**Version:** 25UF043052

**Serial No.:** _____

**Production Date:** _____

# USER'S MANUAL

# ELECTRO-HYDRAULIC SINGLE POST LIFT

## MODEL: WK P130M

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# Chapter 1 DESCRIPTION OF THE MACHINE

This single post vehicle lift is classified as movable model and stable model. Movable single post vehicle lift is special useful for indoor and outdoor grounds. And stable single post vehicle lift is appropriate for relatively narrow and little site indoor. Both of them are the special equipments for lifting vehicles, such as cars, which park on ground, to a certain height for maintenance. WK P130 is stable type and WK P130M is movable type.

The lift consists of the following main parts:

- Fixed structure (post);
- Moving units (carriage + arms);
- Lifting units (hydraulic cylinder + power unit);
- Control box (CE version only);
- Moving trolley (WK P130M only);
- Safety devices.

***Fig. 1*** illustrates the working areas reserved for use by operators around the lift.

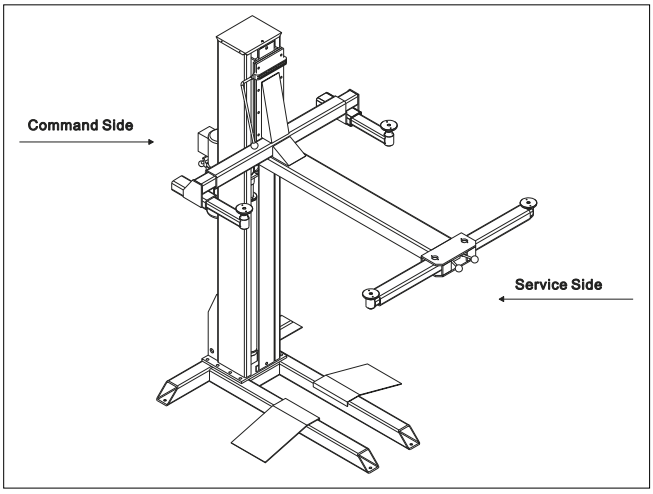



***Fig. 1***

- **Command side:** this side of the lift includes the area reserved for operators to access the control box.
- **Service side:** this is the opposite side of the command side.

***Fig. 2*** illustrates the various parts of the lift.

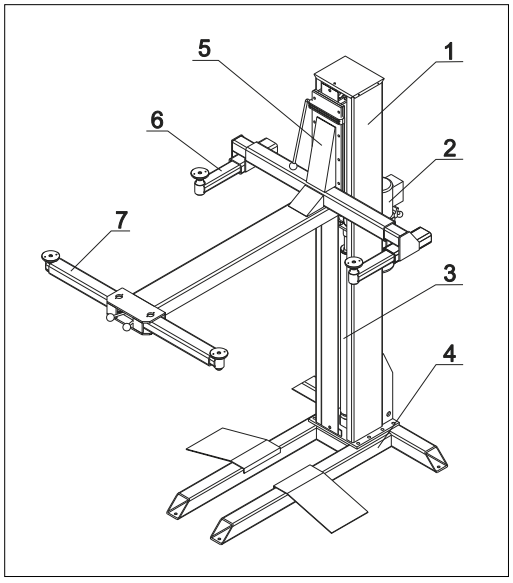



***Fig. 2***

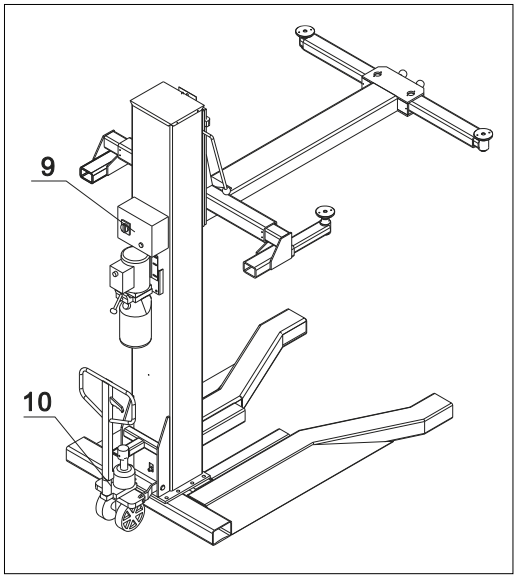



***Fig. 3***

## 1.1 FIXED STRUCTURE

The structure consists of:

- Vertical post ***(Fig. 2-1)*** built with bent steel plate. The base is welded to a drilled plate to be anchored to the base ***(Fig. 2-4)***. The electric control box (only for CE version) ***(Fig. 3-9)*** and the hydraulic power unit ***(Fig. 2-2)*** are attached to the vertical post. Inside each post are the moving parts to lift the vehicles.
- The vertical post is anchored to the base plate ***(Fig. 2-4)***.

## 1.2 MOVING UNITS

Each unit consists of:

- Carriage ***(Fig. 2-5)*** built with welded steel plate. It joints by chain and the cable, and at the bottom to the lift arms by means of pins.
- The carriage moves along the post, guided by plastic sliding pads, located inside the post itself.
- Two horizontally movable telescopic arms, two vertically movable telescopic arms ***(Fig. 2-6)***, and two swing lifting arms ***(Fig. 2-7)*** built with tubular steel with a pad at each end that can be height adjusted to hold the car and on the opposite side the carriage connection hole.

## 1.3 LIFTING UNIT

It consists of:

- 1 hydraulic cylinders ***(Fig. 2-3)***, the carriage run by chains and synchronized by steel cables.
- 1 hydraulic unit ***(Fig. 2-2)*** to set the cylinders run.

## 1.4 HYDRAULIC POWER UNIT

The hydraulic power unit consists of:

- An electric motor;
- A geared hydraulic pump;
- Descent hand-valve equipped with a manual oil drain valve; ***(see the use and maintenance chapter)***
- UP button; (Non-CE version)
- A maximum pressure valve;
- Oil tank;
- An oil delivery and return flexible pipe to the cylinders feeding circuit.

***Note: The oil delivery pipe may be under pressure.***

***Fig. 4 Hydraulic Power Unit***

## 1.5 MOVING TROLLEY

WK P130M is equipped with trolley to move the lift indoor and outdoor.

## 1.6 CONTROL BOX (CE version only)

The panel that houses the electric control box contains the following:

- Main switch
- Up push button
- Power indicating lamp

***Fig. 5 Control Panel***

## 1.7 SAFETY DEVICES

The safety devices include:

- Mechanical safety device for carriage;
- Arms locking system;
- 1 post end limit switches (CE version only);
- General electric safety devices;
- General hydraulic safety devices.

These safety devices will be described in further detail in the following chapters.

# Chapter 2 TECHNICAL SPECIFICATIONS

## 2.1 OVERALL DIMENSIONS

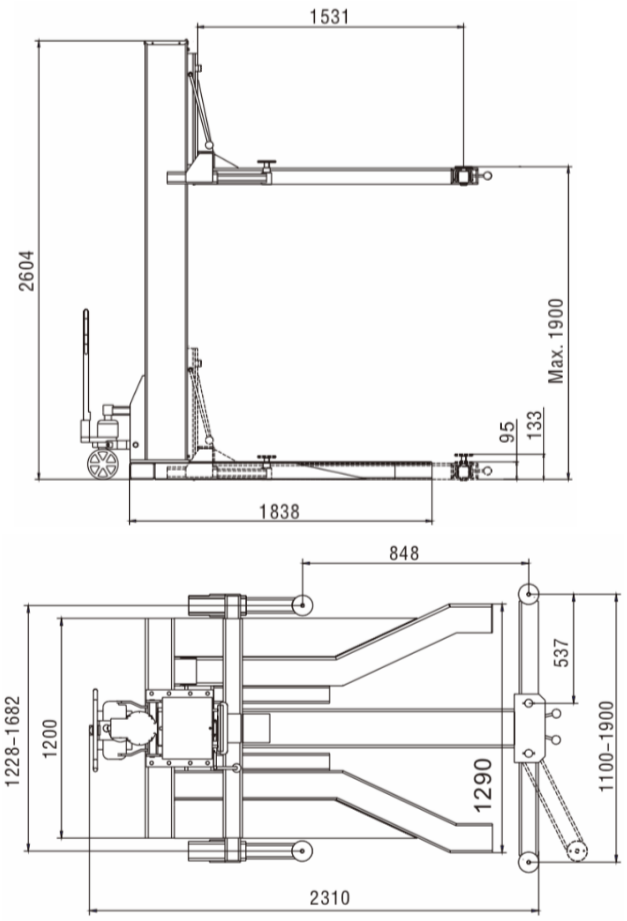



***Fig. 7 WK P130M overall dimension***

| | |
|---|---|
| Model No. | WK P130M |
| Capacity | 3,000kg |
| Max. Lifting Height | 1900mm |
| Min. Height | 94.5mm |
| Max. Car Width | 1800mm |
| Lifting Time | ≤60s |
| Lowering Time | ≤40s |
| Motor Power | 2.2Kw |
| Oil Pressure | 11.5Mpa |
| Net. Weight | 720kg |
| Insulation Grade | IP64 |
| Working Temperature | -5□/+40□ |
| Working Environment | Indoors |

***Table 2***

## 2.2 ELECTRIC MOTOR

The motor rotation direction must be the same as shown by the arrow on the pump: if not, modify the electrical connections.

## 2.3 HYDRAULIC OIL HOSE CONNECTION DIAGRAM

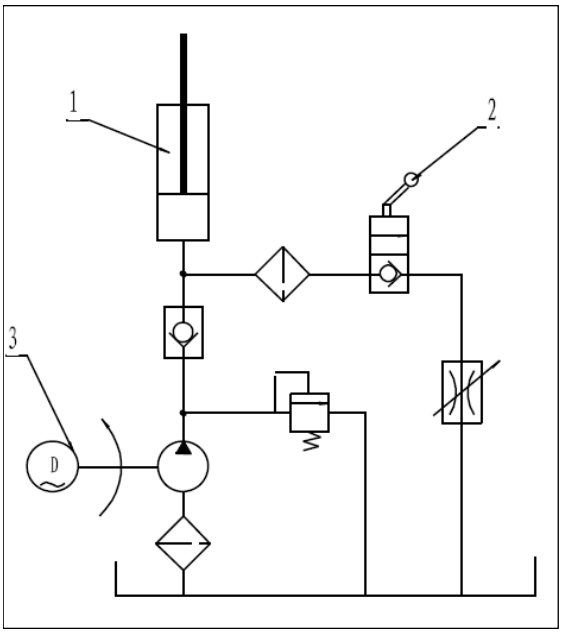



*Fig. 9*

## 2.4 OIL

The oil reservoir contains hydraulic mineral oil in accordance with ISO/DIN 6743/4 with a level of contamination that does not exceed class 18/15 according to ISO 4406, for example IP HYDRUS OIL 32, SHELL TELLUS OIL T32 or equivalent.

## 2.5 VEHICLE WEIGHT AND SIZE

Lift rack can be adapted to virtually all vehicles no heavier than 2500kg, the dimensions of which do not exceed the following:

Max width: 1800mm

# Chapter 3 SAFETY

It is vital to read this chapter of the manual carefully and from beginning to end as it contains important information regarding the risks that the operator and the maintenance fitter may be exposed to in the eventuality that the lift is used incorrectly.

The following text contains clear explanations regarding certain situations of risk or danger that may arise during the operation or maintenance of the lift, the safety devices installed and the correct use of such systems, residual risks and operative procedures to use (general and specific precautions to eliminate potential hazards).

***WARNING***

Lift is designed and built to lift vehicles and hold them in the elevated position in a closed workshop. All other uses are unauthorized; in particular, the lift is not suitable for:

- Washing and respire work;
- Creating raised platforms or lifting personnel;
- Use as a makeshift press for crushing purpose;
- Use as goods lift
- Use as a jack for lifting vehicles or changing wheels.

***THE MANUFACTURE DISCLAIMS ALL LIABILITY FOR INJURY TO PERSONS OR DAMAGE TO VEHICLES AND OTHER PCABLERTY CAUSED BY THE INCORRECT AND UNAUTHORISED USE OF THE LIFT.***

During lift and descent movements, the operator must remain in the command station as defined in ***Fig. 10***. The presence of persons inside the danger zone indicated in the same figure is strictly prohibited. The presence of persons beneath the vehicle during operations is permitted only when the vehicle is parked in the elevated position.

***DO NOT USE THE LIFT WITHOUT PROTECTION DEVICES OR WITH THE PROTECTION DEVICES INHIBITED. FAILURE TO COMPLY WITH THESE REGULATIONS CAN CAUSE SERIOUS INJURY TO PERSONS, AND IRREPERABLE DAMAGE TO THE LIFT AND THE VEHICLE BEING LIFTED.***

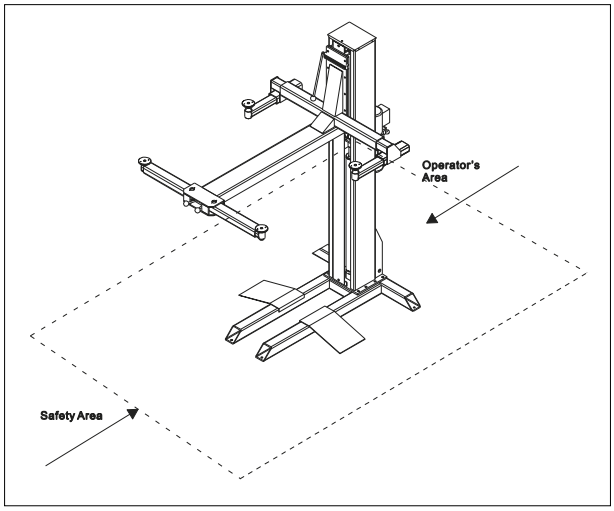



***Fig. 10 Working Area***

## 3.1 GENERAL PRECAUTIONS

The operator and the maintenance fitter are required to observe the prescriptions of accident prevention legislation in force in the country of installation of the lift.

Furthermore, the operator and the maintenance fitter must:

- Always work in the scheduled working area as shown in the manual;
- Never remove or deactivate the guards and mechanical, electrical, or other types of safety devices;
- Read the safety notices affixed to the machine and the safety information in this manual.

In the manual all safety notices are shown as follows:

***DANGER:*** indicates imminent danger that can result in serious injury or death.

***WARNING:*** indicates situations and/or types of maneuvers that are unsafe and can cause injuries of various degrees or death.

***CAUTION:*** indicates situations and/or types of maneuvers that are unsafe and can cause minor injury to persons and/or damage the lift, the vehicle or other psaltery.

## 3.2 RISKS OF ELECTRIC SHOCK

Specific safety notice affixed to the lift in areas where the risk of electric shock is particularly high.

## 3.3 RISKS AND PROTECTION DEVICE

We shall now examine the risks to which the operator and the maintenance fitters may be exposed when the vehicle is immobilized in the raised position, together with the protection devices and adopted by the manufacture to reduce all such hazards to the minimum.

## 3.4 LONGITUDINAL AND LATERAL MOVEMENT

Longitudinal movement is considered the backward and forward shifting of the load.

Lateral movement implies the shifting to the left or right of the vehicle, especially during the lifting phase on the rack.

These movements can be avoided by positioning the vehicle correctly on the arm disk support plates, which must be previously adjusted to the same height (by loosening or tightening) as the vehicle.

Do not move the vehicle in relation to the arms or adjust arms and disk support plates until the arms have been totally lowered, i.e. the disk support plates must be free from all contact with the vehicle.

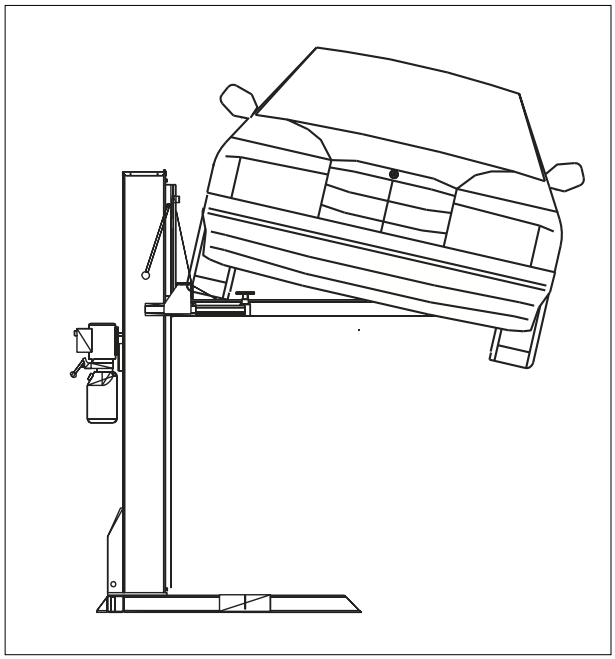


*Fig. 11 Risk of Vehicle Fall*

***WARNING***

***DO NOT ATTEMPT TO MOVE THE VEHICLE WHEN IT IS RESTING ON THE DISK SUPPORT PLATES.***

It is important to position the vehicle on the lift so that the weight is correctly distributed on the arms. ***(Fig. 12)*** For person and equipment safety, it is important that:

- People rest inside the safety area while the vehicle raising. ***(Fig. 10)***
- The engine is off, the clutch engaged and the parking brake pulled.
- The vehicle is correctly positioned. ***(Fig. 12)***
- Only authorized vehicle are raised without exceeding the rate capacity and overall dimensions.

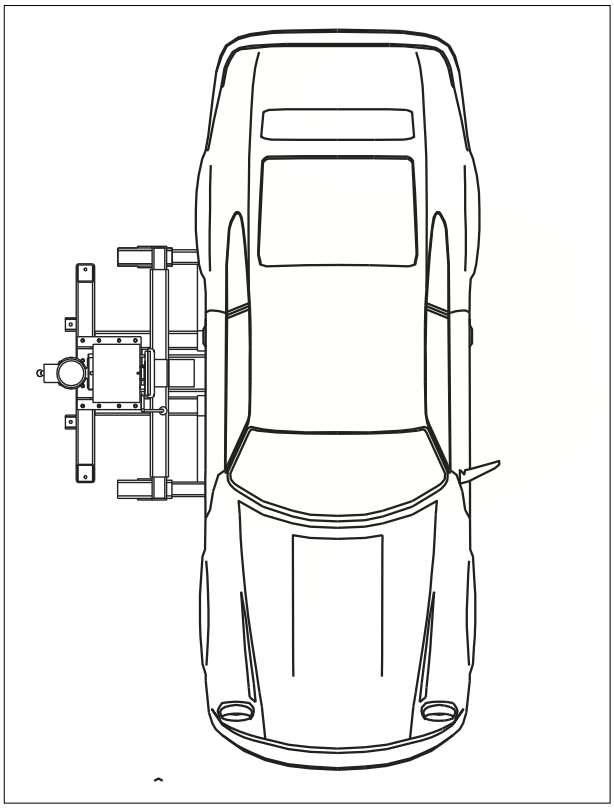


*Fig. 12 Correctly Loaded Vehicle*

## 3.5 RISKS WHILE THE VEHICLE IS BEING RAISED

The following safety devices have been installed to protect against overweight conditions and equipment failure:

- The thermal relay in the electric box will trip if the motor is overloaded.
- The maximum pressure valve ***(Fig. 13)***, located on the hydraulic oil power unit, will trip if the lift is overloaded.

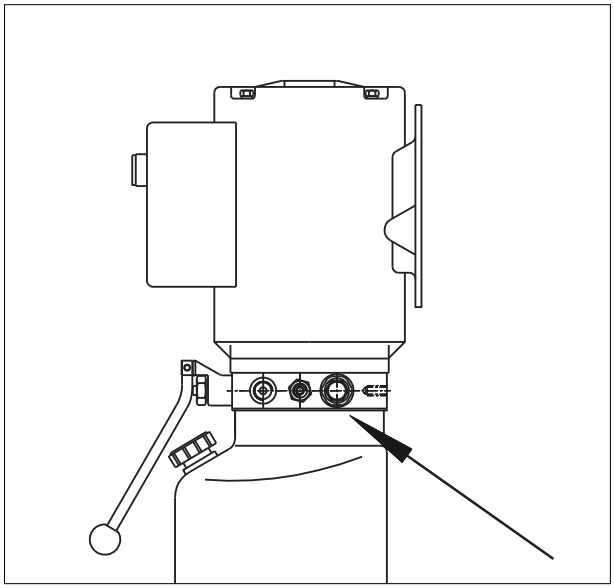


*Fig. 13*

- In case of a sudden, great leakage in the hydraulic circuit (a broken pipe), the blocking valves, at the bottom of cylinder, will trip.
- If the lift reaches to the maximum height, the up limit switch will stop the lifting ***(CE version only)***.
- If the hydraulic cylinder breaks, the safety wedges will trip, located inside the post. The wedges are pushed by the spring and immediately stop the carriage preventing their descent.
- If the moving part exceed its travel distance, on the upper part of the command post there is one limit switches which will trip after 3 sec. of carriage run ***(CE version only)***.
- In case of total breakdown of the limit switches, the carriage will stop a few millimeter higher. Because the hydraulic cylinders come to end stroke, will cause the maximum pressure valve (on hydraulic unit) to trip.

## 3.6 RISKS OF PERSONS

This paragraph illustrates risks to which the operator, maintenance worker, or any person near the operating area of the lift may be exposed in the case of impeccable use of equipment.

### 3.6.1 RISK OF CRUSHING (OPEARATOR)

Possible if the operator controlling the lift is not in the specified position at the command panel. When the platform and the vehicle are descending, the operator must never be partly or completely underneath the moving structure. During this phase, the operator must remain in the command zone. ***(Fig. 14)***

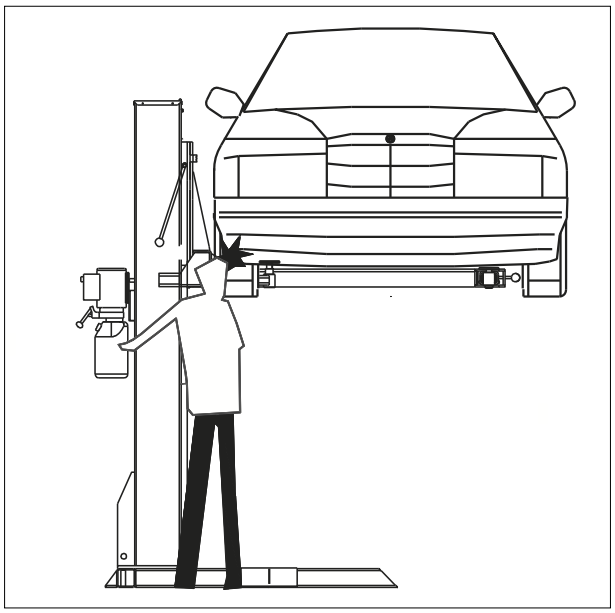


*Fig. 14*

### 3.6.2 RISK OF CRUSHING (PERSONNEL)

When the platform and the vehicle are descending, personnel are prohibited from entering the area beneath the moving parts of the lift. ***(Fig. 15)*** The lift operator must not start the maneuver until it has been clearly established that there are no persons in potentially dangerous positions.

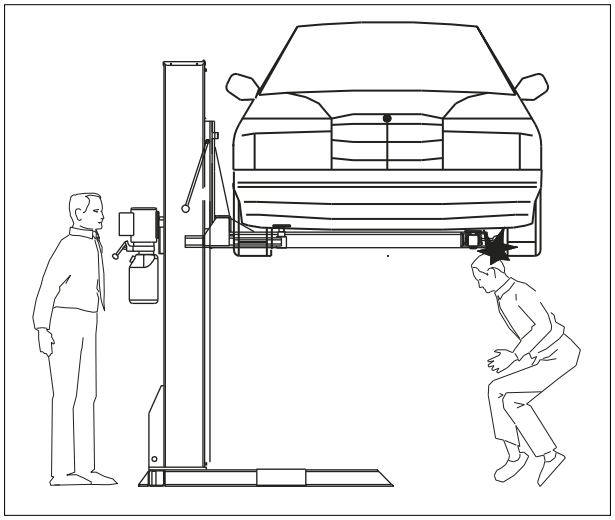


*Fig. 15*

### 3.6.3 RISK OF IMPACT

Caused by the parts of the lift or the vehicle that are positioned at head height. When, due to operational reasons, the lift is immobilized at relatively low elevations (less than 1.75m from the ground) personnel must be

careful to avoid impact with parts of the machine not marked with special hazard coloring. ***(Fig. 16)***

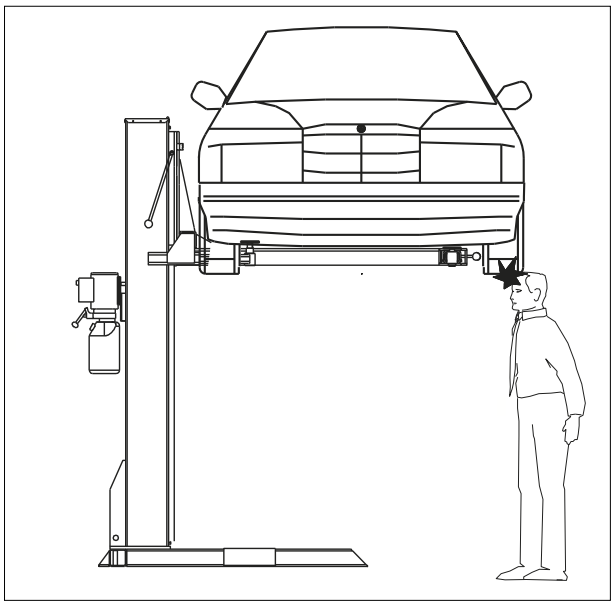


***Fig. 16***

### 3.6.4 RISK DUE TO VEHICLE MOVEMENT

Movement may be caused during operations, which involve force sufficient to move the vehicle. ***(Fig. 17)*** If the vehicle is of considerable dimensions or weight, movement may lead to overload or unbalancing. All measures must be taking to avoid such an occurrence.

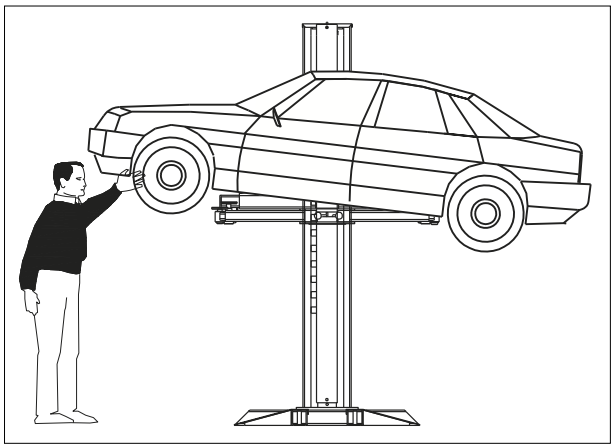


***Fig. 17***

### 3.6.5 RISK OF VEHICLE FALLING FROM LIFT

This risk could be caused by the incorrect positioning on the arm disk support plates ***(Fig. 18)*** or in incorrect position of the arm disk support plates in relation to the lift.

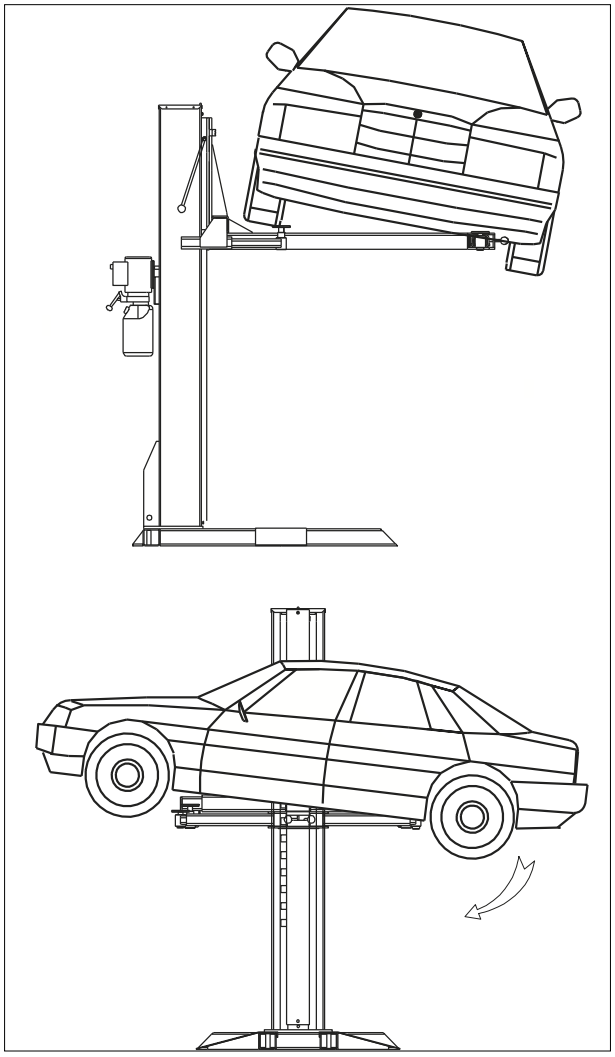


***Fig. 18***

***NEVER BOARD THE VEHICLE AND/OR TURN THE ENGINE ON WHEN LIFT IS RAISED. (Fig. 19)***

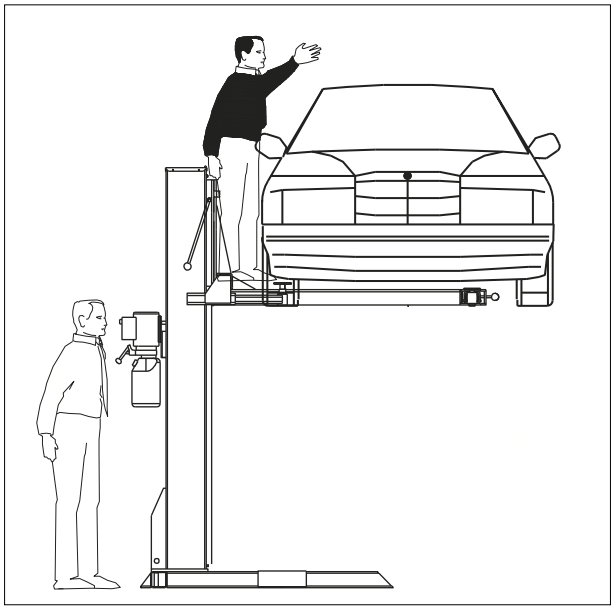


***Fig. 19***

***NEVER LEAN OBJECTS AGAINST THE POST OR LEAVE THEM IN THE AREA WHERE MOVING PARTS ARE LOWERED.***

This could hamper lowering or cause the vehicle to fall from the rack. ***(Fig. 20)***

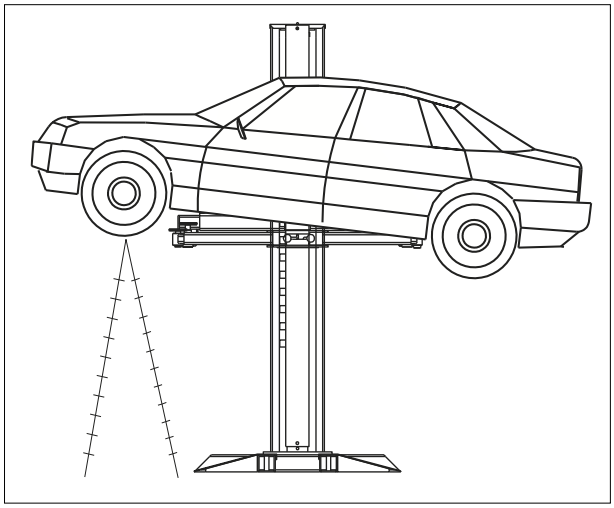


***Fig. 20***

### 3.6.6 SLIPPING

This risk may arise due to spillage of lubricants in the surrounding area. ***(Fig. 21)***

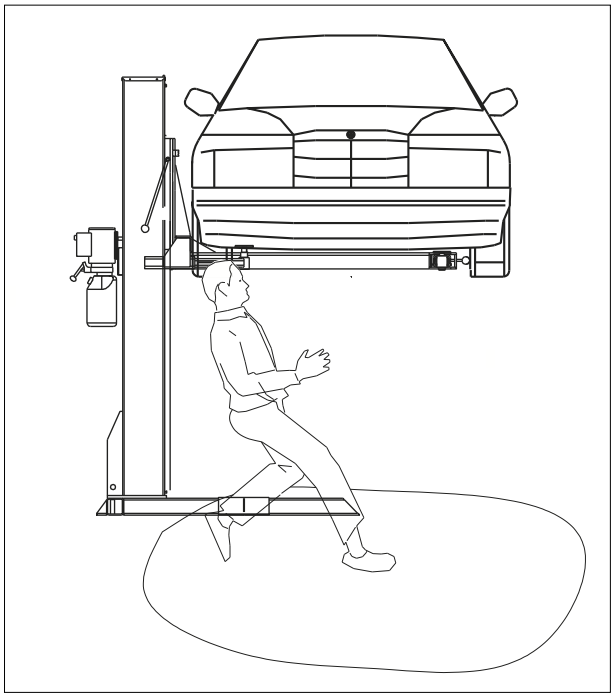


***Fig. 21***

***ALWAYS KEEP THE AREA SURROUNDING AND THE LIFT CLEAN BY REMOVING ALL OIL SPILLS.***

To avoid the risk of slipping, make use of the recommended personal protection (anti-slip footwear).

### 3.6.7 RISK OF ELECTRIC SHOCK

Risk of electric shock in areas of the lift housing electric wiring. Do not use jets of water, steam (high pressure wash units), and solvents or paint in the immediate vicinity of the lift, and take special care to keep such substances clear off the electrical command panel. ***(Fig. 22)***

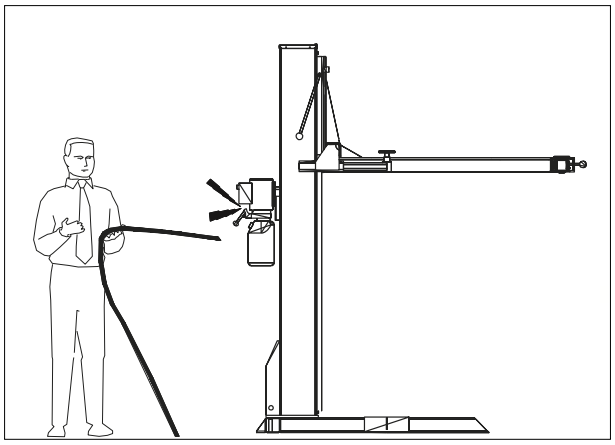


***Fig. 22***

### 3.6.8 RISK OF COMPONENT FAILURE DURING OPERATION

The manufacturer has used appropriate materials and construction techniques in relation to the specified use of the machine in order to manufacture a reliable and safe lift. Note, however, that the lift must be used in conformity with the manufacturers prescriptions and the frequency of inspections and maintenance work recommended in ***Chapter 6 "MAINTENANCE"*** must be observed.

### 3.6.9 RISK RELATED TO IMPROPER USE

Persons are not permitted to stand or sit on the platforms during the lift maneuver or when the vehicle is already lifted. ***(Fig. 23)*** All uses of the lift other than the uses for which it was designed are liable to give rise to serious accidents involving the persons working in the immediate vicinity of the unit. It is therefore essential to adhere scrupulously to all regulations regarding use, maintenance and safety contained in this manual.

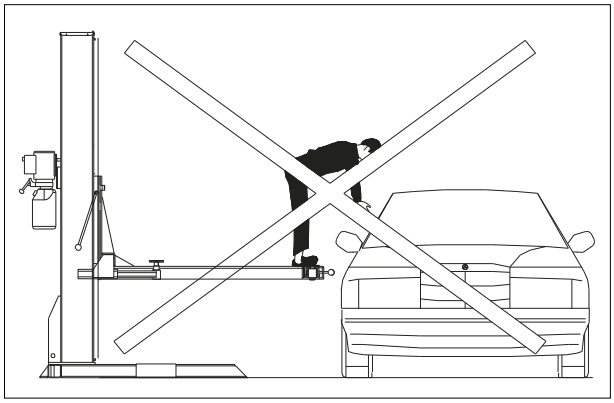


*Fig. 23*

## 3.7 SAFETY INSTRUCTINS FOR SERVICING

- Maintenance or repair work by authorized service personnel only.
- Turn off and padlock the main switch before doing any maintenance, or repair work.
- Work on pulse generators or proximity switches by authorized service personnel only.
- Work on the electrical equipment by certified electricians only.
- Do not replace or override the safety devices.
- Ensure that ecologically harmful substances are disposed of only in accordance with the appropriate regulations.

# Chapter 4 INSTALLATION

***THE FOLLOWING OPERATIONS MUST BE PERFORMED EXCLUSIVELY BY SPECIALISED TECHNICAL STAFF WITH AUTHORISATION FROM THE MANUFACTURER OR LICENSED DEALER. IF THESE OPREATIONS ARE PERFORMED BY OTHER PERSONS, SERIOUS PERSONAL INJURY AND/OR IRREPERABL DAMAGE TO THE LIFT UNIT MAY RESULT.***

## 4.1 INSTALLATION REQUISITE CHECKLIST

The lift is designed for installation in enclosed areas suitably protected from the weather. The place of installation must be well clear of areas destined to washing or painting, and away from solvent or paint storage areas or areas where there is a risk of potentially explosive atmosphere.

***SUITABILITY OF THE DIMENSIONS OF THE PLACE OF INSTALLATION AND SAFTY CLEARANCE.***

The lift must be installed in observance of the clearances between walls, pillars, other machines, etc. indicated in ***Fig. 24 & Fig. 25*** and incompliance with any legislative requirements in the county of installation.

**Check in particular:**

- **Minimum height:** 3600mm inclusive of height of vehicle and maximum height of arms, (i.e. 2020mm)
- **Min. distance from walls:** 1000mm
- **Min. working area:** 1000mm
- Area for command station
- Area for maintenance, access and emergency escape routes.
- Position in relation to other machines.
- Proximity to power supply for trouble-free hook-up.

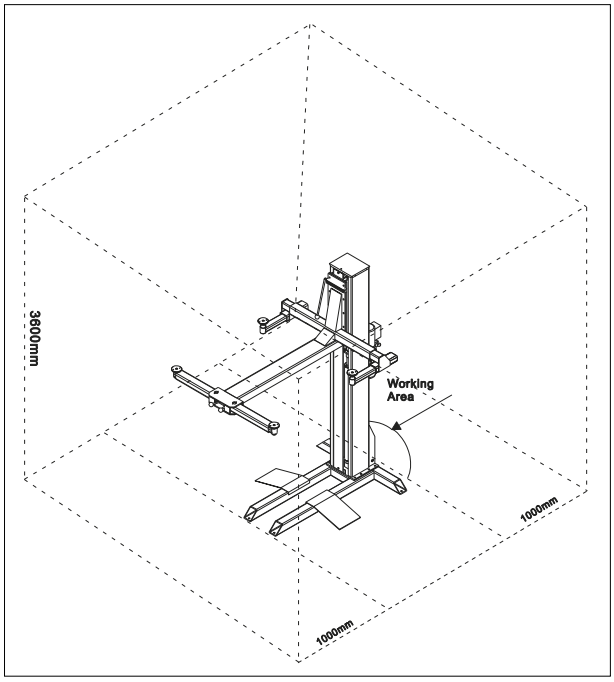



*Fig. 24*

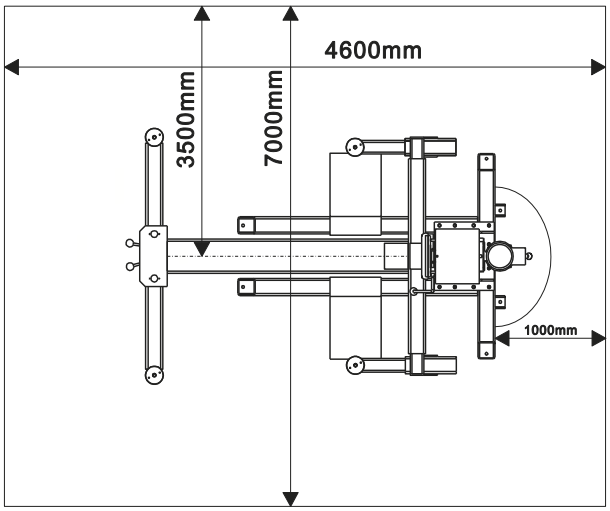



*Fig. 25*

## 4.2 LIGHTING

All parts of the machine must be uniformly lit with sufficient light to assure that the adjustment and maintenance operations specified in the manual can be performed, and without areas of shadow reflected light, glare and avoiding all situations that could give rise to eye fatigue.

The lighting must be installed in accordance with the laws in force in the place of installation (responsibility lies with the lighting equipment fitter).

## 4.3 FLOOR

The lift must be installed on a horizontal concrete bed with a minimum thickness of 200mm built and a resistance ≥30N/mm$^2$.

The floor must also be flat and level (10mm of tolerance for leveling). Consult the manufacturer with regard to special applications.

## 4.4 ASSEMBLING

***WARNING***

***DURING INSTALLATION ONLY AUTHORISED PERSONNEL IS ALLOWED.***

To assemble the lift, the weight of the various parts is to be considered, in order to provide a lifting machine with the minimum capacity 500kg and max. lifting height of 2900mm.

Before starting to assemble the lift, check the crate contains all the needed material.

### 4.4.1 OVERALL ASSEMBLY OF STABLE SINGLE POST LIFT

#### 4.4.1.1 BASE INSTALLATION

- Place the base on the ground.
- Align the electric hammer with Ø16 drill bit to the hole on the base to drive into the ground 130m deep.
- Insert the expansion bolt into the hole and use the hammer to hit it completely and tighten the nut.

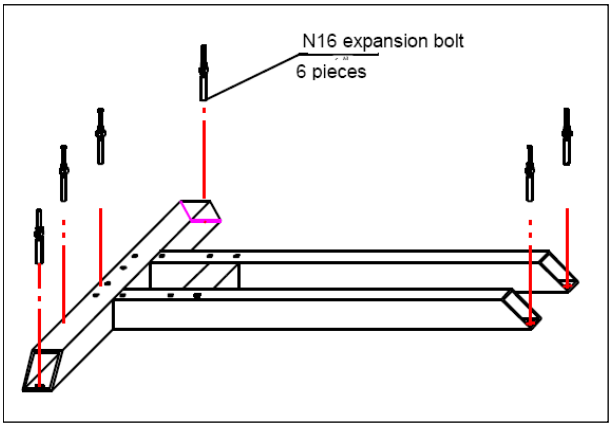



*Fig. 26*

#### 4.4.1.2 OVERALL ASSEMBLY

Install the post, carriage and power pack as shown in ***Fig. 27***.

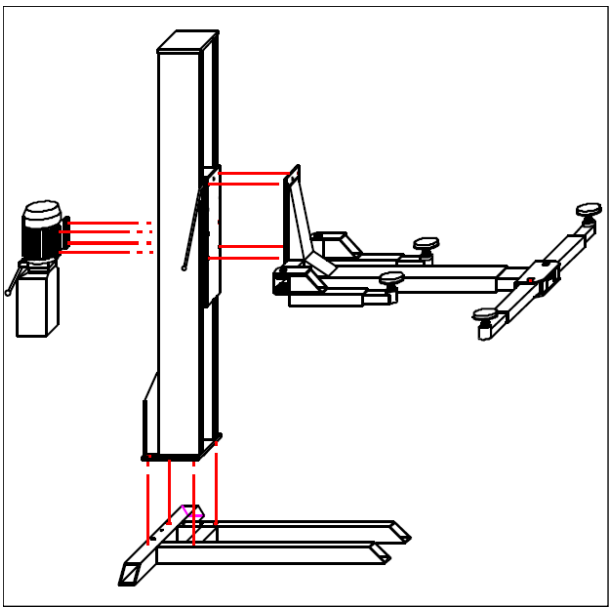


*Fig. 27*

### 4.4.2 OVERALL ASSEMBLY OF MOVABLE SINGLE POST LIFT

Install the post, carriage and power pack as shown in ***Fig. 28***.

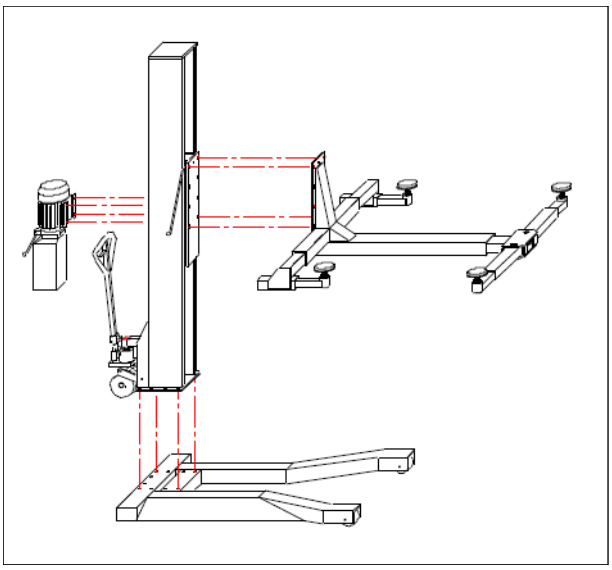


*Fig. 28*

### 4.4.3 OIL HOSE CONNECTION

Connect one end of oil hose to the power pack ***(Fig. 29)*** and the other end to the bottom outlet of the cylinder.

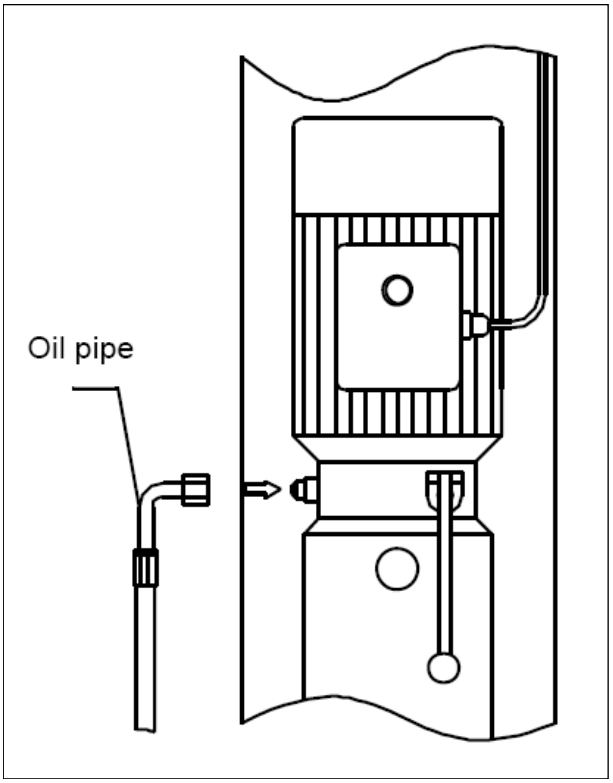



*Fig. 29*

### 4.4.4 ELECTRICAL CONNECTION

***WARNING***

***The operations listed below must be performed by skilled personnel.***

***Before connecting the electric system, make sure that:***

- The power supply plant to the lift is equipped with the protection device required by current standards in the country where the machinery is installed.
- The power supply line has the following cross-section:

Lift voltage 400V, three-phase……Min. 2.5mm$^2$

Lift voltage 230V, three-phase……Min. 4mm$^2$

Lift voltage 230V, single-phase……Min. 6mm$^2$

- The voltage oscillations are within the tolerance range set forth by the specifications.

#### 4.4.4.1 ELECTRICAL CONNECTION OF NON-CE VERSION

Replace the original 3 short lines (black) on the motor with new long power line as in ***Fig. 30***:

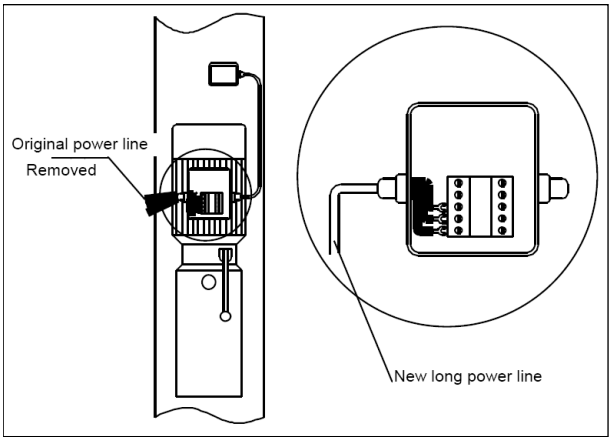



*Fig. 30*

#### 4.4.4.2 ELECTRICAL CONNECTION OF CE VERSION

Connect the power and control system to the terminal strip on the control box, inserting the cable into the rack passing through the prepared hole and following the wiring diagram on ***Fig. 8***.

- Install the electric box on the post.
- Connect the limit switches.
- Complete the solenoid valve (on the hydraulic unit) connection.
- Connect the electromagnets.
- Connect the electric motor.
- Complete the voltage and command connections to the control panel clamp box.

***WARNING: The wires should be fixed by nylon pitch.***

Close the cover of the electric box, turn the main switch to position 1, press the up push button, the motor rotation direction should be the one shown by the arrow on the pump.

***BEWARE: The pump rotating for a long time in the wrong sense may cause itself serious damages.***

Make sure that the post end limit switches work properly by pressing them manually.

## 4.5 TESTING AND CHECKS TO PERFORM BEFORE START-UP

#### 4.5.1 MECHANIAL TESTS

- Attachment and tightness of bolts, fittings and connections
- Free sliding of moving parts
- Clean state of various parts of the machine
- Position of the protection device
- Arms blocking device

#### 4.5.2 ELECTRIC TESTS

- Connection comply with diagrams
- Machine earth connections

#### 4.5.3 OPERATING OF THE FOLLOWING DEVICES

- Rise limit switch ***(CE version only)***
- Security lock device
- Hydraulic oil plant solenoid-valve ***(CE version only)***

#### 4.5.4 HYDRAULIC OIL TEST

- Sufficient oil in the tank
- No leaks
- Cylinder operation

***NOTE: If oil is not present, fill the reservoir of the power unit with the necessary amount of oil. See the procedure in Chapter 6: MAINTENANCE***

#### 4.5.5 ROTATION DIRECTION TEST

The motor should turn in the direction of the arrow located on the power unit pump; check using brief start-ups (each start-up must last a maximum of two seconds). If problems arise in the hydraulic oil plant, see the "Trouble-shooting" table in ***Chapter 7***.

## 4.6 COMMISSIONING

***WARNING***

***THESE OPERATIONS MUST ALWAYS BE PERFORMED BY TECHNICIONS OF THE AUTRORIZ SERVICE CENTRE INDICATED IN THE FRONT OF THIS MANUAL.***

#### 4.6.1 NO-LOAD TESTS

In this phase check the following:

- That the up push button operate correctly;
- That the carriage reaches the maximum height;
- That there are no abnormal vibrations in the post and in the arms;
- That the safety wedges enter the iron pads under the carriage;
- That the rise limit switches trip ***(CE version only)***;
- That the lowering lever works.

To perform the tests listed about, complete two or three complete up and down cycles. This is also to be done in order to make the air in the hydraulic circuit going out.

### 4.6.2 LOAD TESTS

Repeat the previous tests with the vehicle on the rack.

After the load tests, visually inspect the machinery and check again that all bolts are tightened.

# Chapter 5 OPERATIONS AND USE

The lift Commands (control devices) is shown as ***Fig. 31 & 32***.

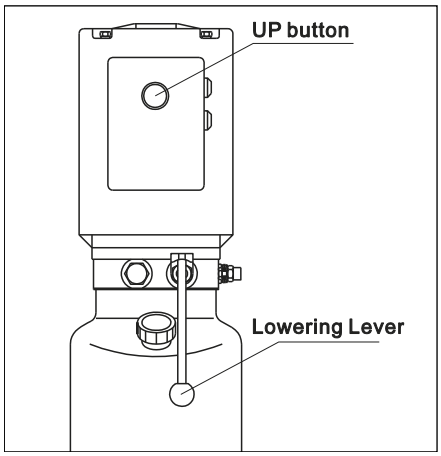



***Fig. 31 Non-CE version***

***Fig. 32 CE version***

## 5.1 CONMANDS

### 5.1.1 MAIN SWITCH (CE version only)

**POSITION 0:**

The lift is not energized. It is possible to access the interior of the box and lock the switch to prevent use of the lift.

**POSITION 1:**

This energizes the lift and lock the door of the box to prevent it from being opened accidentally.

### 5.1.2 UP PUSH BUTTON

Non-CE version: located on the motor. If pressed, activates the electric motor and mechanisms that lift the carriage.

CE version: "Man present" type, it operates under 24V and if pressed, activates the electric motor and mechanisms that lift the carriage.

### 5.1.3 LOWERING LEVER

Press and hold the lowering lever, the carriage will descent automatically.

## 5.2 OPEARTION OF MOVING TROLLEY (WK P130M)

The movable single post lift is provided with separate traveling mechanism. Shake the hauling handle of the steering rear wheel forwards and backwards to make the vertical column off the ground. Then you can push or pull the lifter. On arriving the working site, press the valve handle to retract the wheel, then the vertical column lands on the ground steadily.

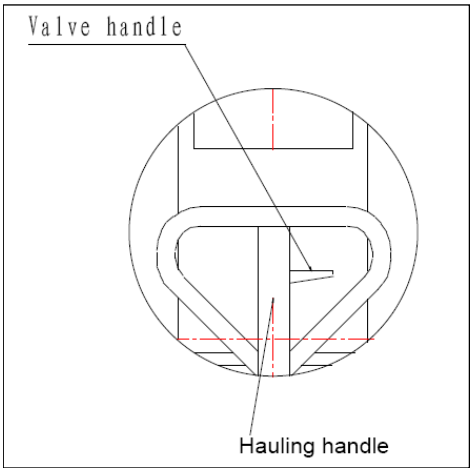



*Fig. 33*

The lift must only be pushed into the vehicle if in line with it. Insert the pallet under the vehicle beam and the pallet must be in line with the beam.

Retract the rear wheel of vertical post to land the vertical post steadily before the lifter lifts load, and make sure there is no foreign articles such as hand tools, bolts, screw caps, small stones. ***No lifting during moving!***

## 5.3 OPERATING SEQUENCE

- Drive vehicle onto the lift and engine off;

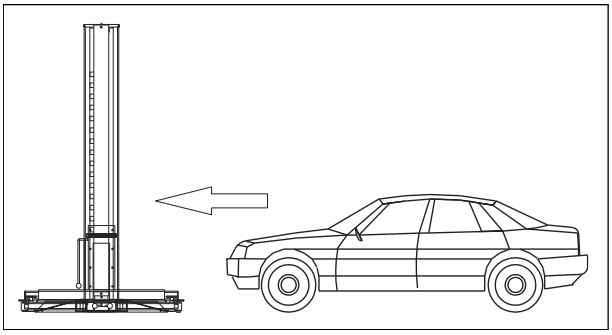


*Fig. 34*

***Note: For movable single post lift, operators may also push the lift into the underside of the vehicle as show in Fig. 35.***

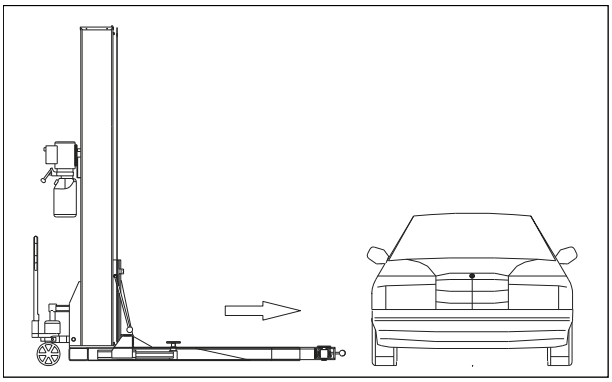


*Fig. 35*

- Align 4 pallets on the lifting arm to the supported position on the underside of vehicle;
- Press the UP button to make the vehicle be lifted for 10～15 centimeters;
- Stop lifting and check for secure four top positions of pallet;
- Check if the main lifting arm touches the vehicle base plate. In normal lifting, it should not touch the base plate;
- Press the lowering lever on the pump to make the lifting arm unlocked;
- To adjust pallet, turn it anticlockwise to make it rise (adjustment distance of 100mm);
- Press the UP button again and pay attention to the lifting arm and the vehicle lifted until the lifting is safe and reliable;
- Raise the lift to the required height;

- After the repair of vehicle is finished, press the UP button for 3 seconds to disengage the lock;
- Press and hold the unlocking handle and the lowering lever to lower the lift;

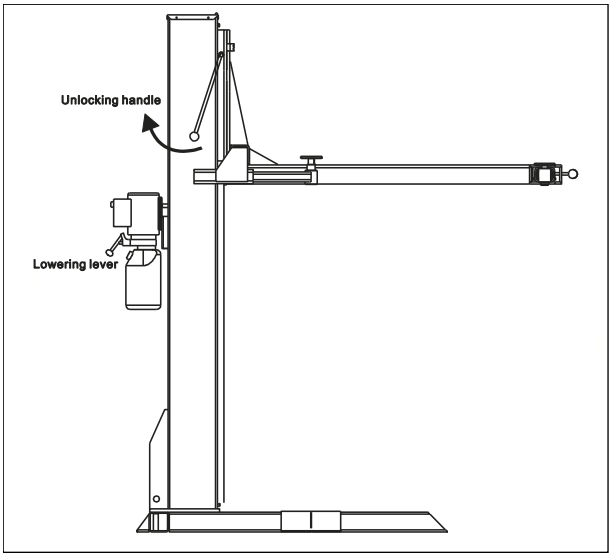



*Fig. 36*

- When the lift is lowered to the ground, lock device of lifting arm is unlocked automatically (available for stable lift only)
- Drive the vehicle away.

## 5.4 USE OF LIFTING ARM

According the position under the vehicle chassis where the lifting arm is located, the supporting arm on the lifting arm (close to the vertical post) may be pushed and pulled up and down or to left and right, as the following figure:

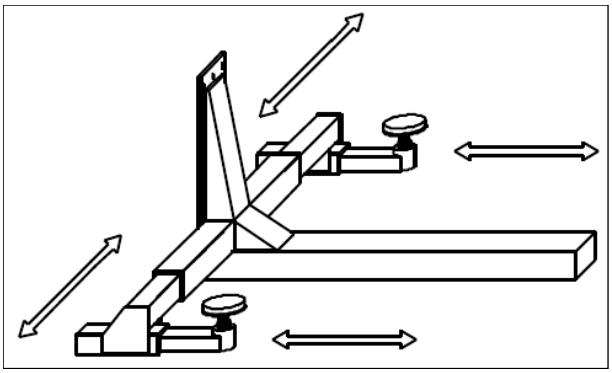


*Fig. 37*

The supporting arm in the front of lifting arm may be turned or pushed or pulled inward or outward. To turn it, first hold the lock handle, and release it after it goes into the position.

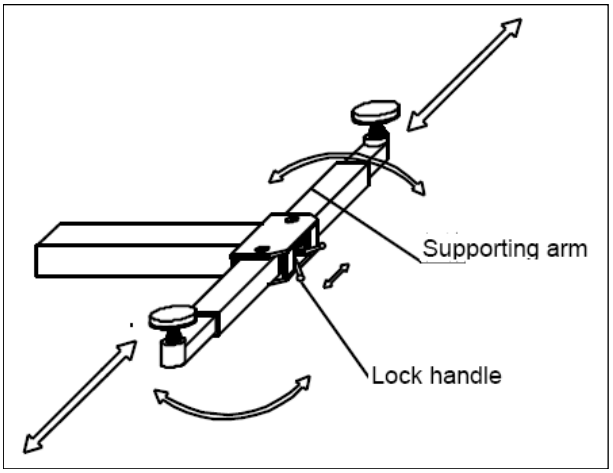



*Fig. 38*

By clockwise and anticlockwise turning, the height of pallet can be adjusted.

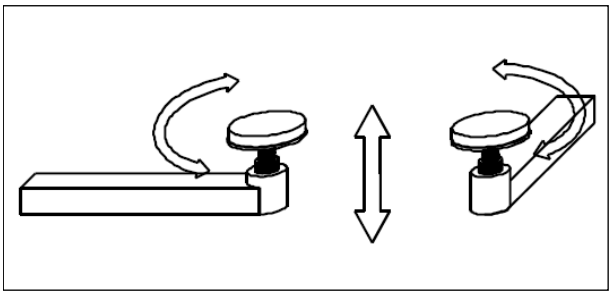


*Fig. 39*

# Chapter 6 MAINTENANCE

## 6.1 PRECAUTIONS

***WARNING***

***Maintenance must be carried out ONLY BY SKILLED PERSONNEL WHO ARE VERY FAMILIAR WITH THE LIFT.***

When performing maintenance on the lift, follow all the necessary precautions to ***PREVENT THE LIFT FROM BEING STARTED ACCIDENTALLY:***

- The main switch on the control box must be locked in POSITION 0 by using a LOCK.
- THE KEY for the lock must be kept by the MAINTENANCE FITTER.
- While maintenance is being performed on the machine, always keep in mind all the main possible risks and the safety instructions indicated in ***Chapter 3 "SAFETY RISK OF ELECTRIC SHOCK"*** at the machine power supply terminal strip.

***IT IS PROHIBITED TO PERRORM MAINTENANCE ON AND LUBRICATES MOVING PARTS.***

***IMPORTANT***

To ensure cable maintenance:

- Only use original spare parts and tools that are suitable for the job and in good condition;
- Follow the maintenance schedule indicated in the manual: these frequencies are indicative and must always be considered as general rules to be respected.
- Good preventive maintenance requires constant attention and continuous supervision on the machine. Quickly find the cause of any abnormalities such as excessive noise, overheating, leaking fluids, etc.

Special attention is required for:

- The condition of lifting parts (cylinder, power unit);
- Safety devices (micro switches, electromagnets and safety wedges)

To perform maintenance correctly, refer to the following documents supplied by the rack manufacturer:

- Complete functional diagram of the electric equipment and auxiliary equipment indicating the power supply connections;
- Hydraulic diagram with lists of parts and max. pressure values;
- Exploded drawings with the data needed to order spare parts;
- List of the possible causes of malfunctions and recommended solutions (***Chapter 7*** of the manual).

## 6.2 PERIODIC MAINTENANCE

### 6.2.1 OPERATION FREQUENCY

To keep the lift working at full efficiency, follow the indicated maintenance schedule. The manufacturer will not be responsible and will not honor the warranty as a result of non-compliance with the instructions indicated above.

***NOTE:***

***The frequency indicated refers to normal operating conditions. Different frequencies will apply to particularly server conditions.***

***ALL MAINTENANCE OPERATIONS MUST BE PERFORMED WITH THE LIFT STOPPED AND THE MAIN SWITCH KEY LOCKED.***

When after the machine has been installed, check:

- The tightness of the posts bases connection anchor bolts;
- The power unit oil level. Add oil up to the right level, if necessary.

### 6.2.2 EVERY MONTH

**HYDAULIC POWER UNIT**

- Check the oil level, using the special dipstick, which is attached to the filler cap. If necessary, add oil through the cap to reach the required level. For the type of oil, ***see Page 3*** "***TECHNICAL SPECIFICATIONS***".
- After the first 40 hours of operation, check if the conveys or filter is clogged and the oil contamination level. (Clean the filter and replace the oil if there is a high contamination level).

**HYDAULIC CIRCUIT**

Check that there are no oil leaks in the circuit between the power unit and cylinder and in the cylinder itself. In this case, check the condition of the gaskets and replace them, if necessary.

### 6.2.3 EVERY 3-MONTH

**HYDAULIC PUMP**

Under normal operating conditions, check that there is no changes in the noise in the power unit pump and check that the relative bolts are properly tightened.

**SYNCRONOUS SYSTEMS**

- Check the operating condition and efficiency of the safety devices ***(as described at pages 6, 7)*** and the wear on the safety wedges and relative hinge pins. Oil the pins on the safety wedges. In case of excessive wear, replace the safety wedges and/or pins.

- Use a torque wrench to check that the post bases anchor bolts screws are properly tightened to the ground as well as the connection bolts.
- Clean and lubricate the carriage side runners and guides.
- Check that all screws are tightened
- Check that the arm locking system works properly.
- Grease all the moving parts.

### 6.2.4 EVERY 6-MONTH

**HYDRAULIC**

Check the contamination or aging level of the oil. Contaminated oil is the main cause of malfunctions of the valves and leads to a brief service life of the gear pumps.

### 6.2.5 EVERY 12-MONTH

**General check:** visual inspection of all structural parts and mechanisms to guarantee that there are no problems or anomalies.

**Electric plant:** skilled electricians (contact the service center) should test the electric plant, including the motor of the power unit, limit switch and control box.

**HYDRULIC PLANT OIL**

Replace the oil, following the instructions listed below:

- Lower the lift to the minimum height (on the ground)
- Make sure that the hydraulic cylinder is at the end of its travel
- Disconnect the power supply to the lift rack.
- Drain the oil from the hydraulic circuit, unscrewing the plug located at the bottom of the power unit reservoir.
- Close the drain plug
- Fill the power unit with oil through the plug located at the top of the power unit reservoir.

The oil must be filtered:

- Oil characteristics and types are reported in the technical specifications ***(Chapter 2, page 3)***
- Close the filler plug
- Energize the lift rack
- Go through two or three up-down cycles (for a height about 20-30 centimeters) to insert oil into the circuit.

**When changing the oil:** use only recommend oil or the equivalent; do not use deteriorated oil that has been in the warehouse for an extended period of time. Oil should be disposed as indicated in appendix "A", ***page 37***.

***AFTER EACH MAINTENANCE OPERATION, THE MACHINE MUST RETURN TO ITS INITIAL CONDITIONS, INCLUDING THE DISASSEMBLEED PROTECTION AND SAFETY DEVICE.***

To ensure good maintenance, it is important:

- To sue only tools that are suitable for the job and original spare parts
- Follow the minimum maintenance schedule as indicated
- Immediately find the cause of any abnormalities (excessive noise, overheating, leaking fluids, etc)
- Pay special attention to lifting parts (cylinders) and safety devices
- Use all the documentation supplied by the manufacturer (wiring diagrams, etc)

# Chapter 7 TROUBLESHOOTING

## 7.1 TROUBLESHOOTING GUIDE

Troubleshooting and possible repairs require absolute compliance with ALL THE SAFETY PRECAUTIONS indicated in ***Chapter 6*** "***MAINTENANCE***" and ***Chapter 3*** "***SAFETY***".

| Problem | Possible Cause | Solution |
|---|---|---|
| The lift does non rise when the pushbutton is pressed<br>(motor does not run) | Burnt fuse<br>Line current does not arrive<br>Malfunction in the electric plant:<br>-Broken limit switch<br>-burnt motor | Replace fuse<br>Connect again<br>Call Service Center |
| The lift does non rise when the pushbutton is pressed<br>(motor runs) | Not enough oil<br>Drain solenoid valve opened<br>Max pressure valve working<br>Leaks in the hydraulic circuit | Top un oil level<br>Check electric connections or change it<br>Take load down<br>Repair the hydraulic circuit |
| Lift continues to rise after having released the up pushbutton | Faulty pushbutton | Unplug the lift and call Service Center |
| Lift does not descend | Foreign object<br>Solenoid valve blocked<br>Malfunction in the electric plant<br>Carriages still lean on security devices<br>Block valves have tripped | Remove object<br>Change it (call Service Center)<br>Call Service Center<br>Make the correct descent sequence<br>Repair the hydraulic circuit damage |
| The lift does not rise to the maximum height | Oil is not enough | Add oil into the power unit oil tank |
| After having released the up pushbutton, the lift stops and lowers slowly | Drain valve dose not close because it is dirty<br>Defective drain valve | At the same time set the rise and descent movements, to clean the valve<br>Change (call Service Center) |
| The power unit motor overheats | Motor malfunction<br>Wrong voltage | Call Service Center<br>Check voltage |
| Power unit pump is noisy | Dirty oil<br>Wrong assembling | Change oil<br>Call Service Center |
| Oil leakage from cylinder | Damaged gaskets<br>Dirt in the plant | Change the damaged gaskets<br>Clean all parts<br>Check the valves are not damaged |

***Table 3***

### 7.2 POSSIBLE PROBLEMS AND SOLUTIONS

# APPENDIX A SPECIAL NOTES

## A.1 DISPOSAL OF USED OIL

Used oil, which is removed from the power unit and the plant during an oil change, must be treated as a polluting product, in accordance with the legal prescriptions of the country in which the lift is installed.

## A.2 MACHINE DEMOLITION

***DURING MACHINE DEMOLITION, COMPLY WITH ALL THE SAFETY PRECAUTIONS DESCRIBED IN CHAPTER 3, WHICH ARE ALSO VALID FOR ASSEMBLING.***

The machine must be demolished by authorized technicians, just like for assembling. The metallic parts can be scrapped as iron. In any case, all the materials deriving from the demolition must be disposed of in accordance with the current standards of the country in which the rack is installed. Finally, it should be recalled that for tax purposes, demolition must be documented; submitting claims and documents according to the current laws in the country in which the rack is installed at the time the machine is demolished.

# APPENDIX B SPARE PARTS

## B.1 SPARE PARTS

When replacing parts and making repairs, comply with ALL THE SAFETY PRECAUTIONS described in ***Chapter 6 MAINTENANCE*** and in ***Chapter 3 SAFETY.***

Take all the necessary precautions to ***AVOID ACCIDENTAL START-UP OF THE LIFT.***

- The switch on the control box must be blocked in position 0 with a lock or cut the power supply.
- The key of the lock must be kept by the maintenance fitter during the maintenance operation.

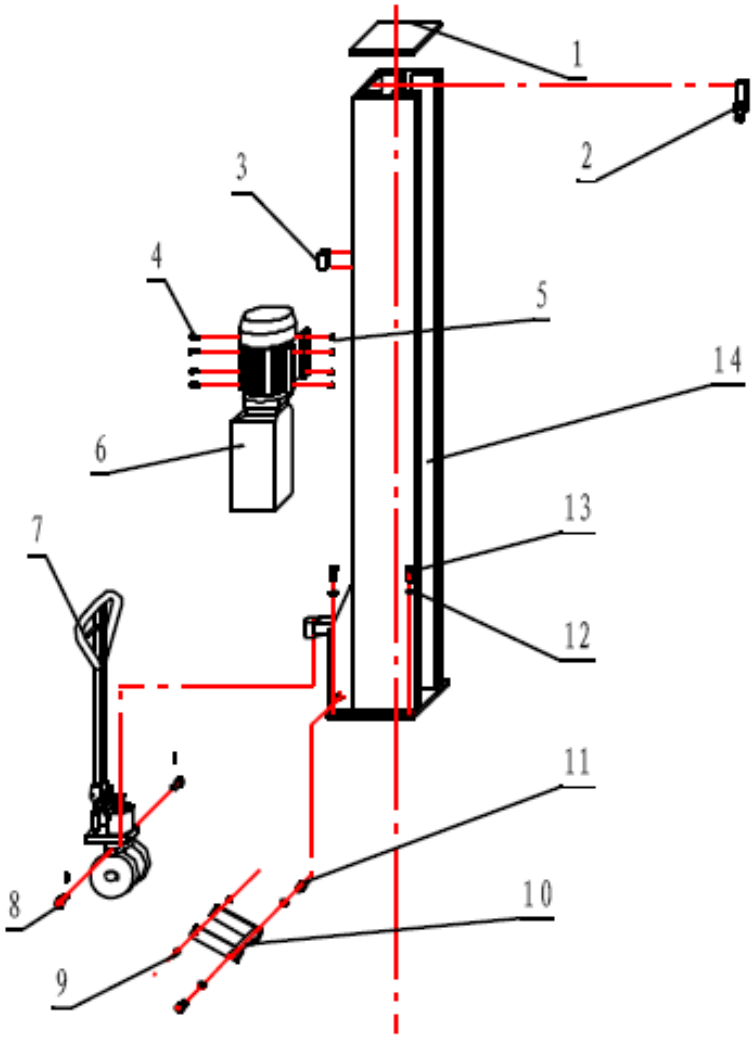
## B.2 PROCEDURE FOR ORDERING SPARE PARTS

To order spare parts:

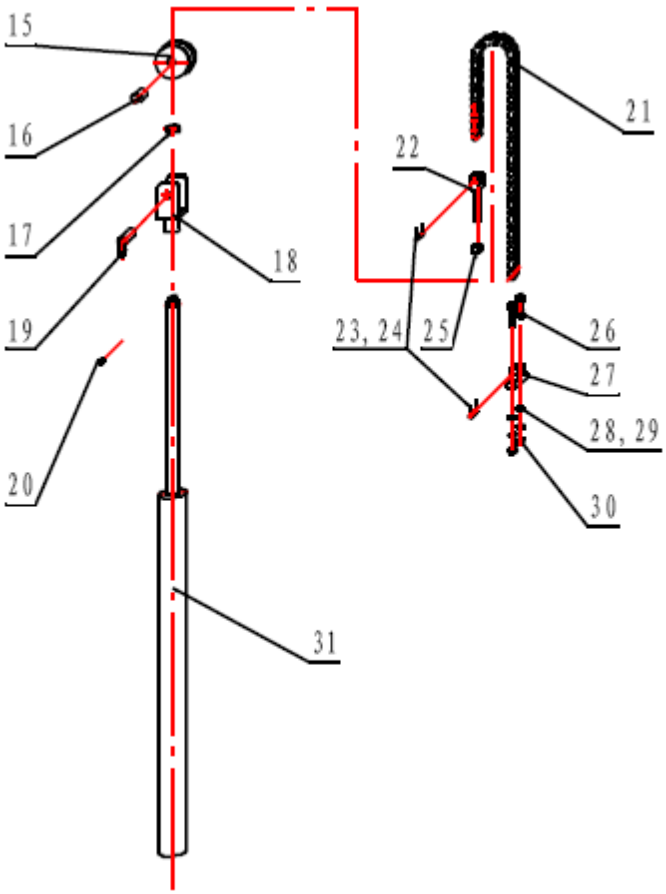
- Indicate the serial number of the lift and the year built
- Indicate the code of the piece requested (see the CODE" columns in the tables)
- Indicate the quantity required.

The request must be submitted to the authorized reseller as indicated in the front of the manual.

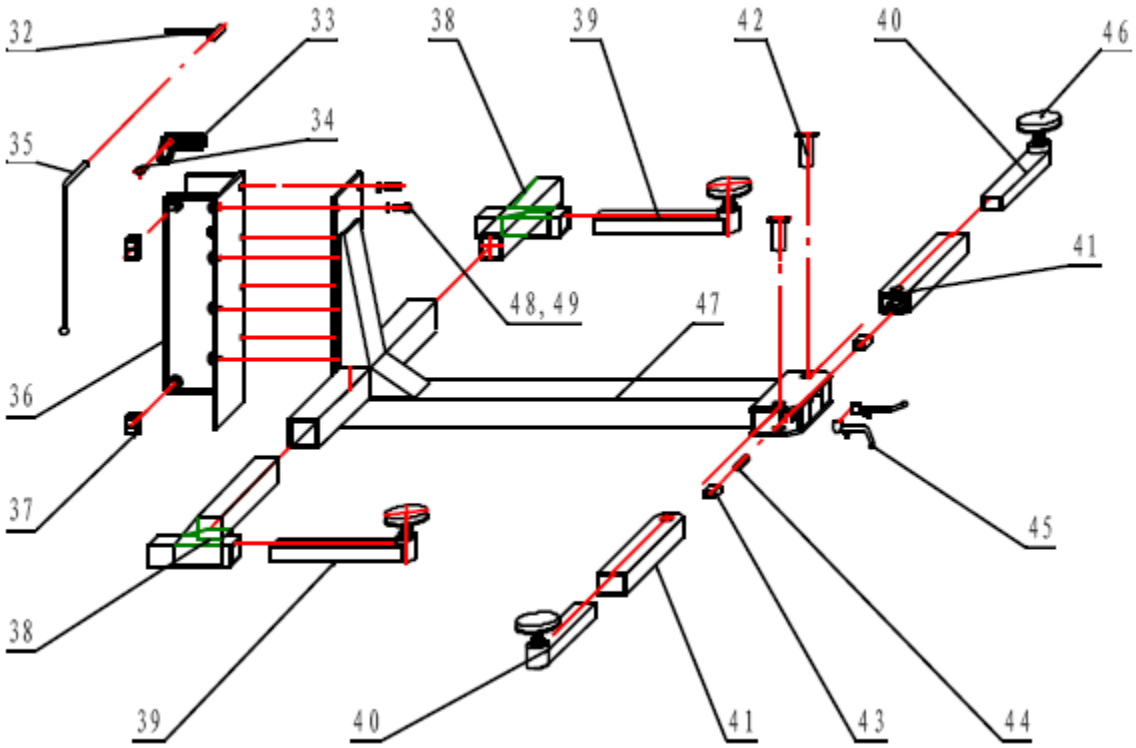
## B.3 SPAREPARTS LIST



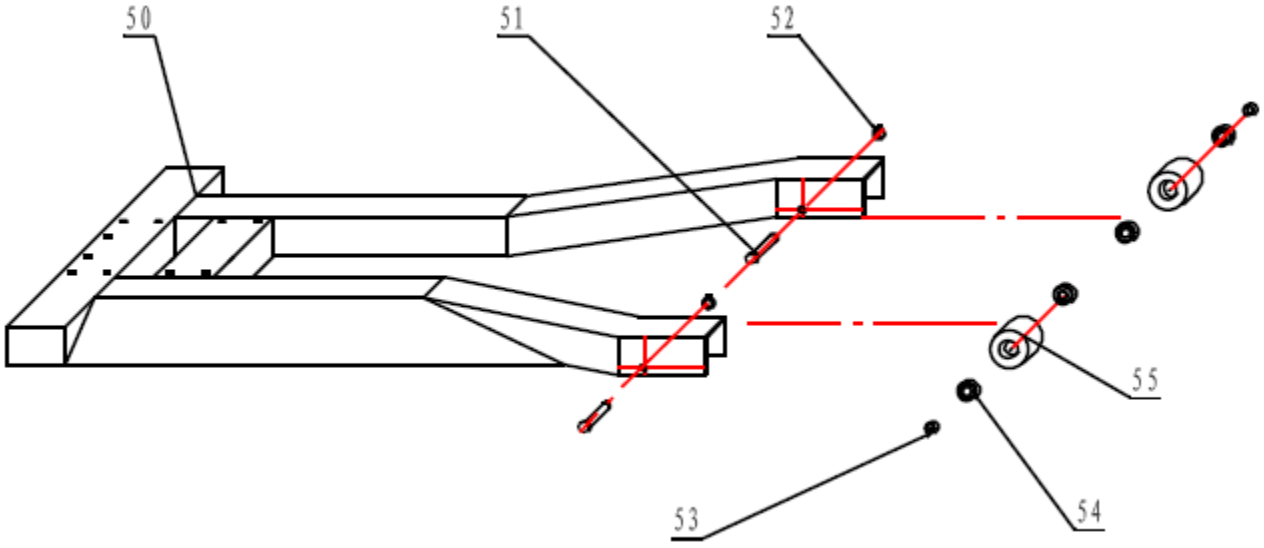

| Code | Description | Code | Description |
|---|---|---|---|
| 1 | Cover | 8 | Axle Pin |
| 2 | Limit Switch | 9 | Axle Sleeve |
| 3 | Terminal Box | 10 | Bar |
| 4 | Bolt | 11 | Bolt |
| 5 | Nut | 12 | Allen Head Screw |
| 6 | Electric Pump | 13 | Shim |
| 7 | Hydraulic Movable Wheel | 14 | Vertical Post |




| Code | Description | Code | Description |
|---|---|---|---|
| 15 | Roller | 24 | Cotter Pin |
| 16 | Bearing | 25 | Nut |
| 17 | Round Nut | 26 | Allen Head Screw |
| 18 | Wheel Frame | 27 | Chain Connector |
| 19 | Pin | 28 | Shim |
| 20 | Screw | 29 | Spring Washer |
| 21 | Leaf Chain | 30 | Nut |
| 22 | Chain Connector | 31 | Hydraulic Cylinder |
| 23 | Round Pin | | |




| Code | Description | Code | Description |
|---|---|---|---|
| 32 | Loosen | 41 | Outer Rotary Arm |
| 33 | Safety Tongue | 42 | Pin Shaft |
| 34 | Round Pin | 43 | Tooth Block |
| 35 | Handle | 44 | Spring |
| 36 | Pulley | 45 | Lock Handle |
| 37 | Slider | 46 | Pallet |
| 38 | Transverse Arm | 47 | Main Lifting Arm |
| 39 | Longitudinal Arm | 48 | Bolt |
| 40 | Inner Telescopic Arm | 49 | Gasket |




| Code | Description | Code | Description |
|---|---|---|---|
| 50 | Base | 53 | Axle Sleeve |
| 51 | Pin Shaft | 54 | Bearing |
| 52 | Check Ring | 55 | Wheel |

# WARRANTY

**The structural components on your new automotive lift are warranted for three years on equipment. Operating components are warranted one year to the original purchaser, to be free of defects in material and workmanship.**

**The manufacturer shall repair or replace at their option for this period those parts returned to the factory freight prepaid which prove after inspection to be defective.**

**This warranty only applies to the original purchaser of the equipment. This warranty does not extend to defects caused by ordinary wear, abuse, misuse, shipping damage, or damage as the result of improper maintenance.**

**This warranty is exclusive and in lieu of all other warranties expressed or implied.**

**In no event shall the manufacturer be liable for special, consequential or incidental damages for the breach or delay in performance of the warranty.**

**The manufacturer reserves the right to make design changes or add improvements to its product line without incurring any obligation to make such changes on product sold previously.**