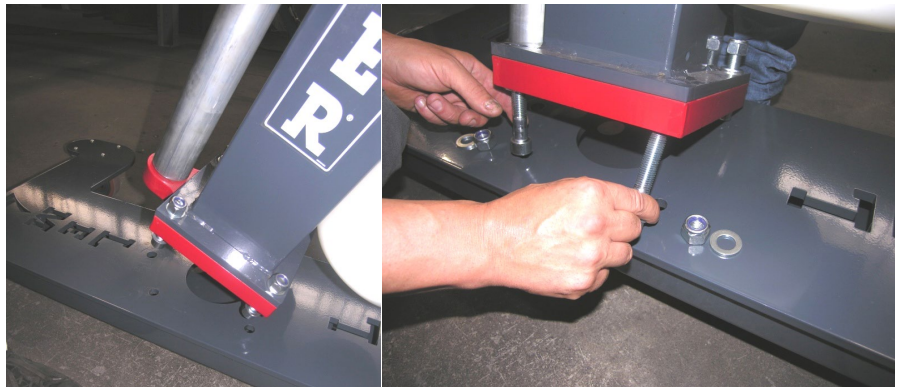
Control unit on the handle side (front)

Unscrew the nuts and washers.

Slightly raise the group.

Remove the screws.

Repeat for all 4 corners of the control unit assembly.



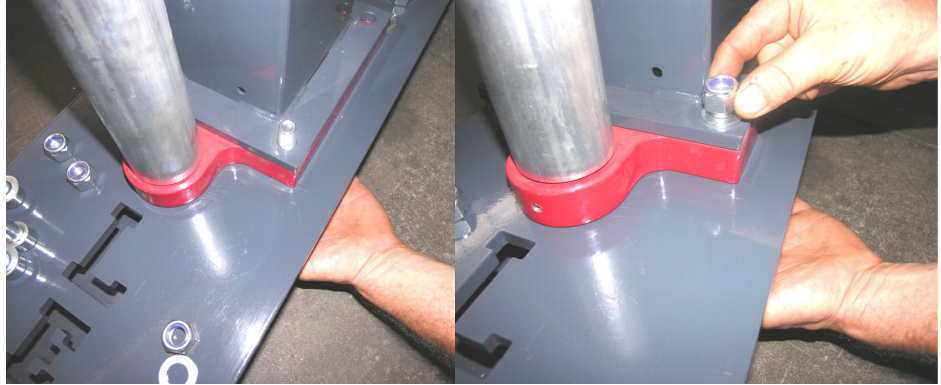
Model BT3000
 Assembly, Operation and Maintenance

Reinsert the screws under the base.

Screw in screws, washers and nuts.

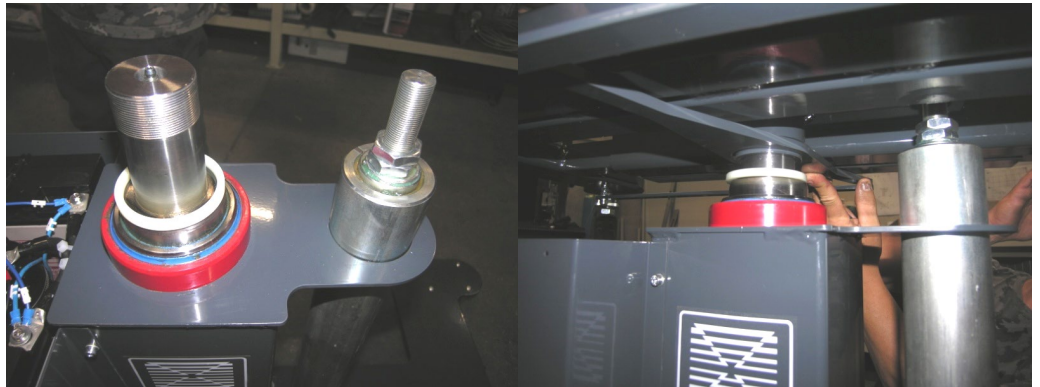
	DESCRIPTION	Q.ty
SCREW	M16x80	4
WASHER	M16	8
NUT	M16	4

TIGHTENING TORQUE=198 Nm



Unscrew / remove nuts and washers from the 2 cylinders of the control unit.

Rest the platform.

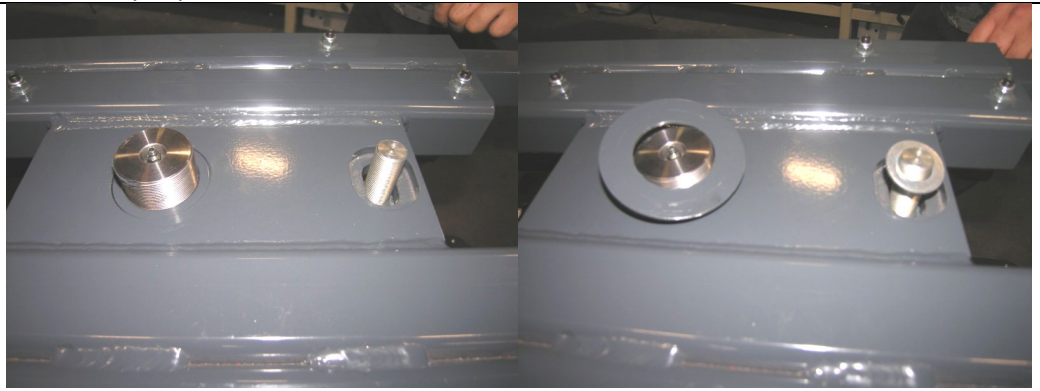


Place the PVC ring perfectly in place under the lever.



Model BT3000
 Assembly, Operation and Maintenance

Replace the washers.

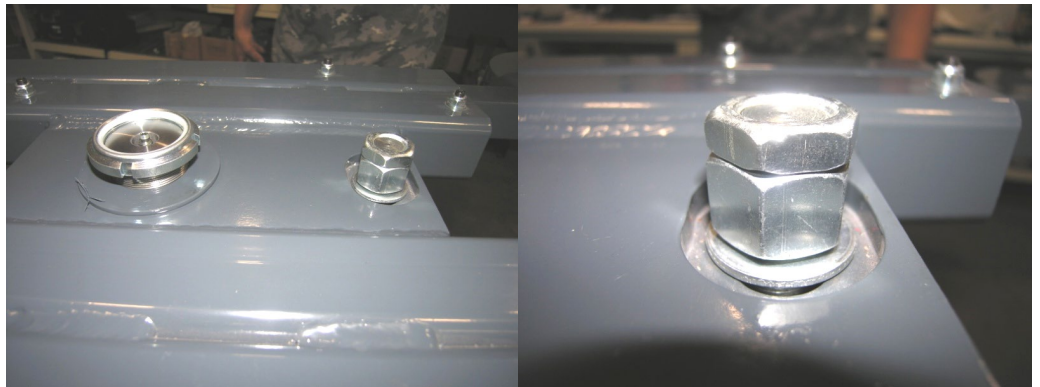


Screw the nuts as shown in the photo.

- A. Lift cylinder:
 - a. tighten the ring nut well
- B. Anti rotation cylinder:
 - a. Insert the washer
 - b. Screw the top nut loosely
 - c. Leave 2 mm between the washer and the nut
 - d. Screw in the bottom nut
 - e. Tighten the 2 nuts against each other



The anti-rotation cylinder must not be locked to the platform.



	DESCRIPTION	Q.ty
WASHER	M20	1
NUT	M20	1
NUT	M20 LOW	1

Insert the caps.



Model BT3000
Assembly, Operation and Maintenance

Fix the handlebar to the base.

	DESCRIPTION	Q.ty
SCREW	M16x50	2
WASHER	M16	4
NUT	M16	2

TIGHTENING TORQUE=198 Nm

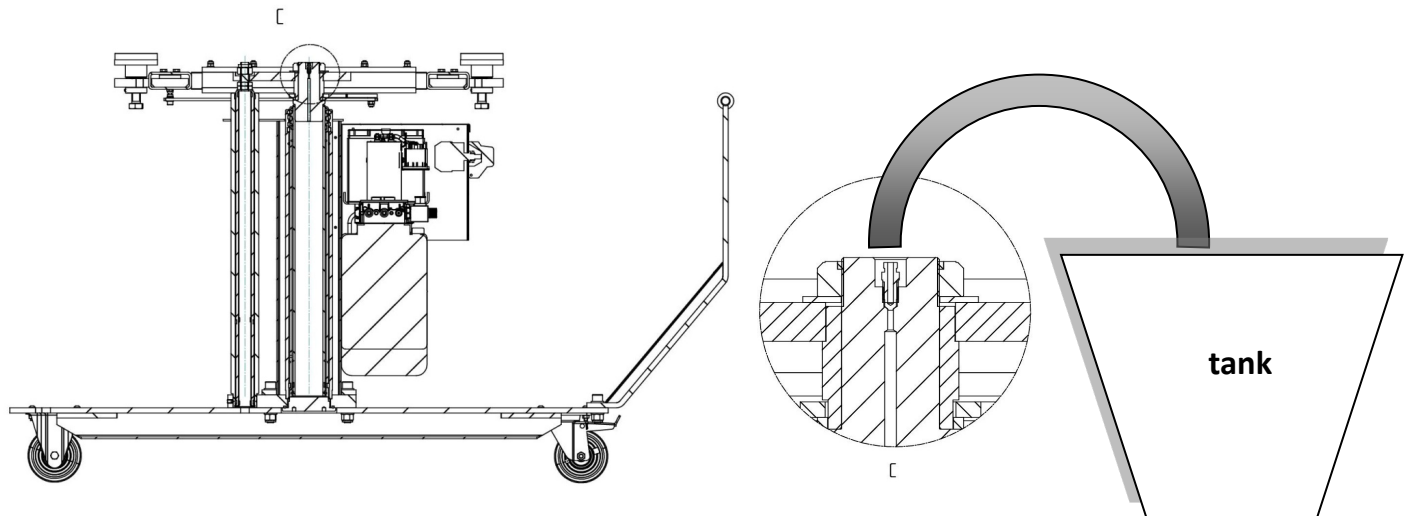


- A. Fill the tank with oil
- B. Carry out the "Air bleeding from the volumetric circuit" procedure (see next page).
- C. Fill the tank with oil again.

4.2.1. Air Bleeding from the Hydraulic Circuit

To eliminate the air from the circuit, proceed as follows:

1. Take the lift to its maximum height;
2. On the top of the cylinder connect a RILSAM hose from the vent valve to a tank;
3. Press the lifting button and use a 8 mm socket wrench to open the vent valve a little by turning it anticlockwise.
4. Close the vent valve by turning it clockwise;
5. Repeat the procedure at least 3 times until all the air has been eliminated from the circuit;
6. Close the vent valve definitively
7. Remove the RILSAM hose from the valve



4.3. Battery

4.3.1. Battery Charging

Battery chargers must be plugged when needed.

Life of the battery depends on 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 to avoid under or overcharging and reduce the life and capacity of the batteries.

4.3.2. Battery Information

4.3.2.1. 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.

4.3.2.2. Battery Maintenance

REFER TO THE MAINTENACE INSTRUCTIONS OF THE BATTERIES SUPPLIED

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. These 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 these 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.

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:

- Instructions manual.
- Tools with insulated handles.
- Fire extinguisher.
- 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 $\rho \leq 10^8 \Omega$, and an insulation resistance $\geq 10^5 \Omega$
- First aid equipment must be available.

Model BT3000
Assembly, Operation and Maintenance

Safety Precautions

Observe the following precautions at all times:

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

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 paragraf).
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.

Model BT3000
 Assembly, Operation and Maintenance

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 manufacturer.

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	

4.3.3. 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.

Model BT3000
 Assembly, Operation and Maintenance



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

<p>To charge the batteries:</p> <ol style="list-style-type: none"> Turn ON the main switch Connect the battery charger to the connector in the control unit. Connect the battery charger to the 110/220 V socket. 	
<p>On the cover of the control unit there is a LED display that indicates the charge of the batteries.</p> <p>E= EMPTY → RED LED F= FULL → GREEN LED</p>	

LED BAR	1	2	3	4	5	6	7	8	9	10
VOLTAGE	20.78	21.18	21.6	22.02	22.44	22.86	23.28	23.7	24.6	24.6+
LED COLOUR	RED	ORANGE	ORANGE	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
BATTERY CAPACITY	10%	20%	30%	40%	50%	60%	70%	80%	90%	FULL

4.4. Final Testing

The static and dynamic load tests with overloads are performed at the Manufacturer's premises.

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	overload	125 %
DINAMIC TEST	overload	110 %

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

4.5. Lift Operational Test

4.5.1 Lift Operation

- ✓ Perform pre-operation check list item by item
- ✓ Ensure lift is completely lowered
- ✓ Position the jack in order to be loaded

4.5.2 Caution

- ✓ Avoid sudden "stops and starts" during loading and unloading
- ✓ Lock the foot brake of the pivoting wheels, operator side as the jack has been positioned

4.5.3 To Load a Typical Component

- ✓ Set the parking brake of the lift located on the two front wheels
- ✓ Position the component centered and balanced on the platform
- ✓ If required, use the devoted clamps, pads or tools to support the load

4.5.4 To Raise the Lift

- ✓ Push Up Button (PS) to raise the lift about 10"
- ✓ Check for the vehicle movement and weight distribution. Raise to desired height if secure

4.5.5 To Lower the Lift

- ✓ Inspect the lifting area to insure all personnel and debris have been cleared away
- ✓ Push the Down Button (PD) and the lift starts its descent
- ✓ Fully lower the platform to the floor, then transport the load to the desired location

Model BT3000
Assembly, Operation and Maintenance