# 2 POST LIFT

Installation/Operation & Maintenance Manual



Before use, read and understand this manual thoroughly. "Safety Cautions" are established to keep your safe and prevent damages on properties, so you are wanted to read them carefully. The manual may be changed without any prior notice for quality improvement

Please note your model and options may differ from what displayed in this manual.

### NOTE TO THE USER

Thank you for purchasing this vehicle maintenance device from ROTARY ENGINEERING ASIA LTD.

Please read this manual carefully for safe and proper use of the vehicle lift, and keep it handy for future reference

#### This Manual is for model : RH-2PG-6000

1. AS FOR THE ASSURANCE OF SAFETY IN DESIGN AND CONSTRUCTION OF CAR LIFT, READ THIS MANUAL FIRST.

2. PLEASE MAKE SURE THAT THIS MANUAL IS DELIVERED TO END USERS FOR THEIR IMPLEMENTATION OF SAFETY.

3. INDOOR USE PURPOSE ONLY.

4. THE VEHICLE LIFT SHALL BE OPERATED WITH RESPECT TO THE COMPLETE OPERATING INSTRUCTION.

5. ONLY AUTHORIZED PERSONS SHALL OPERATE THE LIFT.

- ANY PART OF THIS PRINT MUST NOT BE REPRODUCED IN ANY FORM

WITHOUT PERMISSION.

- THIS PRINT IS SUBJECT TO CHANGE WITHOUT NOTICE.

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## WARRANTY

The warranty period of the Vehicle Lift shall be for a period of one year from the date of delivery. Subject to the limitations set forth below,

Contractor warrants that the Vehicle Lift will be free from defects in material and workmanship and undertakes to, at parts, including repaired or replaced parts, in the which are (1) due solely to defective material and/or poor workmanship on the parts of contractor and/or its sub-contractors and (2) for which notice thereof is duly given to contractor in writing or by Fax, confirmed in writing within thirty days after discovery of any defects of which claim made hereunder.

This warranty is subject to the following conditions:

- 1) Vehicle Lift shall be properly used and operated by the company's operator solely in accordance with the specifications and operating instruction provided by contractor.
- 2) This warranty shall not be constructed to cover any defects due to:
  - Normal wear and tear;
  - Bad operation and maintenance not in accordance with the operation an maintenance manuals to be provided by contractor;
  - Operation under conditions more severe than those in the specification and drawings;
  - Change in design or other modification by company without contractor's consent;
  - Movement or transfer without contractor's consent;
  - Consumable items in normal operating;
  - Any other carelessness not attributable to contractor.

Contact your sales agent for warranty coverage.

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#### **CHAPTER 1. SAFEGUARDS**

Please read this chapter carefully first for safe and proper use of the lift.

The company will not be held responsibilities for any injuries or accidents which occur due to the lift being operated without having understood the contents of the instruction manual. Keep the Manual close to the lift so that anyone can refer to when necessary. Also, designate a person to take care of the manual.

#### **1-1 Important Notice**

The lift must be considered to be a potential hazard to the health and safety of the lift's operator and service personnel. It is important that this lift is installed, maintained and operated according to the instructions set out within this manual.

Any modification, alternation or addition to the lift or the fitting of ancillary equipment must comply with the EU Council Directive(s). ROTARY ENGINEERING ASIA LTD. cannot accept any liability whatsoever, which may result in legal action form failure to comply with the regulations, or any consequential loss, claim or counter claim for damage, personal injury, or death arising as a result of any modification, alteration or addition to the fitting of ancillary equipment.

This document provides the information required for the intended use of lift. The documentation is written for technically qualified personnel such as engineers or maintenance specialists who have been specially trained and who have the specialized knowledge required in the field of industrial machinery.

A knowledge of the safety instruction and warnings contained in this document and their appropriate application are prerequisites for safe installation and commissioning as well as safety in operation and maintenance of the lift described. Only qualified personnel have the specialized knowledge that is necessary to correctly interpret the general guidelines relating to the safety instructions and warnings and implement them in each particular case.

For the sake of clarity, not all details of all versions of the product are described in this documents, nor can it cover all conceivable cases regarding installation, operation and maintenance. Should you require further information or face special problems that have not been dealt with insufficient detail in this document, please contact the manufacturer specified on cover page.

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We would also point out that the contents of this product documentation shall not become a part of or modify any prior or existing agreement, commitment or legal relationship. The purchase agreement contains the complete and exclusive obligations of ROTARY ENGINEERING ASIA LTD.

Any statements contained in this document do not create new warranties or restrict the existing warranty.

#### **1-2 Qualified Personnel**

Persons who are not qualified should not be allowed to handle the lift. Non-compliance with the warnings contained in this document or appearing on the lift can result in severe personal injury or damage to property. Only qualified personnel should be allowed to work on this lift. Qualified persons as referred to in the safety precautions in this document as well as on the car lift itself are defined as follows;

- •Operating personnel who have been trained work with the car lift and are conversant with the contents of the documents in as far as it is connected with the actual operation of the car lift;
- Service personnel who are trained to repair such the car lift and who are authorized to energize, clear, ground and tag circuits, equipment and systems in accordance with established safety practices.

#### 1-3 Danger Notice

The safety precautions in this manual are classified into the following four levels. Please be particularly careful when performing operations that have a high degree of danger.

- **DANGER :** Failure to follow this safety precaution may result in a great physical danger to the operator, or even death.
- **CAUTION :** Failure to follow this safety precaution may result in a great physical danger to the operator, or severe damage to the car lift.
- **WARNING :** Failure to follow this safety precaution may result in an injury to the operator, or damage to the lift.
- **NOTICE :** Failure to follow this safety precaution may result in a damage to the lift.

#### 1-4 Principle safety objective

- 1) The principle safety objective is to remove the possibility of any hazard or risk to the health or safety of the car lift's operator or service personnel.
- 2) Extreme caution must be exercised while servicing or installing the car lift.
- 3) The only safe policy when working or inspecting the car lift is to follow the instructions in this manual. Wherever possible shut off all electrical power and follow the procedures outlined in this manual.
- 4) Accident prevention should become part of the standard working, operating and maintenance procedures, and training should be provided to ensure safety standards are understood. Part of safety training should include the instructions detailed in this section.
- 5) If ancillary equipment is to be fitted ensure this is done in accordance with the relevant standards or EU Directives, and that all requirements for safety are fully met.
- 6) Always ensure servicing and maintenance tasks are carried out by suitable qualified personnel. The operator should understand the limits of their responsibility, and the training should reinforce the importance of not exceeding them.
- 7) The essential routine safety checks have an important function in ensuring the car lift continues to work in a safe manner. These checks must be carried out according to the instruction and at the recommended intervals.
- 8) If there are any questions or doubts regarding any aspect of lift safety or operation or maintenance, please contact the company shown on the front of this manual.

#### 1-5 Safety notice

To protect the operator or service personnel from any injuries or accidents during operating the car lift, please read this section and carefully for safe and proper use of the car lift.

♦General Safeguards

- 1. Please read this instruction manual carefully for safe and proper use of the lift.
- 2. Only qualified personnel should be allowed to work on this lift.
- 3. Checking before operation and routine inspection should be carried out in accordance with the procedures described in the manual.
- 4. When the abnormal condition not specified at this instruction manual is occurred during operating, stop the operation of car lift and contact the manufacturer specified on cover page or distributor.
- 5. This car lift should be only for repairing the car.

#### Danger Notice

DANGER		
	Do not go under the vehicle during operation. This can cause injury or death.	
	Evacuate to a safe place instantly in the event that the vehicle tips. This can cause injury or death.	

#### Caution Notice

CAUTION		
Only trained personnel can operate the lift. Inexperience may cause accident.		
	Before lowering the lift, make sure that there are no obstructions under the vehicle or lifting arms.	
9	When the vehicle is lifted, do not rock it as this may dislodge it.	
	Do not use only one pair of arms to lift a vehicle.	
	Do not modify the control box or safety devices as this may impair their function.	
	Keep your feet clear of the lifting arms and carriages.	

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	Keep your feet clear of the lifting arms and carriages.	

CAUTION				
Read and fully understand the manual before using the lift.				
	Do not operate damaged lift.			
	To avoid being electrocuted, disconnect the main power before opening the control box.			

#### Warning Notice

# WARNING To ensure the safe and proper use of the lift first operate it after carefully reading the instruction manual and making sure that you understand the contents. Prior to using the lift observe the following ; 1. This Lift is only for repairing the car. Do not use for other purpose. 2. Do not use the lift if any of the safety devices are not operating normally. 3. When driving onto or off the lift drive the car smoothly and avoid sudden braking or acceleration in order to prevent damage to the lift or to the underside of the car. 4. Avoid wheel spin due to wet surfaces or worn tyros. **S**. During lifting and lowering the lift > 5. During moving up and down, load carrying device of the lift must be observed by the operator throughout its entire motion. 6. After raising a short distance, the vehicle shall be checked to ensure that it is correctly and safely positioned.

- 7. It is forbidden for people to stand in the field of motion of the load and the load carrying device during the movement.
- 8. It is forbidden to climb onto the load or load carrying device when they are raised unless via a specifically designed access.

9. If several lift are installed the respective allocation of the individual switches must be clear.

10. Never exceed the rated capacity of the lift.

11. Passenger transport is forbidden. Never operate the lift with personnel in the car or on the lift.

12. Check that the lift pads and arms are clean and free of oil/grease at all times.

13. Raise the lift only after checking that the car and pick-up pads are properly positioned.

14. Stop the operation of lift when it reaches the required working height or the maximum height.

15. Following any movement of the lift wait for 1 - 2 seconds before the next operation is carried out.

16. Be careful to not shake the car during lifting and lowering the lift. If the car suddenly settles to one side, stop the operation of the lift immediately.

17. If on pressing the down switch the lift does not operate first press the up switch and then press the down switch again.

18. When the lift has been completely lowered to ground level swing the lift pads and arms free of the car and drive off the lift.

19. Ensure that unauthorized persons are nowhere near the lift during its operation.

20. Keep tools and component parts well clear of any moving parts of the lift. Failure to observe this may result in damage to the lift or the car.

21. During lowering the lift check that no person or any other obstruction is under or around the lift and car.

#### < During repairing the car observe the following : >

22. Check that the safety lock devices are properly engaged before entering the area under the car.

23. Prohibit unauthorized persons from entering the lift area.

24. Lower the lift completely if the operator intends leaving the lift area for a longer period or if the lift is not in operation.

#### < Other precautions >

25. Do not change or modify the lift without permission from the manufacturer. Failure to observe this may result in serious accident.

26. Should you find a fault on the lift during operation of during periodical safety checks, stop the operation of the lift immediately and call the distributor for maintenance service. DO NOT use the lift until it has been repaired.

27. Please note that this lift is not designed to be waterproof. Do not install the lift for car washing use or outdoor use..

#### 1-6 Essential Safety Check (ESC)

The essential safety check is the most important part of the operator's responsibility. The purpose of the ESC is to ensure the safety features of the lift are functioning properly, and thus the lift is in a safe condition for use.

In addition to the operator it is recommended that regular additional ESC is carried out by the responsible person and that a record is maintained in accordance with the EU machinery Regulations.

If any of the ESC is in the "Fail" condition, do not operate the lift, immediately notify the responsible person within the company and contact the manufacturer as soon as possible.

#### ESSENTIAL SAFETY CHECK (ESC)

#### **GROUP 1 GENERAL - Visual Inspection**

ESC	Description	0.K.	Fail
1A	Machine guarding		
1B	Electrical system including		
	protective earth grounding		

GROUP 2 Electrical isolator switch

Set the electrical isolator switch to OFF position and check the following conditions.

ESC	Description	0.K.	Fail
2A	All functions have been		
	disabled		



NO.	Warning Label
1	4
2	6000kg
3	
4	Above to eliminate air inside cylinder         Loosen a bit the bolt around 1-2         rotations by allen wrench.         Press         "UP" button until hydraulic fluid         comes out a little.         After that, tighten the bolt.
5	REAL Vehicle Lift         Model No.:         Capacity:       6000 kg         Net Weight:       970 kg         Electrical Spec.:       380 V. 3 Ph,         2.2 Kw, 50 Hz         Serial No.:         Date of Manufacture:         Rotary Engineering (Asia) Ltd.         E-mail:       sales@rotaryengasia.com
6	
7	How the function of the second

#### **1-8 Illumination**

This machine is not provided with a local lighting since it is designed for indoor use only. The sufficient illumination of the working area must be fulfilled by the factory in accordance with the appropriate code of practice and factory regulations. Minimum 300 lx is required. Flicker, dazzling, shadows and stroboscopic effects must be avoided to prevent a risk

#### 1-9 Operation sound level

The equivalent continuous A-weighted sound pressure levels of lift do not exceed 85dB (A).



The factory must provide operator(s) with the appropriate measures including but not limited to an ear protection and a warning sign(s) if the sound pressure of 85dB (A) is exceeded.

#### 1-10 Training

Contact the manufacturer specified on cover page for information on training courses to aid you in becoming familiar with this lift.

#### **CHAPTER 2. OVERVIEW OF MACHINE**

RH-2PG-6000 is a stationary 2-column lift designed to raise vehicles for the purpose of examining them or working on or under them whilst in a raised position.

#### 2-1 Specification

The rated Capacity		6,000 Kg	
Max. Lifting Height		2,015mm	
Min. Pad Heig	ht	121mm	
Stroke		1,800mm	
Lifting Time		Approx. 50~60 sec	
Lowering Time		Approx. 30~40 sec.	
Power & Motor		3Ph, 380/2.2Kw, 50/60Hz	
	Overall Height	4,442mm	
Dimensions	Drive Through Width	2,543mm	
	Width (Post Outside x Post Inside)	3,488 x 2,910mm	
Net Weight		970 Kg	



Part No.	Part Name	Part No.	Part Name
1	Drive Post	6	Short Arm Assembly
2	Slave Post	7	Long Arm Assembly
3	Carriage	8	Power Pack
4	Cross Beam	9	Control Box
5	Cylinder		

#### 2-2-2 Construction of Post



Part No.	Part Name	Part No.	Part Name
1	Post	29	Safety Lock Cover
2	Post Extension	30	Cross Head Screw
3	Cross Beam	31	Control Box
4	Hex Bolt	32	Cross Head Screw
5	Spring washer	33	Wire Pulley
6	Socket Screw	34	E Ring
7	Spring washer	35	Wire Pulley Protector
8	Flat Washer	36	Socket Screw
9	Limit Switch	37	Flat Washer
10 *	Post Cap Screw	38	Lock Block
11 *	Post Cap	39	Lock Spring
12	Hex Bolt	40	Lock Shaft
13	Flat Washer	41	E Ring
14	Spring Washer	42	Socket Bolt
15	Hex Nut	43	Solenoid Connector
16	Bracket for Limit Switch	44	E Ring
17	Cross Head Screw	45	Cross Head Screw
18	Mounting Plate for Power Pack	46	Spring Washer
19	Flat Washer	47	Solenoid Coil
20	Spring Washer	48	Pin
21	Hex Screw	49	Hex Nut
22	Anti Vibration Rubber	50	Screw
23	Power Pack	51	Electric Socket
24	Flat Washer	52	Screw
25	Spring Washer	53	Socket Box
26	Hex Nut	54 *	Air Joint
27 *	Cross Head Screw	55 *	Cross Head Screw
28 *	Hose Cover	56 *	Bracket for Pad Extension

Remarks: The parts with " \* " mark means optional parts.

2-2-3 Construction of Carriage



Part No.	Part Name	Part No.	Part Name
1	Hex Bolt	19	Combined Washer
2	Spring Washer	20	Orifice Spring
3	Flat Washer	21	Orifice
4	Carriage	22	Cylinder Connector
5	Carriage Guide	23	Hydraulic Hose Adapter
6	Door Protection Rubber	24	Hex Orifice Bolt
7	Flat Washer	25	Wear Ring
8	Socket Bolt	26	Piston
9	Arm Lock Gear Shaft	27	Rod Bar
10	Spring Pin	28	Back Up Ring
11	Arm Lock Spring	29	Dust Seal
12	Inner Arm Lock Gear	30	Head Cover
13	Arm Lock Spacer	31	Steel Ball
14	Spring Pin	32	Locking Bolt
15	Arm Shaft	33	O Ring
16	Locking Bolt	34	DU Bearing
17	Head Cover	35	Cylinder Tube
18	Steel Nipple		



Part No.	Part Name	Part No.	Part Name
1	Lifting Arm	10	Arm Pad Adapter
2	Socket Bolt	11	3rd Section of Lifting Arm
3	Flat Washer	12	2nd Section of Lifting Arm
4	Socket Bolt	13	Anti Toe Trap Bar
5	Rubber Pad	14	Cotter Pin
6	Rubber Pad Tray	15	Flat Washer
7	Circlip	16	Spring Washer
8	Arm Pad Supporter	17	Hex Bolt
9	Circlip		

#### 2-2-4 Construction of Upper Support Beam



Part No.	Part Name	Part No.	Part Name
1	Cross Beam(1)	12	Wire Pulley Spacer
2	Cross Beam(2)	13	Spring Washer
3	Top Limit Touch Bar	14	Hex Bolt
4	E Ring	15*	Wire Cable Safety Guide
5	Cross Head Bolt	16*	Flat Washer
6	Flat Washer	17*	Spring Washer
7	Hex Nut	18*	Hex Bolt
8	Limit Switch	19*	Wire Cable Safety Switch
9	Pulley Shaft	20*	Wire Cable Safety Switch Bracket
10	Flat Washer	21*	Cross Head Bolt
11	Wire Pulley	22	Top Limit Switch Bracket

Remarks: The parts with " \* " mark means optional parts.



Part No.	Part Name	Part No.	Part Name
1	Strainer	7	Cylinder
2	Pump	8	Check Valve
3	Motor	9	Relief Valve
4	Throttle Valve	10	Cushion Valve
5	Solenoid Valve	11	Oil Tank
6	Throttle Valve		

#### 2-3 Flow charts for operation

The lifting, lowering or stopping of lift is carried out by pressing the switch on the control box. The followings are the flowchart for operation.



#### 2-4 Safety device

The following safety device is installed at this lift.

Device	Description
	The safety lock is attached to the side of the cylinder to
	prevent the lowering of the lift in the event of a hydraulic circuit
Sofoty Look	damage.
Salety Lock	The safety lock is not in operation in the lower part of the lift
	range beneath the lock position. (Safety lock is operational at
	heights above 248mm).
	The check valve is a non-return valve to maintain the
Check valve	hydraulic pressure of the lift during lifting.
	The wire rope connects the 2 lift carriages left and right to
Wire rope	ensure synchronization at all times and to ensure that they
	remain at the same horizontal level.

#### **CHAPTER 3. TRANSPORTATION AND INSTALLATION**

This chapter explains how to install your lift. Always read it ahead of time, even when the lift is installed by ROTARY ENGINEERING ASIA LTD. or the place of purchase.

Please refer to this chapter when you re-locate your lift.

#### 3-1 Preparation for installation

< Before Installation >

This is a lift that has been made precisely by the advanced technologies and unique features of ROTARY ENGINEERING ASIA LTD., Not known to other engineers. Therefore, for higher reliability, it must be installed by our engineer or local representative or under the witness of our staffs or local representative to ensure the safe use for a longer time. This is also true when you re-locate your lift.

- < Installation Place >
- 1) The lift should be installed on a solid concrete and its strength should be at least 25N/mm<sup>\*</sup> or stronger. (The load strength of surface under the post shall have more than 25N/mm<sup>\*</sup>)
- 2) If spacers between post base plate and floor surface are necessary during installation to ensure that the base plate is horizontal and the post vertical, any gaps should be grouted with a mixture of cement and water. (This job must be carried out by the user.)
- 3) The distance between the ceiling and the highest point of load while lifting to the upper limit should be maintained more than 200mm



#### 3-2 Precaution during installation

1) Maintain the lift about 1m or more away from the wall in order to ensure the sufficient work space.



- 2) Do not change the specifications (lifting or lower in speed, and pressure) that have been pre-set at the factory.
- 3) Do not install the lift at outdoor. When the lift is installed at outdoor under unavoidable circumstances, the cable entrance of control panel should be water-proofed.
- 4) When gaps at the post or surface to be installed are made by adjusting the horizontal during installation, be sure to fill the gaps in wet cement and mortar. (This job must be carried out by the user.)

#### **3-3 Transportation**

The lift is packaged in a wooden box at the factory.

After the lift is arrived at the installation site, transport the product to the installation location in accordance with following procedure.

1) Machine should be transported to installation place by fork lift car.



2) Unloading and unpacking

Referring the packages to the packing list and assembly drawing, carry them into the installation site in order. It is to be desired that packages should be unpacked at the final installation place wherever practicable.

Reinforced materials are usually fitted with this machine so as to protect parts against damages on the way of transportation. Make sure not to remove them until the installation work starts. 3) Checking accessories and spare parts

Check that all accessories and spare parts are provided when unpacking the lift. Check all accessories and spares against the provided packing list. When you ordered optional equipment, check the equipment against the accessories and spares against packing list. Contact ROTARY ENGINEERING ASIA LTD. or the local distributor immediately if any parts is missing or damaged.

#### 3-4 Installation

The installation should be carried out in accordance with the following procedures.

1. After checking the parts, arrange them to the installation site as follows;





2. Erect the post



3. Assemble the upper support beam using the truck or ladder etc.



4. Assemble the hydraulic hose to T-shape joint on the drive post.



5. Install the hydraulic hose from the drive post along the upper support beam.

Bind the hose and the cable for the limit switch together by a cable ties as shown.



6. Pass the wire rope from the left carriage over the wire roller, along the cross beam over the right roller and down to the right carriage.

Repeat this with the wire rope from the right carriage over the cross beam to the left carriage.

Insert the bolt for fixing the wire rope in its attachment on the carriage and tighten the nut.



7. Insert the connector for the limit switch.



8. By the use of a water hose gauge or spirit level check the level of right and left carriages. If

necessary, adjust the base plate with spacers to equalize the height.



9. Check the vertical of both posts in both directions by using a magnetic spirit level.



- 10. Use the base plate as a template to drill the floor.
  - Use 5/8" X 150 anchor bolts to fix each base plate firmly to the floor.



11. Connect the input power cable (a. input voltage tolerance should be ±10%; b. frequency tolerance should be ±1%; c. There must be an over-voltage protection installed in the input power cable).



12. Start the lift. Listen to the engagement of the safety lock.

When this engagement occurs, stop the lift, adjust the wire ropes for carriages and tighten the lock nuts.



15. Moving up and down the lift, supply the grease at the slide side of post inside.



- 16. Check if the hydraulic oil in the oil tank of power pack is properly filled.
- 17. Check if the motor is rotated to the counter-clockwise.

When pressing the UP button. When the motor is rotated to the clockwise, change the phase connection of motor.

18. After finishing all of the above procedures, start no-load test.

Press the UP and DOWN switch 2 or 3 times at the intervals of about 2 seconds. Should

something wrong be found during the test, refer to troubleshooting.

19. If the above no-load test passes satisfactorily, please run the load test.

#### **CHAPTER 4. OPERATION**

#### 4-1 Warning for use



Only qualified personnel should be allowed to work on this vehicle lift. Ambient temperature should be 5-40°C. Ambient humidity should be 50%@40°C - 90%@20°C. The maximum installation altitude is 1000m.

#### 4-2 Checking point before operation

- Check the below items every day before operation During checking, do not load a vehicle on the lift.
- When you find the fault of list during using or checking the lift,

stop the operation of lift, and request the maintenance to the

sales agency. Do not use the lift until the lift is repaired.

- (1) Check that the lift operates normally during lifting and lowering and there is no abnormal noise.
- (2) Check that lift operates correctly when the buttons are pressed and check that the lift stops immediately when the buttons are released.
- (3) Check if there is oil leakage on the hydraulic hose, hydraulic seals, hydraulic cylinder, and the hydraulic unit and make sure there is no abnormal noise from pump or cylinder.
- (4) Check that the safety lock acts normally during lifting.
- (5) Check that all nuts, bolts and screws are correctly tightened.
- (6) Check visually the lift structure, arms, pick-up pads etc. for damage.
- (7) Check that all electrical functions operate normally.
- (8) Check that the lift and the working area are clean and tidy.

#### 4-3 Preparation before operation

Check the following items before loading a car on to the lift;

- (1) Ensure that the lift is at the bottom position.
- (2) Prohibit the access of unauthorized persons to the lift area.
- (3) If the lift has been out of use for a long time check the oil level in the pump unit and top up if necessary. Operate the lift up and down 2-3 times without load.
- (4) When driving the car on to the lift, ensure that the car is equally distant from each post.
- (5) Do not change the pre-set safety valve pressure as this has been adjusted by the manufacturer.
- (6) If the oil level is too low, the lift cannot operate effectively.
- (7) Before lowering the lift, make sure the lift area is clear with no persons or obstructions.
- (8) Passenger transport on the lift or in/on the vehicle is forbidden.
- (9) During the winter, operate the lift 3 to 5 times without load in 5°C ~ -20°C. Do not use the lift in a temperature of -20°C.

#### 4-4 Description of control panel

#### 4-4-1 Configuration of panel

The configuration of control panel is as follows.



#### 4-4-2 Description of control panel

Switches and Lamp	Function description
	Power lamp. The power lamp will light up when the main switch is turn on.
Off Official Solution	The CAM switch is the mains switch for the supply of power to the lift. Before the lift is operated this switch mush be turned ON. In the event of emergency turn OFF the power to isolate the lift.
	Push button for moving the lift upwards. When the CAM switch is positioned to ON and the button is pressed, the lift moves up.
	Push button for moving the lift in a downwards direction. When the CAM switch is positioned to ON and the button is pressed, the lift moves down. If up limit switch is ON, The lift directly moves down. If up limit switch is OFF, The lift first move up, and then move down.

#### 4-5 Operation

The procedure for operating the lift is as follows;

- 1. Lower the carry to the ground by moving down the manual lever for lowering the lift.
- 2. Spread the arm at its maximum so that the car can be entered into the lift.



3. Enter the car into the lift and locate the car so that the center of weight of car is positioned to the center of lift. And then, lock the side brake.



- 4. After the driver get off, put the arms into the bottom of car. Move up the carry of lift till the wanted height by pressing the UP button.
- 5. After checking if the car lift is out of order, repair the car.
- 6. After finishing the repair job, press the Down button to lower the lift.
- 7. After the lift is moved down to the ground, take off the arm from the car and move the car to the safety area.

#### 4-6 How to lower manually the lift during emergency

4-6-1 When the manual operation is needed.



When you can not be carried out the manual operation, contact our company for A/S.

- 1) When the power supplied at lift is interrupted and hydraulic circuit is damaged.
- 2) When lowering inevitably the lift at the manual mode because of electrical problems.
- 4-6-2 Preparation before the manual operation
- 1) Remove the obstacles under the lift before lowering it.
- 2) Turn off the power switch.
- 3) Check if there is no person under the lift.
- 4) Prepare the cross head screw driver and fine wire.

4-6-3 Operation procedure

- 1) Open the cover for protecting the locker with cross head screw driver.
- 2) Release the locker with the fine wire.
  - (When the locker is not released, release the locker after moving up the carry more than 30mm using hydraulic jack.)
- 3) Rotate the cock attached at the side of pump unit in a counter-clockwise and then, the lift start to lowering.



- 4) Lock the cock after the lift is moved down completely.
- 5) Close the cover after returning the lifted locker.

#### CHAPTER 5. TROUBLESHOOTING

#### 5-1 Inspection and repair

Symptoms	3	Check point	Corrective Action to be taken	
Wire Rope and Locking device	Platform is not leveled when lift is moving up by wire rope	<ol> <li>Check if wire rope is partially loosened.</li> <li>Check if clip of wire rope is loosened.</li> </ol>	<ol> <li>Adjust the fixing bolt of wire rope after checking the levelity.</li> <li>Tighten clips after adjusting levelity.</li> </ol>	
	Lift is not moved when DOWN button is pressed.	1. Check if the carry is catching the lock device. 2. Check if the power is supplied to solenoid valve.	<ol> <li>Lower again after moving up the lift.</li> <li>Repair the wire connection and lower the lift in accordance with the manual operation procedure.</li> </ol>	
	Platform is inclined during lowering.	<ol> <li>Check if the oil at load head cover is sufficient.</li> <li>Check if the air is mixed at the hydraulic oil.</li> </ol>	<ol> <li>Supply the oil.</li> <li>Let air out of the hydraulic unit after supplying the oil.</li> </ol>	
	Lock is not working when lifting or lowering.	<ol> <li>Check the connection of wire and connector.</li> <li>Check the operation of manual lever.</li> </ol>	<ol> <li>Connect them and request A/S.</li> <li>Release manual lever.</li> </ol>	
Cylinder and it's relatives	The abnormal noise at motor is listened.	<ol> <li>Rated capacity is exceeded.</li> <li>Relief pressure is low.</li> <li>Shortage of hydraulic oil.</li> </ol>	<ol> <li>Operate within rated capacity.</li> <li>Adjust to 4 ton.</li> <li>Let air out of the hydraulic unit after supplying the oil.</li> </ol>	
	Hydraulic Oil leaks.	<ol> <li>Defect in hydraulic hoses.</li> <li>Leakage from connecting parts.</li> <li>Bad cylinder packing.</li> </ol>	<ol> <li>Replace the hydraulic hose.</li> <li>Tighten the connection.</li> <li>Request A/S.</li> </ol>	
	Oil contaminated	1. Influx of water or Foreign substance	<ol> <li>Change oil - annually (Hydraulic oil : 32CST/12 liters)</li> <li>First oil change : 2 months after operation</li> <li>Afterwards regular change</li> </ol>	
	The lift is not moving up.	<ol> <li>Check if the oil is leaking or hydraulic units are damaged.</li> <li>Check if the lift is operated improperly.</li> <li>Check if the carrying load capacity is over.</li> <li>Check if pressure at relief valve is proper.</li> </ol>	<ol> <li>Request A/S.</li> <li>Relieve the air in hydraulic hoses</li> <li>Load within the rated capacity.</li> <li>Adjust to 20.5Mpa.</li> </ol>	
	The lift is not lowering.	<ol> <li>Check if the safety device is locked.</li> <li>Check if the electric circuit is damaged.</li> <li>Lower it in accordance with the p emergency, and then, request A<sup>1/2</sup></li> </ol>	<ol> <li>Re-lowering after lifting slightly.</li> <li>Refer to electric check points.</li> </ol> rocedure to lower manually the lift during	
		energency, and men, request A/S.		

Electric Devices	Motor is not operated and the abnormal noise at motor is listened.	<ol> <li>Check if the motor is damaged.</li> <li>Check if the fuse is opened.</li> <li>Check if the push button is damaged.</li> <li>Check if the upper limit is operated.</li> <li>Check if wiring gauge is proper.</li> <li>Check if the input power less than 200V is supplied.</li> </ol>	<ol> <li>Replace the motor (Request A/S).</li> <li>Replace the fuse after solving trouble.</li> <li>Replace the push button (Request A/S).</li> <li>Re-operate after lowering the lift.</li> <li>Replace to the cable with over 3.5mm2 diameter.</li> <li>Increase the input power capacity.</li> </ol>
	NFB or circuit breaker (30A) is operated.	<ol> <li>Check the Contact of magnetic contactor.</li> <li>Check the capacity of circuit breaker.</li> <li>Check if the wire is damaged.</li> </ol>	<ol> <li>Replacement (Request A/S).</li> <li>Replacement (Request A/S).</li> <li>Replacement after checking.</li> </ol>
	Motor is operating but lift is not moved up.	<ol> <li>Check if the rotating direction of motor is correct.</li> <li>Check if hydraulic lines is damaged.</li> </ol>	<ol> <li>Re-operate after changing the phase connection.</li> <li>Refer to check points for hydraulic cylinder and unit.</li> </ol>

#### **CHAPTER 6. MAINTENANCE**

#### 6-1 General caution during maintenance

- 1) Maintenance should be performed by more than two persons.
- 2) Maintenance should be carried out after putting a sign-board of "NO ENTRANCE" at work area.
- 3) Don't disassemble the system before you are familiar with the disassemble sequence.
- 4) Record the place or parts where maintenance is needed.
- 5) Keep the disassembled parts safely.
- 6) Be sure to fasten bolts and nuts correctly in its position during attaching the parts.
- 7) During maintenance the inside of control box, check if CAM switch is in "OFF" position.
- 8) During replacement of electrical component, fasten the terminal bolts of part tightly after checking the wire number (or color) and parts number.
- 9) Clean the control box inside by air once a month.
- 10) Check once a week whether the bolts are loosen, and if the bolts are loosen, fasten the bolts tightly.
- 11) Don't open the control box without permission of authorized persons during the maintenance of control box.

Inspection	Points to be checked	Items to be checked	Inspection	Action to be	
period	I UNITS TO DE CHECKEU	items to be checked	method	taken	
1 week	Rubber Support for			Replacement	
	adjustment	Abrasion and deformation	visual		
	Magnatia contactor	Domogo of contact	Measuremen	Replacement	
	Magnetic contactor	Damage of contact	t		
	Wire Dopo	Abrasion, deformation and	Vieuel	Replacement	
		Breaking of wire	visual		
	Leap Chain	Abrasion and deformation	Visual	Replacement	
0	Leap Chain Wheel	Abreater	) (in the l	Replacement	
3 months	and DU bearing	Abrasion	visual		
	Axis for Arm Lock	Operation of lock	Visual	Replacement	
	Housing for Arm Lock	Operation of lock	Visual	Replacement	
	Dust-proof rubber	Abrasion and deformation	Visual	Replacement	2year
6 months	Carry Guide	Abrasion	Visual	Replacement	3year
	Electrical component	Domogo of component	Measuremen	Poplacomont	Sucor
	Electrical component	Damage of component	t	Replacement	Syear
	Hydraulic Oil	Shortage of oil	Visual	Replacement	1year
1 year	Piston Seal Kit	Oil leak or deformation	Visual	Replacement	3year
	Load Seal Kit	Oil leak or deformation	Visual	Replacement	3year

#### 6-2 Check List and periodic maintenance

#### 6-3 Lubricant

The supply of oil or grease on the nipple or friction parts will reduce the loss of power consumption from the friction and minimizes its loss and it increase the efficiency of the machine.

The followings are the oil supplying plan.

#### Oil supplying plan

Location to be applied Post Kinds of oil or grease SAE 20 or SAE 30 Period of exchange every 6 months

# **APPENDIX**

#### **1. ELECTRIC DIAGRAM**



#### 2. SPARE PARTS LIST

No.		Name	Туре	Manufacturer	Spec.
1		Power Cable	H07RN-F4*1.5	Zhejiang Jiashan Jiatong Electrical Appliance Co., Ltd.	4x1.5
2	QS	Main Switch	V01+KCD1PZ	Schneider	20A
3	KM	Contactor	LC1-K12B7	Schneider	AC 24V
4	FR	Thermal Overload Relay	LR2K0314	Schneider	5.5-8A
5		Power Unit	power pack-T	-Teck	400V 3Ph
6	FU1 FU2	Fuse	RT1-20	Changzhou China-Lay	2A
7		Fuse Holder	AB1FU10135U B	Schneider	2A
8	Т	Transformer	ABL6TS10B	Schneider	230V,400/24V
9	QF	Circuit Breaker	OSMC32N1C1 0	Schneider	10A
10	FU3	Fuse	RT1-20	Changzhou China-Lay	3A
11		Fuse holder	AB1FU10135U B	Schneider	3A
12	S1	Push button (Hold to run)	XB2BA3345C	Schneider	white
13	S2	Push button (Hold to run)	XB2BA3351C	Schneider	black
14	HA	Indicator light	XB2BVB1C	Schneider	AC24V
15	K	Relay	RXM2AB2B7	Schneider	AC24V
16	KT	Timing Relay	RE11RAMU	Schneider	AC24V
17		Terminal Block	AB1VV435U	Schneider	
18		Terminal Block	AB1TP435U	Schneider	
19	S6	Limit Switch	XCE-145	Schneider	
20		Cable Gland	METRICA-P	Hummel AG	M12,M16,M20
21		Motor Cable	H07RN-F4*1.5	Zhejiang Jiashan	4*1.5
22		Limit Switch Cable	H05RN-F2*0.75	Jiatong Electrical	2*0.75
23		Safety Braker Cable	H05RN-F2*1.0	Appliance Co., Ltd.	2*1.0



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