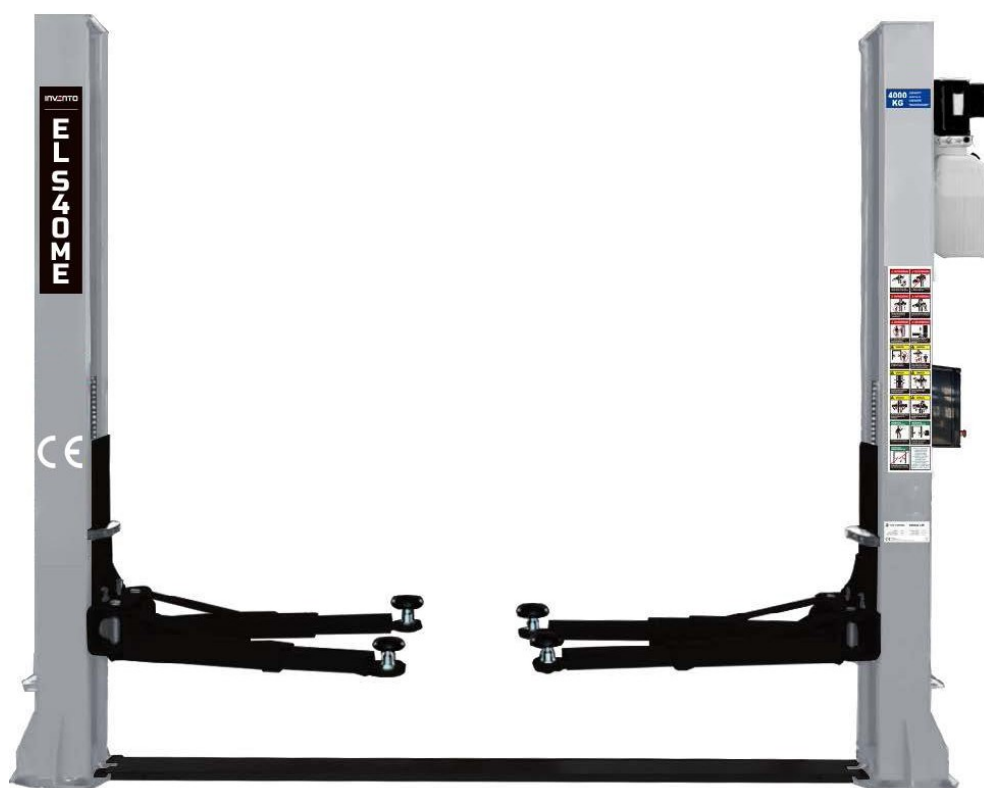


INVENTO



ORIGINAL USER MANUAL INVENTO EL S40ME 2-post hydraulic lift

TIP-TOPOL Sp. z o.o.

62-010 Pobiedziska

33 Kostrzyńska St.

www.sklep.tiptopol.pl

Original EC/EU Declaration of Conformity

Tip-Topol Sp. z o.o.
33 Kostrzyńska St.
62-010 Pobiedziska

Declares that the product:

Two-post lift Model: EL S40ME

is complies with the essential requirements of Directive:

2006/42/EC

Directive 2006/42/EC

and the specific requirements contained in the harmonized standards:

EN 60204-	Safety of machinery – Electrical equipment of machines – Part 1:
1:2006+A1:2009	General requirements
EN 1493:2023-05	Vehicle lifts.

This declaration serves as the basis for affixing the CE marking to the product.

This declaration applies exclusively to machines in the condition in which they were placed on the market and does not cover components added by the end user or subsequent modifications carried out by them.

The technical documentation is available at the headquarters of TIP-TOPOL Spółka z o.o., 62-010 Pobiedziska, ul. Kostrzyńska 33, from the person in charge—Jacek Biłski.

Pobiedziska

"TIP-TOPOL" Spółka z o.o.
62-010 Pobiedziska, ul. Kostrzyńska 33
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Jacek Biłski
Kierownik Rozwoju Produktów

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PACKAGING, TRANSPORT, AND STORAGE

ALL ACTIVITIES RELATED WITH

PACKAGING, LIFTING, MOVING,

TRANSPORTATION, AND UNPACKING

MAY ONLY BE PERFORMED BY QUALIFIED PERSONNEL WITH KNOWLEDGE OF THE VEHICLE LIFT AND THE CONTENTS OF THIS MANUAL

PACKAGING

The lift is shipped disassembled into the following parts:

Weight (kg)

1. Complete control panel with trolley, hydraulic cylinder, Upper arm, short arm, steel cable, lower cover plate, etc.
(Excluding the hydraulic station, accessory kit, anchor bolt...)

650 kg

2. Other spare parts (hydraulic station, accessory kit, anchor bolt, cover) 90 kg

Gross weight is 740 kg, net weight is 700 kg.

HANDLING AND TRANSPORT

Boxes containing packages can be lifted and moved using a forklift (Fig. 1). When using one of the latter two methods, the boxes must be secured with at least two lifting straps.

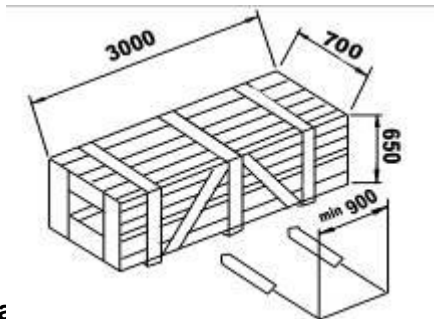


Fig. 1

Packaging

STORAGE

Transport crates must always be stored in a covered, protected area at temperatures ranging from -10°C to $(+40^{\circ}\text{C})$. They must not be exposed to direct sunlight or rain.

-Machinery should be stored in a warehouse; if stored outdoors, adequate protection against water must be provided.

-Use a delivery truck for transport and shipping containers for shipping.

-The control box must be positioned vertically during transport; care must also be taken to prevent it from colliding with other goods.

-Storage temperature: -25°C to 55°C

STACKING

This type of packaging allows for stacking up to 3 boxes.

On trucks or in containers, a maximum of 3 crates may be stacked on top of each other, provided they are properly positioned and secured against falling.

UNPACKING

Upon delivery of the crates, check that the device has not been damaged during transport and that all listed parts are included. Open the crates with the utmost care to avoid damaging the device or its parts. Ensure that

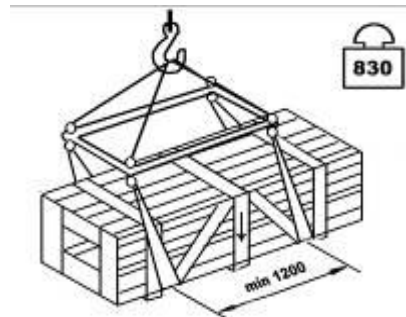


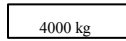
Fig. 2

opening, parts do not fall out of the crate.

WARNING INTRODUCTION

This manual has been prepared for workshop personnel with experience in operating the lift (operator) and technicians responsible for routine maintenance (maintenance technician): read the manual before performing any operations related to the lift and/or packaging. This manual contains important information regarding:

PERSONAL SAFETY of operators and maintenance personnel



This means that the load capacity is 4,000 kg; the load on the lift must not exceed 4,000 kg.

This symbol indicates that caution must be exercised due to electrical hazards

STORAGE OF THE MANUAL

The manual is an integral part of the lift and must always accompany it, even if the unit is sold. The manual must be kept near the lift, in an easily accessible place, so that the operator and maintenance personnel can quickly find and consult it at any time.

IT IS STRONGLY RECOMMENDED THAT YOU READ CHAPTER 3 CAREFULLY AND REPEATEDLY, AS IT CONTAINS IMPORTANT SAFETY INFORMATION AND WARNINGS.

The lift stand has been designed and manufactured in accordance with the following regulations:

THEORY

Lifting, transport, unpacking, assembly, installation, commissioning, initial adjustment and testing, work related to EXTRAORDINARY maintenance, repairs, overhauls, transport, and disassembly of the lift must be performed by specialized personnel from an AUTHORIZED DEALER or SERVICE CENTER authorized by the manufacturer (see the list of authorized dealers on the title page).

The manufacturer assumes no liability for personal injury or damage to vehicles or property if any of the above-mentioned activities were performed by unauthorized personnel or if the lift was used for purposes other than those for which it was intended.

This manual contains only operating and safety instructions that may be useful to the operator and maintenance personnel in better understanding the lift's construction and operation, as well as in its optimal use.

To understand the terminology used in this manual, the operator must have specific experience in workshop, service, maintenance, and repair work; the ability to correctly interpret the drawings and descriptions contained in the manual; and knowledge of the general and specific safety regulations in force in the country where the equipment is installed. The same applies to the maintenance technician, who must also possess the specific and specialized knowledge (including in the fields of mechanics and engineering) necessary to perform the activities described in the manual in a completely safe manner.

The terms "operator" and "service technician" used in this manual should be understood as follows:

OPERATOR: a person authorized to use the lift.

SERVICE TECHNICIAN: a person authorized to perform routine maintenance on the lift.

The end user may only use the device correctly, in accordance with the manual.

Do not wear loose clothing; people with long hair should wear protective caps, etc. Lubricate the machine periodically according to the instructions.

CHAPTER 1 DESCRIPTION OF THE EQUIPMENT

The two-post electro-hydraulic lift is a stationary device. Install the device according to the diagram, using the anchor bolts provided by the manufacturer. This will ensure the device operates properly.

The lift consists of the following main parts:

1. Fixed structure (columns);
2. Moving parts (vehicle lift + arms);
3. Lifting assemblies (2 hydraulic cylinders + drive unit);
4. Control station;
5. Safety devices;

Figures 3 show the various parts of the lift and the work areas designated for operators around the lift.

Control side: this side of the lift includes an area reserved for the operator to access the control box.

Service side: this is the side opposite the control side.

Front side: the side with short arms.

Rear side: the side with the long arms.

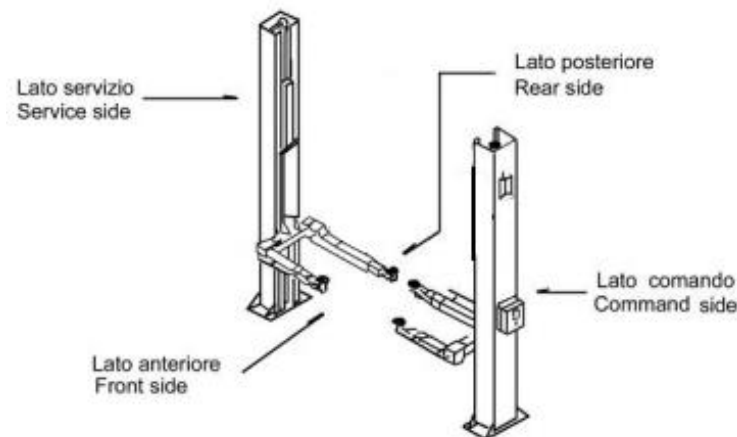


Fig. 3

1.1 FIXED CONSTRUCTION (FIG. 4)

This structure consists of:

1. Two columns made of bent steel. The base is welded to a drilled plate, which is secured to the floor with anchor bolts. The control panel and hydraulic unit are mounted on the control column. Inside each column are moving parts used to lift vehicles.

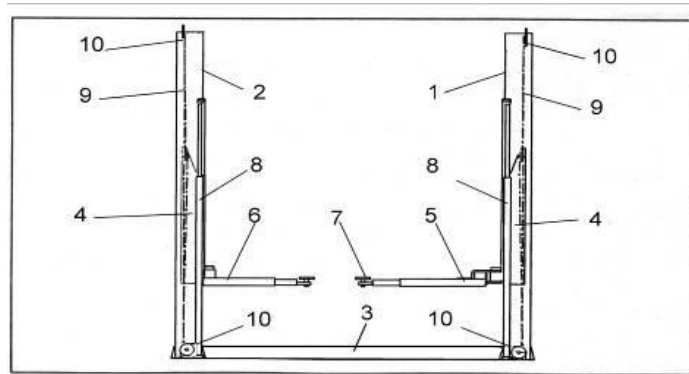


Fig. 4

1.2 MOVABLE UNITS (SEE FIG. 4)

Each unit consists of:

1. A lifting carriage made of welded sheet steel. It is connected at the top to a hydraulic cylinder and the columns. The lifting carriage moves along the column, guided by plastic slide pads located inside the column itself.
2. Two telescopic arms, one long (5) and one short (6), made of square steel with a rubber pad (7) at each end, the height of which can be adjusted to support the car, and on the opposite side there is a hole for connecting the trolley.

1.3 LIFTING ASSEMBLY (SEE FIG. 4)

1. Two hydraulic cylinders (8) for lifting the vehicle attached to the post.
2. One hydraulic unit (see Fig. 5), mounted on the control side, for activating the cylinders.

1.4 HYDRAULIC POWER UNIT (FIG. 5)

The hydraulic drive unit consists of:

1. Power indicator lights (1)
2. EMERGENCY SWITCH (2)
3. UP (3)
4. DOWN (4)
5. LOCK (5)

Note: The pressure in the oil discharge line must not be lower than 40 MPa

1.5 CONTROL BOX (FIG. 6)

The panel containing the electrical control box includes the following components:

- 1 Lift button (3)
- 2 Lowering (4)

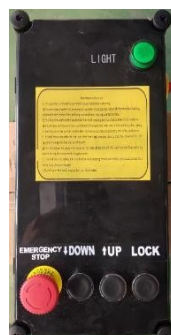


Fig. 5

1.6 SAFETY DEVICES

Safety devices include:

- 1 Mechanical safety device for the lift vehicle
- 2 Arm locking system
- 3 Four foot guards on the arms
- 4 Synchronization device for controlling vehicle movement. The system consists of cables.
- 5 Control switch
- 6 Fire-resistant valve
- 7 Overcurrent protection, circuit breaker.

These devices will be described in detail in the following chapters

CHAPTER 2 TECHNICAL SPECIFICATIONS

LIFTING CAPACITY	4000 kg
Maximum lifting height of the trolley	1900 mm
Minimum height of the lift base	100 mm
Distance between posts	2830 mm
Overall width	3392 mm
Total width of side pads	500 mm
Side base width	620 mm
Maximum length of the long arm	1472 mm
Minimum length of the long arm	876 mm
Maximum length of the short arm	1105 mm
Minimum length of the short arm	550 mm
Lifting time with a three-phase motor	≤75 s
Lifting time with a single-phase motor	≤75 s
Lowering time	18 s ≤ t ≤ 60 s
Noise	≤70 dB(A) at a distance of 1 m
Operating temperature	-10°C/+50°C
Operating environment	enclosed space
Relative humidity	90%
Altitude	≤1000 m
Gross weight	540 kg
Net weight	500 kg
Voltage	220 V/380 V/1-phase/3-phase/50 Hz/60 Hz
Power	2.2 kW
Rated pressure of the pumping station	18 MPa

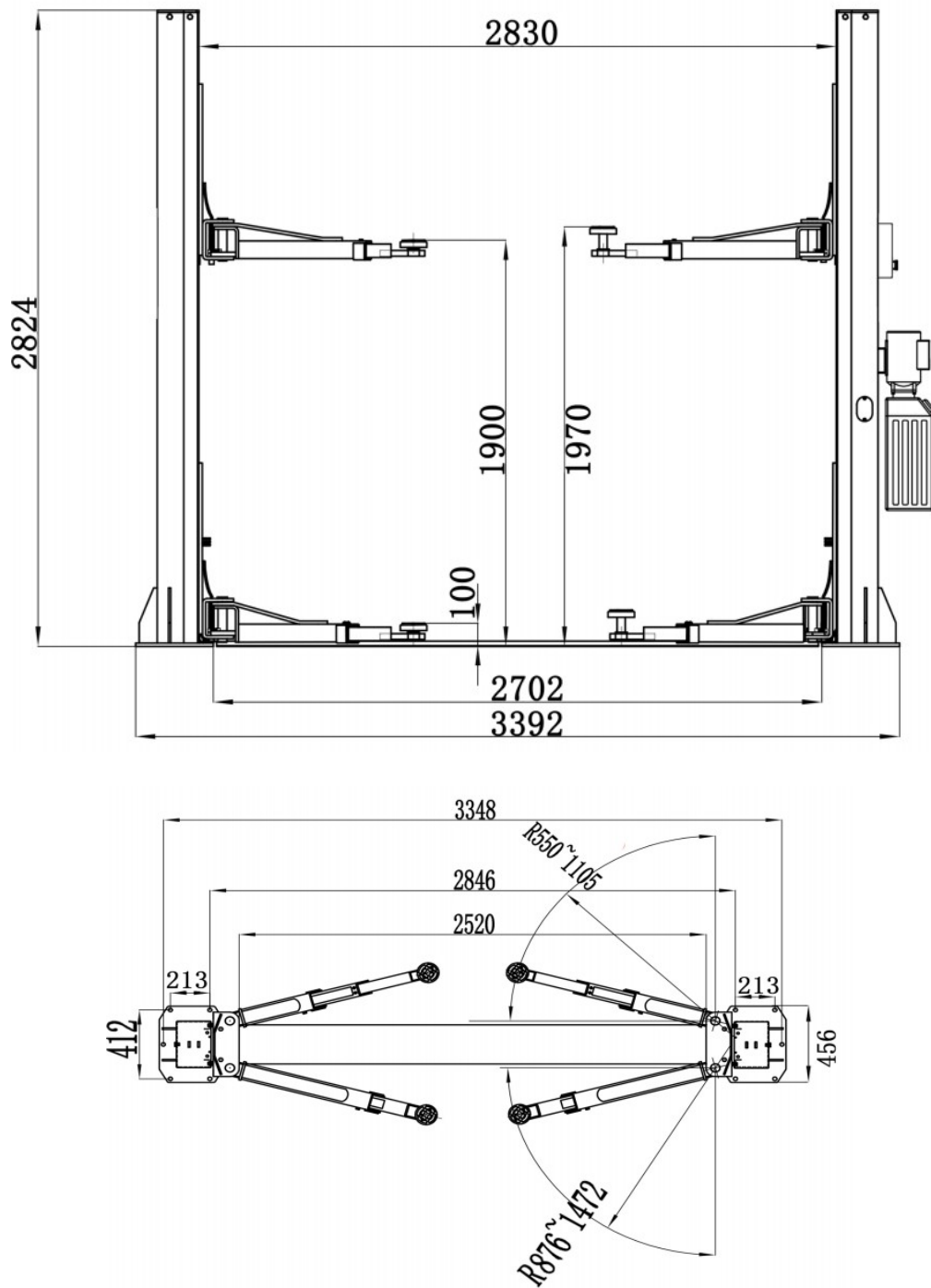


Fig. 6 Dimensions and overall clearances

2.1 DIAGRAM OF THE ELECTRICAL SYSTEM OPERATING PRINCIPLE

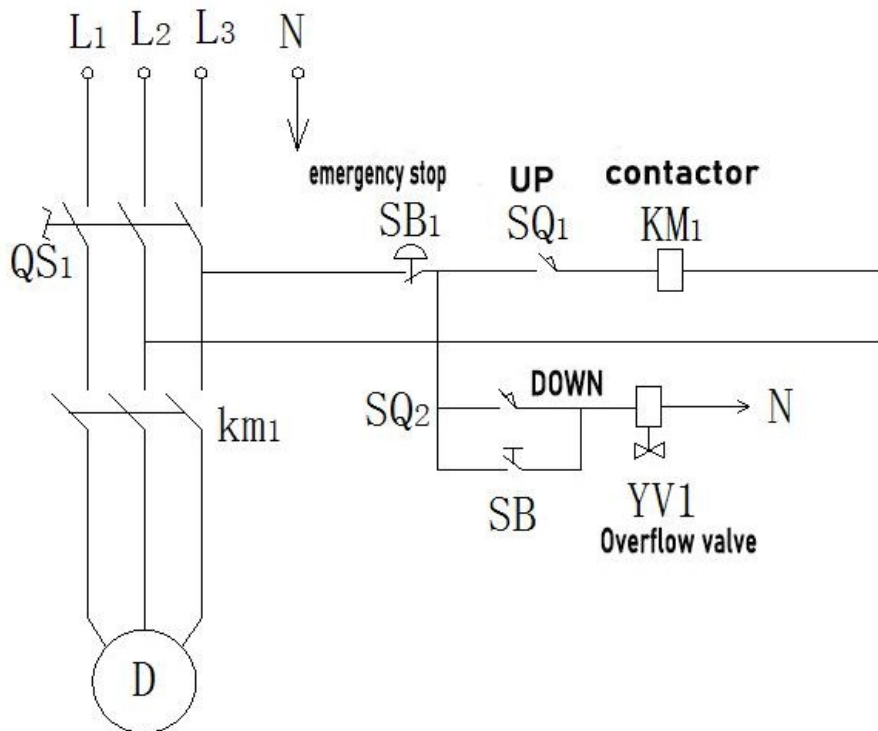


Fig. 7

The motor connection must comply with the attached wiring diagram.

The motor should rotate toward the pump; if not, correct the motor connection.

2.2 HYDRAULIC SYSTEM

CAUSE-AND-EFFECT DIAGRAM OF THE HYDRAULIC SYSTEM

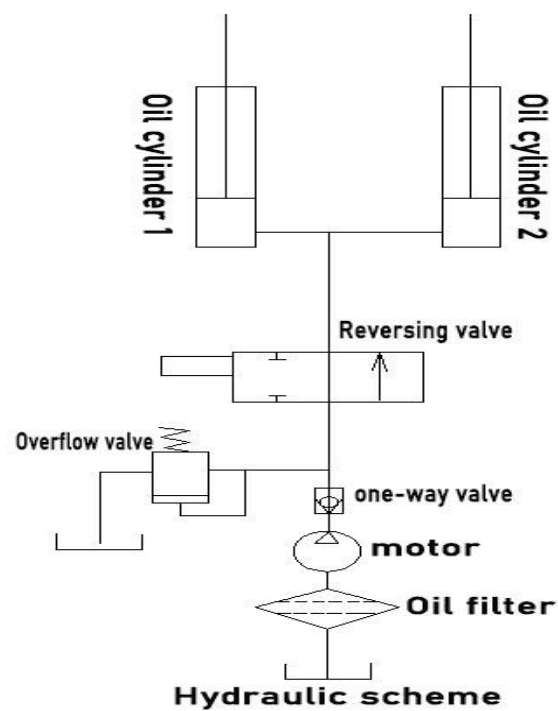


Fig. 8

2.3 OIL

The oil reservoir contains mineral oil compliant with ISO/DIN 6743/4 with a contamination level compliant with ISO 4406, for example IP HYDRUS OIL 32; SHELL TELLUS OIL T32 or equivalent.

2.4 VEHICLE WEIGHTS

The maximum weight of the load being lifted is 4,000 kg.

2.5 MAXIMUM DIMENSIONS OF LIFTED VEHICLES

Maximum width: 2400 mm

Maximum wheelbase: 3000 mm

The chassis of cars with low ground clearance may interfere with the lift structure. Special attention should be paid caution with sports cars that have a low body.

For vehicles with special characteristics, always keep the lift's load capacity in mind. The SAFETY ZONE is determined by the vehicle's dimensions.

The diagrams below show the criteria defining the limits of use.

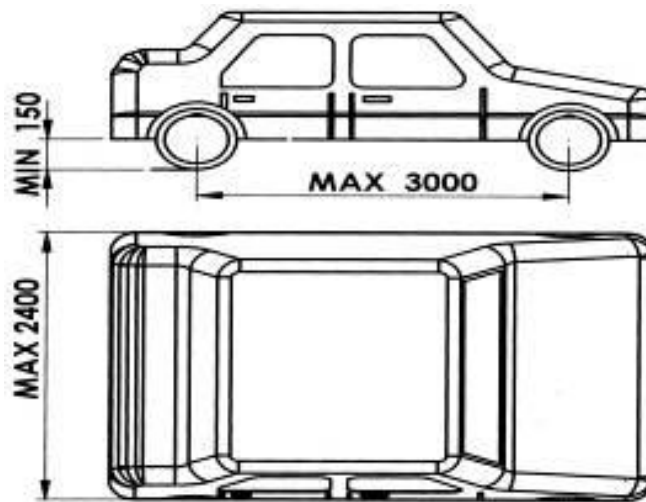


Fig. 9 Minimum and maximum dimensions

FOR LARGER VEHICLES, CHECK THE MAXIMUM LIFT CAPACITY AND LOAD DISTRIBUTION. MAXIMUM VEHICLE WEIGHT FOR LIFTING

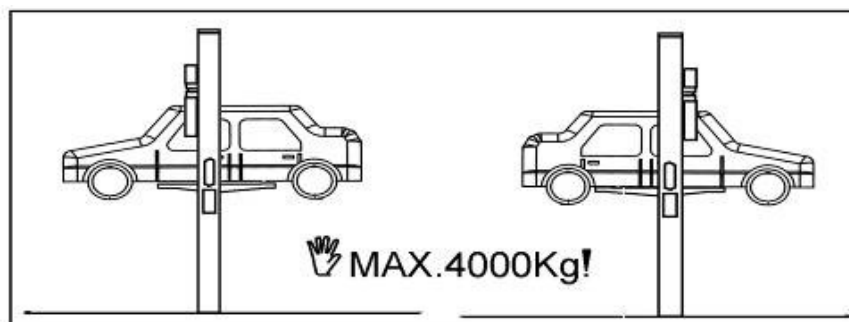


Fig. 10 Weight distribution

CHAPTER 3 SAFETY

It is essential to read this section of the manual carefully from beginning to end, as it contains important information regarding the hazards to which the operator and maintenance personnel may be exposed in the event of improper use of the lift.

The text below provides clear explanations regarding certain risk or hazard situations that may arise during the operation or maintenance of the lift, the installed safety devices and the proper use of such systems, residual risks, and operating procedures (general and specific precautions to eliminate potential hazards).

WARNING

The lift has been designed and built to lift vehicles and hold them in a raised position in an enclosed workshop. Any other uses are prohibited; in particular, the lift is not suitable for:

- frequent lifting and lowering
- creating elevated platforms or lifting personnel;
- use as a makeshift crushing press;
- use as a freight elevator
- use as a lift for lifting vehicles or changing tires.

THE MANUFACTURER DISCLAIMS ALL LIABILITY FOR PERSONAL INJURY OR DAMAGE TO VEHICLES AND OTHER PROPERTY RESULTING FROM IMPROPER OR UNAUTHORIZED USE OF THE LIFT.

During lifting and lowering operations, the operator must remain at the control station, as shown in Figure 11. The presence of persons in the danger zone indicated in the same figure is strictly prohibited. The presence of persons under the vehicle during operation is permitted only when the vehicle is parked in the raised position.

DO NOT USE THE LIFT WITHOUT SAFETY DEVICES OR WITH SAFETY DEVICES DISABLED. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY TO PERSONS AND IRREPARABLE DAMAGE TO THE LIFT AND THE VEHICLE BEING LIFTED.

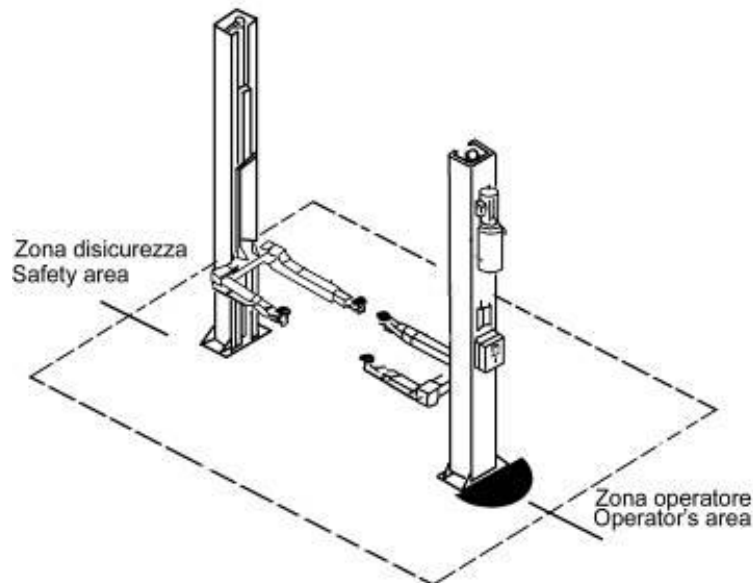


Fig. 11 WORKING ZONES

3.1 GENERAL SAFETY PRECAUTIONS

The operator and maintenance technician are required to comply with the accident prevention regulations in force in the country where the lift is installed.

In addition, the operator and maintenance technician must:

1. Always work within the designated work area, as specified in the manual
2. Never remove or disable guards or mechanical, electrical, or other types of safety devices.
3. Read the safety warnings on the equipment and the safety information contained in this manual.

In this manual, all safety warnings are presented as follows: **DANGER: indicates an immediate hazard that could result in serious injury or death.**

WARNING: indicates situations and/or types of maneuvers that are hazardous and may result in injury of varying severity or death.

CAUTION: indicates situations and/or types of operations that are hazardous and may result in minor injury to persons and/or damage to the lift, vehicle, or other property.

3.2 RISK OF ELECTRIC SHOCK

Special safety notice posted on the lift in areas where the risk of electric shock is particularly high.

3.3 HAZARDS AND SAFETY DEVICES

We will now examine the hazards to which operators and maintenance technicians may be exposed when the vehicle is immobilized in the raised position, along with the safety devices used by the manufacturer to minimize all such hazards.

3.4 LONGITUDINAL AND TRANSVERSAL MOVEMENT

The selected equipment must be suitable for safe lifting and movement, taking into account the dimensions and weight. Once the desired height is reached, the load must not be moved forward or backward, as this will cause the vehicle to drop and tip over.

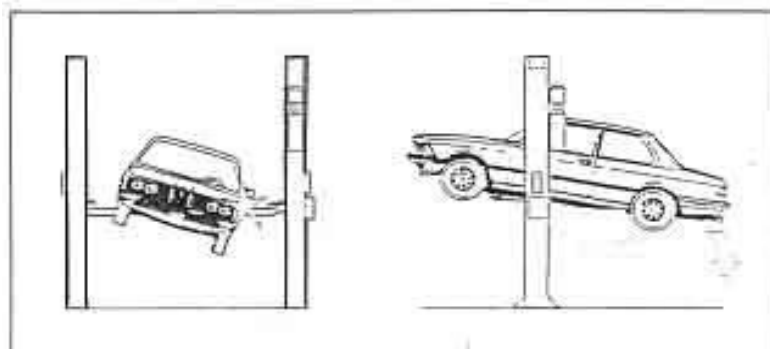


Fig. 12 Risk of vehicle tipping



WARNING

DO NOT ON DO TRY MOVE THE VEHICLE, WHEN IT IS IT SUPPORT PLATES

It is important to position the vehicle on the lift so that the weight is properly distributed across the arms. For the safety of people and equipment, it is important to:

1. People remain in the safety zone while the vehicle is being lifted.
2. The engine is turned off, the lock is engaged, and it must be pulled to activate the lock.

3. The vehicle is properly positioned.
4. Only authorized vehicles that do not exceed the maximum load capacity and overall dimensions are lifted.

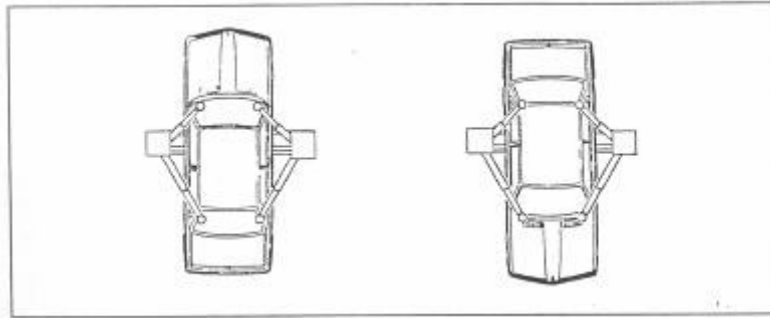


Fig. 13 Correctly loaded vehicle

3.5 HAZARDS DURING VEHICLE LIFTING

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

1. The thermal relay in the electrical box will activate in the event of a motor overload.
2. The pressure relief valve, located on the hydraulic unit, will activate in the event of a lift overload.
3. In the event of a sudden, simultaneous slackening and/or breakage of the ropes, the hydraulic system and the panel chain will maintain balance. The panel chain and the steel rope will compensate for each other.
4. In the event of a hydraulic cylinder rupture, the control station block will be locked by a mechanical lock, which will immediately stop the carriages, preventing them from falling.

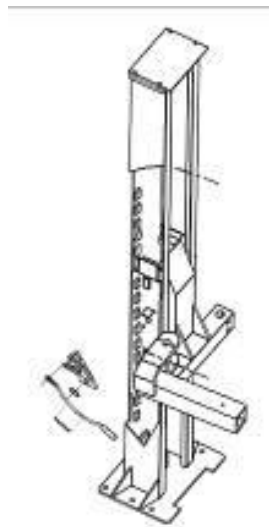


Fig. 14

1. If the moving part exceeds its range of motion, there is a single limit switch at the top of the control station ensuring a lift height of up to 1900 mm, limiting further lifting of the hydraulic cylinder.
2. In the event of a total failure of the limit switches, the carriage will stop a few millimeters above the limit, as the hydraulic cylinders will reach the end of their stroke, which will activate the pressure relief valve (on the hydraulic power unit).

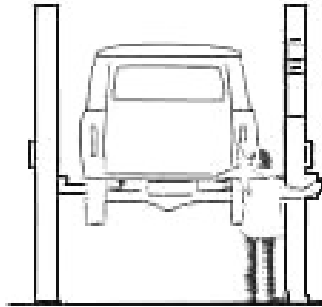
3.6 HAZARDS TO PERSONS

This section describes the hazards to which the operator, maintenance technician, or any person in the vicinity of the lift's operating area may be exposed during normal use of the equipment.

3.6.1 RISK OF CRUSHING (OPERATOR)

This may occur if the operator controlling the lift is not in the designated position at the control panel. While lowering the platform and the vehicle, the operator must never be partially or completely beneath the moving structure. During this phase, the operator must remain in the control zone (Fig. 15).

Fig. 15



3.6.2 RISK OF CRUSHING (PERSONNEL)

While lowering the platform and vehicle, personnel are prohibited from entering the area beneath the moving parts of the lift (Fig. 16). The lift operator must not begin the maneuver until it has been clearly established that there are no persons in potentially hazardous areas.

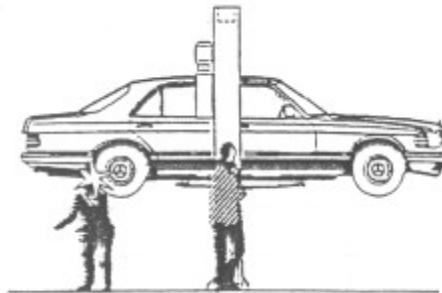


Fig. 16

3.6.3 RISK OF IMPACT

Caused by parts of the lift or vehicle that are at head height.

When, for operational reasons, the lift is stationary at relatively low heights (below 1.75 m from the ground), personnel must exercise caution to avoid striking parts of the machine that are not marked with special warning colors (Fig. 17).

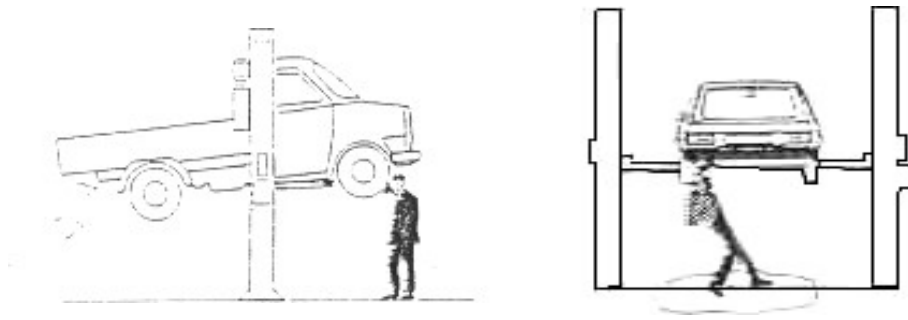


Fig. 17

3.6.4 RISKS ASSOCIATED WITH VEHICLE MOVEMENT

Movement may occur during operations that require the use of force sufficient to move the vehicle (Fig. 18). If the vehicle is large or heavy, movement may lead to overloading or loss of balance. To avoid such situations, calculate the weight and dimensions of the lift in advance.

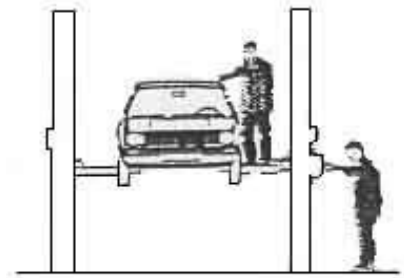
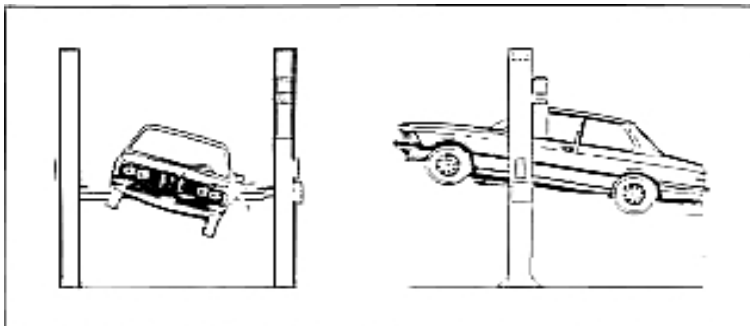


Fig. 18

3.6.5 RISK OF THE VEHICLE FALLING FROM THE LIFT

This risk may result from improper positioning of the arms on the support plates or from incorrect positioning of these plates relative to the lift. Make sure you know the vehicle's center of gravity, and then position the four arms correctly to avoid such incident.

NEVER ENTER THE VEHICLE AND/OR START THE ENGINE WHEN THE LIFT IS RAISED.

NEVER LEAN OBJECTS AGAINST THE UPRIGHTS OR LEAVE THEM IN A PLACE WHERE

MOVING PARTS FALL. This may hinder lowering or cause the vehicle to fall from the lift (Fig. 18)

3.6.6 SLIPPAGE

This risk may result from spilled lubricants in the surrounding area.

ALWAYS KEEP THE AREA AROUND THE LIFT CLEAN BY REMOVING ANY SPILLED LUBRICANTS.

To avoid the risk of slipping, use the recommended personal protective equipment (non-slip footwear).

3.6.7 RISK OF ELECTRIC SHOCK

Risk of electric shock in areas of the elevator enclosure where electrical wiring is present. Do not use water jets, steam (high-pressure washers), or solvents. Do not paint in the immediate vicinity of the elevator, and take special care to ensure that such substances do not come into contact with the electrical control panel. (Fig. 19)

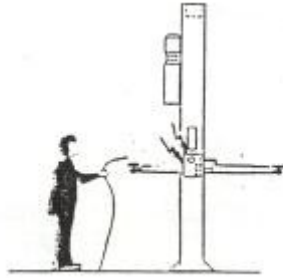


Fig. 19 Risk of electric shock

3.6.8 RISKS ASSOCIATED WITH INADEQUATE LIGHTING

The operator and maintenance technician must ensure that all areas of the elevator are properly and evenly lit in accordance with the principles of optics and the regulations in force at the installation site.

3.6.9 RISK OF COMPONENT FAILURE DURING OPERATION

The manufacturer has used appropriate materials and construction techniques for the specific application of the equipment to produce a reliable and safe elevator. However, please note that the elevator must be used in accordance with the manufacturer's instructions, and the inspection and maintenance intervals recommended in Chapter 6, "MAINTENANCE," must be followed.

RISKS ASSOCIATED WITH IMPROPER USE

Do not stand or sit on the platforms during the lifting operation or when the vehicle is already raised (Fig. 20).

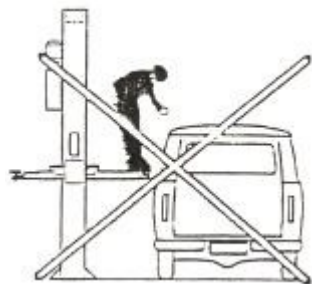


Fig. 20

Any use of the lift other than that for which it was designed may cause serious accidents involving people working in the immediate vicinity of the equipment. Therefore, it is essential to strictly follow all operating, maintenance, and safety instructions contained in this manual.

CHAPTER 4 INSTALLATION

THE FOLLOWING PROCEDURES MAY ONLY BE PERFORMED BY QUALIFIED TECHNICAL PERSONNEL AUTHORIZED BY THE MANUFACTURER OR AN AUTHORIZED DEALER. IF THESE PROCEDURES ARE PERFORMED BY OTHER PERSONS, THIS MAY RESULT IN SERIOUS BODILY INJURY AND/OR IRREVERSIBLE DAMAGE TO THE LIFTING EQUIPMENT.

4.1 INSTALLATION REQUIREMENTS CHECKLIST

The lift is designed for indoor installation in areas adequately protected from the elements. The installation site must be located away from areas designated for washing or painting, as well as away from storage areas for solvents or paints and areas where there is a risk of an explosive atmosphere.

APPROPRIATE DIMENSIONS OF THE INSTALLATION SITE AND SAFETY CLEARANCES.

The lift must be installed in accordance with the clearances from walls, columns, other machinery, etc., shown in Figure 21, and in compliance with all legal requirements applicable in the country of installation.

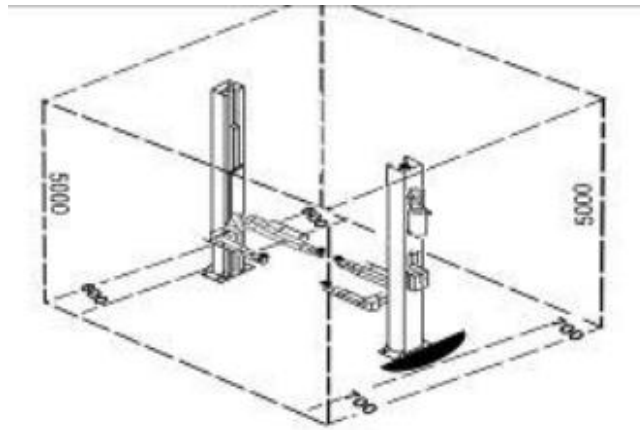


Fig. 21

In particular, check:

1. maximum arm height: 1900 mm
2. minimum distance from walls: 600 mm
3. Minimum working area: 600 mm
4. Space for the control station
5. Space for the control console, access, and escape routes.
6. Position relative to other machines
7. No obstacles in the installation area

4.2 LIGHTING

All parts of the machine must be uniformly illuminated with light of sufficient intensity to perform the adjustment and maintenance operations specified in the manual, without shadows, glare, or reflected light, and avoiding any situations that could cause eye strain.

Lighting must be installed in accordance with the regulations in force at the installation site (responsibility lies with the lighting installer)

4.3 FOUNDATION

The lift must be installed on a horizontal concrete slab with a thickness of at least 400 mm and a compressive strength of ≥ 30 N/mm².

The floor must also be flat and level (leveling tolerance of 10 mm). For special applications,

, consult the manufacturer.

4.4 INSTALLATION

WARNING

ONLY AUTHORIZED PERSONNEL ARE PERMITTED TO WORK DURING INSTALLATION

To assemble the lift, the weight of the individual parts must be taken into account to ensure a lifting device with a lifting capacity of at least 300 kg

Maximum lifting height: 4 m

Before beginning installation of the lift, check that the box contains all necessary components.

4.4.1 POST INSTALLATION

1. Install the control station
2. Mount the hydraulic station on the control post by screwing the bolts into the hydraulic station's mounting panel.

4.4.2 LIFT VEHICLE ASSEMBLY

1. Check that the vehicle accessories have not fallen out. Then check the vehicle in the fully lowered position.
2. Remove one cable from the vehicle (it was installed, inspected, and tested before leaving the factory) and place one end under the vehicle, then route it inside the post to the pulley on the upper beam and through the pulley on the lower plate, and then guide it to the second post from the floor, passing through the pulley at the bottom of the post. Raise the control post by tightening it with an M16 nut and flat washers. Take one cable from the vehicle at the second control post and repeat the same steps as above. Adjust the two M16 nuts so that they are tightened evenly. Do not overtighten them, as this may damage certain parts.
3. Check that the mechanical lock has not been damaged or malfunctioned during transport. In case of any problems, report this immediately to the manufacturer and an authorized representative.

4.4.3 INSTALLATION OF THE HYDRAULIC SYSTEM

1. The lift was inspected and tested before leaving the factory. The hydraulic power unit, high-pressure oil line, and cylinder must be properly packed to facilitate transport. Open the crate and check the hydraulic system accessories, then assemble the hydraulic system.
2. Connect the hydraulic power unit to the three-phase throttle sleeve at the front of the explosion-proof valve on the external oil cylinder connector at the control station using a flexible hose (shorter one). Use the longer
3. Check again to make sure there are no leaks, and if there are, repair them according to the instructions.
4. Fill the hydraulic unit reservoir with 12 liters of 20# hydraulic oil

4.4.4 ELECTRICAL CONNECTION WARNING

The procedures listed below must be performed by qualified personnel

- 1) Before connecting the electrical system, make sure that:
 1. The power supply to the lift is equipped with a safety device required by

applicable standards in the country where the machine is installed.

2. The power cord has the following cross-section:

Elevator voltage: 400 V, three-phase.....minimum^{2, 5} mm²

Control circuitminimum 4 mm²

Elevator voltage 230 V, single-phase.....minimum 6 mm²

3. Voltage fluctuations fall within the tolerance range specified in the specifications.

The manufacturer supplies a stand for operation at 400 V in a three-phase configuration; if the mains voltage is different, the motor and other parts and components must be replaced. The voltage is the same.

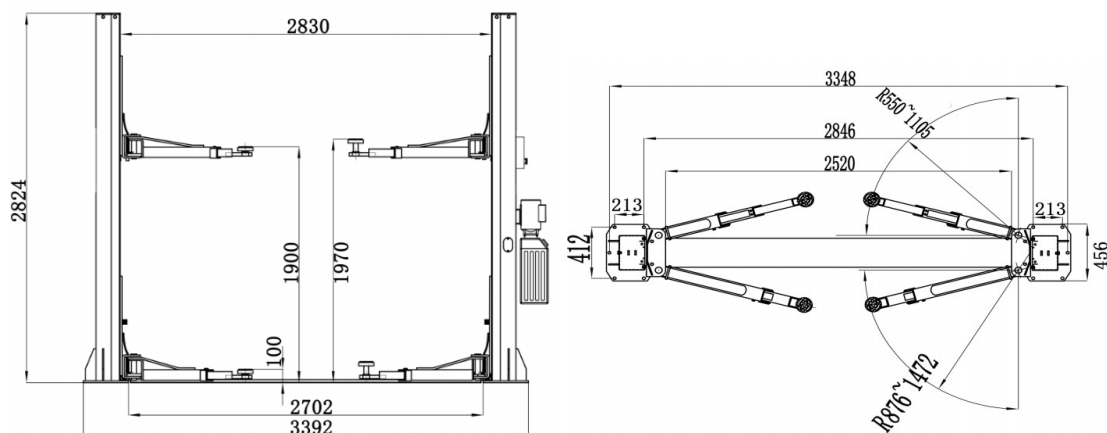
4. Check that the elevator's electrical components are safe and securely fastened. Pay attention to the connection of the limit switches and the circuit breaker (fuse).

If everything is in order, plug the power cord into the outlet. The machine should now be operational. (However, make sure it rotates clockwise.)

4.4.5 ARM ASSEMBLY

1. Press the “up” button, raise the carriages to a height of approximately 70 cm above the ground, then press the “parking” button, set the main switch (**IG**) to the 0 position, and disconnect the lift's power supply.
2. Lubricate the $\varnothing 38$ holes at the ends of the arms.
3. Install the arms in the trolley brackets so that the locking wheel and the lock engage fully, then insert the retaining pins into the holes in the brackets, as shown in Fig. 23. After completing this step, the pin mounting hole (location for the M10 headless screw) on the arm must align with the M10 holes in the trolley bracket. Install the spring, etc., under the post. The locking wheel and lock are disconnected.

Fig. 23



4. Tighten the extension sleeve firmly onto the protruding part of the spring pressure pin.
5. Ensure that the arm lock is functioning properly by pressing the extension of the clamping pin upward and rotating the arm in either direction so that the pin returns to its position after a short rotation (Fig. 24).
6. Repeat the same steps to assemble the remaining 3 arms.



Fig. 24

4.5 TESTS AND INSPECTIONS, WHICH SHOULD BE BEFORE STARTING UP THE " " DEVICE

4.5.1 MECHANICAL TESTS

1. Fastening and tightening of screws, fasteners, and connections
2. Free movement of moving parts
3. Cleanliness of various machine parts
4. Position of the protective cover
5. Lifting and lowering the vehicle and lubricating every part requiring lubrication

4.5.2 ELECTRICAL INSPECTIONS

1. Connection in accordance with the diagrams
2. Grounding the machine

4.5.3 OPERATION OF THE FOLLOWING DEVICES

1. Lifting limit switch
2. Mechanical lock and pneumatic drive
3. Solenoid valve for the hydraulic oil system

4.5.4 HYDRAULIC OIL CHECK

1. Sufficient oil in the reservoir
2. No leaks
3. Actuator operation

NOTE: If there is no oil, fill the power unit reservoir with the appropriate amount of oil. See **the procedure in Chapter 6: MAINTENANCE**

4.5.5 ROTATION DIRECTION TEST

The motor should rotate in the direction indicated by the arrow on the power unit pump; check by briefly starting the motor (each start must last no more than two seconds). If problems arise in the hydraulic oil system, refer to the "Troubleshooting" table in Chapter 7

4.6 CONFIGURATION



THESE PROCEDURES MUST ALWAYS BE PERFORMED BY TECHNICIANS FROM THE AUTHORIZED SERVICE CENTER LISTED ON THE COVER OF THIS MANUAL

4.6.1 VACUUM TEST (without load)

In this phase, check whether:

- The lift, lower, and park buttons are functioning properly;
- The guide rail reaches its maximum height;

- There is no abnormal vibration in the posts and arms;
- The safety wedges engage with the metal pads under the trolley
- Do the lifting limit switches activate?
- Did the solenoid activate?
- Once all steps have been completed in accordance with the above instructions, the height difference between the arms of both trolleys should be less than 1 cm. If this is not the case, adjust their level by adjusting the lock nuts on the synchronous steel cables

To perform the tests mentioned above, complete two or three full cycles of lifting and lowering. This should also be done to bleed air from the hydraulic circuit.

4.6.2 LOAD TESTS

Repeat the previous tests with the vehicle on the lift

After completing the load tests, visually inspect the equipment and recheck that all bolts are tightened.

CHAPTER 5 OPERATION AND USE

The lift controls (control devices) are shown in Fig. 25:

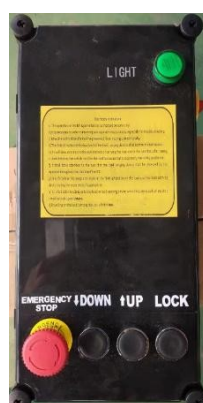


Fig. 25

5.1 Commands

5.1.1 "Up" button (3)

When pressed, it activates the electric motor and the mechanisms that lift the trolley. The arm rises. Otherwise, it stops working.

5.1.2 DOWN HANDLE (4)

Before moving this lever, you must first engage the mechanical lock by pulling the cable handle, which will engage the mechanical lock.

5.2 PROCEDURE

Position the lift arms at the mounting points provided for the vehicle, adjusting the discs to the same height. Each time the dollies are lowered to the ground, check the position of the discs under the vehicle chassis before lifting the dollies again.

5.2.1 LIFTING

Press the lift button until the desired height is reached. As the dollies are raised, safety wedges are automatically inserted into each of the metal pads under the dolly. For information on lifting height limits and safety devices, see section "3.5 HAZARDS WHEN LIFTING THE VEHICLE".

5.2.2 PARKING

Once the desired height is reached, move the handle downward. The movement stops automatically

when the safety wedge rests at the level of the first groove it contacts as the trolleys descend.

5.2.3 LOWERING

Before lowering the trolleys, remove the safety chocks. Press the lift button (P1) to raise the trolley approximately 3 cm. Then press the lower button (P2), which automatically releases the safety chocks and activates the lower solenoid valve. The lowering speed is controlled by

the “flow control valve” in the pump. Lowering stops when the hydraulic cylinders are fully extended. When the carriages are fully lowered, the automatic arm locking device opens and allows the carriages to rotate.

CHAPTER 6. MAINTENANCE

6.1 PRECAUTIONS

WARNING

Maintenance may be performed **ONLY BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE LIFT.**

When performing maintenance on the lift, observe all necessary precautions to **PREVENT ACCIDENTAL START-UP OF THE LIFT:**

1. The main switch on the control box must be locked in the 0 POSITION using the LOCK (position on the left side)
2. The main lock switch must be kept by the SERVICE TECHNICIAN
3. When performing maintenance on the device, always be aware of all major potential hazards and follow the safety instructions provided in Chapter 3, “Risk of Electric Shock,” near the device’s power terminal block.

DO NOT PERFORM MAINTENANCE ON PARTS SUCH AS THE HYDRAULIC CYLINDER, PNEUMATIC CYLINDER, AND GEAR PUMP. IF THESE PARTS ARE DAMAGED, THEY MUST BE REPLACED.

IMPORTANT

To ensure proper operation of the device.

1. Use only genuine replacement parts and tools that are suitable for the task and in good condition;
2. Follow the maintenance schedule indicated in the manual: these frequencies are approximate and should always be treated as general guidelines to be followed.
3. Proper preventive maintenance requires constant attention and continuous monitoring of the machine. The cause of any irregularities, such as excessive noise, overheating, fluid leaks, etc., must be identified quickly.

Particular attention should be paid to:

1. Condition of lifting components (cylinder, drive assembly);
2. Safety devices (microswitches, pneumatic pushers, and safety wedges)

To perform maintenance correctly, please review the following documents provided by the rack manufacturer:

1. Complete functional diagram of electrical and auxiliary equipment, including power connections
2. Hydraulic diagram with a parts list and maximum pressure values
3. Exploded view drawings containing the data necessary to order spare parts
4. List of possible causes of failure and recommended solutions (Chapter 7 of the manual)

6.2 PERIODIC MAINTENANCE

6.2.1 OPERATING FREQUENCY

To ensure the elevator operates at full capacity, the specified maintenance schedule must be followed. The manufacturer assumes no liability and will not honor the warranty if the above instructions are not followed.



NOTE

The specified frequency applies to normal operating conditions; different frequencies will apply under particularly difficult conditions.

ALL MAINTENANCE TASKS MUST BE PERFORMED WITH THE ELEVATOR SWITCHED OFF AND THE POWER SUPPLY DISCONNECTED.

After installing the device, check the following:

- 1 that the anchor bolts connecting the base plates of the columns are tight
- 2 Tighten the bolts securing the beam to the posts
- 3 Are the arms of the opposite carriages at the same level?
- 4 Oil level in the drive unit. Top up the oil to the proper level if necessary

6.2.2 MONTHLY

HYDRAULIC UNIT

- 1 Check the oil level in the reservoir using the special dipstick attached to the filler cap. If necessary, add oil through the cap to reach the required level. Information on the type of oil can be found on page 10, "TECHNICAL DATA."
- 2 After the first 40 hours of operation, check the oil contamination level. (If contamination is high, clean the filter and change the oil.)

HYDRAULIC CIRCUIT

Check for oil leaks in the circuit between the pump, the oil line, and the cylinder, as well as in the cylinder itself. If leaks are found, inspect the condition of the seals and replace them if necessary.

6.2.3 EVERY 3

MONTHS...

SYNCHRONIZING CABLE

Check that the arms of the opposite carriages are at the same level; check the tightness of the locking and counter-locking nuts on the threaded ends of the steel cable.

HYDRAULIC PUMP

Under normal operating conditions, check for any changes in the noise of the motor and gear pump, and ensure that the relevant bolts are properly tightened.

SAFETY SYSTEMS

1 Check the technical condition and functionality of the safety devices (as described on pages 15 and 16) as well as the wear on the safety wedges and corresponding hinge pins. Lubricate the pins on the safety wedges. If there is excessive wear, replace the safety wedges and/or pins.

Using a torque wrench, check that the anchor bolts securing the column bases to the ground are properly tightened, as well as the connecting bolts.

2 Clean and lubricate the carriage slide block and the guides.

3 Check that all bolts are tightened

4 Check that the arm locking system is working properly.

5 Lubricate all moving parts.

6.2.4 EVERY 6

MONTHS... HYDRAULIC

SYSTEM

Check the oil for contamination or deterioration. Contaminated oil is the main cause of valve malfunction and shortens the service life of gear pumps.

SYNCHRONIZING CABLE

Check the condition of the pulleys and pulley tracks. Inspect the cable for wear by checking its diameter, any broken wires, other damage, or significant changes. Lubricate the cable with a brush to prevent corrosion or breakage caused by oxidation.

6.2.5 EVERY 12 MONTHS...

General inspection: Visual inspection of all structural components and mechanisms to ensure there are no problems or irregularities.

Electrical system: Qualified electricians (contact the service center) should test the electrical system, including the drive unit motor, cables, limit switch, and control box.

HYDRAULIC SYSTEM OIL

Change the oil by following the instructions below:

1. Lower the lift to its minimum height (to the ground)
2. Make sure the hydraulic cylinder is at the end of its stroke
3. Disconnect the power supply from the lift rack.
4. Drain the oil from the hydraulic circuit by unscrewing the plug located at the bottom of the power unit's reservoir.
5. Close the drain plug
6. Fill the unit with oil through the plug located at the top of the unit's reservoir. The oil must be filtered

The properties and types of oil are specified in the technical specifications (Chapter 2, page 9)

1. Close the filler cap
2. Power on the lift stand
3. Perform two or three lifting and lowering cycles (to a height of approximately 20–30 centimeters) to circulate the oil.

When changing the oil: use only the recommended oil or its equivalent; do not use oil that has gone bad or has been in storage for a long time. Dispose of the oil in accordance with the instructions in Appendix "A," page 37.

Checking the fuel tank level

Check the oil level in the tank; when the truck is in its highest position, the oil level in the tank should be 300 mm from the bottom edge of the barrel cap rod.

AFTER EACH MAINTENANCE TASK, THE MACHINE MUST BE RESTORED TO ITS ORIGINAL CONDITION, INCLUDING THE REINSTALLATION OF PROTECTIVE AND SAFETY DEVICES.

To ensure proper maintenance, it is important to:

1. Use only tools suitable for the task at hand and genuine replacement parts
2. Follow the specified minimum maintenance schedule
3. Immediately determine the cause of any abnormalities (excessive noise, overheating, fluid leaks, etc.)
4. Pay special attention to lifting components (actuators) and safety devices
5. Use all documentation provided by the manufacturer (electrical diagrams, etc.)

6.3 PERIODIC LUBRICATION TABLE

Lubricate the swivel joint. Grease must be taken from completely sealed cans and/or those that have been stored properly. Old or contaminated grease can damage the lubricated part.

1. Lubricate each moving part once per shift.
2. Lubricate each sliding part once a week

CHAPTER 7 TROUBLESHOOTING

7.1 TROUBLESHOOTING GUIDE

Troubleshooting and any repairs require strict adherence to ALL SAFETY PRECAUTIONS indicated in Chapter 6 "MAINTENANCE" and Chapter 3 "SAFETY"

7.2 POSSIBLE PROBLEMS AND SOLUTIONS

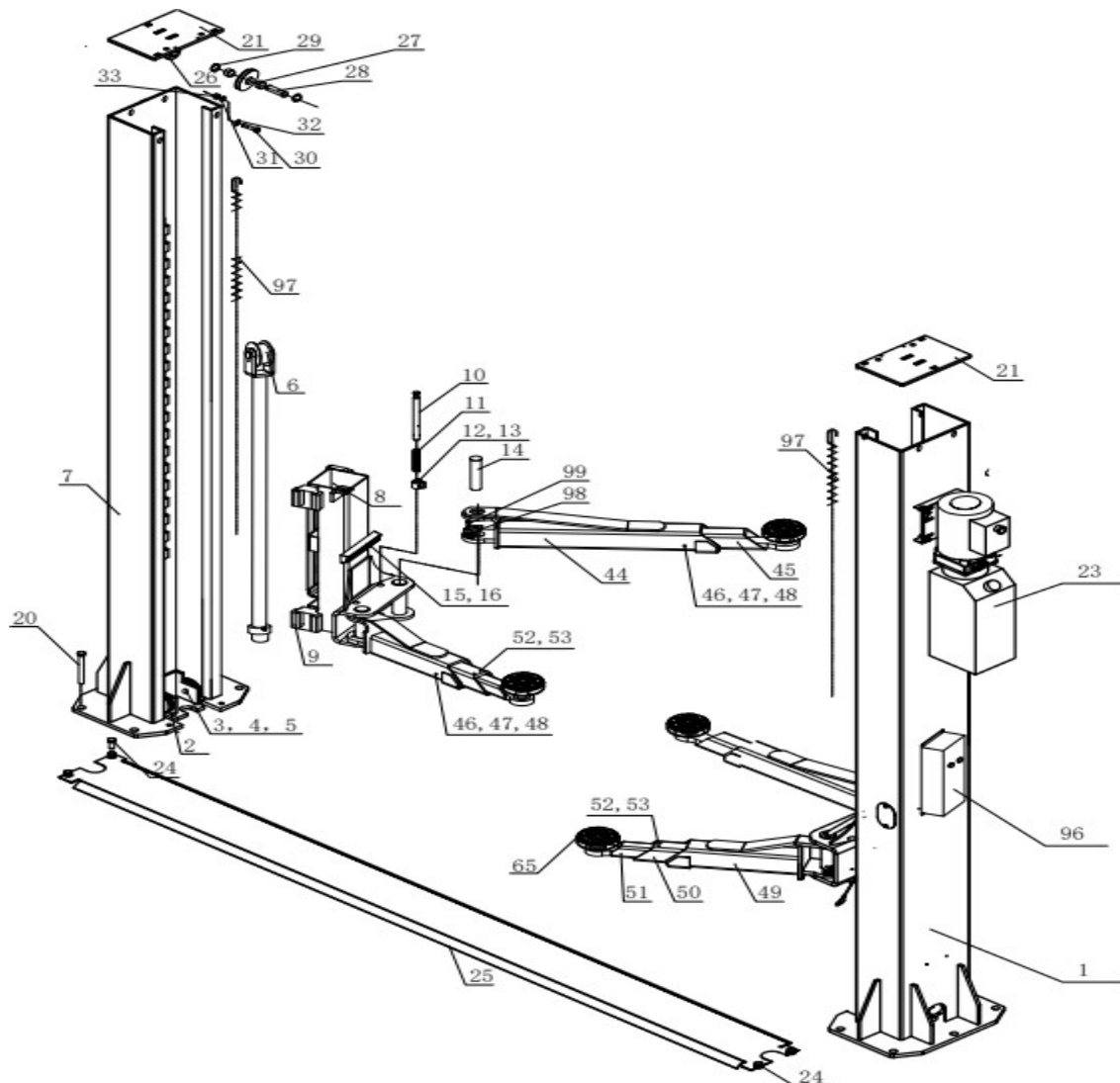
Problem	Possible cause	Solution
The lift does not rise when the button is pressed (motor is not running)	Blown fuse No voltage in the line Fault in the electrical system: -Faulty limit switch -Blown motor	Replace the fuse Reconnect Call the service center Replace the limit switch Replace the motor
The elevator does not move when the button is pressed (the motor is running)	Not enough oil Solenoid drain valve open Pressure valve is activated Leaks in the hydraulic circuit	Low oil level Check electrical connections or replace Reduce the load Repair the line
The lift continues to rise after the lift button is released Lift button	Damaged button	Disconnect the lift from the power supply and contact the service center
The lift does not descend	Foreign object Solenoid valve stuck Fault in the electrical system The carriages continue to get stuck in the safety lock The hydraulic valves have activated	Remove the object Replace (call the Service Center) Call the Service Center Perform the correct lowering sequence Repair the hydraulic circuit damage hydraulic circuit
The elevator does not reach its maximum height	No oil The vehicle has triggered the limit switch	Top off the oil in the hydraulic unit's oil reservoir This is normal behavior
After releasing the button lift the lift stops and slowly lowers	The hydraulic valve line does not close because it is contaminated	At the same time, set the to clean the valve

	Damaged drain valve	Replace (contact the service center)
The drive unit motor is overheating	Motor malfunction Incorrect voltage	Call the service center Check the voltage
The drive unit pump is making noise	Contaminated oil Improper installation	Oil change Call the service center
Air leak from the cylinder	Damaged seals Contaminants in the system	Replace damaged gaskets Clean all components Check if the valves are damaged

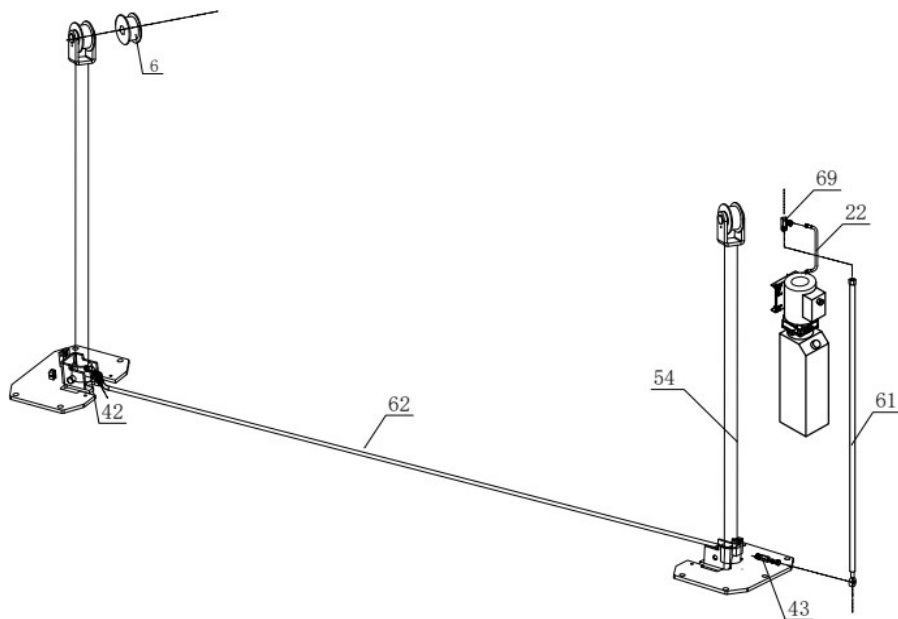
CHAPTER 8 CONSTRUCTION AND LIST OF ACCESSORIES

For more details, see the spare parts diagram!

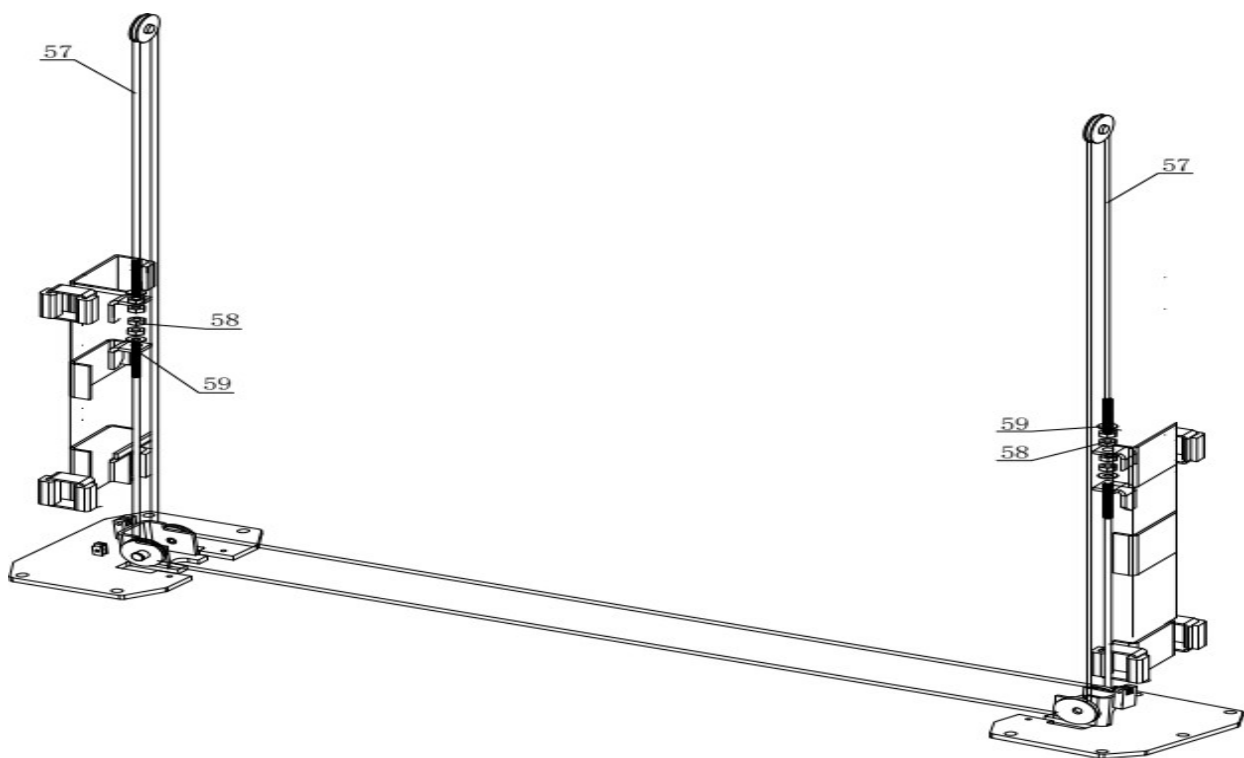
8.1 CONSTRUCTION DIAGRAM



Oil line assembly diagram



Steel cable installation diagram



8.2 PARTS LIST

No.	Name	Specifications	Quantity	Note
1	Welded components of the main column		1	
2	Guide wheel		4	
3	Copper guide wheel bushing		6	
4	Filler element		2	
5	connecting ring	Φ25	6	
6	pressure roller		2	

7	Welded components of the auxiliary column		1	
8	Sliding welded components		2	
9	slider block		16	
10	Crane swing arm locking roller		4	
11	Spring	Φ13*87	4	replacement part
12	rack block		4	
13	pin	Φ5*35	4	
14	Control arm pin		4	
15	Rubber door gear seal		2	
16	Countersunk screws with cross-recess	M8*20	2	
19	Rotating tray		4	
20	Expansion bolt	M18*160	10	
21	Top cover		2	
22	Pump station oil pipe		1	
23	Pumping station		1	
24	hex head screw	M12*20	4	
25	base plate		1	
44	Parts for welding external pipes of the section second		2	
45	Section 2 Welded pipe components		2	
46	hex head screw	M10*16	4	
47	Round spring washer	Φ10	4	
48	Flat washer	Φ10	4	
49	Three sections of external welding components pipes		2	
50	Three sections of pipe welding components		2	
51	Three sections of pipe welding components		2	
52	Hex socket screw	M8*12	4	
53	Diagram of an internal lock washer with teeth	Φ8	4	
54	hydraulic cylinder		2	
57	steel cable		2	
58	hex nut		8	
59	flat washer		4	
61	main oil pipe		1	
65	tray	Φ12.3	4	replacement part
69	angle connector		1	
96	Electrical control box		1	
97	spiral line		2	
98	sector circle		4	
99	Cylinder head screw with internal hex	M10*16	12	

CHAPTER 9 REGULATORY INFORMATION

Declaration of Conformity

Application of Council Directives

Confirmation of Conformity

Application of Council Directives

APPENDIX A – SPECIAL NOTES A

A.1 DISPOSAL OF USED OIL

Used oil that is removed from the drive unit and the machine during an oil change must be treated as a hazardous waste in accordance with the legal regulations of the country where the elevator is installed.

A.2 DISASSEMBLY OF THE MACHINE

WHEN DISASSEMBLING THE MACHINE, OBSERVE ALL SAFETY PRECAUTIONS DESCRIBED IN CHAPTER 3, WHICH ALSO APPLY DURING INSTALLATION.

The machine must be dismantled by certified technicians, just as it was installed. Metal parts can be scrapped as scrap iron. In any case, all materials resulting from the dismantling must be disposed of in accordance with the applicable regulations of the country where the elevator is installed. Finally, it should be noted that for tax purposes, the dismantling must be documented; applications and documents must be submitted in accordance with the regulations in force in the country where the lift is installed at the time of dismantling.

APPENDIX B SPARE PARTS

B.1 SPARE PARTS

When replacing parts and performing repairs, ALL SAFETY PRECAUTIONS described in Chapter 6 MAINTENANCE and in Chapter 3 SAFETY must be observed

Take all necessary precautions to **AVOID ACCIDENTAL START-UP OF THE ELEVATOR**

1. The switch on the control box must be locked in the 0 position using a lock
2. The lock key must be in the service technician's possession during maintenance work.

B.2 SPARE PARTS ORDERING PROCEDURE

To order spare parts:

1. Provide the elevator's serial number and year of manufacture
2. Please provide the part code (see the "CODE" column in the tables).
3. Please specify the required quantity.

Place your order with an authorized dealer listed on the first page of the manual.

PRODUCT WARRANTY

The product has a service life of 5 years. The two-post lift is covered by a 2-year warranty on the unit's structure, which covers defects in materials and workmanship. Drive units, hydraulic cylinders, and all other assembly components (such as cables, chains, valves, switches, etc.) are covered by a one-year warranty against material or workmanship defects under normal use. During the warranty period, "LANGPONG" will, at its discretion, repair or replace those parts that have been returned to the factory at the sender's expense and which, upon inspection, are found to be defective.

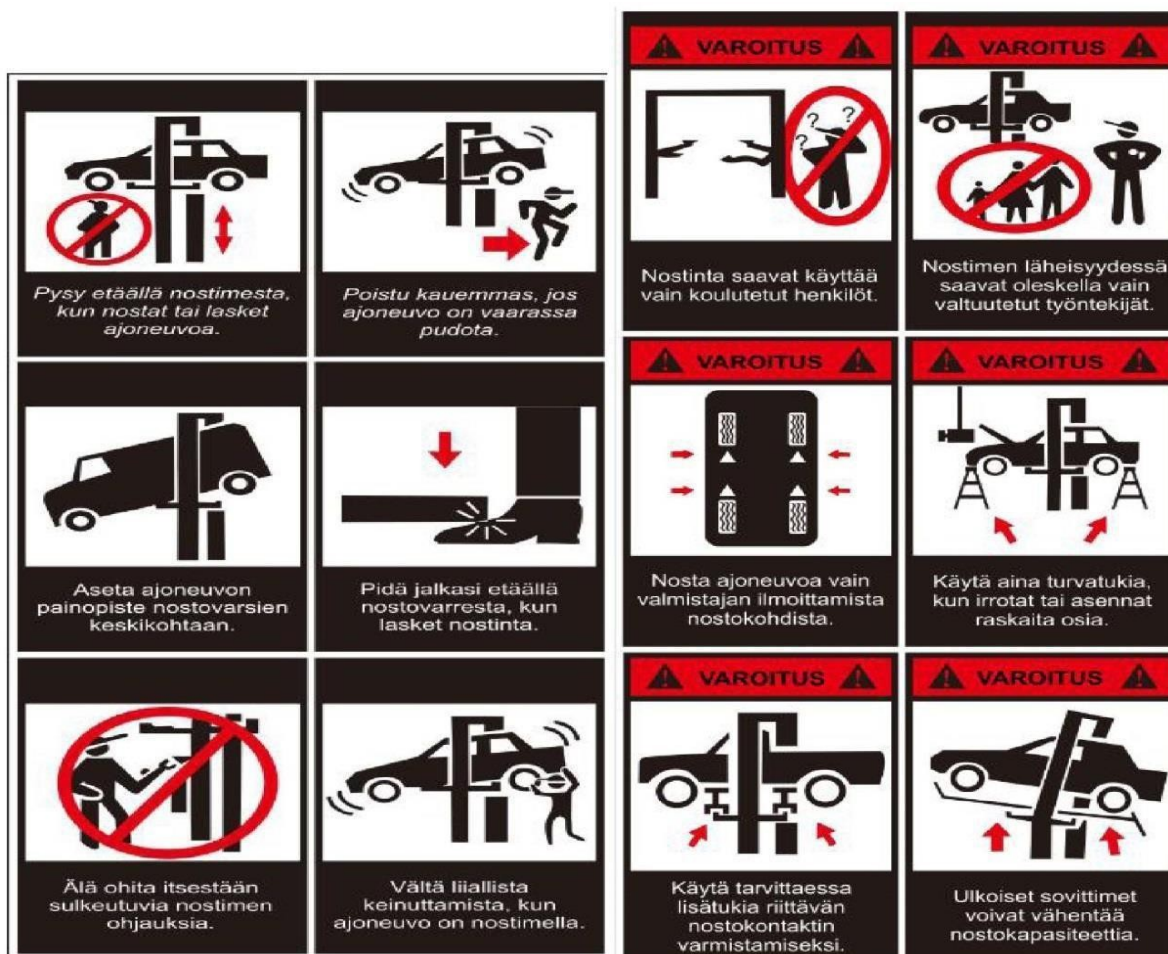
The warranty does not cover:

- Defects caused by normal wear and tear, misuse, improper use, negligence, transport damage, incorrect installation, voltage, or lack of required maintenance;
- Damage resulting from the purchaser's negligence or failure to follow the instructions contained in the user manual and/or other accompanying instructions;

- Parts subject to normal wear and tear or maintenance typically required to keep the product in a condition that ensures safe operation;
- Any parts damaged during transport;
- Other components not listed here but which may be considered subject to general wear and tear;
- Damage caused by rain, excessive moisture, corrosive environments, or other contaminants.

THESE WARRANTIES DO NOT COVER ANY COSMETIC DEFECTS THAT DO NOT AFFECT THE FUNCTIONALITY OF THE DEVICE, NOR ANY LOSSES, DAMAGE, OR EXPENSES THAT MAY RESULT FROM ANY DEFECT, FAILURE, OR MALFUNCTION OF THE

“LANGPONG” OR FROM ANY BREACH OR DELAY IN THE PERFORMANCE OF THE WARRANTY.



Safety Instructions Overview

WARRANTY CARD

Lift typeserial number

1. TIP-TOPOL Sp. z o.o. guarantees trouble-free operation of the device for a period of months from the date of commissioning.
2. During the warranty period, the Warrantor provides free parts for failures covered by the warranty.
3. User's Obligations:
 - i. The user of the device agrees to comply with the terms of use set forth in the "User Manual" provided with the device
 - ii. The user agrees to notify the Warranty Provider of any malfunction. The user may report a malfunction to the TIP-TOPOL headquarters in Pobiedziska at (0****61 8152 200)
 - iii. This completed "Warranty Card" serves as proof of warranty eligibility and should be kept at the device's installation site and made available to TIP-TOPOL service personnel for the purpose of recording repairs and any warranty extensions warranty
 - iv. **The user agrees to perform maintenance inspections in accordance with applicable regulations and instructions.**
4. The warranty **expires** if:
 - i. the device's serial numbers have been removed,
 - ii. the device was used for purposes other than those for which it was intended, or under conditions and in a manner other than those specified in the user manual
 - iii. the damage was caused by the user or as a result of unforeseeable events
 - iv. **technical inspections were not performed => no entries in the maintenance log by a person authorized to perform inspections and maintenance of the lift**
5. The warranty provider offers free repairs during the warranty period at the TIP-TOPOL headquarters located in Pobiedziska, provided the user delivers the device at their own expense.

I hereby declare that I have read and understood the warranty terms and conditions set forth

in this Card. Company stamp

Date and legible signature of the user

Repair notes.

No.	Date of	Date of repair	Repair work performed, listed components, warranty extension notes	Signature Service technician

Environmental Information

Thank you for choosing our products. As a company that cares about the environment, we ask that you review the following guidelines for handling end-of-life products.

If the product has a crossed-out wheelie bin symbol on the nameplate
procedure below



, follow the disposal

This product may contain substances that are hazardous to the environment or to health if not disposed of properly. This information is provided to prevent the release of hazardous substances into the environment. Electrical and electronic components must never be disposed of in municipal waste bins. All equipment must be disposed of in accordance with the regulations in effect at the installation site. By doing so, you can avoid serious consequences for the environment and human health.

In accordance with applicable regulations in your country, disposing of the product in any manner other than described above is punishable by law. It is also recommended to sort other waste: recycle the product's outer and inner packaging, as well as used batteries and rechargeable batteries (if the product requires them). Your help is very important to reduce the amount of raw materials needed to manufacture equipment, minimize the use of landfills, and improve quality of life by reducing the amount of potentially hazardous substances in the environment.

TIP-TOPOL Sp. z o.o.

62-010 Pobiedziska

33 Kostrzyńska St.

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