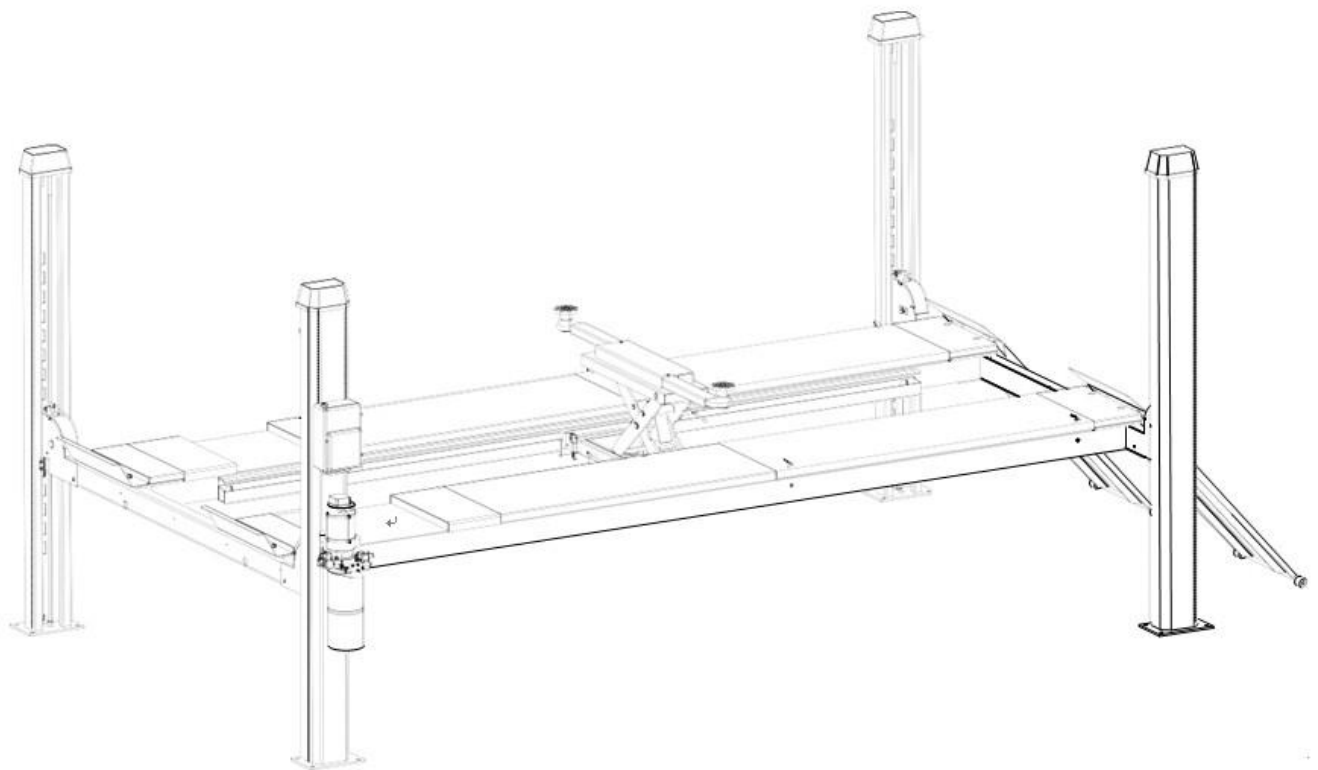


# Instructions and Maintenance Manual

## FOR HYDRAULIC FOUR -POST LIFT



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The specifications stated on this brochure are not binding. We reserve the right to change the specification without notice

### ***FOUR POST LIFT (Manual Release )***

\* Manufacturer keeps the rights to improve the contents in this manual

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# 1. INTRODUCTION

## 1.1 PURPOSE

This installation and maintenance manual explains how to install and maintain the Vehicle lift. Detail information. On installation. Operation, disassembly, lubrication, and spare parts are provided.

## 1.2 USER SAFETY

Safety notices in this manual detail precaution, which the user must take to reduce the risk of personal injury. And damage to this Equipment. The user must and read and familiar with these instruction. Before attempting installation, operating, or Maintenance. Failure to observe this precaution could result in serious bodily injury. Damage to this equipment. Void to the warranty. Or operational Difficulty.

The end user shall provide the MSDS. (Material safety Data sheet about hydraulic oil Lubricant oils used in this machine at easy accessible, in case getting information for help for health or and safety.

Safety notices are presented in this manual in the three forms:

**WARNING:** refers to personal safety, Alerts the user to potential danger, Failure to follow warning notices could result in personal injury or death.

**CAUTION:** directs the user's attention to general precautions that, if not followed, could result in personal injury and or equipment damage.

**NOTE:** highlights information critical to the user's understanding of actuator installation and operation.

Thank you for purchasing this lifting product. Please follow the instruction below for safety and proper lift operation. If you have any further questions, please do not hesitate to contact the local distributor from where you purchased your lift.

# 2. PRODUCT CAPABILITIES AND FEATURES

The series combines the knowledge and experience gained from manufacturing vehicle lifts over many years with the very latest developments in lift engineering. The result is the ultimate vehicle lift range, capable of satisfying the varied and stringent requirements of automotive workshops both now and in the future

## 2.1 GENERAL INFORMATION

The 3.5 tones four post electric hydraulic lift. Is designed for Use in vehicle servicing. Bays and commercial workshops which are engaged in servicing. Checking, dismantling and reassembly of cars vans 4 wheel-drives and commercial vehicles.

## 2.2 GENERAL DESCRIPTION

The 3.5 tones lift consists of two wheel runway platforms. of which one is adjustable .and jointed at each end by transverse cross beams know as the transverse beams. Each of the ends of the transverse beam are located and guided vertically by a colon Each of the chorines provides the necessary guide ways and upper cable anchorage points One column(known as the power column)incorporates the power pack. The operation of the hoist is achieved by an electrically driven gear pump feeding a lifting cylinder which is directly linked to the cables the synchronized motion is transmitted to the four colonists by two separate wire ropes. Which hovel visa a shyster of pulleys through the hefting structured from the hydraulic cylinder to each of the respective cohunes.

## 2.3 PRODUCTIONS IDENTIFICATION

**WARNING:** read this installation and maintenance manual carefully and completely before attempting to install, operate, disassemble, or troubleshoot the actuator be aware of the electrical hazards.

The vehicle lift nameplate is located on the column near the operating panel the nameplate contains following information.

- Point of manufacture
- Serial number
- Model type. name
- Rated load
- Height lift
- Power supply
- Rated hydraulic pressure
- Manufacture date

Data description	Specification
Lifting capacity	4000KG
Lifting time-(;padded)	55seconds
Lowering-(loaded)	55seconds
Electric motor	AC220volts,60Hz,2.2KW
Lifting height	1800mm
Width between columns	2820mm
Length of platform	4600mm
Width of each platform	520mm
Wheelbase range-recess to slip plate	Min,2.445mm to max .2.845mm
Minimum height of platform	230mm
Oil-hydraulic	Grade 32

This vehicle needs to be powered: 220V $\pm$ 10%,50HZ $\pm$ 1%,two phases AC with N and PE, The operating temperature rang is 5-40 $^{\circ}$ C,the ambient relative humility range is 30 ~ 95%,40 $^{\circ}$ C/50%,The vehicle should be installed below 1000Msea level height ,stored and transported at temperature range-25 $^{\circ}$ C~55 $^{\circ}$ C.

## 2.4MAJOR FEATURE

- Compact and easy to install. Requires only 16 fixing bolts and a flat concrete floor. Can be easily re-sited if required.
- The verse to, out of the lift ensures it can handle any job on a wide variety of vehicle.
- Improves speed and efficiency of routine service work.
- Major repair work-and component removal is made easier and more practical.

- Low-maintenance
- Simple operation.
- Low operational loose volume.
- Low energy consumption.
- Comfortable working height.

## **2.5SAFETY**

Safety is given a high priority by such features as:

### **Hydraulic failure protection:**

Double protection is provided by:

- Non-return valve, which maintains pressure in the hydraulic system.
- Surge valve.

This will operate if a hydraulic pipe fails preventing rapid descent of the lift.

### **Overload protection:**

- A mechanical overload valve, located in the delivery side of the non-return valve. prevents the lift being raised with an over-capacity load.

### **Deadpan main controls:**

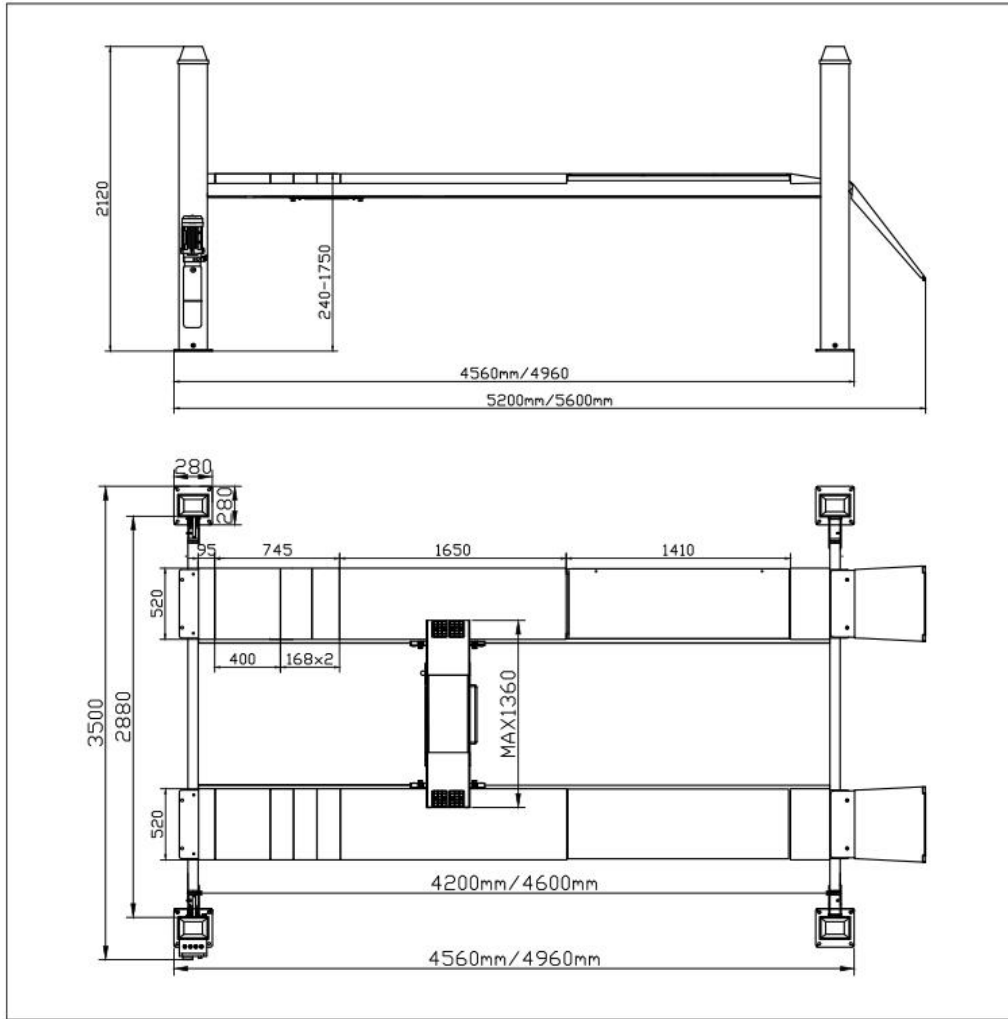
- The lift cannot be raised or lowered unless the operator is simultaneously operating the up/down lever and master button

### **Cable failure protection:**

- Each lazy column has a safety feature which prevents the lifts from falling more than 100mm in the unlikely event of a cable failure.

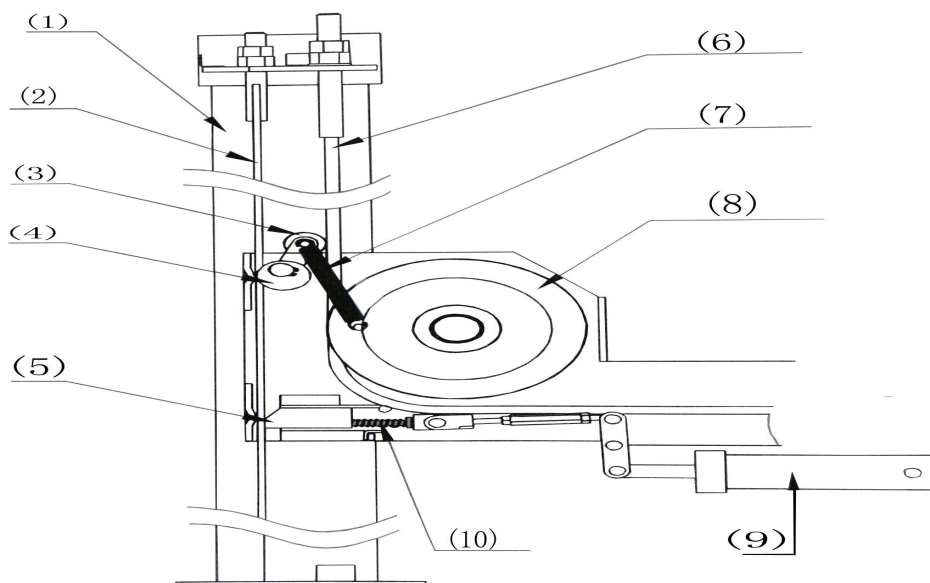
## 2.6 CONSTRUCTION

The vehicle lift construction and its main component are shown as figure 1 and figure 2 following



Please following the second number :4960mm/5600mm/4600mm/4960/

**Figure 1. Vehicle life outlook**



- |                |                  |                  |                       |
|----------------|------------------|------------------|-----------------------|
| 1. Column post | 2. Hanging board | 3. Rolling wheel | 4. Eccentric wheel    |
| 5. Safety lock | 6. Cable         | 7. return spring | 8. Cable sheave wheel |

## 9.gas cylinder

## 10.Compression cylinder

The main platform runway is securely fastened to the power column beam and the auxiliary Column beam with S \*M10\*20 bolts. While the second platform. Runway is placed on the power column beam and auxiliary column beam is adjustable according to the width of the width of track of the wheels.

The oil cylinder is mounted beneath the main platform runway. Two towing cables (11dia) travel around two pulleys, which are located under the main platform runway. These cables are Connected to the front end of the piston rod of the cylinder, the four ends of the cables are Anchored on the top plates of the power and auxiliary columns respectively with M20 cable Adjuster threaded ends and nuts.

The locking latch plates are installed in all four columns a manually activated safety lock and a cable breakage safety device are located in each of the ends of the power column beam and the auxiliary column beam. The four manually activated safety locks are connected by control rods and linkages so they are operated and engaged synchronously in each column. The lock/unlock handle for the manual safety locks is located at the power column end of the power column, beam, these locks are very important when using the lift for wheel aligning of motor vehicles.

The operating principle of the manually activated safety locks and cable breakage safety device is illustrated in fig 2

Under the action of its own return spring the manually activated safety

Device (locking paw1)-(parking lock) rotates clockwise and engages securely with the column latch plate. This enables the lift to be raised safely with the assurance of the safety .engaging the latch plate as it rise in each column. When the handle is operated manually. The safety paw1

Plates rotate anti-clockwise, allowing the lift to be lowered.

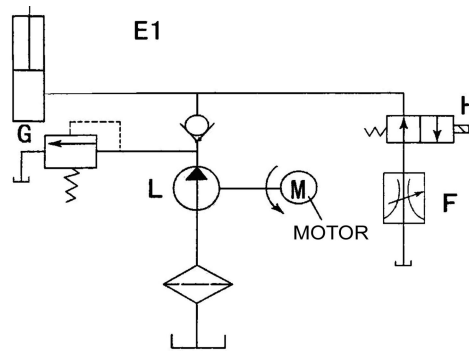
Likewise, the cable breakage safety device rotates clockwise, under the action of its own return

Spring .This forces the small jockey pulley to make contact with the loaded cable; this keeps the safety paw1 from making contact with the column latch plate under normal operating conditions.

In the unlikely event of a cable breakage. The safety paw1 swiftly rotates clockwise and engages with the column latch plates. Preventing the lift platforms from dropping and stopping a possible accident from happening.

The removal of the main front recess cover plates and/or the following auxiliary covers will enable the wheel alignment of different wheel based vehicles.

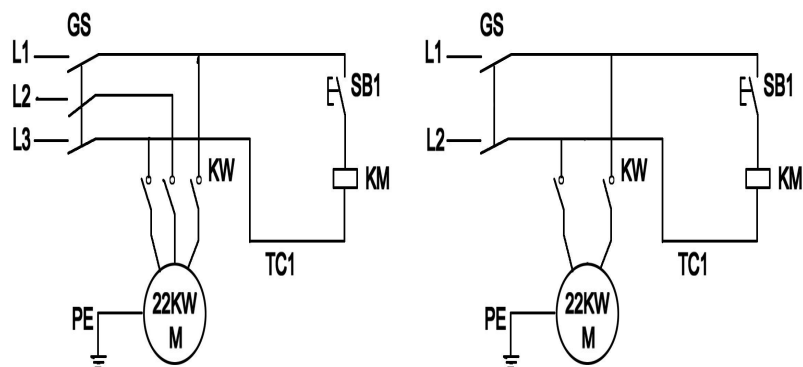
The working principle of the hydraulic system is illustrated in fig 3.and the principle of the electrical system is illustrated in fig 4



1. Pressure relief valve. 2. Hydraulic cylinder. 3. Flow control valve. 4. Electric solenoid relief valve.

5. Non-return valve. 6. Safety relief valve. 7. Coupling –motor to pump. 8. Oil pump-gear type.

9. Electric motor. 10. Oil filter- to pumps. 11. Oil tank. 12. oil filter-back to tank



M: 3 phases AC motor

L1, L2, L3, N, PE: main power connecting terminals

FU: main electrical power fuses

FU1: control circuit fuse

T: control transformer

SA: main disconnecting switch (emergency power off)

KN: contactor

H: warning light



SB: lift push button

### 3.UN-PACKUING AND PRE-ASSEMBLY

Unpack and identify parts as shown in fig 1.

Fig 1 shows major components of 3.5 tones vehicle lifts.

The major parts of the lifts are

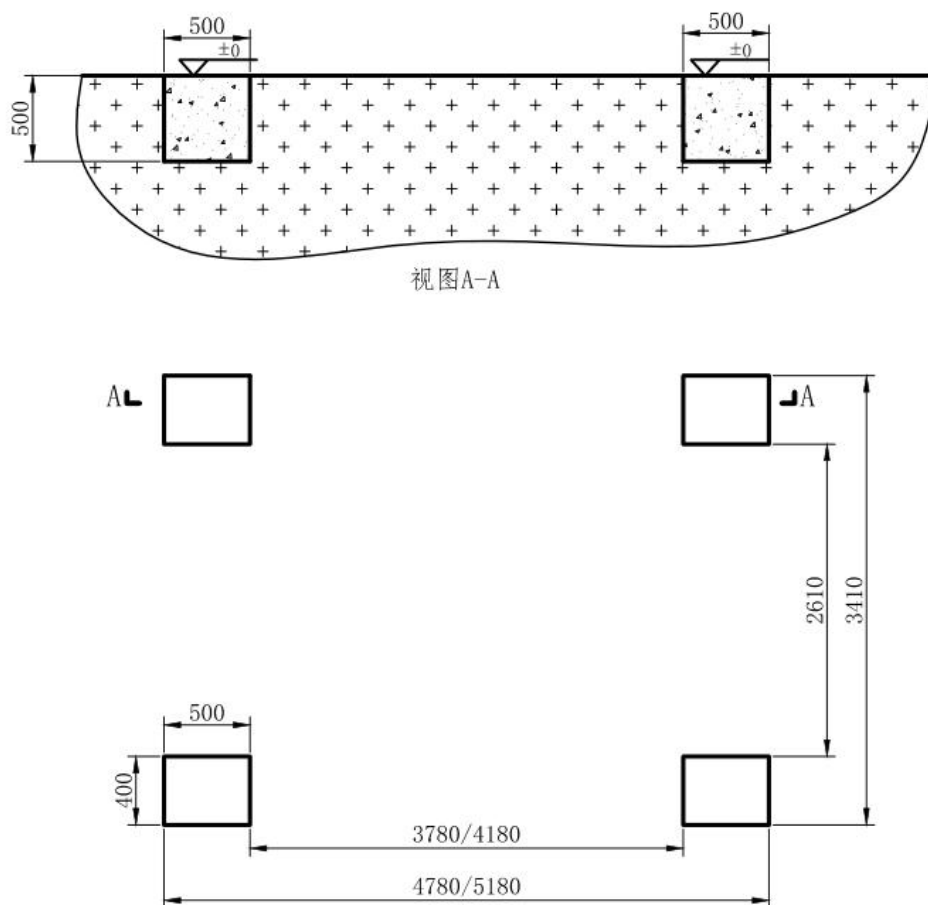
- No.15 driver post
- No. 9 follower post A
- No. 9 follower post B
- No. 9 follower post C
- No. 12 power cross beam A
- No. 10 drive-on cross beam B
- No. 11 drive platform A
- No. 7 drive platform B

### 4. PRE- INSTALLATION

Groundwork (see fig -5)

The 500mm thickness of the concrete pack shown in the figure is the minimum allowable

Thickness if this method having 4 off 800mm\*800mm concretes. Pads, is chosen then all four pads are to be on the same plane.



- 1 .Driver post (power column).
2. Center line of transverse beams.
3. Driven post
- 4 .centerline of platforms



**Note:**

**Make sure all intersecting lines should be at right angles, does not drill anchor holes at this time.**

Arrange power cross beam A (No.12), drive-on cross beam B (No.10), drive platform A (NO.11) and platform B (No.7) on lines already drawn on floor

**CAUTION**

**Be sure to arrange drive-on platform a (no.11) to the LH side (viewing from drive –on end of lift) with safety control rod facing outward. Note: The tail of the hydraulic cylinder, which is located under the drive –on platform a (No.11) should be pointing towards the power cross beam (near manual control handle). Then place drive on platform B(No.7) to the RH side (viewing from drive –on end of lift)**  
Connect drive-on platform A (No.11) to power cross beam A (No.12) as shown in fig . 4. Apply four wooden blocks beneath each end of power cross beam A and drive –on crossbeam B to elevate beams about 100mm above workshop floor.

Connect drive-on platform B (No.7) to power cross beam A (No.12) as shown

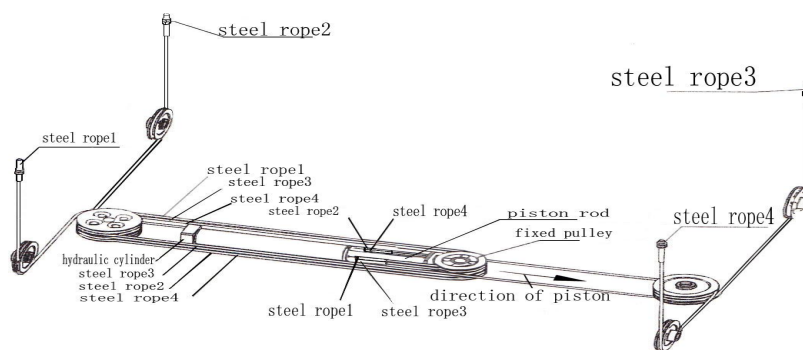
Connect drive-on platform A (No.11) to power cross beam B(No.10) as shown

Installing of cables:

Install steel cables onto the cable sheave wheels in both the cross beams, see fig .7 make sure that the cables have been tracked beneath the connecting lever and connecting lever shaft on the cross beams. Also the cables must be positioned behind the jockey pulleys on the cable safety device located in the ends of each cross beam

**CAUTION:**

**Keep all pulleys and shafts free from dirt and dust.**



All four-column latch plates can be installed in the lift posts.

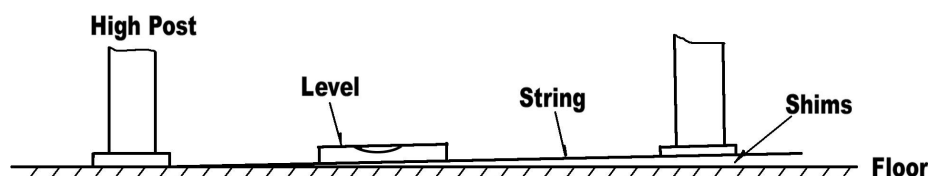
Raise and position driver post and driver posts A B C over each of the anchor bolt marks W .X. Y and Z.

**Caution:**

**The driver post is slightly un-balanced. After rising, be careful not to knock over.**

**Note:**

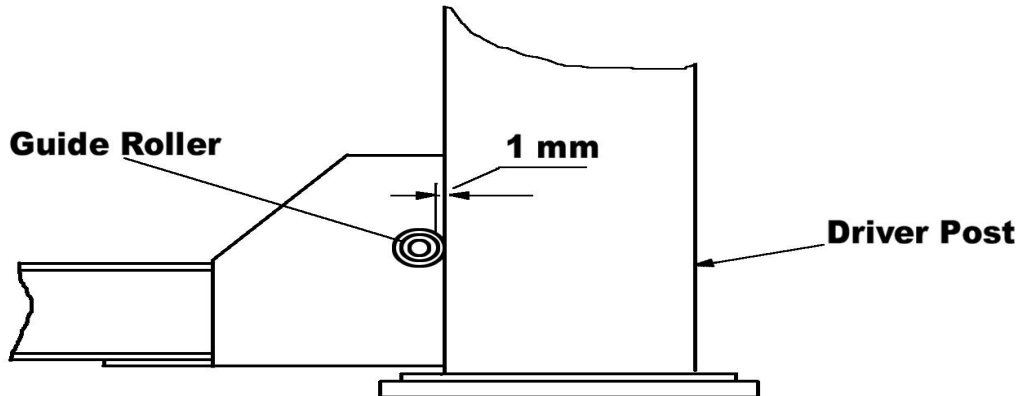
**If floor is not exactly level, shimming under post will be required to make all posts exactly level with each other and on the same plane. First. Find out which post is the highest. This can be determined easily by using strings and a level as shown in fig. (8)**



After finding the highest post. Determine the dimension between each other post and the highest post. This dimension is the thickness of the shims required to make each post exactly level with the others.

At this stage install the two guide rollers to the power end of cross beam A as shown in fig 9.

Note: apply oil or grease to shaft before installing guide rollers.



Install the guide rollers on the power end of cross beam A. There should be 1mm dimension between the guide roller and the post and this measurement is critical and it should be held as close as possible.

Now move the driver column into its position and install the anchor bolts and shim as required.

Now position all driven columns at their respective location at the ends of the cross beams drill anchor bolt holes, then install the anchor bolts and shim if required.

**Note:**

**Each post must be vertically so guide rollers maintain the 1mm dimension during full travel of lift.**

Attach all four cables to their respective column top plates; make sure to have the protruding cable the same length above the top plates of column.

Connect the manual safety control lever to platform control rods.

Attach hydraulic power pack to driver column. And connect to main supply hose to cylinder.

Connect all oil pipes, electro magnetic solenoid valve and column limit switch. Fill with oil and switch power on for operation.

Note: No load is to be placed on lift at this stage.

Raise and lower lift to disperse all air in the hydraulic system this may take two operations up and down, making sure that when the platform of the lift is lowered completely. To the ground, hold finger on lower button for approximately 5 seconds to rid the system of any remaining air.

Adjust cables to level the work platforms making sure to keep the exposed cable ends above each column top plate equal in length

Final adjust the clearance between the columns and crossbeams at this stage and then firmly tighten all anchor bolts on columns making sure columns are perfectly upright. Now adjust the height of the column safety latch plates so that the safety pawl so that the safety pawl plates are engaged in the latch plates of all columns, when the work platforms are horizontal and at rest with a vehicle being supported.

The method of adjustment is as following:

Ensure that the safety pawls are engaged in the holes of each of the latch plates.

Unfasten the bottom retaining. Setscrews on each latch plate

Place a level on the top face of the working platform. One platform at a time

Now adjust top adjusting nut to raise or lower, whichever is the case to bring the safety pawl plate into contact with bottom edge of opening in safety latch plate.

Adjust latch adjusters on a front and back column to get the work platform level from front to rear of lift (Repeat this process for both work platforms)

Now lay the level across the end beams and check adjustment sideways. Repeat this operation at the front and back cross beams until the lift is level in both planes when at rest and locked in all four-latch plates.

Finally fasten all lock nuts on top of columns and then all bottom retaining setscrews to anchor safety latch plates in their correct position.

Install both front wheel stops on work platforms.

Install both main wheel alignment recess cover plates

Install the four auxiliary wheel alignment recess cover plates

Now adjust lift and its platforms with load on platforms of lift.

On completion of the final adjustments, fit all column dust caps and transverse beam dust covers.

Your electric/hydraulic four-post lift is now ready for many years of service.

## 6. LIFT OPERATING

### 6.1 SAFETY PRACTICE

**WARNING:** failure to follow warning notices could result in personal injury or death

- The lift must be used by signed and responsible worker
- Never exceeds the max load adjusted
- Position the vehicle rightly on the foreseen resting areas

- Before every movement, make certain nobody stays within the action room at the lift and nothing stops the movement Nobody is allowed too go up and down with the load
- Control that safety devices operate regularly
- In case of any disturbance, obtain from consulting operation of lift and provide for repair of the same
- Never acting the lift by excluding the safety systems

## **6.2 OPERATING**

### **6.2.1 Raising of lift:**

1. Turn isolation switch to the 'on' position.
2. Press the 'raise' button and hold down.
3. **Lift will start its lifting operation.**

### **6.2.2. Stop raising lift:**

1. Remove pressure from 'raise' button.
2. Now press 'lower' button until lift stops its movement with the platforms horizontal. If platform tilts it means that the 'safety lock latch plates' require adjusting and have not engaged their respective latch hole in the lock plate

### **6.2.3 Lowering the lift:**

1. Press the 'raise' button until the lift has risen approximately 20mm.
2. Pull 'packing safety lock' lever, which will disengage the safety, locks from the latch plates in the four columns
3. While still holding the safety lock lever, press the 'lower' button and keep it depressed until the lift has lowered to the desired position.

## **7. MAINTENANCE**

### **7.1 Safety practice**

**WARNING:** failure to follow warning notices could result in personal injury or death.

- Follow carefully the instruction of operating book
- Lubrication and control the effecting of the safety device
- Control periodically the oil level in the container with the lowest lift

## 7.2 Daily inspection

1. Check if there are any obstructions inside each of the columns (post). Where the transverse beams travel during the operation of raising and lowering the lift.
2. Check there is a sufficient quantity of hydraulic oil in the reservoir of the power pack.
3. Check there is no oil leaks from oil circuit e.g. pipes, hoses and fittings.
4. Check there is no loose or missing nuts, snap rings and split pins.
5. Check there are no unusual noises from the motor, pump or any other moving parts whilst the lift is being raised or lowered.
6. Check if each safety device functions correctly.

## 8. GUARANTEE

Lifts are warranted for one year on the equipment structure, to be free of defects in material and workmanship. Jacking bridges are warranted for one year. Company shall repair or replace at their option for the warranty period those parts returned to the factory freight prepaid. Which prove upon inspection to be defective? This warranty does not extend to defects caused by ordinary wear, abuse, misuse, overloading, shipping damage, concrete floor problems, labour or travel time to replace faulty parts, improper installation or lack of required maintenance.

## 9. TROUBLESHOOTING

Symptom	Causes	Items for inspection	Method of correction
<b>Lift will not rise.</b>	1. No power	Poor wire contact	Check and reconnect wire.
	2.Damaged transformer	Motor starts when contactor is pressed manually.	Check motor and fuse or replace.
	3.Damaged 'Raise' button.	Motor starts when switch is by-passed.	Replace 'raise' switch.
	4.Damaged motor	Normal voltage.	Replace motor
	Motor runs in reverse.	Check voltage.	Reverse phases.
	5.Damage to AC contactor.	Motor starts when contactor is by-passed.	Replace AC contactor
	6.Height limit switch,damaged.	Lift acts normally when switch is by-passed.	Replace limit switch
	7. Damaged 'Lower' button.	Lift acts normally if solenoid circuit bypassed.	Replace 'Lower' button.
	8. Connection in electric circuit loose.	Everything is normal if connections are tight.	Tighten all connection points.
	9. Damaged solenoid valve	Oil returning to tank when button is pressed.	Replace electric solenoid

	10. Damaged oil pump	Motor runs but not pump.	Replace drive coupling
	Drive coupling damaged	Motor runs but not pump.	Replace drive coupling
<b>Raising speed to slow</b>	1. Not enough hydraulic oil.	The action of the lift when being raised.	Top up hydraulic oil
	2. Leakage from oil pipe or fitting	Inspect all fittings, oil pipes and hoses.	Tighten all fittings and hose joints.
	3. Blocked oil filter.	Dirty hydraulic oil	Clean or replace oil filter.
	4. Leakage from cylinder.	Sudden drop of lift when raising operation stopped.	Check and replace seal kit in cylinder.
	5. Leakage within pump.		Replace pump.
<b>Lift will not lower</b>	1. No power.	Badly connected wire or damaged outlet.	Replace supply cable or outlet.
	2. Loose Connection in	Normal if connection points enlightened	Retighten all points in the electric circuit
	3. Damaged 'Lower' button	Lift operates when switch is by-passed.	Replace 'lower' button
	4. Damaged Solenoid valve	No action when 'lower' button pressed.	Replace 'lower' press button switch.
	5. Damaged Solenoid valve	Coil in solenoid not working.	Replace solenoid.
	6. Damaged Spring in pressure release valve	Works normal after ball removed.	Replace spring
<b>Lowering speed to slow.</b>	1. Dirt solenoid Valve	Valve is sticking in its Operation	Clean solenoid valve
	2. Dirty oil filter	Dirty oil.	Clean or replace filter
	3. Dirty oil		Replace hydraulic oil