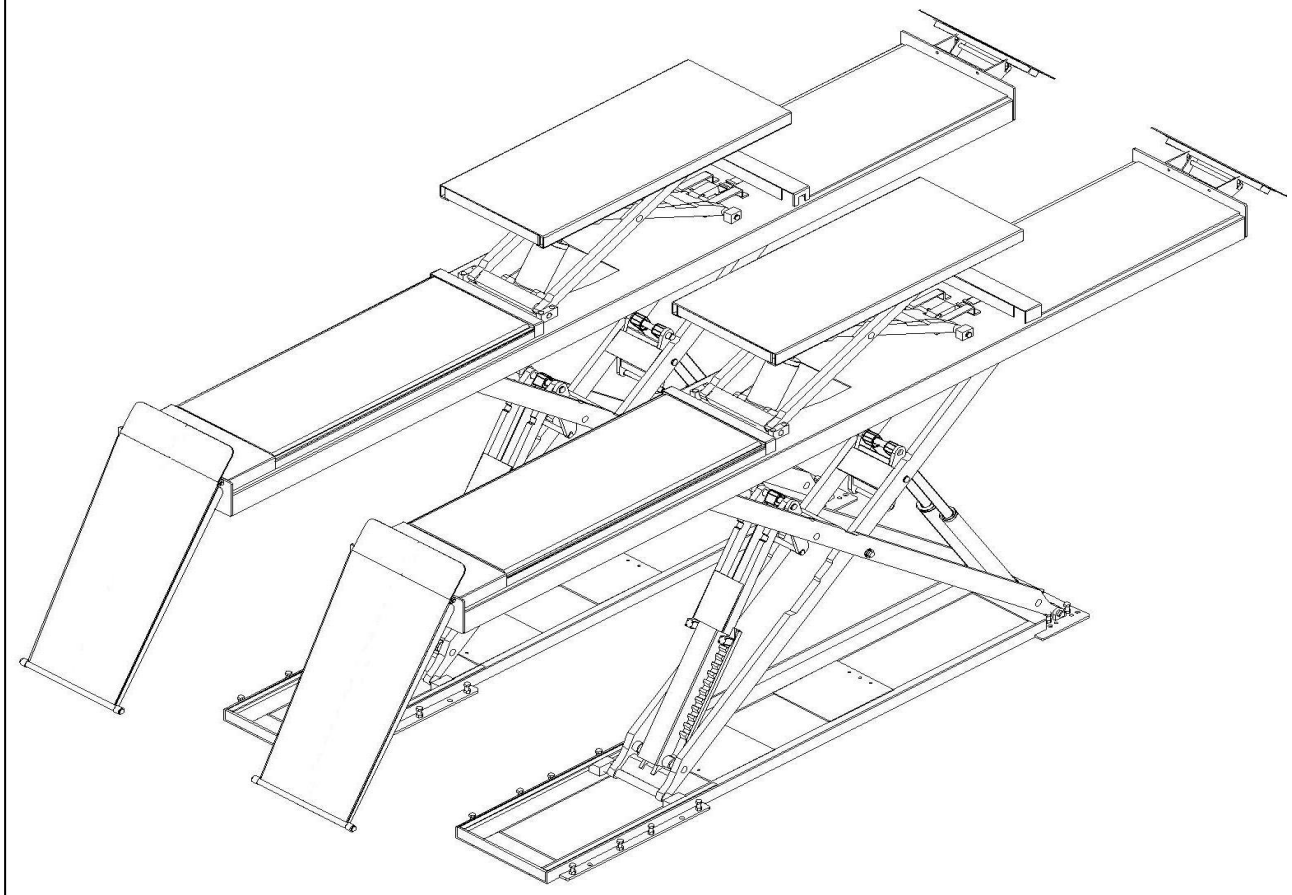
Hydraulic Automobile Lift

TLT855A



USER'S MANUAL

Operation Manual & instruction

MANUFACTURER AND SERVICE AGENT

HYDRAULIC AUTOMOBILE LIFT

MODEL:	
Serial No.:	
Year of manufacture:	

Manufacture

Name:

Address:

Tel:

Fax:

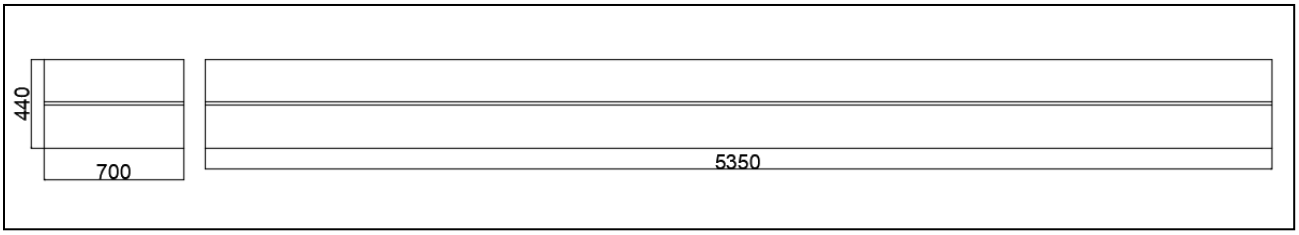
http://

E-mail:

AUTHORIZED SERVICE CENTRE:

Contents

PACKING:



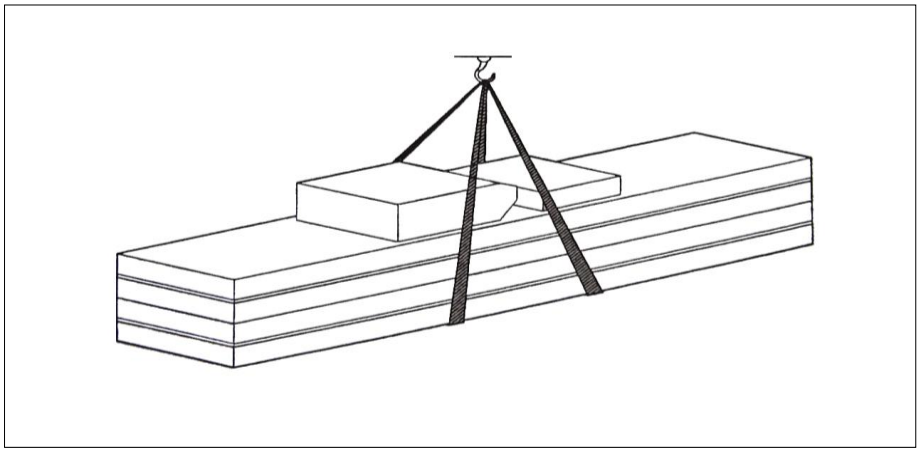
TRANSPORT:

Packing can be lifted or moved by lift trucks, cranes or bridge cranes.

In case of slinging, a second person must always take care of the load, in order to avoid dangerous oscillations.

At the arrival of the goods, check for possible damage due to transport operations. Also verify that all items specified in the delivery notes are included. In case of missing parts, possible defects or damage due to transport, the person in charge or the carrier must be immediately informed.

Furthermore, during loading and unloading operation goods must be handling as shown in the picture.



Picture 2 (Goods-lifted）

STORAGE:

-The machine equipment should be stocked in the warehouse, if stocked outside should do the disposal well of waterproof.

-Use box truck in the process of transport, use container storage when shipping.

-The control box should be placed perpendicularly during the transport; and prevent other goods from extrusion.

-The temperature for machine storage: -25ºC-- 55ºC

INTRODUCTION

This manual has been prepared for workshop personnel expert in the use of the lift (operator) and technicians responsible for routine maintenance (maintenance fitter); read the manual before carrying out any operation with the lift and/or the packing. This manual contains important information regarding:

- The personal safety of operators and maintenance workers.
- Lift safety,
- The safety of lifted vehicles

Conserving the manual

This manual is an integral part of the lift, which it should always accompany, even if the unit is sold.

The manual must be kept in the vicinity of the lift, in an easily accessible place.

The operator and maintenance staff must be able to locate and consult the manual quickly and at any time.

Attentive and repeated reading of chapter 3, which contains important information and safety warning, is particularly recommended.

The lifting, transport, unpacking, assembly, installation, starting up, initial adjustment and testing, extraordinary maintenance, repair, overhauls, transport and dismantling of the lift must be performed by specialized personnel from the licensed dealer or an service center authorized by the manufacturer.

The manufacturer declines all responsibility for injury to persons or damage to vehicles or objects when any of the above mentioned operations has been performed by unauthorized personnel or when the rack has been subject to improper use.

This manual indicates only the operative and safety aspects that may prove useful to the operator and maintenance worker, I better understanding the structure and operation of the lift and for best use of the same.

In order to understand the terminology used in this manual, the maintenance and repair activities, the ability to interpret correctly the drawings and descriptions contained in the manual and be the country in which the machine has been installed.

The same applies to the maintenance fitter, who must also possess specific and specialized knowledge (mechanical, engineering) needed to perform the operations described in the manual in complete safety.

The words "operator" and "maintenance fitter" used in this manual are construed as follows:

-OPERATOR: person authorized to use the lift

-MAINTENANCE FITTER: person authorized for routine maintenance of the lift.

NOTE: Manufacturer own the right to make little change for the manual

Chapter 1 DESCRIPTION OF THE MACHINE

Machine Application:

This lift is suitable for use in four wheel alignment, vehicle tests, maintenance and care for various types of small automobiles. And it's for on ground installation.

Features:

-Low profile structure to take up small space, for on floor installation.
-Independent control box. Low-voltage controls (24V), has high security.
-Graceful outlook, with concealing structure for the two levels, take up the space small.
-Hydraulic-volumetric synchronism of hydraulic cylinder, and device for synchronization of platforms
-Easy for type mount and dismount and chassis maintenance.
-The position of the front wheel turntable (optional part) is movable so that the slide plate can be fit for more cars.
-Double mechanical safety ratchet.
-Safety valve in case of hydraulic failure and overloading
-With antiknock and locked valve in case of explosive pipe
-Of photocell controlling the level
-Alarm and push-button for the complete lowering of the platforms
-Device for manual lowering in case of power failure

Basic structure:

-Low profile structure for on ground installation.

Equipment:

-Machine basement
-Machine frame
-Control box

Frame:

Make up for steel connecting rod, main lifting platform, sliding board, pneumatic double tooth, hydraulic oil tank.

Control box

Under the control box is hydraulic oil tank and hydraulic pump, valve and other control system. On the control box is electrical system.

Scissor lift is designed and built to lift all kinds of vehicles, all other use are unauthorized. In particular, the lift is not suitable for: washing and re-spray work, creating raised platforms or lifting personnel, use as a makeshift press for crushing purposes, use as good lift. And not lift the vehicle which weight exceeds the maximum weight.

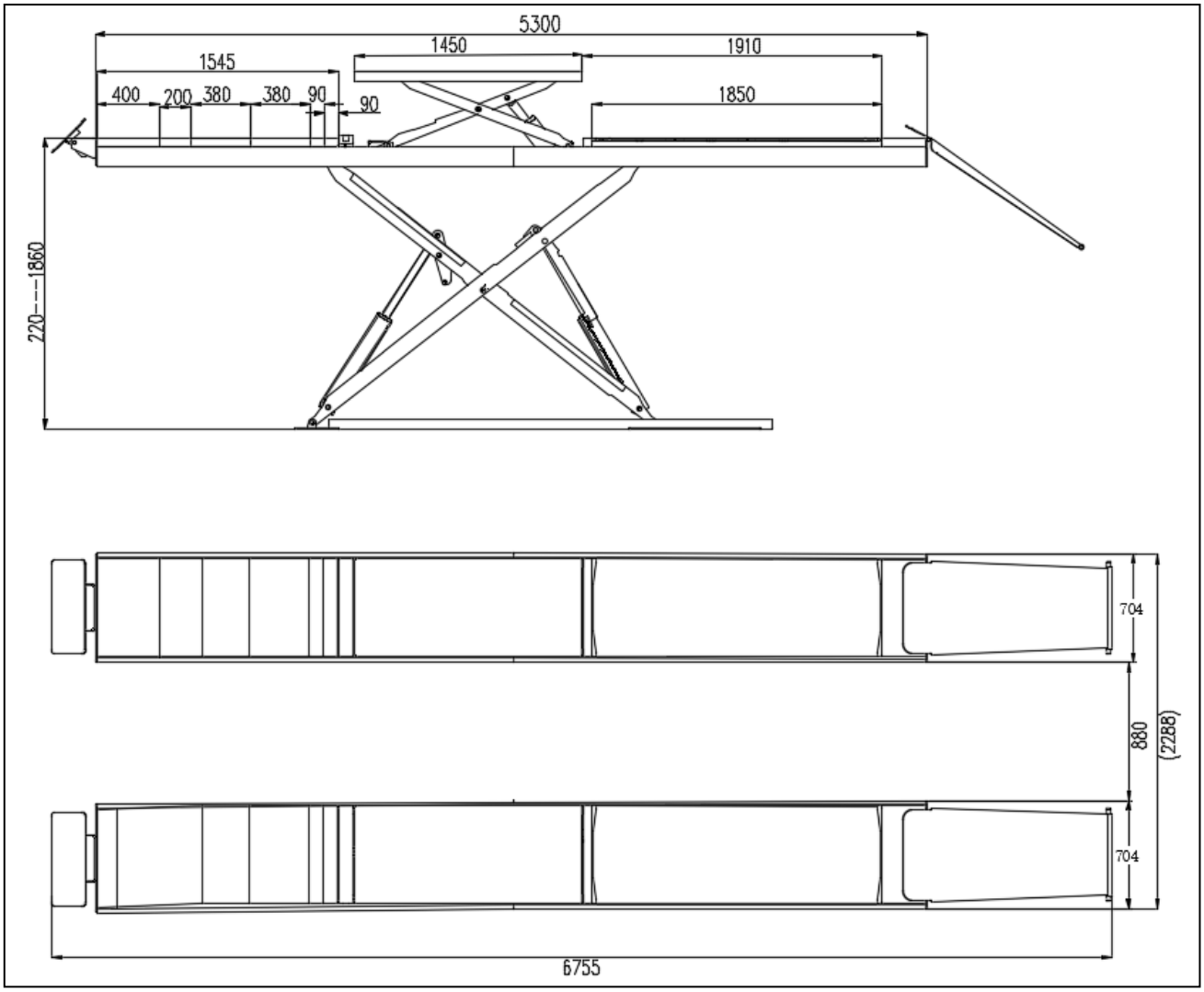
Chapter 2 TECHNICAL SPECIFICATION

Main technical parameter

Item	5.5T
Drive	Electrical hydraulic
Max lift weight	5500kg
Sub machine lift weight	5500kg
Main machine Lift height	1860mm
Sub machine lift height	450mm
Platform initial height	220mm
Main machine platform length	5300mm
Sub machine platform length	1450mm
main machine platform width	680mm
Sub machine platform width	620 mm
main machine Lifting time	≤50S
main machine lowering time	≤60S
Sub machine Lifting time	≤20S
Sub machine lowering time	≤30S
Overall width	Approximately 2160 mm
Overall length	6940mm
Overall weight	2320kg
Voltage	AC 400 or 230V ± 5% 50 Hz
Hydraulic oil	20L 20# high abrasive hydraulic oil
Air pressure	6~8 kg/cm^2
Temperature	5-40℃
Working humidity	30-95%
Noisy level	≤ 76 db
Installation height	Height above sea level ≤ 1000M
Storage temperature	-25-55C
Installation place	Indoor

Table 1

Lift dimension picture:



Motor

Type……ML90L

Max power…… 3.0kw

Max voltage…AC 400 or 230V ±5%

Max electricity…… 400 V: 5A

……230V:10A

Max Frequency……50/60 Hz

Poles…… 2

Speed……2800 rpm/min

Building shape…… B14

Insulation class……F

Pump

Type……P4.3

Model……gear pump

Max flux……4.3 cc/r

Joint type……joint

Overflow valve

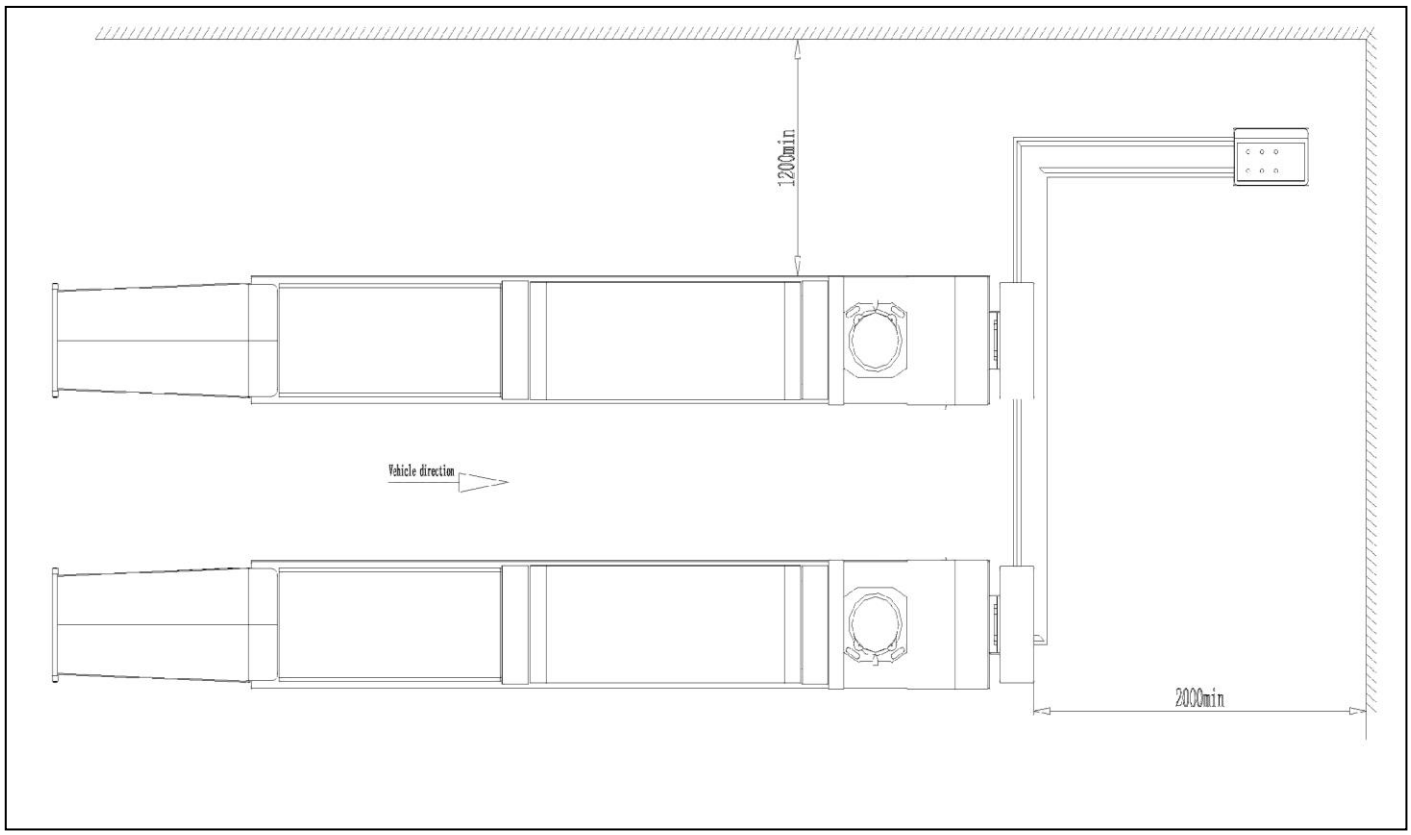
Continuous working pressure……210 bar

Intermittent working pressure…150~300 bar

Installation scheme for lift

To install the lift it is necessary to execute suitable foundations with the following characteristics:

-Concrete type 425#;-Thickness of concrete ≥150 mm, the leveling of whole length ≤10 mm;



Picture 4 (ground drawing)

The thickness and leveling of the base concrete are essential and the leveling adjustment ability of the machine itself cannot be relied upon to excessively.

Chapter 3 SAFETY

Read this chapter carefully and completely since important information for the safety of the operator or others in case of improper use of the lift is included.
In the following text there are clear explanations regarding certain situations of risk or danger that may arise during the operation or maintenance of the lift, the safety device installed and the correct use of such systems, residual risks and operative procedures to use (general specific precautions to eliminate potential hazards).

Lifts are designed and built to lift vehicles and hold them in the elevated position in an enclosed workshop. All other uses of the lifts are unauthorized. In particular, the lifts are not suitable for:
-Washing and re-spray work;
-Creating raised platforms for personnel or lifting personnel;
-Use as a press for crushing purposes;
-Use as elevator;
-Use as a lift jack for lifting vehicle bodies or changing wheels.

The manufacturer is not liable for any injury to persons or damage to vehicles and other property caused by the incorrect and unauthorized use of the lifts.

During lifting and lowering movements the operator must remain in the control station.
The presence of persons inside the danger zone indicated is strictly prohibited.
During operations persons are admitted to the area beneath the vehicle only when the vehicle is already in the elevated position, when the platforms are stationary, and when the mechanical safety devices are firmly engaged.

Do not use the lift without protection devices or with the protection devices inhibited.
Failure to comply with these regulations can cause serious injury to persons, and irreparable damage to the lift and the vehicle begin lifted.

GENERAL PRECAUTIONS

The operator and the maintenance fitter are required to observe the prescriptions of safety regulation in force in the country of installation of the lift.
Furthermore, the operator and maintenance fitter must:
-Always work in the stations specified and illustrated in this manual;
-Never remove or deactivate the guards and mechanical, electrical, or other types of safety devices;
-Read the safety notices placed on the machine and the safety information in this manual.
In the manual all safety notices are shown as follows:

WARNING: indicates situations and/or types of maneuvers that are unsafe and can cause minor injury to persons and /or death.

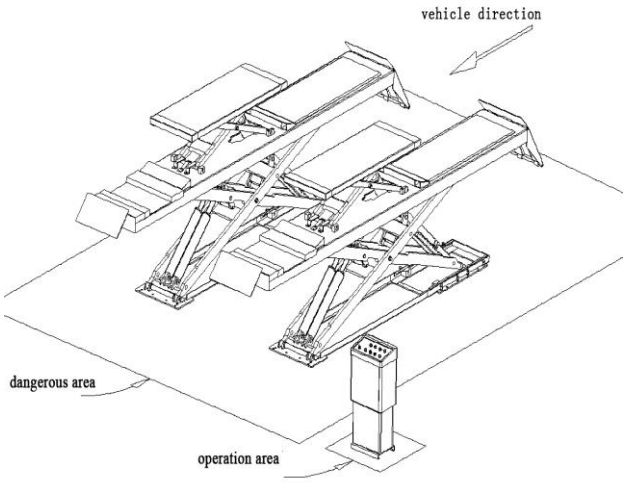
CAUTION: indicates situations and/or types of maneuvers that are unsafe and can cause minor injury to persons and/or damage the lift, the vehicle or other property.

Chapter 3 SAFETY

RISK OF ELECTRIC SHOCK: a specific safety notice placed on the lift in areas where the risk of electric shock is particularly high.

Risk and protection devices

We shall now examine the risks that operators or maintenance fitters may be exposed to when the vehicle is standing on the platforms in the raised position, together with the various safety and protection devices adopted by the manufacturer to reduce all such hazards to the minimum:



Picture 6

For optimal personal safety and safety of vehicles, observe the following regulations:

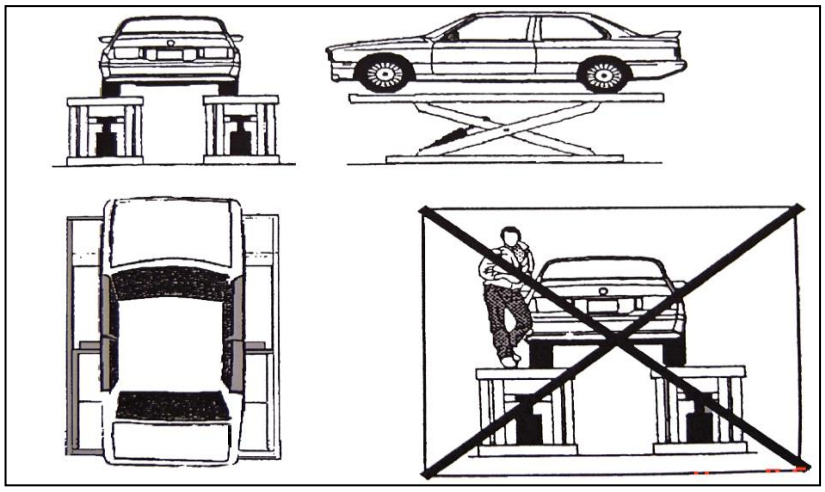
-Do not enter the danger zone while vehicle is being lifted (Picture 6).

-Switch off the engine of the vehicle, engage a gear and engage the hand brake.

-Make sure the vehicle is positioned correctly (Picture 7).

-Be sure to lift only approved vehicles, never exceed the specified carrying capacity, maximum height, and projection (vehicle length and width).

-Make sure that there are no people on the platforms during up and down movements and during standing (Picture 7).



Picture 7

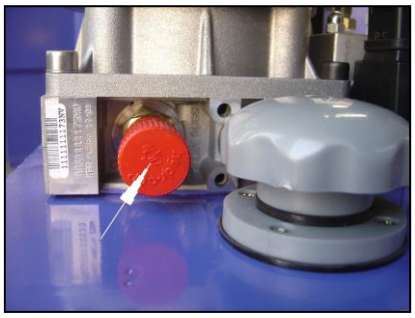
GENERAL RISKS FOR LIFTING OR DESCENT:

The following safety equipments are used to protect over loading or the possibility of engine failure.

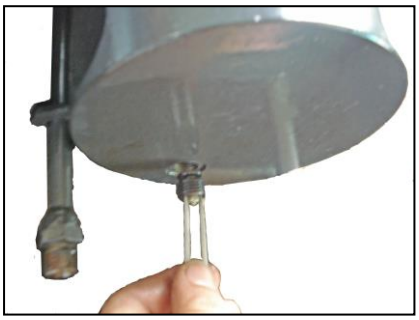
In the condition of over loading, the overflow valve will open and directly return oil to the oil tank. (Picture 8)

Each bottom of oil cylinder is equipped with antiknock valve. When the hydraulic pipe is burst in the circuit of hydraulic pressure, the relevant antiknock valve will work and limit the speediness of platform. (Picture 9)

The protection of safety tooth is the assurance of the safe homework, so make sure the safety tooth has occluded completely (Picture 10 &11).

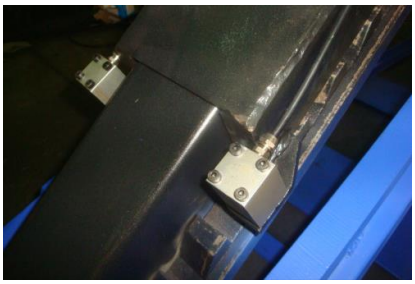


Picture 8 (overflow valve)

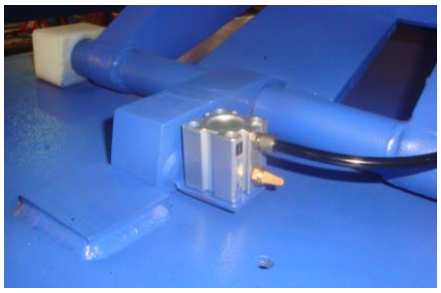


Picture 9 (antiknock valve)

There is nothing abnormal should be left on the safety modules to prevent safety gear from occlude normally.



Picture 10



Picture 11

RISKS FOR PERSONNEL

This heading illustrates potential risks for the operator, maintenance fitter, or any other person present in the area around the lift, result from incorrect use of the lift.

RISK OF CRUSHING

Possible if the operator controlling the lift is not in the specified position at the control panel.

When the platforms (and vehicle) are lowering the operator must never be partly or completely underneath the movable structure. Always remain in the control zone.

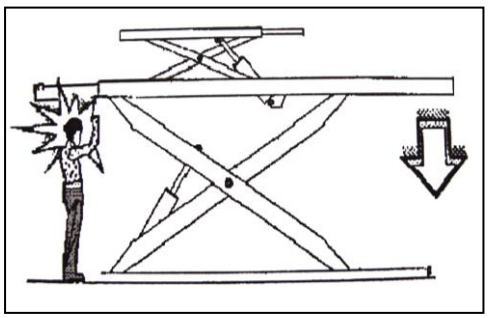
RISK OF CRUSHING (PERSONNEL)

When the platforms and the vehicle are lowering personnel are prohibited from entering the area beneath the movable parts of the lift. The lift operator must not start the maneuver unit it has been clearly established that there are no person in potentially dangerous positions.

RISK OF IMPACT

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

When, due to operational reasons, the lift is stopped at relatively low elevations personnel must be careful to avoid impact with parts of the machine not marked with special color.



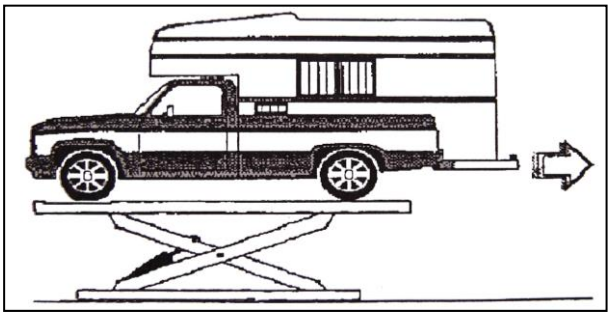
Picture 12

Chapter 3 SAFETY

RISK OF VEHICLE MOVING

Caused by operations that involving the application of force sufficient to displace the vehicle.

In the case of large or particular heavy vehicles, sudden movement could create an unacceptable overload or uneven loads haring. Therefore, before lifting the vehicle and during all operations on the vehicle, make sure that it is properly stopped by the hand brake.



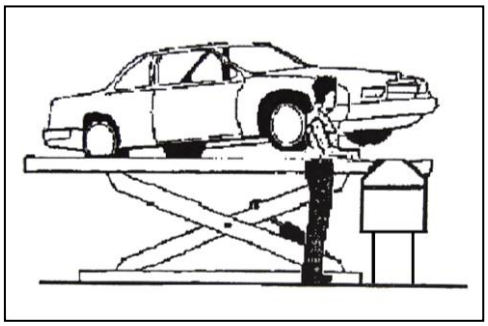
Picture 13

RISK OF FALLING (VEHICLE)

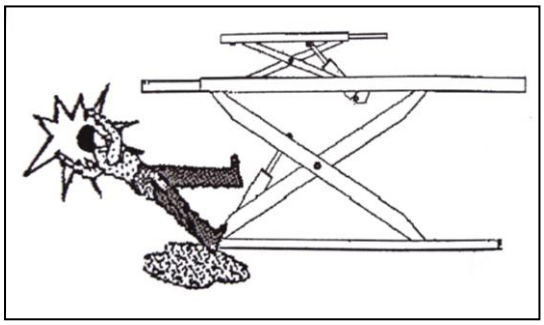
This hazard may arise in the case of incorrect positioning of the vehicle on the platforms, overweight of the vehicle, or in the case of vehicles of dimensions that are not compatible with the capacity of the lift.

RISK OF VEHICLE FALLING FROM LIFT

This hazard may arise in the case of incorrect positioning of the vehicle on the platforms, incorrect stopping of the vehicle, or in the case of vehicles of dimensions that are not compatible with the capacity of the lift.



Picture 14



Picture 15 (slide）

Never attempt to perform tests by driving the vehicle while it is on the platforms
Never leave objects in the lowering area of the movable parts of the lift.

RISK OF SLIDE

Caused by lubricant contamination that of the floor around the lift.

The area beneath and immediately surrounding the lift and also the platforms must be kept clean.

Remove any oil spills immediately.

When the lift is fully down, do not walk over the platforms or the cross-pieces in places that are lubricated with a film of grease for functional requirements.

Reduce the risk of slipping by wearing safety shoes (Picture 16).

Chapter 3 SAFETY

RISK OF ELECTRIC SHOCK

Risk of electric shock that in area of the lift housing electrical wiring.
Do not use jets of water, steam solvents or paint next to the lift, and take special care to keep such substances clear of the electrical control panel.

RISKS RELATED TO INAPPROPRIATE LIGHTING

The operator and the maintenance fitter must be able to assure that all the areas of the lift are properly and uniformly illuminate compliance with the laws in force in the place of installation.

RISK OF COMPONENT FAILURE DURING OPERATION

The manufacturer has used appropriate materials and construction techniques in relation to the specified use of the machine in order to manufacture a reliable and safe lift. Note however, that the lift must be used in conformity with manufacturer's prescriptions, and the frequency of inspections and maintenance works recommended.

RISK RELATED TO IMPROPER USE

Persons are not permitted to stand or sit on the platforms during the lift maneuver or when the vehicle is already lifted.

The handling of safety devices is strictly forbidden.
Never exceed the maximum carrying capacity of the lift, make sure the vehicles to be lifted have no load.

It is therefore essential to adhere scrupulously to all regulations regarding use, maintenance and safety contained in this manual.

Chapter 4 INSTALLATION

Skilled and authorized personnel only should be allowed to perform these operations, follow all instructions shown below carefully, in order to prevent possible damage to the car lift or risk of injury to people. Be sure that the operating area is cleared of people.

Skilled technicians only appointed by the same manufacturer or by authorized dealers, are allowed to install the car lift. Serious damage to people and equipment can be caused if this rule is not followed.

INSTALLATION REQUIREMENTS

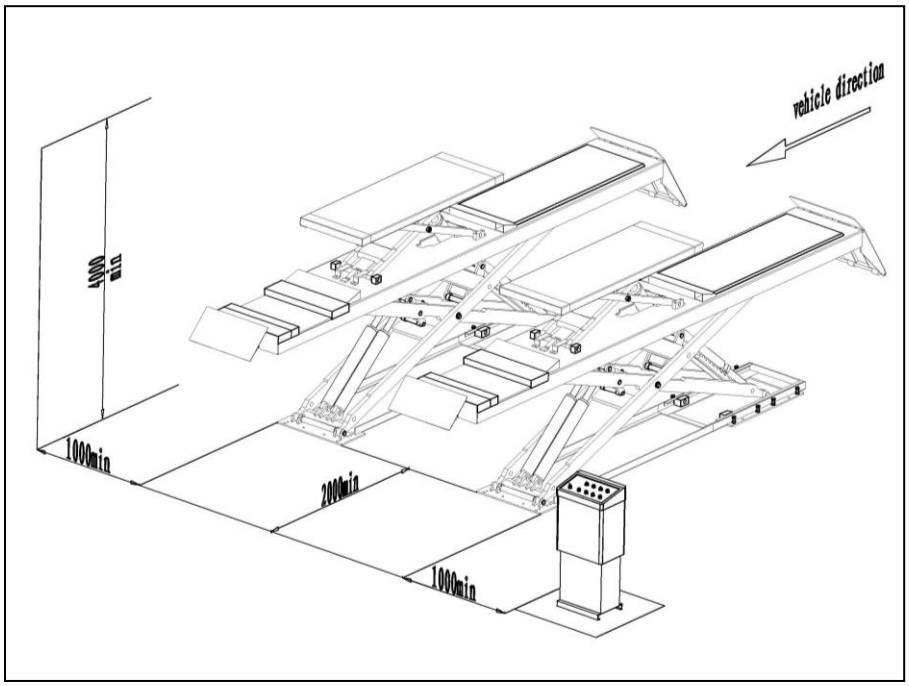
The car lift must be installed according to the specified safety distances from walls must be 1000 mm at least, taking into consideration the necessary space to work easily. Further space for the control site and for possible runways in case of emergency is also necessary; the room must be previously arranged for the power supply and pneumatic feed of the car lift. The room must be 4000 mm in height; at least, the car lift can be placed on any floor, as long as it is perfectly level and sufficiently resistant.

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

-The lighting must be installed in accordance with the laws in force in the place of installation.

-The thickness and leveling of the base concrete are essential

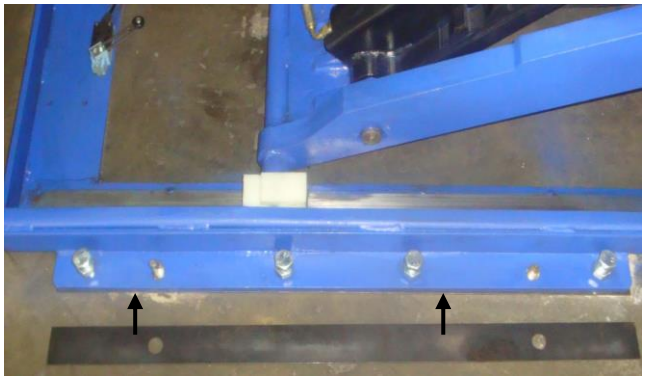
-Thickness of concrete ≥ 150 mm, the leveling of whole length ≤ 10 mm.



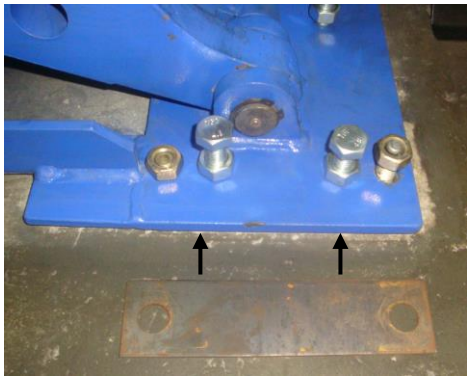
Picture 16（installation position）

INSTALLATION OF PLATFORM

Before installation please check whether the ground is level. If not one need to insert the adjusted washer (Picture as follow).

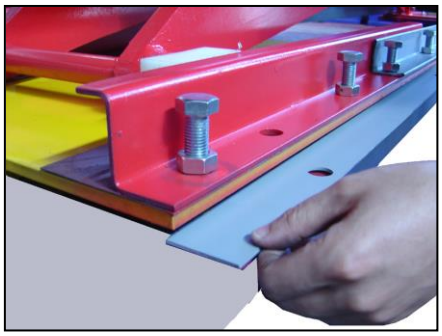


Long adjusted washer

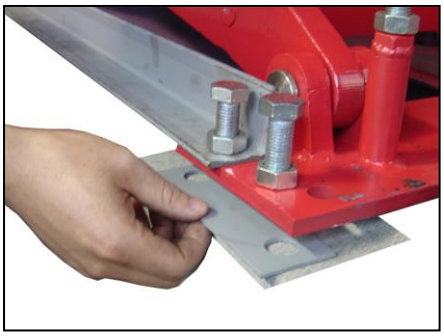


Short adjusted washer

Before positioning the lift on the ground check, check the level of the equipment basic. If it is not a flat basic, insert the adjustment sheet on the base (picture 18&19).

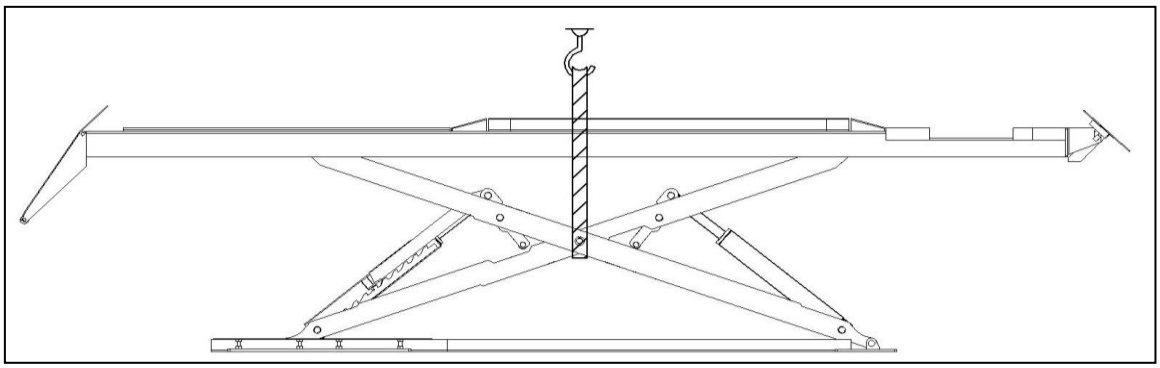


Picture 18



Picture 19

Place the lift as required following the instructions shown on picture 4.
Lift the two platforms (picture 17 & 20) using a crane ;place them at the height of about 1000 mm .and make sure the mechanical safety device are on.
The cutouts for the alignment turning plates are positioned at the front of the direction of moving vehicle. The yellow and black safety stripes are applied to the sides of the ramp.



Picture 20

To avoid the unexpected lift closure due to mechanical safety device release insert wooden pieces in the inner part of the base frame.
Pay attention not to work under the lift until the hydraulic system has not been completely filled with hydraulic oil.

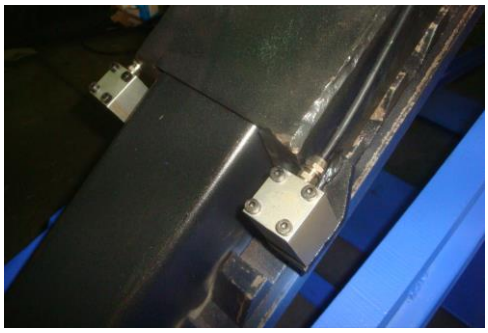
Chapter 4 INSTALLATION

To insert the lift into the recess, sling the lift as described picture 20 and pay attention not to damage the hoses and electrical cables.
Before placing the pneumatic and hydraulic hoses to the control unit, stick adhesive tape on the pipe fittings in order to protect the hoses from dust and impurities which could damage the hydraulic system.
Perform electric, hydraulic and pneumatic connections, follow carefully the relevant numbering. Regarding the proper connections necessary to make the car lift perfectly working, see the following chapters.

Hydraulic pipe and air hose installation for lift:

It is critical that you protect the connections and fittings of the oil pipe and that you take measures to prevent debris from entering the pipes. Lay out the oil pipe for the lift. Connect the oil pipes to the lift according to the oil pipe connection diagram on page-25. And connect the air pipes to the lift according to the air pipe diagram on page-25. The supply line (8 mm × 5 mm) is connected to the air inlet connection to the solenoid air valve inside the control box (picture 21).

Picture 21 (solenoid air valve)



Picture 22 (air cylinder）

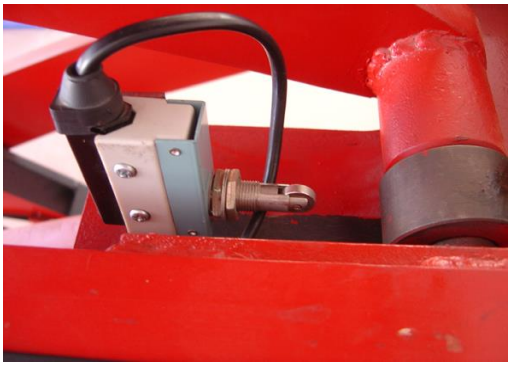
Connection of Electrical

Connect the electrical part according to the electric wiring diagram.

Connection of power supply:

The electrical service to the lift should be installed only by qualified personnel. Before connecting the electrical service to the lift, be sure main power has been turned OFF. the 400V three-phase and five-line connection wires (3×2.5 mm2＋2×1.5 mm2 cable wire) for power supply are connected to control box L1, L2, L3, N and entering-wire terminal. If the lift is operated at 230V single-phase, then connected to control box L2, N2, entering-wire Terminal. The PE ground wire is connected under the bolt marked ground firstly (Picture 15) and then connected under the bolt marked ground of two platforms. The control box/panel must be properly grounded for safety.

Picture 23 (main lift up limit switch)



Picture 24 (second lift up limit switch)

Connection of up limit switch for main lift:

-The up limit switch of main lift is fixed on the bottom plate. Connect the 0V#, X6# for main lift up limit switch (picture 23) to terminals 0V#, X6# inside the control box.

Connection of up limit switch for second lift:

-The up limit switch of main lift is fixed on the bottom plate. Connect the 0V#, X7# for second lift up limit switch (picture 24) to terminals 0V#, X7# inside the control box.

Connection of photocell sensor:

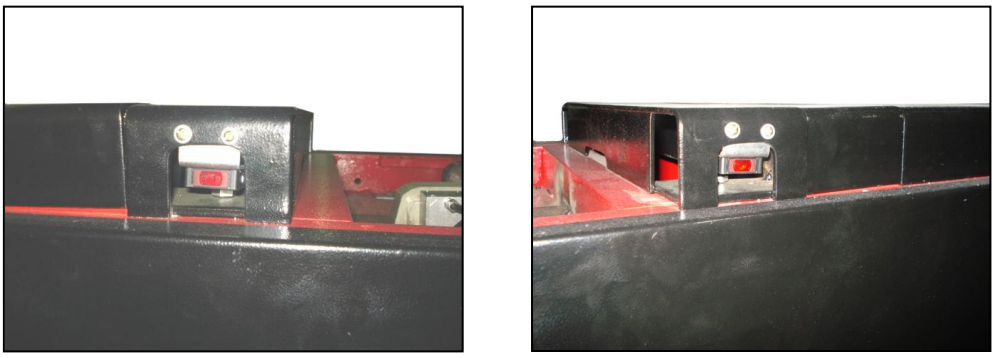
Connection of lower limit switch:

Connect the 0V#, X5# for lower limit switch (picture 25) to terminals 0V#, X5# inside the control box.

Connection of photocell sensor:

First let the wires go through the cable slot, and then connect the blue wire to No. 0V#, brown wire to No. X10#, ant the black wire to No. Y5# in control box.

Picture 25 (lower limit switch)



Picture 26 (photocell position)

Anchor bolts installation

-Adjust the parallel of the platform and the distance of two platforms.

-Lock the machine on one safety teeth.

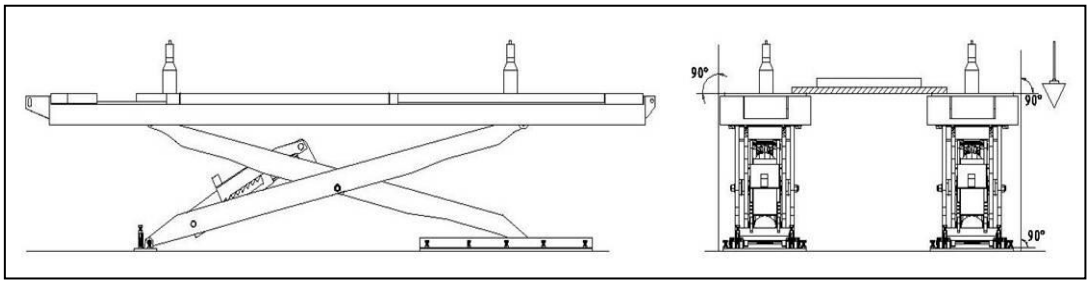
-Pad a shim (picture 18).

-Fix the anchor bolts (16 bolts) with a percussion electric drill (percussion drill bit is of 16, drill to 120 mm hole and clean the hole. Insert a peg for a temporarily immobility.

Level adjustment

Lift two platforms, and lock them on the three or four teeth.

Check the level of two platforms with level bar or the horizontal pipe (picture 27).



Picture 27

Adjust the adjustment bolt (picture 29) at both sides of the base plate. Adjust the level of two front turntables and the slide plates on two sides at back, thus keep the levelness of error of the two platform ≤ 5 mm, and keep the height difference between the two platforms ≤10 mm.

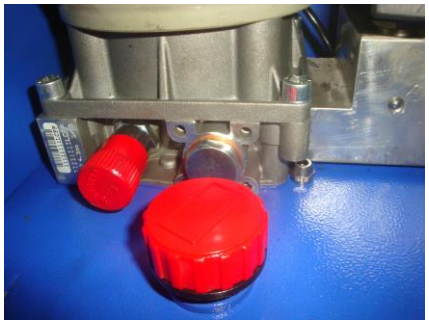
Picture 29 (adjustment bolt）

Picture 30 (adjustment screw）

The gap between the base plate and ground after adjustment must be filled with iron plate or concrete and then tighten the anchor bolts.

Level adjustment of the lowest position:

Adjust the level through the adjustment screws (picture 30) when the main platform at the lowest position.



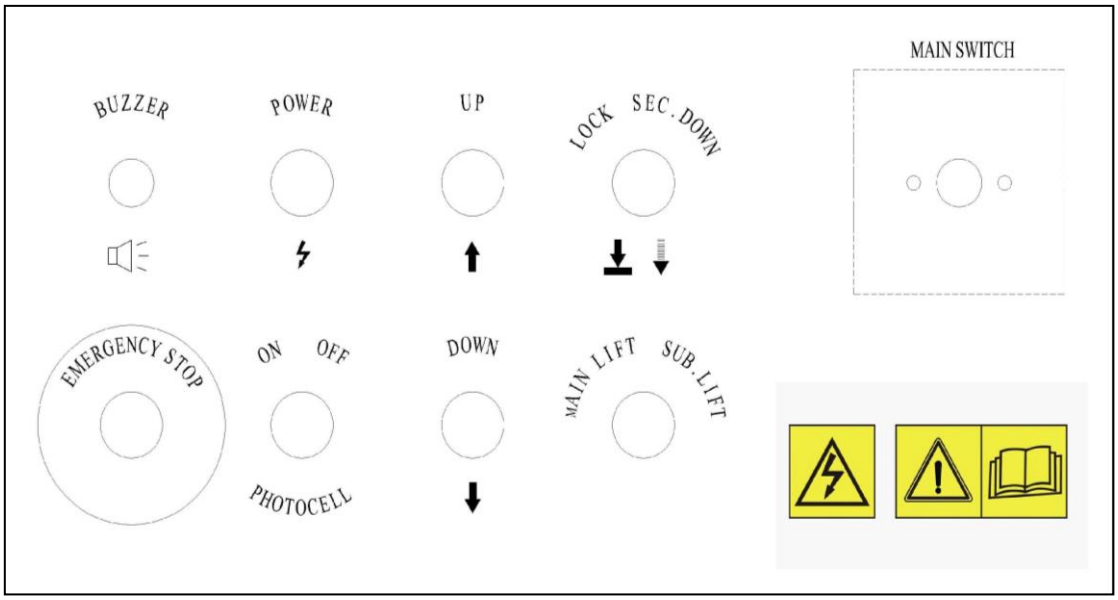
Picture 31 (oil tank)

Add Hydraulic Oil check the order of phase:

Add 18 litters of hydraulic oil into the oil tank (the hydraulic oil is provided by the user). It is suggested that Dexron III ATF oil be used.

Before operation, turn the photocell key switch on control panel to "**OFF**" position.

On the control panel (picture 32), press the "**MAIN SWITCH**" button to turn ON power, and then turn the selector switch to "**MAIN LIFT**" position. Click the '**UP'** button, check whether the motor turns clockwise (looking downward), if turn off the power, then change the phase of the motor.



Picture 32 (operation panel）

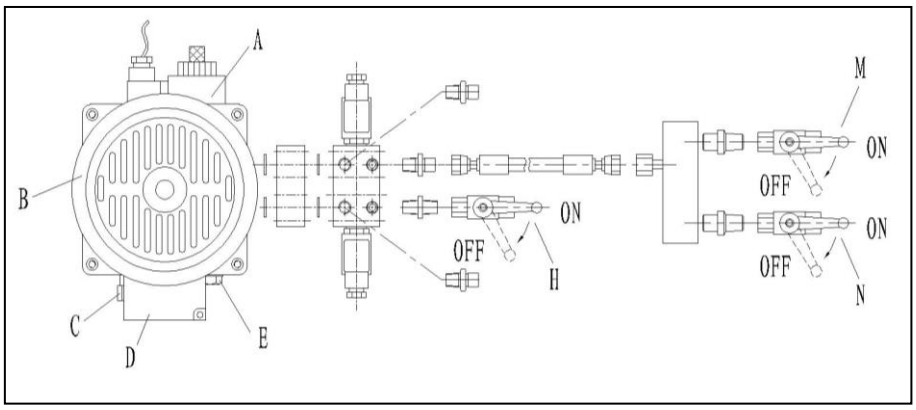
Main lift oil make-up adjustment

1) Turn the select switch on control panel to '**MAIN LIFT**' position.
2) Open stop valve '**M**' and '**N**' and close stop valve "**H**".
3) Short connect #100 & #102 in the control box.
4) Press '**UP**' button SB1 to lift the platform with master cylinder to top and keep pressing '**UP**' button for about 1 minute to exclude the air.
5) Press "**DOWN**" button to lower the lift to bottom.
6) Press '**UP**' button SB1 to lift the platform with master cylinder to top then close stop valve "**M**" & "**N**".
7) Press "**DOWN**" to lower the platform to bottom (When touching the lower limit switch, the lift will stop automatically. The operator needs to release '**DOWN**' button and press '**LOCK SEC. DOWN**' button to lower the lift to bottom.).
8) Remove the short connect of #100 & #102 inside the control box.
9) Press '**UP**' button to lift main lift to about 1000mm height.
10) If the two platforms are not level, open stop valve '**M**' or 'N', press '**UP**' button slightly to lift the lower one a little to make the two platforms with same height.
11) After the two platforms of main lift with same height, close stop valve '**M**' or '**N**'. And the oil make up process is over.

Chapter 5 ADJUSTMENT

Second lift oil make-up adjustment

1) Turn the select switch on control panel to '**SUB LIFT**' position.
2) Close stop valve '**M**', '**N**' and '**H**'.
3) Press '**UP**' button SB1, to lift the right platform of second lift to about 300mm height.
4) Press '**DOWN**' button SB2 to lower the right platform of second lift to bottom.
5) Press '**UP**' button SB1, to lift the right platform of second lift to about 400mm height.
6) Open stop valve '**H**'.
7) Press '**UP**' button SB1, to lift the left platform of second lift to about 300mm.
8) Press '**DOWN**' button SB2, to lower the left platform of second lift to bottom.
9) Repeat process 7) & 8) about 5~6times, to exclude the air.
10) Spot press on the '**UP**' button slightly, to lift the left platform of second lift to about 400mm height.
11) Close stop valve '**H**' and the oil make up process for second lift is over.



Picture 33

Check and adjust the limit switch of the lift assembly.
Turn the photocell key switch on the control panel to "**ON**" position, let it work to protect the lift when the two platforms are not level.
Check for oil leakage of the hydraulic line and air leaks in the air supply line.

Test with Vehicle

When functioning all the above are normally test the lift with a vehicle load. If the lift operates normally under load, it can then be put into service

Chapter 6 OPERATION

-Clear obstacles around lift before operation.
-During lifting or lowering, no person is allowed to stand near the two sides and beneath the machine, and no person is allowed to stay on the two platforms.
-Avoid lifting super heavy vehicles.
-When lifting vehicle, the wheel chocks and hand brake should be used.
-Pay attention to the synchronization of the lifting and lowering. If any abnormal is found, stop the machine timely, check and remove the trouble.
-When locking the main machine, the two platforms should be kept at the same height.
-When the equipment is not used for a long time or over night, the machine should be lowered to the lowest position on ground, and remove vehicle, and cut off power supply.

Instructions on electric operation:
Main Lift and Sub Lift Selection:
Turn the main selector switch on the control panel to either the "**MAIN LIFT**" or "**SUB LIFT**" position. Then the selection can be made to lift or lower the main lift or sub lift.

Lifting:
Press the "**UP**" button to lift either the main lift or sub lift. When the motor starts, the hydraulics will raise the lift immediately. After approximately a couple of seconds, the solenoid air valve energizes, allowing air to flow through the air lines lifting the safety latches.
Release the "**UP**" button, the motor stops from operating, which causes the main lift or sub lift to stop immediately. Then, the solenoid air valve is not energized—stopping air flow—causing the safety latches to engage.

Locking:
To perform vehicle maintenance or alignments, the lift must be locked before repairs or adjustments can be conducted. To lock the lift, press the "**LOCK SEC. DOWN**" button. The main lift will be lowered slightly to allow the safety mechanism to fully engage.

Lowering:
Press "**DOWN**" button, the lift will first rise slightly for a couple of seconds to disengage the safety mechanism, and then automatically lower. (This ensures that the safety mechanism can easily disengage itself). When the lift is being lowered, the solenoid air valve is energized allowing air to flow through the air lines, thus keeping the safety latches raised.
But when press" **DOWN**" button all the while , the platform will stop automatism at 710 mm ~720 mm. Release "**DOWN**" button and press "**LOCK SEC.DOWN**". The platform will descend again.

Limit Switch Precaution
When the main lift is raised to its set-limit height, the main lift will stop because of the limit switch. At this height, in order to lower the main lift, you must press and hold the "**DOWN**" button for a couple of seconds for the lift to automatically lower.

Photocell Sensor:
It is a special device to stop the car lift during lowering or lifting operations, when the level difference between the two platforms is more than 5 cm, or when something obstructs them.

The operation when hydraulic pipe burst:
When the main lift works and its hydraulic pipe bursts, we must stop the operation of lifting or lowering immediately. Press the **"LOCK SEC.DOWN"** button to allow the safety mechanism to fully engage. If the lock fails, shut off the headstream of air.
When the sub lift works and its hydraulic pipe burst, we need to press **"DOWN"** button to put up the safety-jaw. And that the platform will lower in the control of anti-falling valve. If there is the pipe of sub platform, the sub platform will lower more swiftness to slant the vehicle. But it's ok.

Chapter 7 MAINTENANCE and CARE

Maintenance and care

-The upper and lower sliding blocks must be kept clean and lubricate.
-All bearings and hinges on this machine must be lubricated once a month by using an oilier.
-The side sliding plates must be disassembled and greased once a year.
-The hydraulic oil must be replaced one time each year, the oil tank and filter should be cleaned when replacing hydraulic oil. The oil level should always be kept at upper limit position.
-The machine should be lower to the lowest position when replace hydraulic oil, then let the old oil out, and should be filtering the hydraulic oil.
-The compressed air used in pneumatic safety devices must be filtered through water to ensure long time reliable operation of the cylinder and air valve DQ for driving the safety pawl.

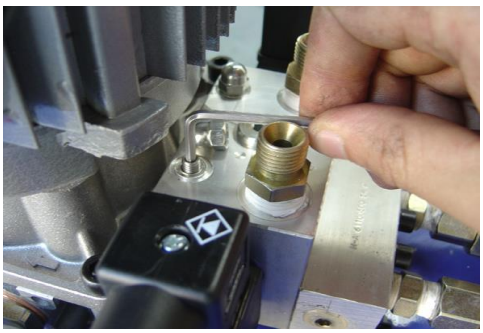
Emergency manual operation for lowering (power failure):

When lowering through manual operation, should observe the condition of platform at any time because there are vehicles on the platforms. If there is something abnormal, screw down oil loop valve immediately.

The process of manual operation (lowering main platform):

-Firstly connect a manual pump (prepared by user) to the main hydraulic line (picture 34), and lift the lift to disengage the safety mechanism. Use thin iron bar to fill up safety mechanism.
-Switch off the power button (to avoid abruptly incoming electricity).
-Press the valve core of working valve as picture 35.
-Open the small round cover of control box to find the electromagnetic descent valve for main lift.
--The operator can use his hand to release and tighten the valve core.
--Turn left is to release and platforms can lower slowly (oil can come back to the oil tank) in case of no electrical supply, before doing this please ensure that the lift is not locked.
--Turn right is to tighten it for normal use
--Pay attention that one must tighten the valve core when the lift is for normally use!

Picture 34 (manual pump, prepared by user)



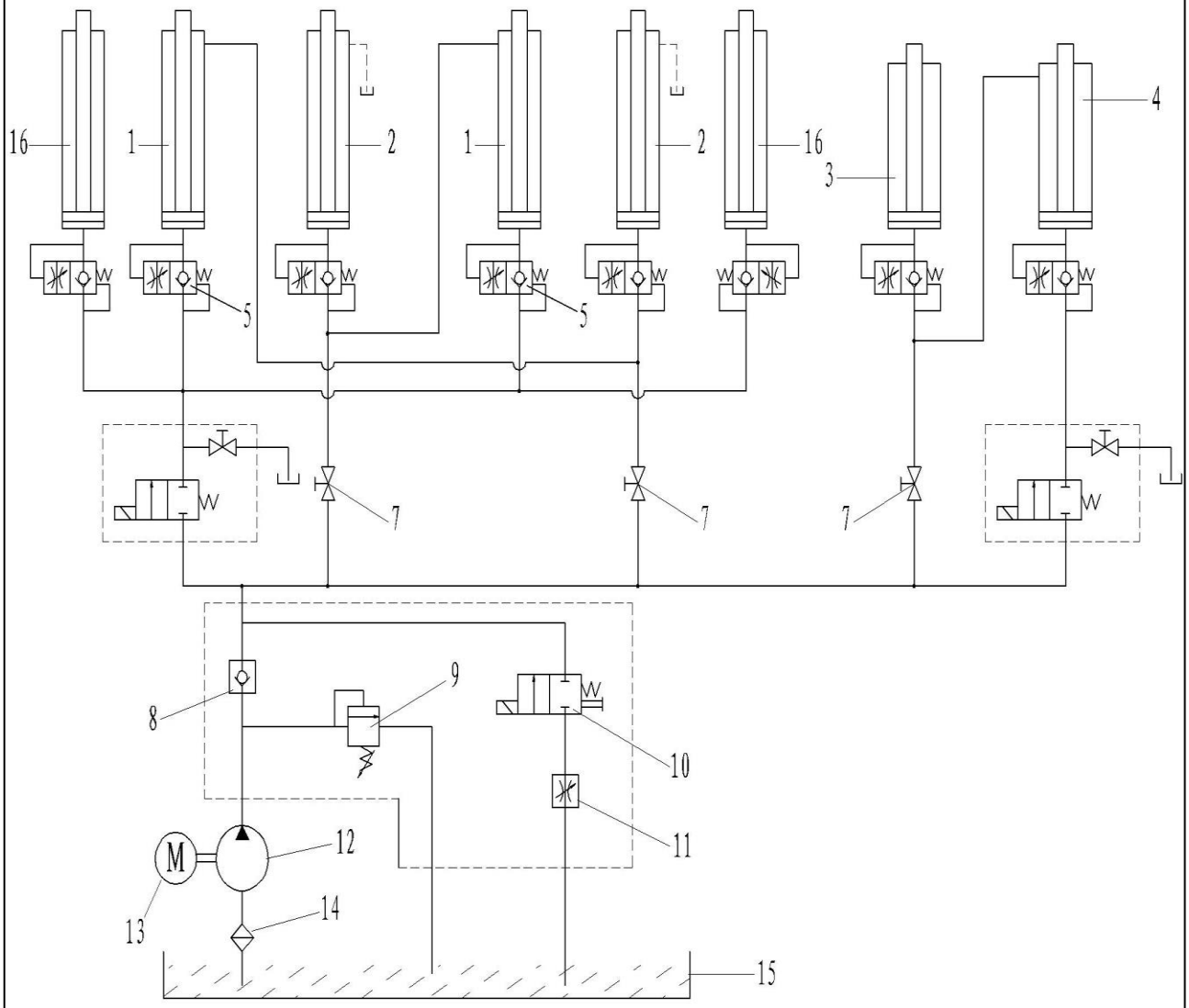
Picture 35

	Cause and Phenomena	Resolutions
The motor does not run in lifting operation.	① Connection of power supply wires or zero wire is not correct.	Check and correct wire connection.
	② The AC contactor in the circuit of the motor does not pick up.	If the motor operates when forcing the contactor down with an isolation rod, check the control circuit. If the voltage at two ends of the contactor coil is normal, replace the contactor.
	③ The limit switch is not closed.	Short-circuit terminal 100# and 102#, which are connected with the limit switch, and if the trouble disappears, check the limit switch, wires and adjust or replace the limit switch.
In lifting operation, the motor runs, but there is no lifting movement.	① The motor turns reverse.	Change the phases of the power supply wires.
	② Lifting with light load is normal but no lifting with heavy load.	The set safe pressure of the overflow valve may be increased by turning the set knob right ward slightly. The spool of the lowering solenoid valve is stuck by dirt. Clean the spool.
	③ The amount of hydraulic oil is not enough.	Add hydraulic oil.
	④ The "operation stop valve" is not open.	Turn right and open the "Operation stop valve and supply hydraulic oil to main oil cylinder.
When press "Lower" button, the machine is not lowered.	① The safety pawl are not released form the safety teeth.	First lift a little and then lowering.
	② The safety pawl is not lifted.	The air pressure is not enough or the safety pawl is stuck.
	③ The solenoid air valve does not work.	If the solenoid air valve is energized, but does not open the air loop, check or replace the solenoid air valve.
	④ The lowering solenoid valve is energized but does not work.	Check the plug and coil of the lowering solenoid valve and check the right turn tightness of its end copper nut and so on.
	⑤ The hydraulic oil has too high viscosity or frozen, deteriorated (in Winter).	Replace with 20# hydraulic oil in accordance with the instruction book.
The machine lowers extremely slowly under normal loads.	The "antiknock valve" for preventing oil pipe burst is blocked.	Remove or close air supply pipe and thus lock the safety pawl of the machine without lifting of the safety pawl. Remove the "antiknock valve" from the oil supply hole at the bottom of the oil cylinder, and clean the "antiknock valve".
The right and left platforms are not synchronous and not in the same height.	① The air in the oil cylinder is not vent completely.	Refer to "Ⅶ. Oil Make-up 'Adjust' Operation".
	② Oil leakage on oil pipe or at its connections.	Tighten oil pipe connections or replace oil seals and then make-up oil and adjust levelness.
	③ The "oil make-up stop valve" can not be closed tightly and almost make-up oil and adjust every day.	Replace oil make-up stop valve, and then make-up oil and adjust.
Noisy lifting and lowering.	① Lubrication is not enough.	Lubricate all hinges and motion parts (including piston rod) with machine oil.
	② The base or the machine is twisted.	Adjust again the levelness of the machine, and fill or pad the base.

Table 2

APPENDIX

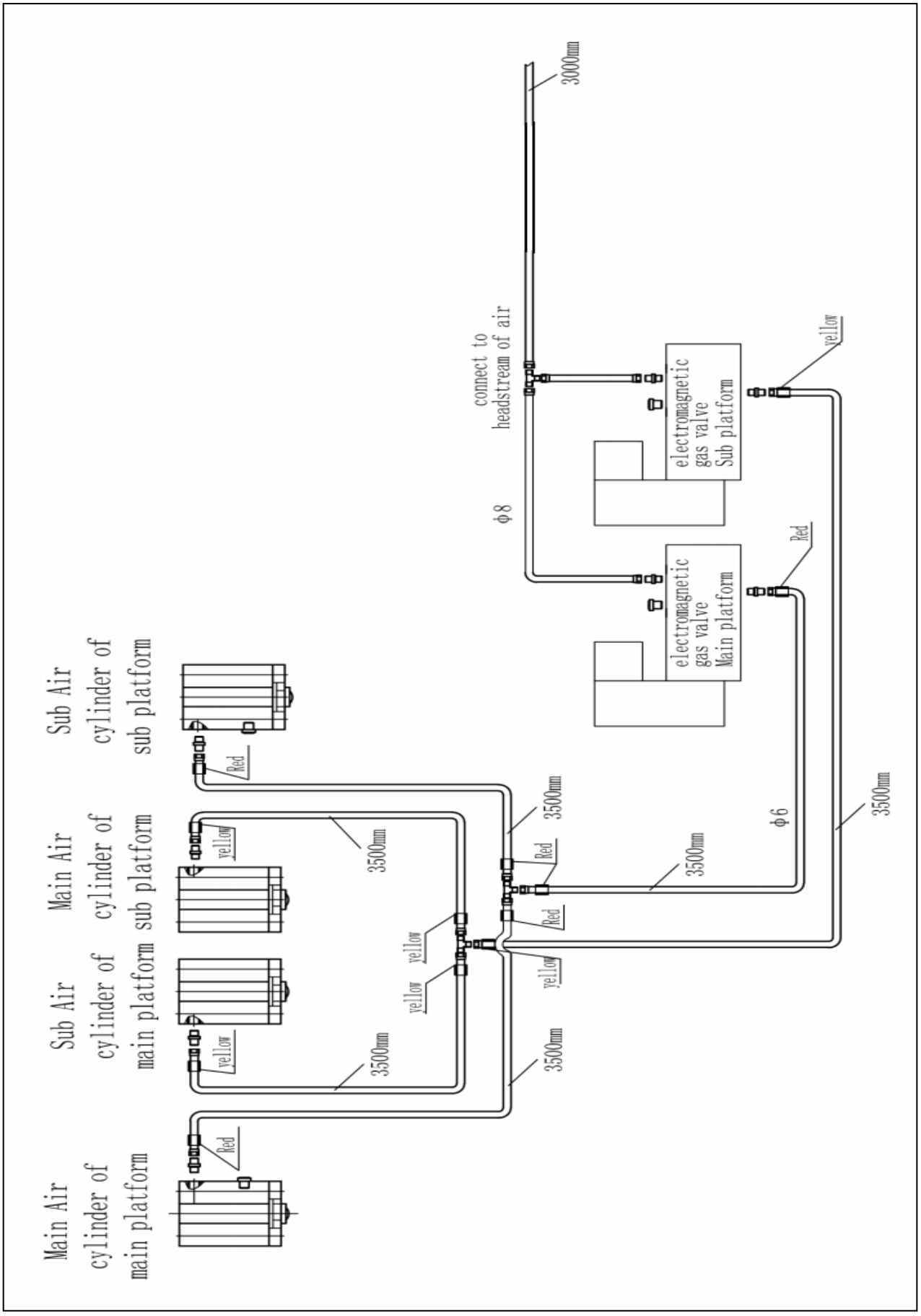
Hydraulic schematic drawing:



1 main cylinder of main lift 2 slave cylinder of main lift 3 main cylinder of second lift
4 slave cylinder of second lift 5 antiknock valve 6 electromagnetic valve 7 oil make up valve
8 check valve 9 overflow valve 10 descent valve 11 throttling valve 12 pump 13 motor
14 filter 15 oil tank 16 assist cylinder

APPENDIX

Air hose connection diagram:



Hydraulic pipe connection diagram: