

INVENTO



MANUAL

4-POST LIFT

INVENTO EL464 / -WA

TIP-TOPOL Sp. z
o.o. 62-010
Pobiedziska 33
Kostrzyńska Street
www.sklep.tiptopol.pl

Original EC declaration of conformity

CE -13

Przedsiębiorstwo Usługowo-
Produkcyjne Tip-Topol Sp. z o.o. Ul.
Kostrzyńska 33
62-010 Pobiedziska

Product:

Invento EL464 4-post lift
Model: STD-6764

He declares with full responsibility on the basis of:

EC Certificate, number CE-C-0115-14-04-03-5A of 2014-06-17 issued by the Certification
Body number 1105: CCQS UK Ltd. Level 7 Westgate House, Westgate Rd., London W5 1YY UK.

that the product complies with the essential requirements of Directive
2006/42/EC Directive 2006/42/EC

and specific requirements contained in harmonised standards:

2004/108/EC	Electromagnetic compatibility.
2006/95/EC	Low voltages.
EN 1493:2010	Vehicle lifts.
EN 1494:2010+A1:2008	Mobile or sliding lifts and related lifting equipment
EN 60204-1:2006+A1:2009	Safety of machinery – Electrical equipment of machinery

This declaration is the basis for the CE marking of the product.

This declaration applies only to machinery in the condition in which it was placed on the market and does not cover components added by the end-user or subsequent operations carried out by the end-user.

The technical documentation is available at the headquarters of TIP-TOPOL Spółka z o.o. 62-010 Pobiedziska; Kostrzyńska 33 with the person responsible – Jacek Bilski.

TYPEFACES AND SYMBOLS

In this manual, the following symbols and typefaces are used for ease of reading:

	Indicates activities that require special attention
	Indicates a ban
	Indicates a dangerous situation for the operator
	Indicates the direction of access of motor vehicles to the lift
BOLD	Important information

	NOTE: before operating the jack and modifying the settings, carefully read chapter 7, "Installation", which describes all the steps to ensure better operation of the jack.
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CHAPTER 1 - GENERAL INFORMATION

This section provides warnings and information to help you operate the lift correctly and prevent injury to operators and objects.

This manual is intended for use by technicians operating the lift (operators) and technicians responsible for routine maintenance (maintenance technicians).

The manual is an integral part of the device and must remain with it throughout its lifetime.

Before unpacking and operating the lifter, please read each section of the manual carefully, as they contain helpful information regarding:

– HUMAN SAFETY – LIFT SAFETY – SAFETY OF LIFTED VEHICLES

The manufacturer of the lift is not responsible for possible problems, damage, accidents, etc. resulting from failure to follow the instructions given in this manual.

Only qualified technicians of an AUTHORIZED DEALER or AUTHORIZED SERVICE CENTER authorized by the manufacturer are authorized to perform lifting, transporting, assembling, installing, adjusting, calibrating, changing settings, emergency repairs, modernizing, and disassembling operations of the jack.

THE MANUFACTURER OF THE LIFT IS NOT RESPONSIBLE FOR POSSIBLE INJURIES TO PEOPLE AND DAMAGE TO VEHICLES AND OBJECTS IF THE ABOVE-MENTIONED ACTIVITIES WERE PERFORMED BY UNAUTHORIZED PERSONNEL, OR THE LIFT WAS USED INCORRECTLY.

It is forbidden to use the machine by operators who are not familiar with the procedures and information contained in this manual.

1.1 MANUAL STORAGE

In order to use this manual correctly, it is recommended to:

- Keep the manual near the lifter, in an easily accessible place.
- Keep the manual in a place protected from moisture.
- use the instructions in a way that does not expose them to damage.
- It is forbidden to use the machine by operators who are not familiar with the procedures and information contained in this manual.

These instructions are an integral part of the lift: if they are sold, they must be passed on to the new owner.

1.2 EMERGENCY ACTION ORDER

	In the event of a device failure, follow the instructions in the following sections.
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1.3 WARNINGS FOR OPERATOR SAFETY

The operator of the lift must not be under the influence of sedatives, drugs or alcohol while operating the lift.

	Before operating the lift, the operator must familiarise himself with the position and function of all controls as well as the characteristics of the device, as described in the "Using the lift" section.
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1.4 WARNINGS

	The manufacturer of the lift is not responsible for any personal injury or damage to objects resulting from the introduction of the unauthorized alterations or modifications to the device. Removal or deactivation of security devices is prohibited and constitutes a violation of health and safety rules and regulations.
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	The use of the device in a manner inconsistent with the intended by the manufacturer of the lift is strictly prohibited.
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	The use of non-genuine parts may result in personal injury or damage to items.
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1.5 SCRAPPING

The lift is designed for less than 22,000 cycles. When the machine reaches the end of its useful life and can no longer be used, turn it off by removing all connections to power sources. These units are considered a special waste material and should be broken down into uniform parts and disposed of in accordance with applicable regulations. If the packaging is not contaminating or biodegradable, take it to the appropriate handling station.

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

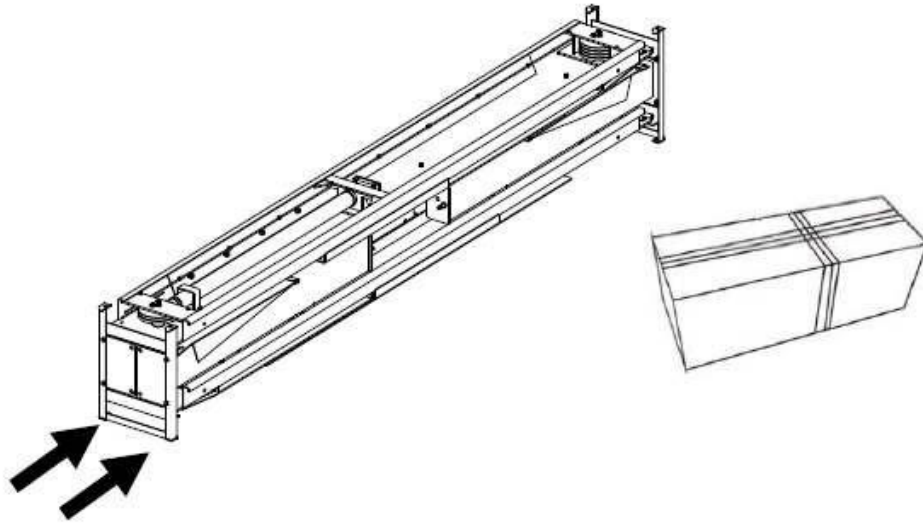
These instructions have been prepared by the manufacturer of the lift with due care. However, nothing contained therein changes in any way the terms of the contract with the manufacturer under which the device was purchased, nor does it in any way increase the scope of the manufacturer's liability towards the customer.

TO THE READER

The manufacturer of the jack has made every effort to ensure that the information in this manual is correct, complete and up-to-date. The manufacturer is not responsible for errors that occur during the creation of the manual and reserves the right to make any changes resulting from the development of the product at any time.

CHAPTER 2 - PRODUCT DESIGNATION

The identification data of the machine is placed on a plate located on the control unit.



3.2 LIFTING AND MOVING

When loading/unloading and transporting the device to the place of use, appropriate loading and transport means (e.g. crane, truck) must be used. The components of the device must be lifted and transported in a safe and fall-proof manner, taking into account the size, weight and center of gravity of the component, and the parts sensitive to damage.

3.3 STORAGE AND STORAGE OF PACKAGES

The components of the device must be stored under a roof, protected from direct sunlight, in low humidity conditions, at temperatures between -10°C and +40°C.

Stacking is not recommended: the narrow base of the package, as well as its considerable weight and size, make it difficult and risky.

3.4 DELIVERY AND INSPECTION OF PACKAGES

When the lift is delivered to the site, check that it has not been damaged during transport and Storage and confirm that Provided all of them have been left items specified in the manufacturer's order confirmation. In the event of transport damage, the customer must immediately notify the carrier.

Packages must be opened in such a way as not to endanger people (keep an appropriate distance when cutting the straps) and not to damage the elements of the lifter (make sure that items do not fall out of the packaging when opening it).

CHAPTER 4 - PRODUCT DESCRIPTION

JACK DESCRIPTION (See Figure 2)

The lift is capable of lifting motor vehicles with the maximum weight specified on the rating plate located on the lift feed column.

All mechanical components are made of thick steel plate to provide the frame with rigidity and strength while maintaining low weight.

The operation of the electrical-hydraulic system is described in detail in Chapter 8.

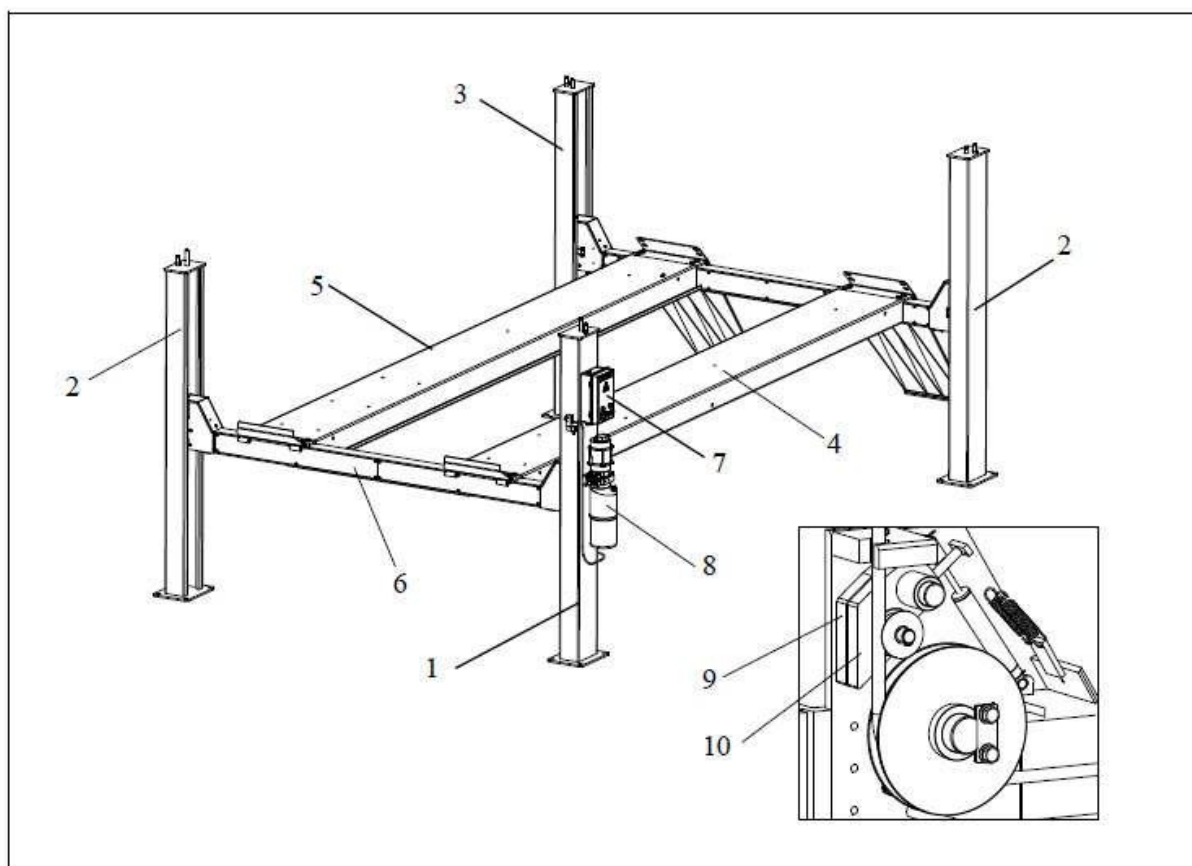
This chapter describes the main components of the lift, so that the user can familiarize himself with the device. As shown in Figure 2, the lift consists of four columns: 1 feed column (1), 3 other columns (2 and 3), two platforms: a platform on the supply side (4) and a platform on the opposite side (5), and two cross beams (6). The lift is fixed to the ground with column bases.

Lifting is carried out by pressing the lift button on the control panel (7) to operate the power unit (8), which supplies hydraulic oil to the cylinders acting on the rope lifting system.

Lowering is carried out by pressing the lowering button on the control panel and is carried out under the weight of the lifted load.

Automatic mechanical emergency protection (9) keeps the jack in the raised position and cable tension protection (10) in the event of loosening and/or damage to the cable.

Figure 2 - JACK



5.1 DIMENSIONS & MAIN FEATURES (See Figure 3)

LIFTING CAPACITY OF THE LIFT	6400 kg
Maximum Lift Height (standard model/diagnostic version)	1850 / 1900 mm
Minimum height (standard model/diagnostic version)	130 / 180 mm
Length of the ramp	5200 mm
Ramp width	512 mm
Free space between ramps	1000 mm
Distance between columns	2880 mm
Overall length	6502 mm
Overall height	2362 mm
Overall width	3320 mm
Lifting time	60 sec
Noise	80 dB(A)/1 m
Nominal pneumatic pressure	6 bar - 8 bar
Operating Temperature	-10°C - 40°C
Average Package Weight	2120 kg

Product	Wire rope		
Finishing touch	Galvanized	Length	1000M/pcs
Construction	6*37+IWR	Laying direction	ZS
End Diameter	13 mm	Degree of strength	1770 MPa
Test results			
Tested elements	Requirements	Innate	Result
Rope diameter (mm)	0.590	0.590 - 0.595	Passed
Tensile strength (MPa)	≥ 1770	1840 - 1890	Passed
Breaking force (kN)	95.4	105.7	Passed
End Diameter	12.90 - 13.29	13.04	Passed

5.2 ELECTRIC MOTOR

Kind	ML90L2	G90N4
Tension	230 V / 220 V - 1 phase	400 V / 380 V - 3 Phase
Power	2.2 KW	3.0 KW
Number of poles	2	4
Velocity	2800 rpm	1375 rpm
Engine installation type	B14	
Insulation class	IP 54	

The motor connection must be in accordance with the enclosed wiring diagrams (Figure 5).

The direction of rotation of the engine is shown on a plate located on the engine.

Before using the lift, make sure that the motor specification specified on the rating plate is compatible with the local power supply.

If the electrical supply deviates by more than 10%, it is recommended to use a voltage stabilizer to protect against overloading of electrical parts and the system.

5.3 PUMP

Kind	Gear	
Flow rate	2.1 cm ³ /g	5.8 cm ³ /g
Constant working pressure	200 bar	
Peak Pressure	230 bar	

Figure 3a - PLACEMENT - STANDARD TYPE

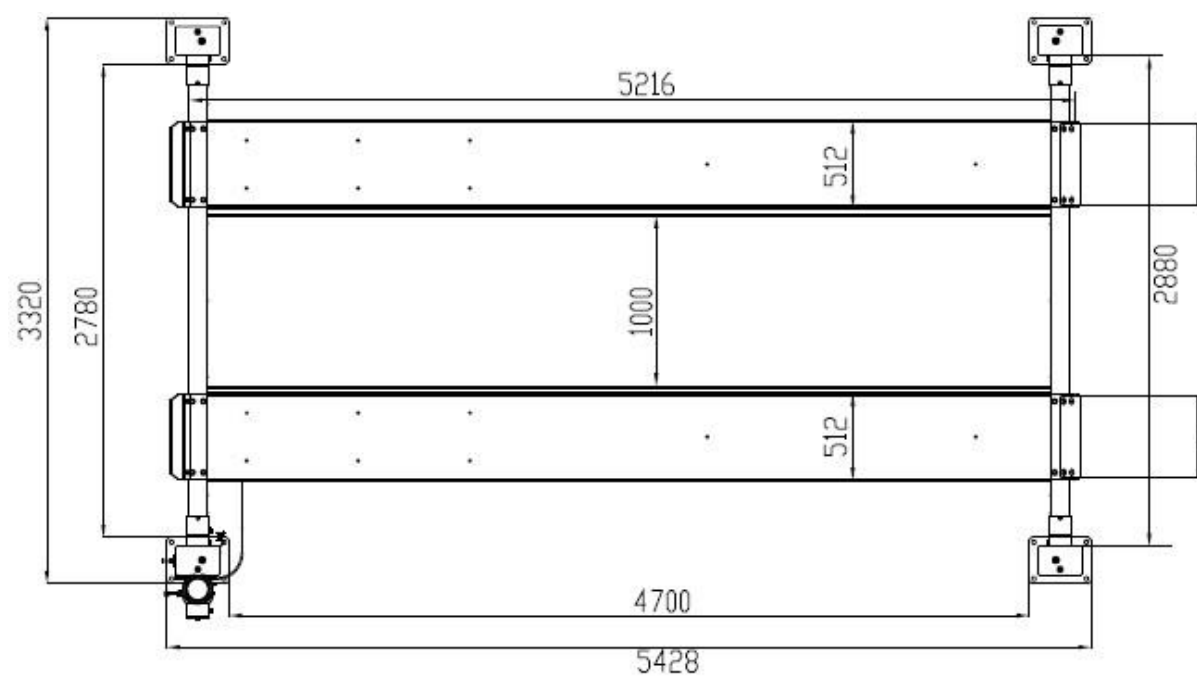
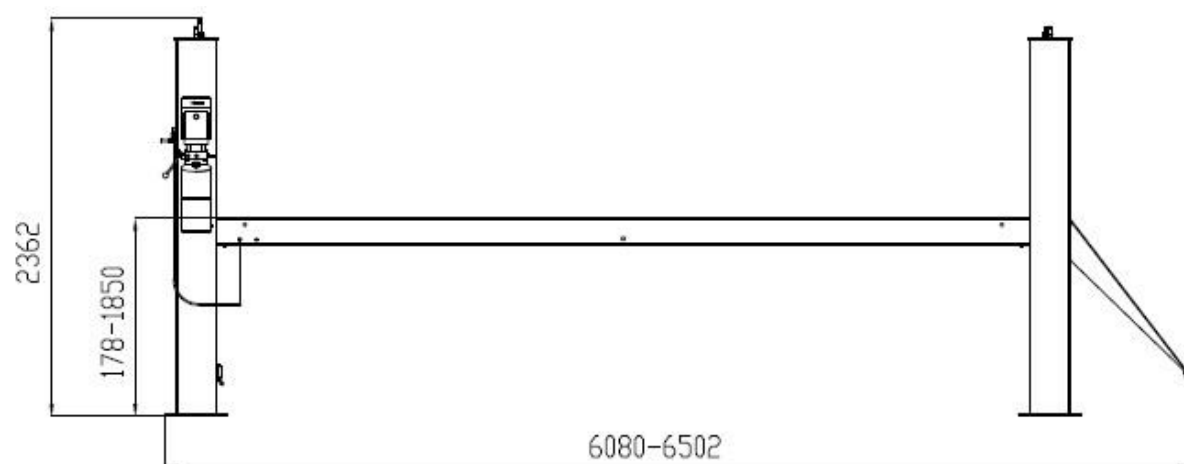
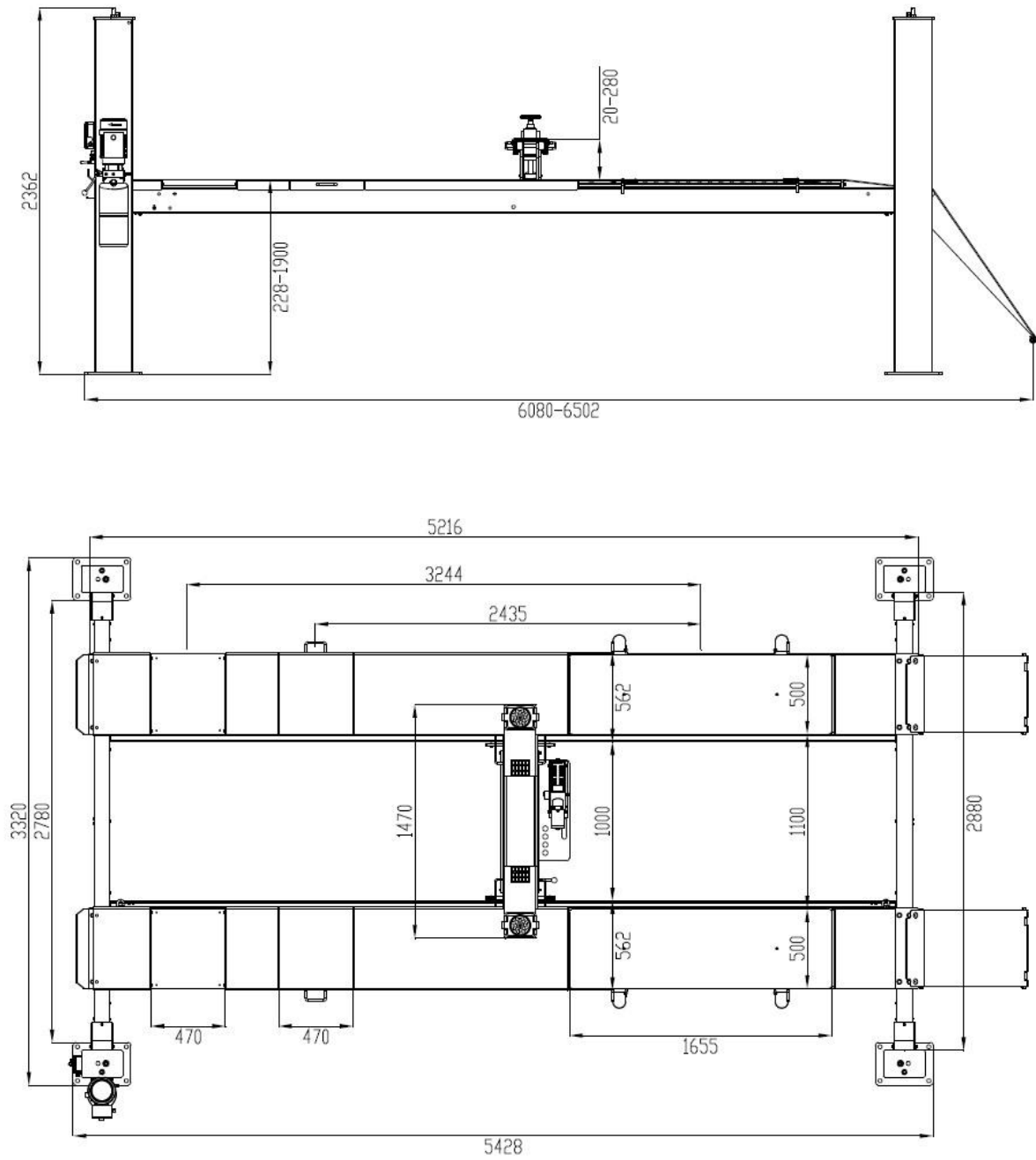


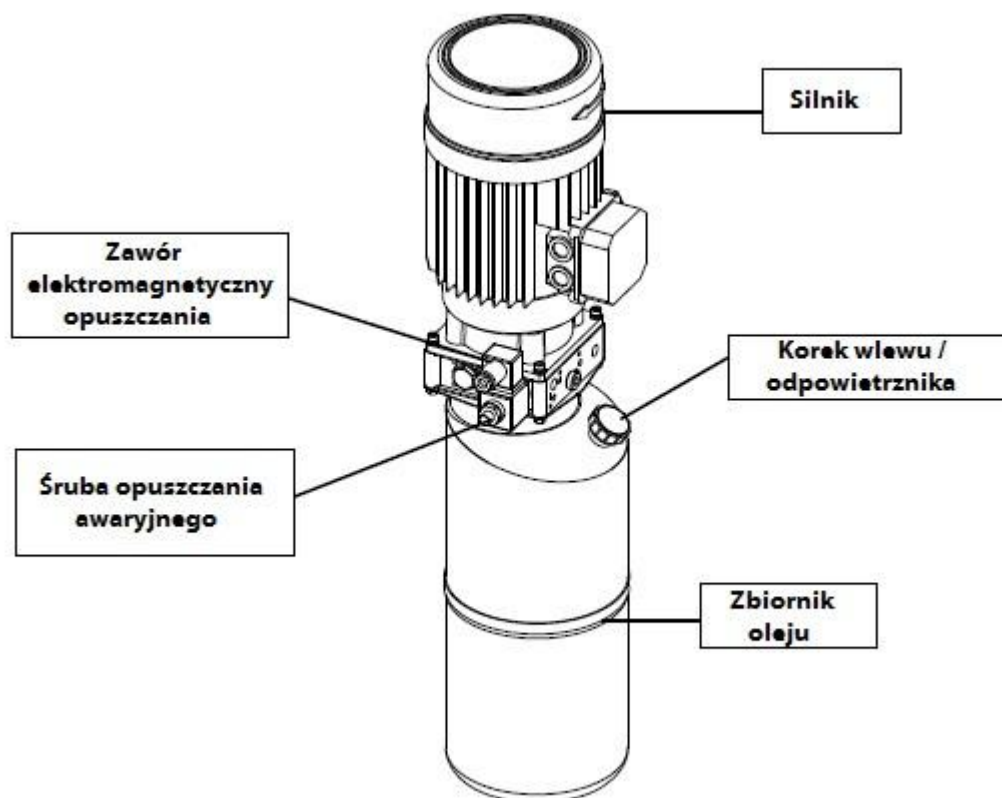
Figure 3b - PLACEMENT - TYPE WITH ALIGNMENT KIT



5.4 HYDRAULIC POWER UNIT

The hydraulic unit is equipped with

Figure 4 - HYDRAULIC POWER UNIT



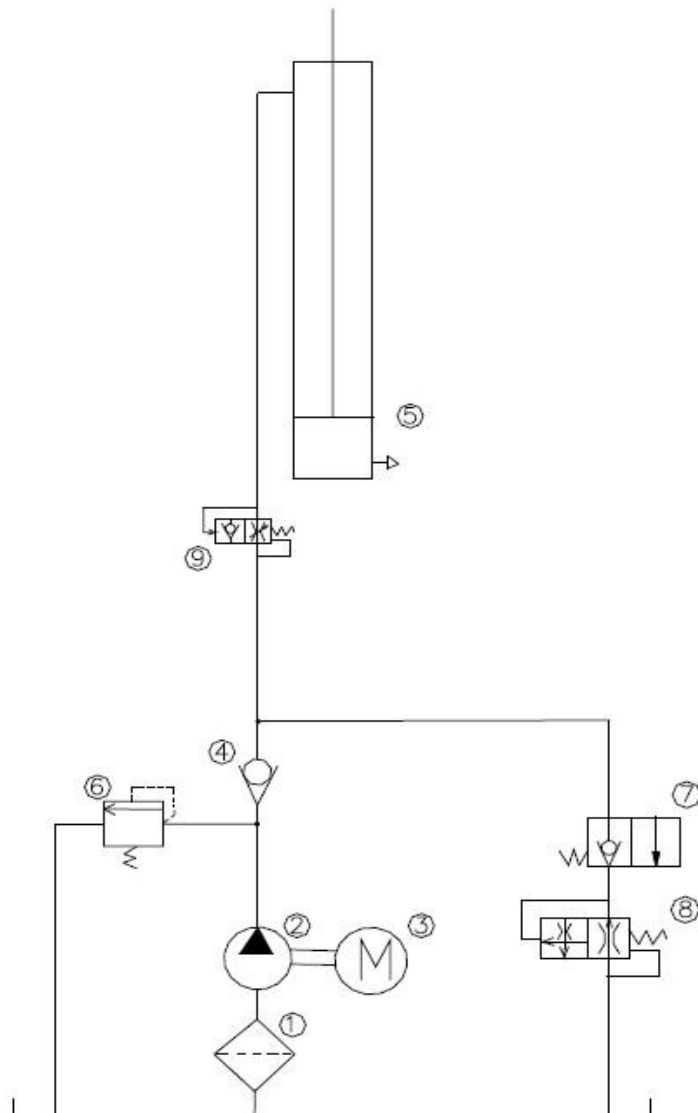
5.5 OIL

The hydraulic drive must use a non-degradable oil that meets the requirements of ISO 6743/4 (HM class). It is recommended to use an oil with properties similar to those listed in the table.

RESEARCH METHODS	PROPERTIES	VALUE
ASTM D 1298	Density at 20°C	0.8 kg/l
ASTM D 445	Viscosity 40°C	32 cSt
ASTM D 445	Viscosity 100°C	5.43 cSt
ASTM D 2270	Viscosity Index	104 N°
ASTM D 97	Pour point	~30°C
ASTM D 92	Flash point	215°C
ASTM D 644	Number of indifference	0.5 mg KOH/g

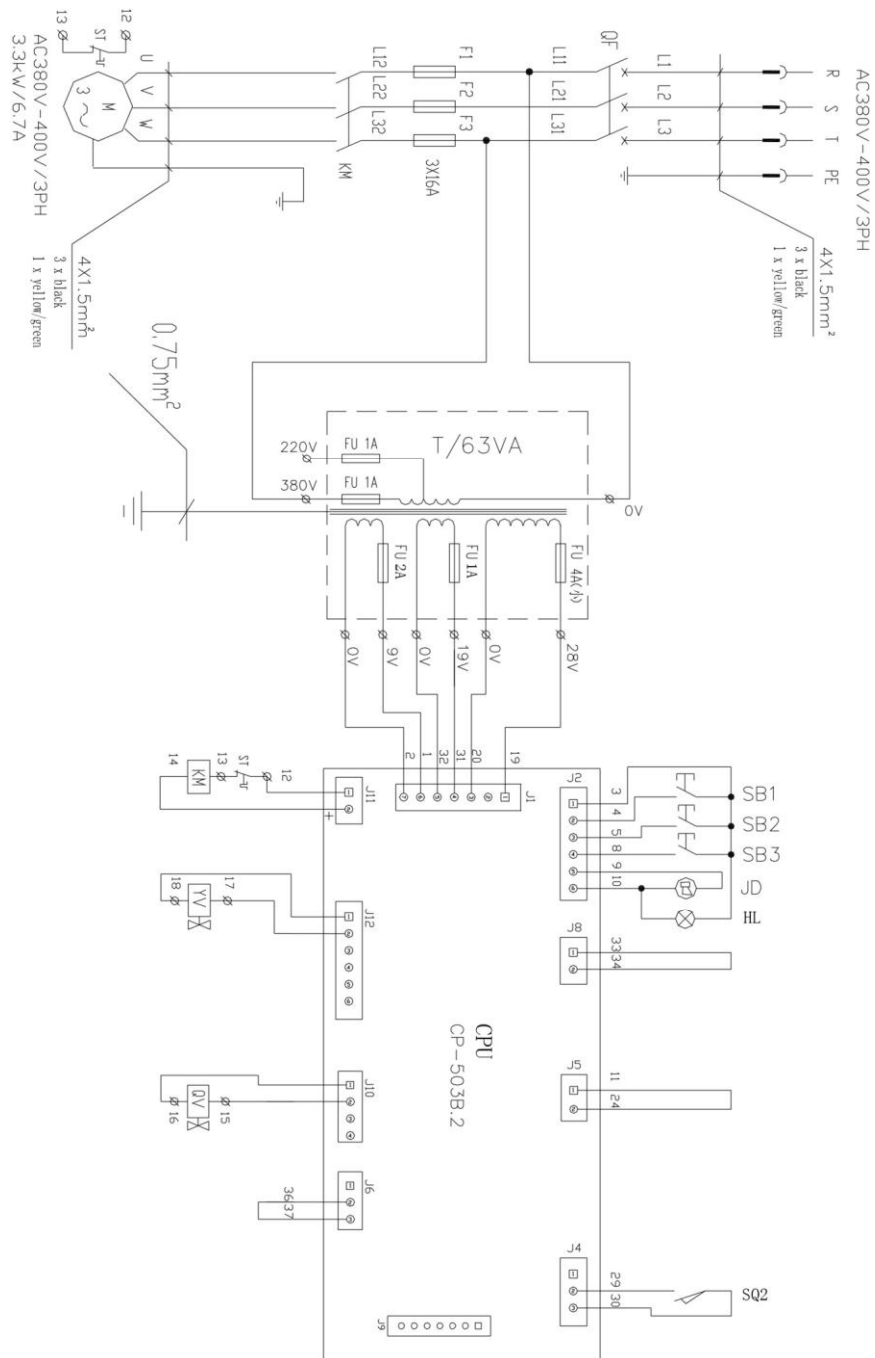


Figure 5 – HYDRAULIC SYSTEM DIAGRAM



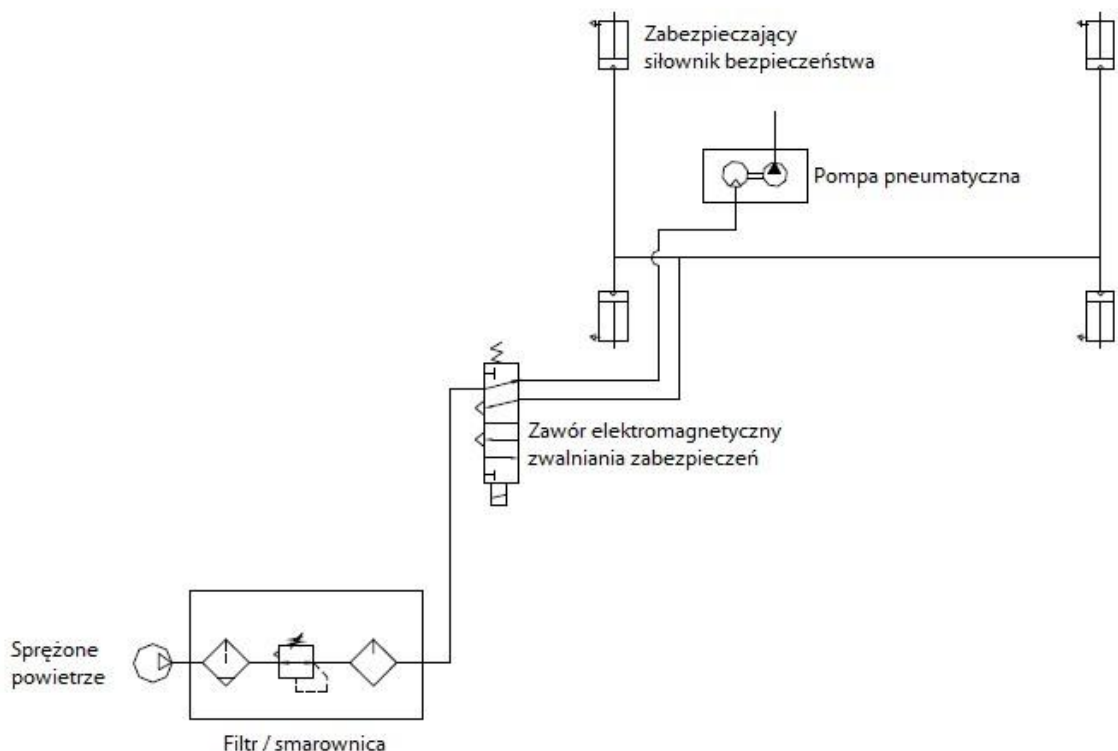
1		Oil filter	6	Pressure relief valve
2		Gear pump	7	Lowering solenoid valve
3		Engine	8	Lowering speed control valve
4		One-way valve	9	Overload Valve
5		Hydraulic Cylinder		

Figure 6a – WIRING DIAGRAM (380 V / 400 V - 3 phases)



QF	Power switch	SB2	Lower/end lowering button
MILES	DC contactor	SB3	Safety lock button
M	3.3 kW motor, 3 phase, 4P	SQ2	Safety height limit switch
ST	Overheating protection	YV1	Lowering solenoid valve
T	Transformer	QV	Pneumatic Solenoid Valve
SB1	Lift button	HL	Indicator light

Figure 6b – WIRING DIAGRAM (220 V / 230 V - 1 phase)



	The filter/lubricator must be installed in the pneumatic system and the air pressure must be set between 6-8 bar. The filter/lubricator is supplied by the manufacturer on special order.
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CHAPTER 6 - SAFETY

This section should be read carefully and in its entirety, as it contains important information regarding the safety of the lifter operator and maintainer.

	The lift is designed and manufactured to lift vehicles and keep them above ground indoors. Any other use is prohibited. The manufacturer of the lift is not responsible for possible injuries to people and damage to vehicles and objects resulting from incorrect or unauthorized use of the lift.
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For the safety of the operator and others, a free area of at least 1 m around the machine must be empty when lifting and lowering. The lift must only be operated from the operator's designated location in this safety area.

The operator's work under the vehicle is permissible when the vehicle is raised and the ramps are not moving.



**It is forbidden to use the jack if the safety devices are disconnected.
Failure to follow the safety instructions can result in serious personal injury and damage to lifted vehicles.**

6.1 GENERAL WARNINGS

The operator and maintenance of the equipment must comply with the health and safety regulations in force in the country where the lift is installed.

They must also follow the instructions below:

- It is forbidden to remove or disconnect hydraulic, electrical and other safety devices.
- carefully follow the safety instructions on the appliance and given in the instructions;
- carefully observe the safety area when lifting the vehicle;
- Make sure the vehicle engine is switched off, the gear is engaged, and the parking brake is applied;
- ensure that only permissible vehicles are lifted whose weight does not exceed the maximum lifting capacity of the lift;
- Make sure that no one is standing on the ramps while the vehicle is being lifted and while the vehicle is raised.



Any use other than specified in this manual may result in injury to persons in the vicinity of the machine.

6.2 HAZARDS TO HUMANS

All the hazards that can be caused by personnel improperly operating the lift are described in this section.

6.3 CRUSHING HAZARDS

When lowering the ramps, personnel must not be in the lowering area. Before operating the lift, the operator must be sure that no one is in danger.



Fig. 8a



Fig. 8b



Fig. 8c

6.5 VEHICLE FALL HAZARD FROM JACK

A vehicle falling from the jack can be caused by it being placed incorrectly on the platforms, the vehicle being incorrectly sized relative to the jack, or excessive vehicle movement.

In this case, you should move away from the work area immediately.



Fig. 9a



Fig. 9b



Fig. 9c

6.6 SLIP HAZARD

Slipping hazards can be caused by spilled oil or dirt on the floor around the lift.

	Keep the area under and around the jack clean. Remove all oil stains.
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6.7 ELECTRIC SHOCK HAZARD

Avoid using water, steam, solvents and varnish in the area where electrical cables are located and, in particular, near the electrical panel.



Fig. 10

6.8 HAZARDS FROM IMPROPER LIGHTING

The entire surroundings of the lift must be well and evenly lit, in accordance with local regulations.

6.9 HAZARD OF DAMAGE TO COMPONENTS DURING HANDLING

The manufacturer used materials and procedures appropriate to the designed parameters of the lifter to build a safe and reliable product. Use the jack only for the purpose for which it was designed and follow the maintenance schedule in the "Maintenance" section.



Fig. 11



Fig. 12

6.10 HAZARD OF UNAUTHORIZED USE

The presence of unauthorized persons in the vicinity of the lift is strictly prohibited when lifting the vehicle and when it is already raised on the platforms.

6.11 HAZARDS WHEN LIFTING THE VEHICLE AND WORKING

In order to avoid overloading and possible breakage of the lift during lifting and operation, the following safety devices are used:

- Maximum pressure valve located in the hydraulic unit to prevent over-loading.

	The maximum pressure valve has been set by the Manufacturer to the appropriate value. DO NOT attempt to adjust it to exceed the established lifting capacity of the lift.
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- Automatic mechanical emergency protection keeps the lift in the raised position.
- Cable tension protection in the event of loosening and/or damage to the cable.

	Modification of the safety devices is strictly prohibited. Always check the proper functioning of safety devices during servicing.
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CHAPTER 7 - INSTALLATION

	Installation must only be carried out by qualified technicians appointed by the manufacturer or an authorized dealer. Installation of the jack by unqualified personnel may result in serious personal injury or damage to the jack. Always refer to exploded views during installation.
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7.1 REQUIRED TOOLS

† Rotary Hammer, Drill 19 Allen	† Wrench Set
† Concrete Drill Crowbar For Shim	† Installation
† Hammer Chalk Line	†
† Spirit level Medium-sized	† Phillips screwdriver
† Open-end wrench set Medium-sized	† sized flat-head screwdriver Medium-
† sized adjustable wrench Tape	† measure

7.2 CHECKING IF THE ROOM IS SUITABLE FOR INSTALLATION

The lift is designed for use indoors.

The lift must not be installed near washrooms, paint shops and solvent or paint depots. The lift must not be installed near rooms where a hazardous situation or explosion may occur. Comply with the relevant standards set by the applicable health and safety rules, for example regarding the minimum distance from walls or other equipment.

7.3 LIGHTING

The lighting must be adapted to the regulations in force at the installation site. The entire surroundings of the lift must be well and evenly illuminated.

7.4 MOUNTING SURFACE

The lift must be placed on a C25 concrete floor with a thickness of at least 15 cm and in accordance with local regulations. The surface must be suitable for maintaining maximum

pressure, even in adverse working conditions. New concrete must dry properly - at least 21 days. In the case of floor installation, compliance with the maximum surface load capacity is recommended.

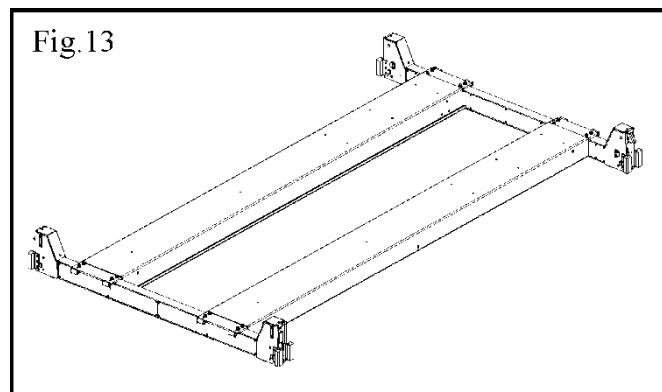
	A leveled ground is recommended for proper installation. Slight differences in ground level can be compensated for with suitable shims. Larger differences in height will affect the lifting efficiency. If the slope of the substrate raises doubts (more than 3 degrees), consider pouring a new layer of concrete.
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7.5 SITE LAYOUT

- Determine which end of the lift will be the entry side.
- Determine where the ramp on the supply side (with hydraulic cylinder attached) is to be placed. Please note that the ramp above must be mounted on the same side as the power column.

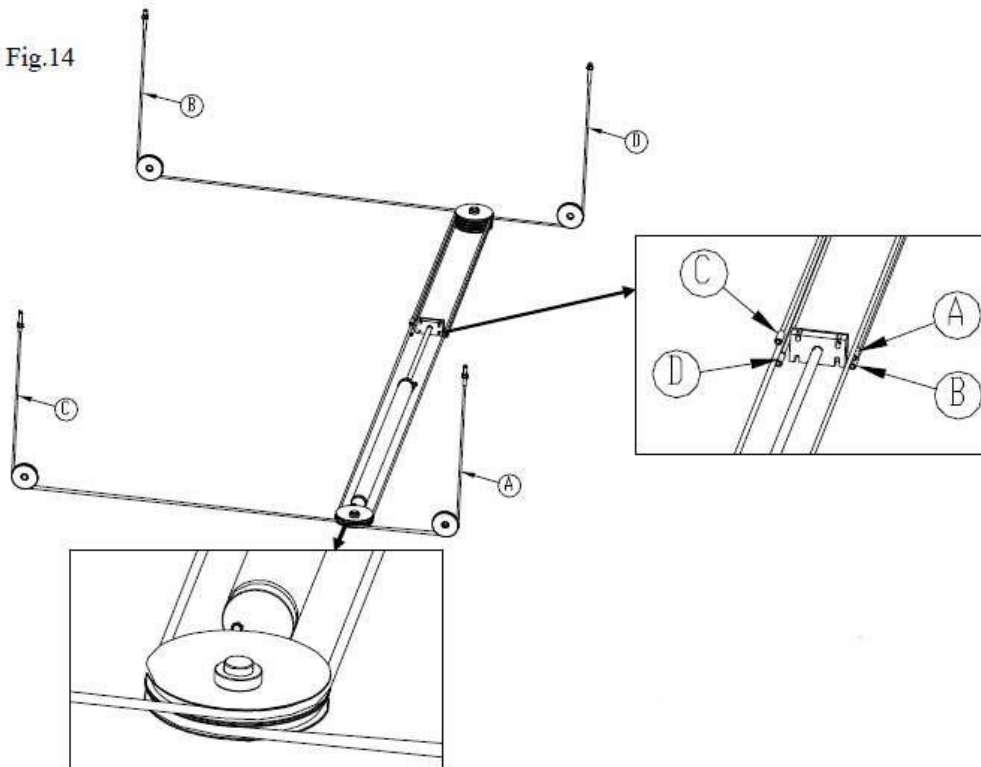
7.6 INSTALLATION OF RAMPS AND CROSS BEAMS

	It is important that the above ramp (with hydraulic cylinder) is placed on the same side as the drive unit. The rails on both sides must be mounted from the inside. Place ramps above the ground using wooden blocks to prevent damage. Make sure that the air supply "T" connector is closest to the power supply side of the lift.
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- Unpack the lifter by removing the foil packaging.
- Place ramps in the intended locations. Make sure that the rails on both sides are mounted on the inside. Pay attention to the location of the ramp on the supply side.
- Place the front and rear cross members at both ends of the ramps. Ramps and cross beams must be installed according to Figure 13. Before installation, make sure that the accessories are attached to the ramps. Make sure that the plastic sliding blocks are in the correct position.
- Remove all guards from the cross members.
- Insert the steel cables from the end of the ramp on the supply side and route the cables through the cross beams according to the diagram (Fig. 14). Be careful that the lines are placed on the correct sheaves in ramps and are not twisted during placement.

Fig.14

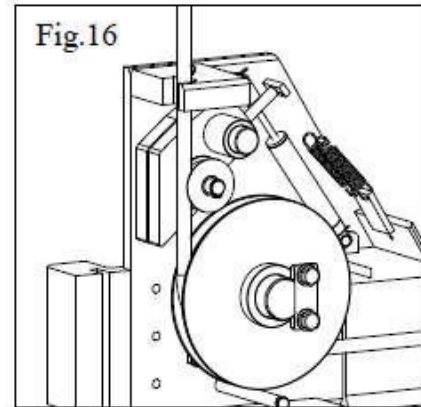
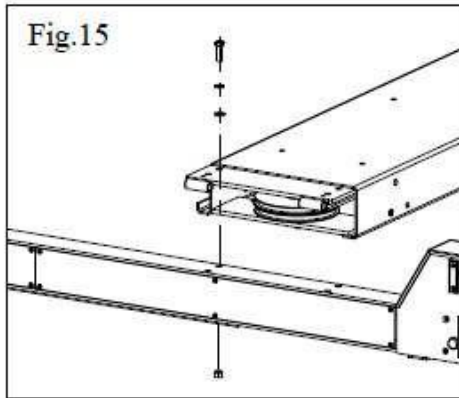


Position	Cable length
A	9130 mm
B	5560 mm
C	10730 mm
D	3960 mm

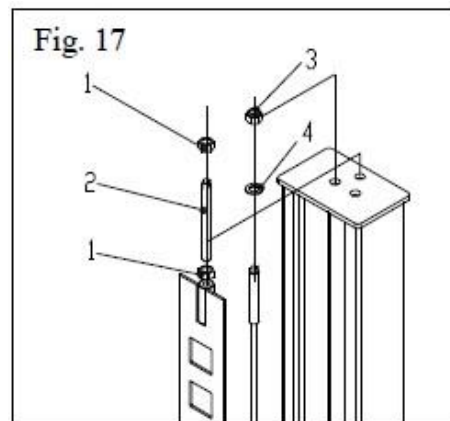
- Line up the ramps and bolt holes in the cross members and screw in the M16X50 bolt with M16 nut and insert the washer with a diameter of 16. 16 and a safety washer with a dia. 16 in the position indicated in Figure 15.
- Make sure that the cables are correctly positioned according to Figure 16 and are on the safety sheaves.



Before installation, make sure that all accessories are installed on ramps and cross beams.



7.7 MOUNTING THE COLUMNS (See Fig. 17)



- Transport the speakers to the installation site.
- Move the individual columns to the respective ends of the cross beams until the sliding block stops the cross beam. Make sure that all columns are in the correct position (see Fig. 2). Take precautions to prevent the columns from toppling. Use shims if necessary.
- Slide down the toothed bars in each column. Make sure that the toothed bar is routed through the groove of the sliding block.
- Attach the M20 nut (1/Fig. 17) to the adjusting rod (2/Fig. 17).
- Insert the rod through the top of the column and screw it into the toothed bar.
- Insert the steel cable through the top of the column and attach the locking nut M22 (3/fig. 17) and washer dia. 22 (4/fig. 17).



Each cable must be routed through the opening of the column towards the center of the lift. The jack will not work properly and the cable may be damaged if the above steps are carried out incorrectly.

- Adjust the individual toothed racks to an even height by tightening or loosening the nuts.
- Adjust the individual cables to equal tension by tightening or loosening the nuts.

7.8 ATTACHING THE COLUMNS

- Before you begin, check the dimensions against the schematic in Figure 2 and make sure that the base plates of each column are perpendicular.

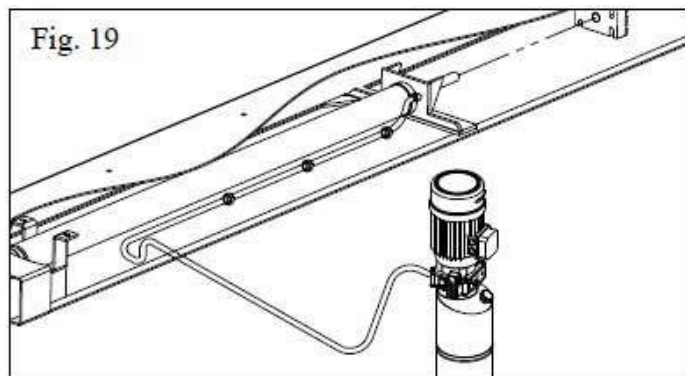
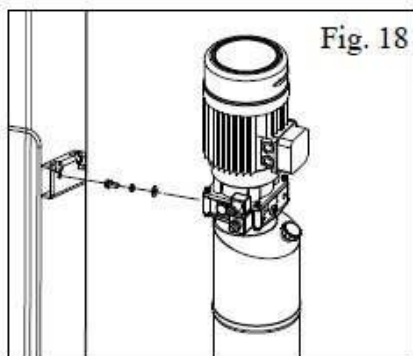
- Using the base plates as a template, drill holes in the concrete to a depth of about 120 mm using a rotary hammer, drill: 19. For the best fit, do not ream the hole and do not allow the drill bit to move sideways.
- When drilling is complete, thoroughly remove dust from each hole using compressed air or a wire brush.
- Put washers and nuts on the anchors(18), then hammer them into each hole until the washer rests on the base. If shims must be used, leave a portion of the screw thread exposed.
- If shims are necessary, insert them as required around the anchor bolts so that the columns are perfectly vertical.
- Once the shims and anchor bolts are in place, tighten the nuts by securing the whole thing to the base.

7.9 HYDRAULIC SYSTEM CONNECTIONS



When placing hydraulic lines, check that there are no moving parts in their route. Keep cables and connectors clean.

- Fix the hydraulic power unit on the support of the power column using the 2 M20x20 screws supplied, washers with a diameter of 10 mm. 20 and lock washers with dia. 20, as shown in Figure 18.
- Route the hydraulic lines as shown in Figure 19.
- Tighten the fasteners securely.



7.10 PNEUMATIC SYSTEM CONNECTIONS



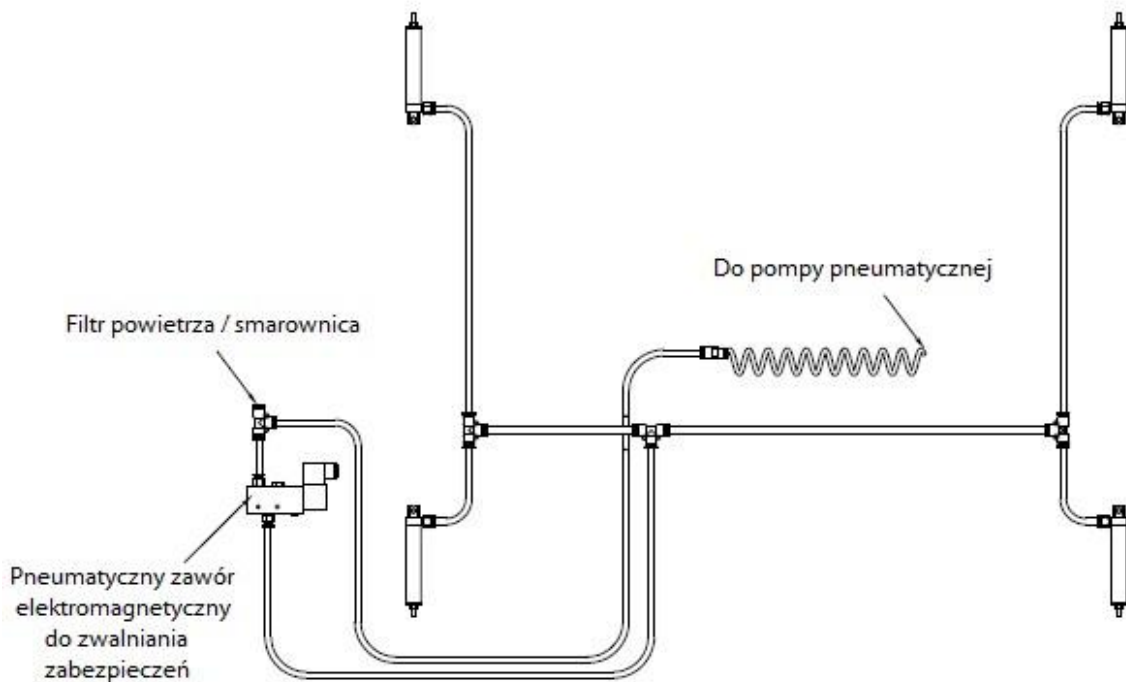
When placing the pneumatic hoses, check that there are no moving parts in their route. It may be necessary to tie the wires with e.g. cable ties. Otherwise, the safety features may fail, which may cause damage or personal injury. The filter/lubricator must be installed in the pneumatic system and the air pressure must be set between 6-8 bar.

The pneumatic power source to which the lift is connected must have a maintenance unit consisting of a water separator, lubricator and pressure reducer. These devices can be supplied by the Manufacturer on request. In order to connect the pneumatic lines, it is necessary to:

- Mount the pneumatic solenoid valve on the supply column using 2 M4X30 screws (see Fig. 21).
- Connect the factory-installed pneumatic hoses on the ramps as shown in Figure 20.

- Connect the pneumatic system of the lift to the pneumatic power supply at the installation site.
- Check the proper functioning of the pneumatic system control.

Figure 20 - PNEUMATIC HOSE CONNECTIONS

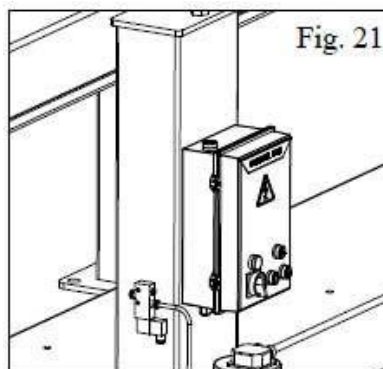


7.11 CONNECTING ELECTRICAL POWER TO THE POWERTRAIN



Connection work must be carried out by a qualified electrician. Make sure the power supply is correct. Make sure the phases are correctly spaced. The power unit must be dry.

- Mount the control panel on the power column as shown in Figure 21 using 4 M6X20 screws.
- Use the cables provided to make an electrical connection to the drive unit according to the wiring diagram in Figure 6.
- Make sure that the phase connection is correct and the jack is grounded.



7.12 OIL TOPPING UP AND BLEEDING

	DO NOT turn on the power unit without oil. Doing so may damage the pump. If the engine becomes very hot or makes strange noises, stop it immediately and check the electrical connections again.
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- Use the hydraulic oil recommended in section 5.5.
- Unscrew the cap and fill the tank with about 12 litres of oil.
- Press the lift button and slowly raise the lift until the maximum height is reached. DO NOT press the button after the maximum height of the jack has been reached. Otherwise, damage to the engine may occur.
- Repeat the raise and lower cycle at least three times to bleed the cylinder.

	If the level check plug is lost or damaged, a replacement must be ordered. The oil tank must be well vented.
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7.13 PRE-BOOT CHECK

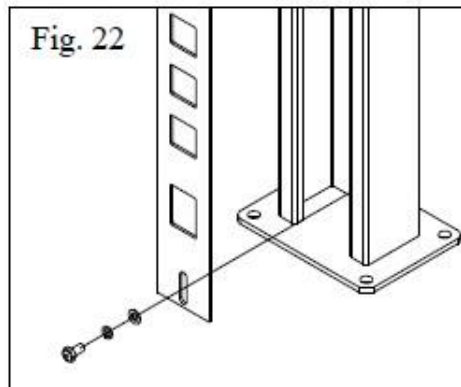
	During the START-UP procedure, observe all working components and check their correct assembly and adjustment. DO NOT lift the vehicle until a detailed performance check has been performed.
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7.13.1 GENERAL CONTROLS

- Make sure the columns are vertical;
- Check that the jack is secured to the ground and that all anchor bolts are tightened.
- Make sure that the electrical input voltage matches the voltage specified on the rating plate on the motor.
- Check that the electrical connections are in accordance with the electrical system plan shown in the diagram (Fig. 6) and that the jack is properly grounded.
- Make sure that all plastic zippers are in the correct position and properly lubricated.
- Make sure all pins are properly installed and properly lubricated.
- Make sure that all bolts and nuts are properly tightened.
- In particular, the following checks should be performed:

7.13.2 PROPER INSTALLATION OF MECHANICAL PROTECTIONS

- Check that all pneumatic lines are connected correctly and that the air pressure is set to 6-8 bar.
- Verify that the security on the four columns is activated simultaneously. Otherwise, repeat the adjustment procedure described in Section 7.7.
- After adjustment, fix the locking pawls on the column using an M16X30 screw, a locking washer with a diameter of 100 mm. 16 and washers with a dia. 16, as shown in Figure 22.
- Check the proper operation of the emergency protection and cable tension protection.



7.13.3 CORRECT INSTALLATION OF THE STEEL CABLE



In the first stage of use, the cables will be initially stretched. You will need to readjust your lines after the first week and then after three months. Otherwise, it may result in uneven lifting.

- Make sure that all cables are correctly routed and on the correct sheaves.
- Release the jack from all safety locks until the jack is supported on the cables and check that all cables have equal tension and the jack is lifted evenly. Otherwise, repeat the adjustment procedure described in Section 7.7.

7.13.4 PROPER OPERATION OF THE HYDRAULIC SYSTEM

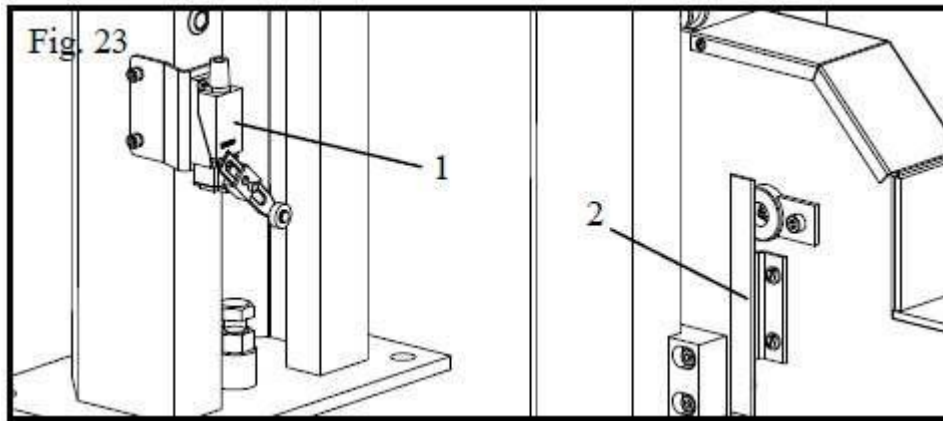
- Correct oil level in the tank, top up if necessary.
- Raise the vehicle to its maximum height and keep the engine running for 5 seconds.
- Check all wire connections for leaks. Tighten connections or reseal as necessary.
- Check that the maximum height of the lift is reached.



If the level check plug is lost or damaged, a replacement must be ordered. The oil tank must be well vented.

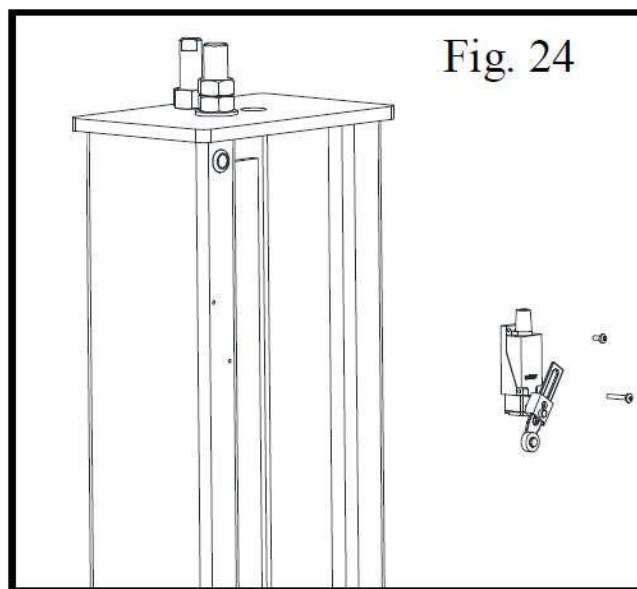
7.14 SAFETY HEIGHT LIMIT SWITCH INSTALLATION (Fig. 23)

- Place the jack at a height of 380 mm.
- Install the limit switch (1/fig 23) on the supply column and the actuator (2/fig 23) on the cross beam as shown in figure 23.
- Carry out the full lowering and lifting cycle, check proper installation and ensure that an audible alarm signal is sounded during the final lowering phase. If necessary, adjust the circuit breaker by changing the position of the circuit breaker lever until it comes into contact with the actuator and is activated.



7.15 INSTALLATION OF SAFETY HEIGHT STOPS (Fig. 24)

- Adjust the lift to a height of 1850 mm (standard type/flat platforms) and 1900 mm (diagnostic model).
- Install the limit switch (Fig. 24-2) on the column where the power supply is located.
- Lift the jack to the correct height to check for proper installation of the limit switch.
- If the switch has not operated properly, adjust by repositioning the switch lever until the switch is in contact with the actuator and activated.



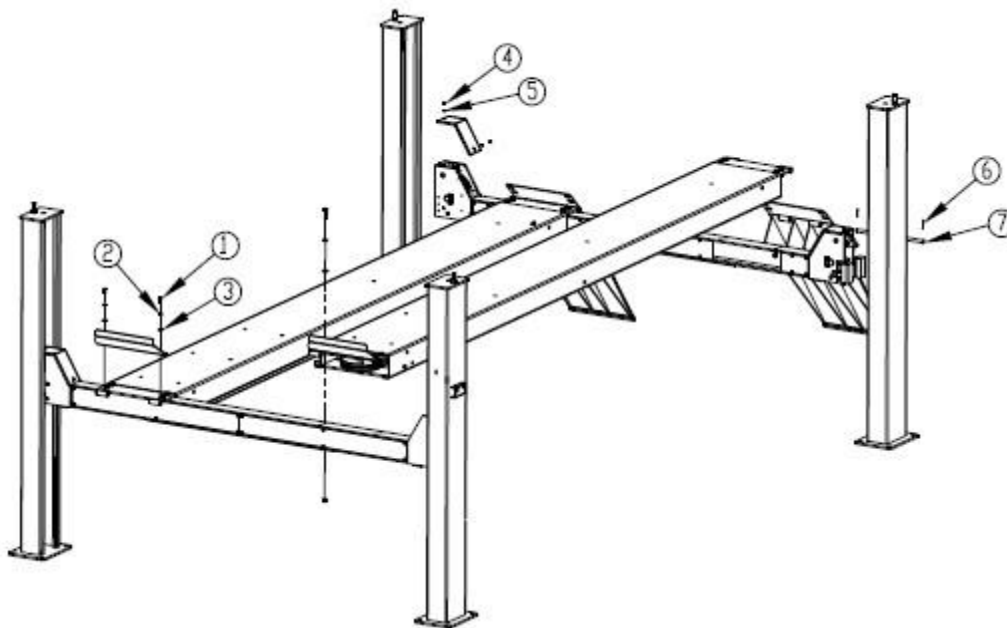
7.16 MOUNTING THE ACCESSORIES

- Install all guards on the cross members.

- Install the front wheel stops.
- Install the lift ramps.

Position	Description	Position	Description
1	M12X20 Screw	5	Washer dia. 6
2	Locking washer dia. 12	6	Cotter pin 2.5X40
3	Washer dia. 12	7	Pin
4	M6X10 Screw		

Figure 25 – ACCESSORY INSTALLATION



7.17 LOADED CONTROL

	WARNING: follow the instructions in the following paragraph to prevent damage to the jack.
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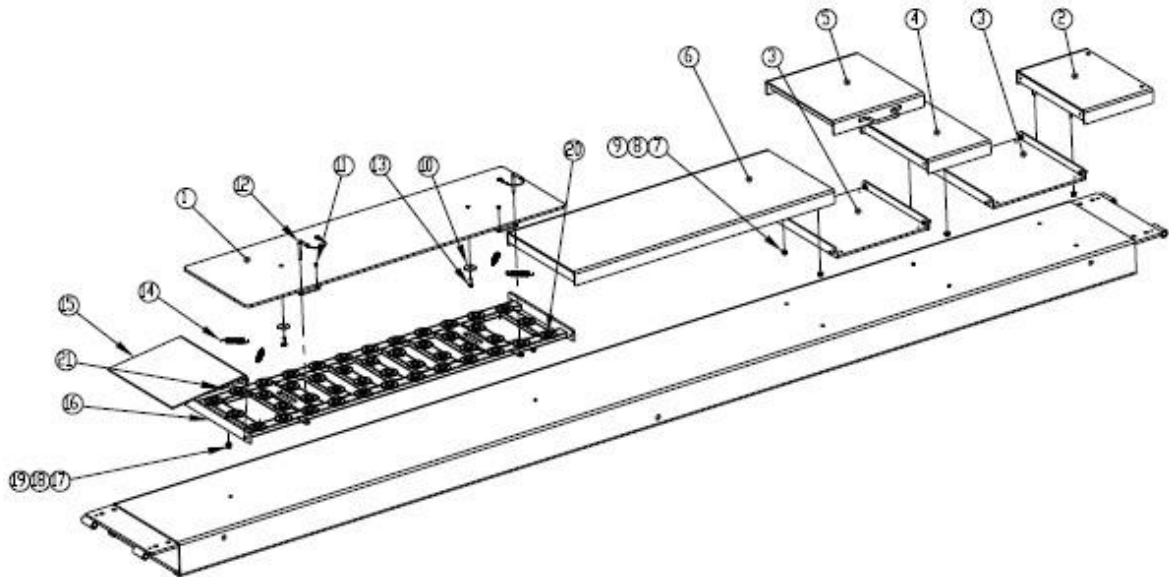
Perform two or three full lowering and lifting cycles with the vehicle loaded, and:

- Repeat the checks described in section 7.13.
- Check the machine when raising and lowering for strange noises.
- If the ramps have not been aligned, repeat the adjustment.

7.18 INSTALLING THE ALIGNMENT KIT (optional)

- The optional alignment kit can be ordered separately and bolted to the lift platforms.
- Install the alignment kit according to the dismantled assembly view in Figure 25.

Figure 25 - ALIGNMENT KIT INSTALLATION

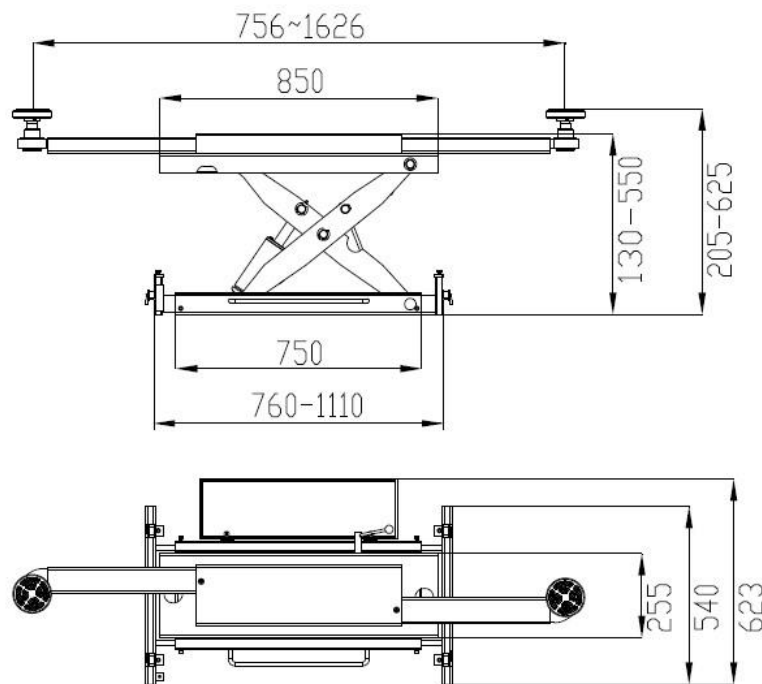


Position	Description	Position	Description
1	Skid plate	12	Plate Boundary Pin
2	Spacer 2	13	M10X30 Screw
3	Base plate with recess	14	Spring
4	Spacer 1	15	Drive-on ramp
5	Turntable cover	16	Support
6	Long spacer	17	M12 Nut
7	M10 Nut	18	Locking washer dia. 12
8	Locking washer dia. 10	19	Washer dia. 12
9	Washer dia. 10	20	Steel ball member
10	Washer	21	M10X25 Screw
11	M6X8 Screw		

7.19 MOUNTING THE UNDER-AXLE JACK (optional)

The under-axle jack is designed for use with a 4-post lift. The maximum load capacity is 3200 kg.

Figure 26 - SUBAXIAL JACK DIAGRAM



To install the Axle Jacks on a 4-post jack, follow the steps below:

- Lower the jack completely.
- Lower the jack to the lowest position.
- Use suitable lifting equipment to place the jack inside the jack ramps.
- Adjust the base to the correct width.
- Check whether all four Roll are correctly located on Figure 27.
- Check that the rail channel is free of debris.
- Lift the jack so that the lift table is above the ground.
- Check the spacing and movement of the jack by moving it back and forth on the rails. Check that all rollers are centered on the rails when moving along the entire length of the rails. You may need to adjust the lift table base for proper operation.
- Connect the air hose according to figure 20 and the instructions in section 7.10.
- Connect the hydraulic hose as shown in Figure 28.
- Top up the pump reservoir with the oil recommended in section 5.5.

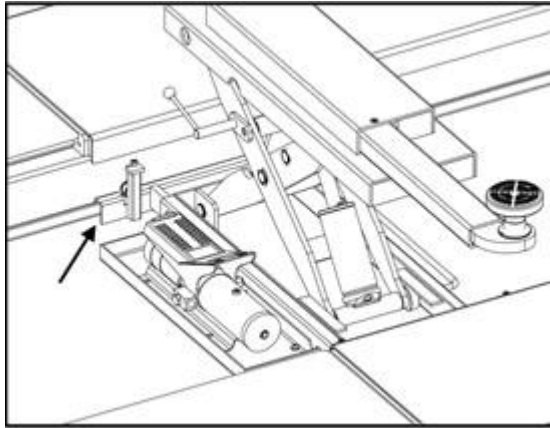
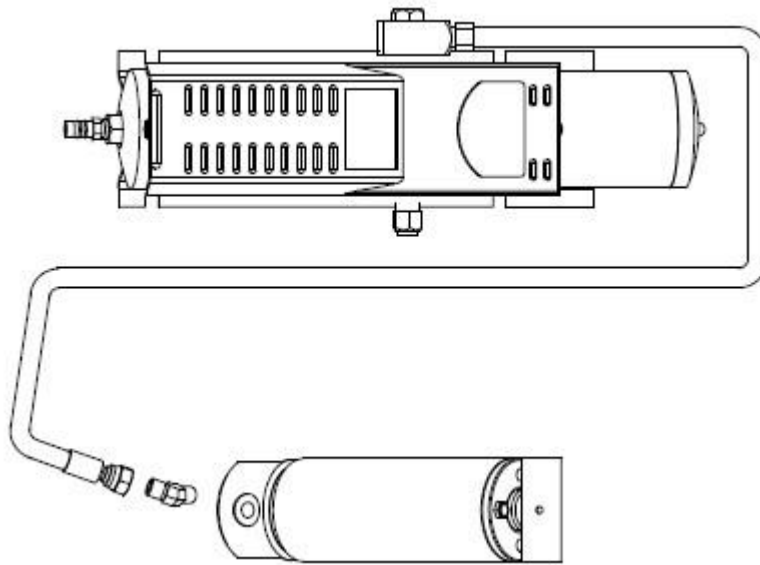


Figure 28 - CONNECTION OF THE HYDRAULIC LINES OF THE UNDERAXLE JACK



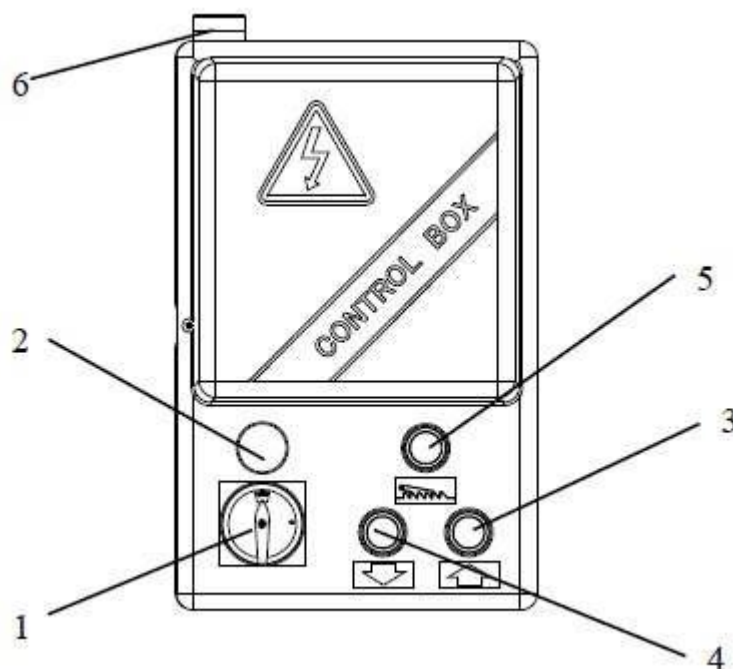
- Without the vehicle placed on the jack, depress the pedal (1/fig. 29) of the pump to raise the jack to the maximum height to check proper operation.
- Check the operation of the first safety device by lowering the jack to the first safety position (at a height of approx. 444 mm), then raising it to release the safety devices and in the meantime lifting the safety release lever (2/fig.29).
- Check the function of the second safety device by lowering the lift table to the second safety position (at a height of approx. 351 mm), then lifting it to release the safety devices and in the meantime raising the safety release lever.

CHAPTER 8 - OPERATION AND USE

	Never operate the jack if there are people or equipment underneath it. Never exceed the nominal payload of the lift. Always make sure that mechanical safety devices are activated before working on the vehicle. Never leave the vehicle in the raised position if the safety devices are not activated. If the anchor bolt becomes loose or a fault is discovered in any part of the jack, DO NOT USE THE MACHINE until repairs have been made.
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8.1 LIFT CONTROLLERS

Figure 30 – LIFT CONTROLLERS



Lift controllers are:

POWER SWITCH (1)

The switch can be set in two positions:

- **Position 0:** The electrical circuit is not energized; the switch can be padlocked to prevent the use of the lift.
- **Position 1:** The electrical circuit is energized.

INDICATOR LIGHT (2)

- Indicates that an electrical circuit is energized.

LIFT BUTTON (3)

- Pressing causes the drive unit to operate, which allows the jack to be raised to the desired height until the button is released.

LOWERING / FINAL LOWERING BUTTON (4)

- When the button is pressed, the mechanical safety devices are first released for a few seconds, and then lowering to the safety height under its own weight and the lifted load begins.
- Pressing at the safety height will lower the jack completely to the ground. An acoustic signal sounds during the final lowering.

SAFETY LOCK BUTTON (5)

- When the button is pressed, the lift starts lowering to activate the nearest safety features.

BUZZER (6)

- Triggered during final lowering to remind you that the work area must be clear of personnel and items.

The operation of the lift can be summarized into three stages:

8.1.1 LIFTING

- Pay attention to the crossing height
- The jack must be fully lowered and no one must be in the service area when the vehicle enters the jack.
- If the underaxle jack is mounted on the jack, it must be lowered completely.
- Place the wheels in the middle of the ramps.
- Stop the vehicle when touching the front stops or reaching the desired position.
- Apply the parking brake or adjust the chocks to both rear wheels.
- Ensure that all personnel are outside the lifting area.
- Press the lift button until the desired height is reached.

8.1.2 HOLDING POSITION

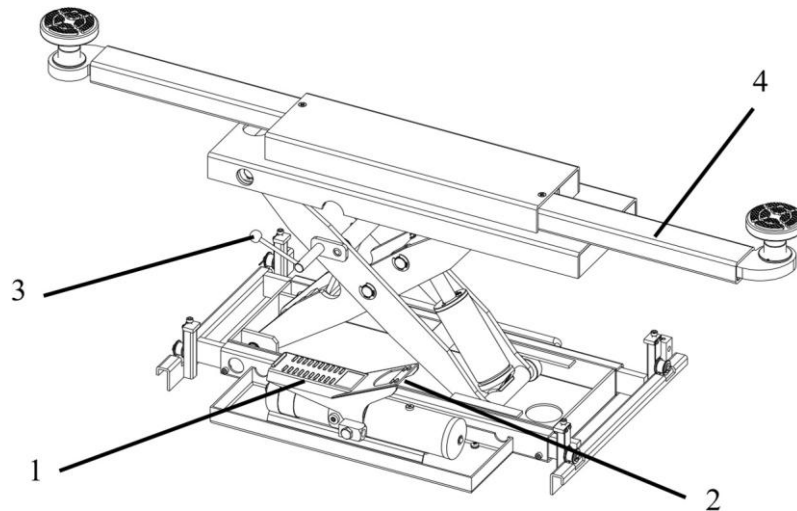
- Press to activate the nearest mechanical protection.
- Always ensure that the safety devices in each column are activated before carrying out operations on the vehicle.

8.1.3 LOWERING

- Make sure that there are no people or objects in the security area.
- By pressing the lift button, raise to such a height as to release the mechanical protections.
- Lower the lift to safety height using the lowering button.
- Observe jack and vehicle to check whether machine is properly leveled when lowered.
- Lower the lift all the way down by pressing and holding the lower button. An acoustic signal sounds during the final lowering.
- Remove the chocks from under the wheels and make sure that the area around the machine is clear of obstructions before removing the vehicle from the jack.

8.2 UNDER-AXIS JACK CONTROLLERS (optional)

Figure 31 - UNDER-AXIS JACK CONTROLLERS



PEDAL - LIFT SIDE (1)

- When the pedal is depressed, hydraulic oil is supplied from the pump reservoir to the jack cylinder to start lifting.

PEDAL - LOWERING SIDE (2)

- When the pedal is depressed, hydraulic oil is released from the jack cylinder into the pump reservoir to lower the jack under the weight of the lifted load. The lowering speed can be controlled by varying the contact force.

SAFETY RELEASE LEVER (3)

- Lift the lever to release the safety features.

LIFT ARM (4)

The operation of the lift table can be summarized into three stages:

	Never operate the jack if there are people on it. Never exceed the nominal load capacity of the lift - 3200 kg. Please note that the weight capacity of the extensions is only 700 kg per shoulder. Always make sure that mechanical safety devices are activated before working on the vehicle.
---	--

8.2.1 LIFTING

- Check and keep the rail channel free of debris and other objects that may interfere with the free movement of the underaxle jack.
- Lower the jack completely by pressing the pedal (lowering side).
- Adjust the width of the jack lift arms so that the rubber pads are aligned with the lifting points specified by the vehicle manufacturer.
- Lift the jack by pressing the pedal (lift side). Observe the jack when the rubber pads are in contact with the vehicle to make sure that the contact is correct. Adjust the lift arms of the jack if necessary.

8.2.2 HOLDING POSITION

- End lifting immediately after lifting the vehicle from the lift's ramps. Before lifting the vehicle to the desired height, make sure that the vehicle is stable and correctly positioned.
- After lifting the vehicle to the desired height, lower the jack to the nearest safety device.

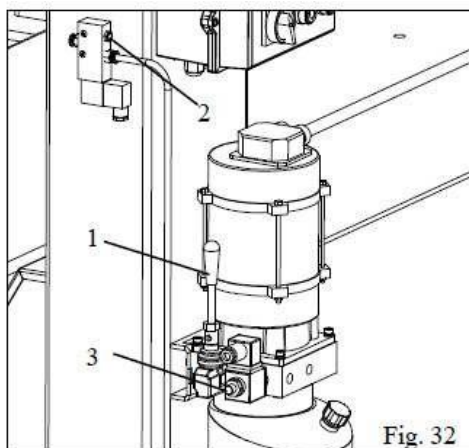
8.2.3 LOWERING

- Make sure that there are no people or objects in the security area.
- Raise the lift table to a height that allows the mechanical safety devices to be released, and then lift the safety release lever.
- Lower the jack completely by pressing the pedal (lowering side).

8.3 MANUAL EMERGENCY LOWERING (See Fig. 32)

In the event of a power failure or powertrain failure, manually lower the vehicle to its home position as follows:

- Lock the power switch;
- If the mechanical protections are activated, raise the jack to the correct height using a hydraulic jack or emergency hand pump (1/fig. 32 if ordered with a jack) to release the protections.
- Press the emergency lowering button (2/fig. 32) of the pneumatic solenoid valve to prevent the safety devices from activating.
- Loosen the emergency lowering screw (3/Fig. 32) by turning it counterclockwise to lower the jack. Tightening or loosening the bolt decreases or increases the lowering speed.
- Tighten the screw again by turning it clockwise when the jack is fully lowered.



	After manually lowering the lift, reset the conditions of normal operation. The jack will not make an upward movement if the lowering valve is open.
---	--

CHAPTER 9 - MAINTENANCE

	Maintenance of the lift can only be performed by qualified personnel who know the principles of its operation.
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To properly maintain your lift, please follow these instructions:

- use only original spare parts and equipment suitable for the job at hand;
- comply with the maintenance and performance periods of the lift given in the manual;
- investigate the causes of possible faults, such as excessive noise, overheating, oil blowout, etc.
- Use the documentation provided by the manufacturer or dealer for maintenance.

	Before beginning maintenance or repair of the lift, disconnect the power supply, lock the circuit breaker, and place the key in a safe place to prevent unauthorized persons from turning on or using the lift.
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9.1 ROUTINE MAINTENANCE

The lift should be cleaned at least once a month using a self-cleaning cloth.

	The use of water lifter or flammable substances for cleaning is strictly prohibited.
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Make sure that the pistons of the hydraulic cylinders are always clean and undamaged. Otherwise, leaks may occur from under the seals, which leads to failure.

9.2 PERIODIC MAINTENANCE

Daily Preliminary Activities	• Check the hydraulic connections and hoses for leaks During operation, check the safety interlocks by hearing and visually • Check that bolts, nuts, and screws are properly tightened
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Every 3 months	• Check all cable connections, pins and screws to ensure proper installation • Check that all anchor bolts are correctly tightened, tighten if necessary • Check the perpendicular and vertical alignment of the columns • Check the tension of the steel cables. adjust if necessary • Check all washers, replace if necessary • Lubricate the columns • Lubricate all pins • Check the hydraulic oil, top up or replace if necessary • Check the proper functioning of the hydraulic system
Every 12 months	• Check all components and mechanisms for damage Check that the wear of the steel cables does not exceed 5%, replace if necessary • Inspect the electrical system to verify that the motor, limit switches, and control panel are functioning properly (must be performed by qualified electricians) • empty the tank and change the hydraulic oil.

CHAPTER 10 - TROUBLESHOOTING

The following is a list of possible problems and solutions:

PROBLEM:	POSSIBLE CAUSE:	SOLUTION:
The jack does not work	The main circuit breaker is in the off position	Change to the On position
	No power supply	Check if there is voltage, restore if necessary.
	Electrical wires are not connected	Reconnect
	Fuses are blown	Check the correct voltage Replace
The jack does not lift	The lift is overloaded	Check the weight of the vehicle
	The direction of rotation of the motor is incorrect	Swap the phases on the main circuit breaker.
	There is a lack of oil in the power unit.	Add hydraulic oil
	The "UP" button does not work	Check the button and its connection. Replace if necessary

	Pressure relief valve clogged or leaking	Inspect and clean if dirty or replace if defective
	Lowering valve does not close	Inspect and clean if dirty or replace if defective.
	The suction tube or pump filter is dirty	Check and clean if dirty.
The lifting capacity of the lift is insufficient	The pump is defective	Check the pump, replace if necessary.
	Oil leakage from hydraulic lines	Check for leaks in the hydraulic system.
The lift does not make a downward movement when the lowering button is pressed	The "DOWN" button is broken.	Check the button and its connection. Replace if necessary
	The lowering valve does not work properly	Check the valve, replace if necessary
	Safety lock is not released	Release the safety interlock
	Pneumatic power is insufficient	Check the pneumatic system or air source.
	The steel cables do not have uniform tension.	Equalize the tension of the steel cables.
The lift does not lower smoothly	The presence of air in the hydraulic system.	Bleed the hydraulic system
	Lubricating the slides is not sufficient.	Lubricate
	The slides are damaged	Replace

WARRANTY CARD

Lift Type serial no.

1. P.U.P. TIP-TOPOL guarantees trouble-free operation of the device for a period of months from the date of commissioning of the device.
2. The device is commissioned and the operator is trained by the technical staff of TIP-TOPOL.
3. During the warranty period, the Guarantor provides free repairs of the equipment (removal of failures covered by the warranty)
4. During the warranty period, the only entity authorized to perform repairs and inspections is the Guarantor.
5. Warranty repairs will be made at the place where the device is installed.
6. In the event of damage causing the device to be out of service, the warranty is extended by the time between reporting the failure and its removal – this fact must be documented by an entry of an authorized Guarantor service employee.
7. Your Obligations:
 - i. The user of the device undertakes to comply with the rules of use contained in the "User Manual" provided with the device
 - ii. The User undertakes to notify the Guarantor of any failure that requires repair. The user can report the failure at the place of purchase of the device or at the TIPTOPOL headquarters in Pobiedziska tel. (0****61 8152 200)
 - iii. The completed "Warranty Card" documents the right to warranty and should be stored at the place where the device is installed and made available to TIPTOPOL service staff for the purpose of making annotations about repairs and possible extensions of the warranty period
 - iv. **The User undertakes to perform maintenance inspections in accordance with applicable regulations (every 90 days according to the Regulation of 30.10.2018, item 2176)**
8. The warranty **expires** if:
 - i. the serial numbers of the device have been deleted,
 - ii. the appliance has been operated for other than its intended purpose or in conditions and in a manner other than specified in the operating instructions
 - iii. the user or a third party has made repairs or modifications to the device without consulting the Guarantor,
 - iv. the damage was caused by the fault of the user or as a result of fortuitous events
 - v. the place of installation of the device has been changed without consulting the Guarantor, this applies to situations when, for example, the device has been exported/resold outside the country,
 - vi. **no technical inspections have been carried out (every 90 days) => no entries in the maintenance log by the person authorized to perform inspections and maintenance of the lift**

Date of sale and invoice number (to be filled in by the seller)

Launch date, signature (fills in the service)

I declare that I have read the warranty conditions set out in this Charter. I confirm the full efficiency of the device at the time of signing the Warranty Card and the fact that the personnel operating the device have been trained.

Company stamp

Date and legible user signature

No.	Date of submission	Repair date	Repair activities performed, replaced components, annotations about warranty extension	Signature of the
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Environmental information

Thank you for choosing our products. As a company that is not indifferent to the issue of environmental protection, we ask you to read the following tips on how to deal with used products.



If the product has a crossed-out bin symbol on the rating plate  , the following removal procedure must be followed

This product may contain substances hazardous to the environment or to health if not properly disposed of. 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. Dispose of all equipment in accordance with applicable regulations at the place of installation. By doing so, you can avoid dangerous consequences for the environment and health.

According to the current regulations in a given country, disposing of the product in a way other than described above will be punished. It is also recommended to segregate other waste: recycling the outer and inner packaging of the product and used batteries and accumulators (if the product requires them). Your assistance is very important to reduce the amount of raw materials needed for the production of equipment, minimize the use of landfills and improve the quality of life by reducing the amount of potentially dangerous substances in the environment.

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