English Version

HBN-H-301-03/Ver. 1.0

LIFT

HL-3300J/W INSTRUCTION MANUAL



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Document Revision Guide

Version	Date	Changes	Pages affected
1.0	2/2002	Initial Release	





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DECLARATION OF CONFORMITY

according to EN45014(09/1989)

We,

HESHBON Co., LTD. (supplier's name) 673-52, Gyeongseo-dong, Seo-gu Incheon 404-170, KOREA (address)

declare under our sole responsibility that the product

product : Car Lift

<u>Type</u> : <u>HL-2500E, HL-26K, HL-31X, HL-3000N, HL-41G, HL-51G</u> HL-25H, HL-26P, HL-31S, HL-32S, HL-32F, HL-3300J, 3300W, HL-46H

Serial Number:

(name, type or model, lot, batch or serial number, possibly sources and numbers of items)

to which this declaration relates is in conformity with the following standard(s) or other normative document(s); (title and /or number and date of issue of the standard(s) or other normative document(s)) EN292-1(1991) Safety of machinery-Basic concepts, general principles for design

EN292-1(1991)	Safety of machinery-Basic concepts, general principles for design Part 1 : Basic terminology, methodology
EN292-2(1991) Amd A1(1995) EN60204-1(1997)	Safety of machinery-Basic concepts, general principles for design Part 2 : Technical principles and specifications Safety of machinery-Electrical equipment of machines Part1 : General requirement
EN1493(1999) EN50081-2(1994)	Vehicle Lifts Electromagnetic compatibility . Generic emission standard Part 2: Industrial environment
EN50021-2(1995)	Electromagnetic compatibility . Generic emission standard Part 2: Industrial environment

following the provisions Directive(s);

98/37/EC	Directive on the approximation of the laws of Member States relating to machinery(OJ L207-23.7.98)
73/23/EEC	Directive on the laws of Member States relating to electrical equipment designed for use with certain voltage limits(OJ L76 26.3.73);amended by Directive 93/68/EEC(OJ L220 30.8.93)
89/336/EEC	Council Directive on the approximation of laws of the Member States relating to electromagnetic compatibility (OJ L139 23.5.89); amended by Directives, 92/31/EEC(OJ L126 12.5.92)and 93/68/EEC(OJ L220 30.8.93)



NOTE TO THE USER

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Thank you for purchasing HESHBON'S CAR LIFT. Please read this instruction carefully for safe and proper use of the car lift, and keep it handy for future reference.

- n This Manual is for model ; HL-3300J/W
- 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. DON'T USE THE CAR LIFT IN A POTENTIALLY EXPLOSIVE ATMOSPHERE.

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WARRANTY

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The warranty period of the Car Lift shall be for a period of one year from the date of delivery to sales agent.

Subject to the limitations set forth below,

Contractor warrants that the Car 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 workman -ship on the parts of contractor and/or its sub-contractors and (2) for which notice there of is duly given to contractor in writing or by FAX. Confirmed in writing within thirty (30) days after discovery of any defects of which claim made hereunder.

This warranty is subject to the following conditions ;

- Car 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 operating and 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.

HESHBON CO., LTD. 673-52, Gyeongseo-dong, Seo-gu Incheon 404-170, KOREA Tel) INT +82-32-585-3570 FAX) INT +82-32-585-3485



- COVER SHEET

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Please read carefully this chapter first for safe and proper use of the car lift. This company will not be held responsibilities for any injuries or accidents which occur due to the car lift being operated without having understood the contents of the instruction manual. Keep the Instruction Manual close to the car lift so that anyone can refer to when necessary. Also, designate a person to take care of the manual. www.heshbon.com

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1-1 Important Notices

Car lift must be considered to be a potential hazard to the health and safety of the car lift's operator and service personnel. It is important that this car lift is installed, maintained and operated according to the instructions set out within this manual. This is a responsibility imposed on the customer by the EU Council Directive 89/655/EEC, concerning the minimum safety and health requirements for the use of work equipment by workers at work.

Any modification, alternation or addition to the car lift or the fitting of ancillary equipment must comply with the EU Council Directive(s). HESHBON can not 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.

EU Council machinery Directive 98/37/EC.

The above machinery directive requires all new machinery to carry the CE mark, declaring conformity with all relevant EN standards in respect of safety systems and car lift construction.

All HESHBON carry the CE mark and thus conform with the EU Directives. Any modification to the car lift may invalidate the original CE certificate, and therefore always refer to HESHBON as reassessment may be required. This document provides the information required for the intended use of car 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 car 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.

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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.

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

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1-2 Qualified Personnel

Persons who are not qualified should not be allowed to handle the car lift. Non-compliance with the warnings contained in this document or appearing on the car lift can result in severe personal injury or damage to property. Only qualified personnel should be allowed to work on this car 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 Notices

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 car lift.
- NOTICE : Failure to follow this safety precaution may result in a damage to the car lift.

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1-4 Principle safety objective

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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 car lift safety or operation or maintenance, please contact the company shown on the front of this manual

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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 carefully this instruction manual for safe and proper use of the car lift.
- 2. Only qualified personnel should be allowed to work on this car 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 Notices

DANGER				
	Do not enter under the car lift during lifting the car. You may result in a great physical danger or even death.			
	Do escape to the safety zone without staying under car lift when the car is possible to fall down. You may crush under car and then, result in a great physical danger or even death .			



Caution Notice

CAUTION				
	Only qualified personnel should be allowed to work on this car lift. Unexpected accidents may be happened due to wrong operation.			
+	Do not lower the lift in the state of supporting a car by a stick to attach or detach components. The car may fall down.			
	Do not shake the lifted-up car. The car may fall down.			
	Do not move up the lift in the condition of putting only one side of car into the lift. A car may fall down or damage. And also, the lift may damage.			
	Never modify a safety devices. If a safety devices are not operated, a serious accident may be happened.			
	During lowering the lift, be careful to not put foot under a table. Serious injury may be happened.			

CAUTION				
	Use the lift after reading carefully the instruction manual and understand the contents of them for safe and proper use of the car lift. If a user does not follow a warnings, a serious accident may be happened.			
	When the car enter into the lift, keep the balance of before and behind, and right and left of the car. A car may fall down during vibration, attachment or detachment of components.			
	Electric shock. When opening a control panel, be careful to the electric shock. Serious injury or death may be happened.			

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♦ Warning Notice

WARNING

Use the lift after reading carefully the instruction manual and understand the contents of them for safe and proper use of the car lift.

< During preparation>

- 1. This Lift is only for repairing the car. Do not use for other purpose.
- 2. Do not use the lift whenever any one of safety devices is not normally operated.
- 3. When the car is entered into the lift or gone out from the lift, please drive a car smoothly without the sudden stop or drive.
- 4. Be careful to not slide when a tire or arm is wet.



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around the lift or car.

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WARNING < During repairing the car > 19.Check if the safety lock device is properly operated before operation. 20. Prohibit the unauthorized persons from accessing to the lift. 21. When the operator is not in the lift for a long time, or the lift is not operating, lower completely the lift. < Other > 22.Do not change or modify the lift without permission. If the lift is modified or changed, the lift may not fulfil its function, or serious accident may be happened. 23. When you find the fault of lift 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. 24. Please note that this lift is not designed for water-proof. Do not use the lift in the hot place, car-washing use or outdoor use. Use the lift after reading carefully the instruction manual and understand the contents of them for safe and proper use of the car lift.

1–6 Essential Safety Checks (ESC's)

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

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

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



ESSENTIAL SAFETY CHECKS (ESC'S)

GROUP 1 GENERAL - Visual Inspection

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

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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		

1-7 Safety Signs and Warnings location



- 1. CAUTION NOTICS
- 2. Danger/warning/caution
- 3. HEAD COUTION
- 4. NAME PLATE
- 5. HAND DANGER
- 6. FOOT DANGER
- 7. WARNING BELT
- 8. HESHBON SYMBOL

NO	NAME	LAY OUT	SIZE
1	3300 CAUTION NOTICS	CAUTION State is the construction of the state is state in the state in the state is state in the state in the state is state in the s	122×106
2	Danger/warning/caution		155×530
3	HEAD COUTION	मटाङ्ख	10×10×10
4	NAME PLATE	HIL-333000 HOST LACK MOODEL MODEL NO. SERIE H-3000 GMARCITY & SERIE MARY 40004 JACK 20009 MAX. HEGGIT & BEERBAND MARY 1.7560 H-JACK 456m MIN. HEGGIT & BEERBAND MARY 1.7560 H-JACK 5-15600 OVERAL WIDT SIM 3-5500 OVERAL WIDT SIM 3-5500 OVERAL WIDT SIM 3-5500 DATE SIM 5-5500 DATE SIM 5-55000 DATE SIM 5-55000 DATE SIM 5-55000 DATE SIM 5	108×98
5	HAND DANGER	Image: Constraint of the second se	130×45
6	FOOT DANGER		130×45
7	WARNING BELT		350×40
8	HESHBON SYMBOL	HESHEDN	125×130

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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 Level of sound pressure

The equivalent continuous A-weighted sound pressure levels of car 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 car lift.

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CHAPTER 2. OVERVIEW OF MACHINE

HL-3300J is a powerful lift used for the wheel alignment of vehicle with a 4.0 ton rated capacity.

2-1 Specification

Мс	odel No.	HL-3300J/W	
The roted Capacity	Main Board	4,000 Kg	
The faled Capacity	2-step operated Jack	2000Kg	
May Haight	Main Board	1,750mm	
max. Height	2-step operated Jack	455mm	
Min Hoight	Main Board	184mm	
	2-step operated Jack	235mm	
Quarall Width	Main Board	3,150mm	
	2-step operated Jack	820~1550mm	
Lifting Time	Main Board	40~60sec.	
	2-step operated Jack	5~15sec	
	Main Board	Approx 35 sec.	
Lowening Time	2-step operated Jack	Approx 5~15sec	
		S/P:2.5HP, 230V/50Hz	
Standard Motor		T/P:2HP, 230V/400V/50Hz	
Dimension	Outer Width X Inner Width X Length	3,150 X 2,215 X 5,346mm	
	Max. Height	2,215mm	
Net weight		1,440 kg	



2-2 Description of Construction

2-2-1 Assembly



Part No.	Part Name	Part No.	Part Name
1	Hyd. Unit Box	9	Inlet Ramp
2	Post Cap	10	Sub. Ram
3	Tire Stopper	11	2 Step Operated Jack 1
4	Main Board(Drive)	12	Control Box
5	1st Post(Drive)	13	2nd Post
6	2 Step Operated Jack 2	14	2nd Post
7	Main Board (Tail)	15	2nd Post
8	Main Board Support		



2-2-2 Construction of Arm Tracle Support



Part No.	Part Name	Part No.	Part Name
1	Wire Pulley Collar	9	Snap Ring
2	Wire Pulley Shaft	10	Coil Spring
3	Wire Pulley Collar	11	Post Guide
4	Coil Spring	12	L-Wrench Bolt
5	Snap Ring	13	Safety Rocker Set
6	Safety Lock Roller	14	Mainboard Support
7	Wire Guide Roller	15	Oiless Bearing
8	Wire Shaft	16	Wire Pulley



2-2-3 Construction of Post



Part No.	Part Name	Part No.	Part Name
1 Main Post		5	Wire Rope Set
2	Locker Rail	6	Wire Rope Nut
3	Post Cap	7	Set Anchor Bolt
4	Locker Rail Bolt Set		



2-2-4 Construction of 2step operated jack (option)



Part No.	Part Name	Part No.	Part Name
1	Slide Table	19	Snap Ring
2	Main Board	20	Stopper
3	Link 1	21	Stopper Pin
4	Link 2	22	Head Mount
5	Base	23	Head Seal Kit
6	Hex. Nut	24	Rod Cover
7	Spring Washer	25	Rod
8	Flat Washer	26	Piston
9	Ball Bearing	27	Set Screw
10	Upper Roller Pin	28	Piston Seal Kit
11	Upper Static Pin	29	Tube
12	Snap Ring	30	Tail Cover
13	Spacer	31	Grease Nipple
14	Lower Static Pin	32	L-wrench Bolt
15	Middle Link Pin	33	Hex. Nut
16	Lower Roller Pin	34	Rail Guide
17	Spacer	35	Push One Nipple
18	Upper Cylinder Pin	36	One Touch Hose Coupler



2-2-5 Construction of Cycinder



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Part No.	Part Name	Part No.	Part Name
1	Air Filter	8	L-wrench Bolt
2	Tail Cover	9	Piston
3	Tail Bracket	10	Piston Seal Kit
4	Cylinder	11	Rod
5	Head Bracket	12	Wire Clamp Plate
6	Rod Seal Kit	13	Wire Clamp York
7	Head Cover	14	Hex. Nut



2-2-6 Construction of Hydraulic Circuit



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Part No.	Part Name	Part No.	Part Name
1	Motor	10	Valve Block(Jack 2)
2	Relief Valve	11	Valve Block Bolt
3	Manual Valve(Main Board)	12	Hydraulic Hose(Main Board)
4	Manual Valve(Jack 1)	13	Hydraulic Hose(Jack 1)
5	Manual Valve(Jack 2)	14	Hydraulic Hose(Jack 2)
6	Support	15	Breather Cap
7	Support Bolt	16	Oil Tank
8	Valve Block(Main Board)	17	Drain Cap
9	Valve Block(Jack 1)	18	Solenoid Valve Set



2-2-7 Wiriney Diagram



Part No.	Part Name	Part No.	Part Name
1	Main Board(Drive)	12	Hex. Bolt
2	Sub. Ramp	13	2nd Post Wire Pulley
3	Hex. Bolt	14	Locker Set Electric Wire(Front
4	Sub. Ramp Support	15	Wire(2~3)
5	Post Wire Pulley	16	Hydraulic Hose(Jack 1)
6	Double Wire Pulley	17	Hydraulic Hose(Main)
7	Wire Clip	18	Hydraulic Hose(Jack 2)
8	Cylinder Ass'y	19	Locker Set Electric Wire(Rear)
9	1st Post Wire Pulley	20	4th Post Wire Pulley
10	Single Wire Pulley	21	Wire(1~4)
11	Tire Stopper		



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2-3 Flowchart 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.





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2-4 Safety device

The following safety devices are installed at this lift.

Device	Description	
	The safety lock is attached to the side of cylinder and	
	protects the lowering of lift when an hydraulic oil is	
Safety Lock	leaked or hydraulic circuit is damaged. The safety lock is	
	not operated in the range of low height without the lock.	
	(Safety lock is possible to operate at height more than	
	260mm.)	
	The Safety Lock Roller is the safety device for protect the	
Safety Lock Roller	lift from lowering by sticking the safety lock roller fast to	
	the rail when the wire is disconnected.	

CHAPTER 3. TRANSPORTATION AND INSTALLATION

3-1 Preparation for installation

The lift shall be installed on hard and flat floor made with reinforced concrete with the thickness of 250mm. The anchor bolt shall endure the tensile load of at least 8KN/ m^{2} .

3-3-1. It is recommended that the ceiling is high enough to provide clearance of at least 200mm over the vehicle that is the highest among the ones allowed to the lift, when the lift is at its highest position (plate 1750mm+2 step jack 455mm).



If there is not enough clearance, adjust the maximum ascending limit to reduce the height of the lift. .

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3-3-2. The lift shall be installed on the location in which it is easy and safe to drive in/out a vehicle.



3-3-3 The load of the floor under the posts shall be at least 350KN/ $\ensuremath{\mathbb{m}}^{\circ}$.

3-3-4. Make enough space around the lift, and install the lift at a distance of at least 1 meter from the wall in consideration of operation work.



3-2 Installation Process

- 3-2-1. Placing lift on the installation location
 - Place the main parts on the appropriate position in reference to the following outline diagram.
- 2) Order of part placement
 - 1) Post
 - Master(1) Place the posts standing against the wall on the appropriate position of (1) on the outline diagram.
 - b. Slave (3) Place the posts lying on the appropriate position of (2) of the outline diagram.
 - ② Jack (2) Move a jack by two people to the designated position.
 - ③ Support beam for plate Place support of drop plate on (3), and support for front stopper on (4).
 - ④ Place lockrail, ramp, drop plate and stopper.
 - 5 Plate Place drive (driver's seat) plate on (5). and driven (next to driver's seat) plate on (6).
 - * Make the interval of 900mm between plates in consideration of width of the jack.
 - (1) Make sure to put plate on wooden bar. (Size of wooden bar : 120×120×700(H)) n order to provide convenience of the work, pull out the jack hydraulic hose from drive plate, place it on the main body.



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- 3-2-2. Assembling support beam for plate
- (1) Take the pins fixing MC guide, pull out the pins, and take out the wire pulleys (4 positions).



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- (2) Take out the drive plate wire and put it to the support beam for plate.
- Put the lower wire to the wire pulley of support beam for drive plate, and the upper wire to the wire pulley of support beam for driven plate.





- (3) Assemble the wire pulley in reverse order of the disassembling process.
- (4) Assemble the cover of support beam for plate.





- (5) Assemble support beam for plate and plate together. Set the location with wooden bars, and assemble support beam for plate and plate applying round head cross bolts M10X20L at eight positions.
- (6) Assemble the front tire stopper.(Socket head bolt M10×15L)



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3-2-3. Assembling lockrail

Put the lockrails to support beam for plate.





When assembling lockrail, place round part of the rail hole facing inside.



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3-2-4. Assembling post

- Before setting up posts, put the lockrail fixing full-thread bolts to the Ø20 holes in fixing plates of the top of the posts. (4 positions)
- (2) Assemble the remote control wire assembling eyebolt to the upper part of the post. (2 positions) (No.1,3).



Before setting up posts...

- (3) Put the bottom of the lockrail to the base hole (Ø 35) on the lower part of the post, and set up the post.
- (4) Fasten two ① nuts (16mm). As shown in the figure, fasten the upper nut clockwise and the lower nut counterclockwise, maintaining the space to the lockrail for 57mm~60mm. Fasten two ② nuts (11.5mm), each to opposite direction, maintaining 2~3 threads (3mm) between the nuts. Fix ③ nut tight to the lockrail.



(5) Set up 4 posts, maintaining the space of 57~60mm between fixing plate of the top of the post and lockrail upper bracket.

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3-2-5. Setting up posts (Tightening anchor bolt)

- (1) Based on the lower part of the top hole of the lockrail (No.1) of the reference post (the highest post), measure the height of the remaining 3 posts (No. 2, 3 and 4), and measure the length.
 - % It is required to match the heights of the 4 posts.





(2) Put the shim or something equivalent under the posts lower than the reference to place the 4 posts in level.



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(3) Make a hole on the base of post, fasten the anchor bolt tight, and then tighten the nut lightly.



Adjust the depths so that the 4 anchor bolts have the same height.



(4) Place the level meters on the posts, and using shims, adjust the posts to be vertical to the ground in front/rear/right/left of the posts.

(16 positions in total for 4 posts.)

▶ Put the weight and check the verticality and level.





Set the posts so that MC guides lightly contact and hold the posts when lifting up/down the plate.

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(5) Adjust verticality and level of the 4 posts by putting the shims, and then tighten the nut hard.



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▶ If there is any gap made by shim on the bottom of the post, make sure to put thin cement or mortar. (The user himself shall do the work.)





3-2-6. Assembling limit switch

Assemble the limit switch to the lockrail of the drive post. Set the fixed position to the ceiling height.

3-2-7. Assembling wire rope

Fasten the wire rope fixing full-thread bolt to the fixing plates of the top of the posts (4 positions).



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3-2-8. Assembling control panel

(1) Assemble the conduit tube from the outside of the drive plate to the control panel connector.





(2) Connect the hydraulic hose to the power pack block.
 MAIN (Gold) – Plate
 JACK1 (Silver) – Front pack
 JACK2 (Black) – Rear pack



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(3) Connect the main plate conduit tube ① and the control panel cable ② with the connection cable (purple), and assemble the power pack tank cover. (Connection line, tank cover- Power pack front vinyl cover)

* To secure safety, make the connection after assembling safety locker solenoid.



(4) Connect the power pack main power supply.



Turn off the main switch on the power supply distribution panel, place the warning sign, and then, connect the power cable.

(5) Bind the hydraulic hose and cables with tie string.

3-2-9. Leveling wire rope

- Turn on the lift, lift up the plate, and press the locking switch to tighten the wire rope. Lift up the plate to the position appropriate for work (1M~1.3M).
- (2) Fasten the wire clamp on the cylinder fixing wire of the drive plate.





Assemble the jack deletion preventive bar.



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- 3-2-11. Assembling safety locker solenoid Connect the safety locker solenoid cable of support beam for plate to the main line, and fix the cables with tie strings. (4).



3-2-12. Connecting hydraulic hose for jack

(1) Put the jack hydraulic hose under the front support beam for plate (apply the fixing bolt), and push in to the hose protection cover on the right wall inside the driven plate.

(2) Pull down the hydraulic hose in the middle of plate, place the No.1 jack hydraulic hose to the front and the No.2 jack hydraulic hose to the rear over the round bar protecting hose hang.



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- (3) Connect the jack hydraulic hose Nos. 1 and 2 to the jack hydraulic pipe.
- (4) Press the jack up button on the remote controller, and deflate air from the jack hydraulic hoses (Nos. 1 and 2).





(5) Assemble the hydraulic pipe to the hydraulic block of the jack.





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(6) To prevent the safety locker solenoid line drooping under the plate, pull the line and bind it to the hydraulic hose with tie strings.



- (7) Tie the hydraulic hose and the solenoid line at intervals of 200~300mm.
- (8) Move the jacks front/rear to check if they roll normally.



3-2-13. Main connection of panel safety locker solenoid Connect the safety locker solenoid main connector. Apply tie strings.

3-2-14. Final leveling of plate

- Set the support beam for plate lock to the 4th hole from the ground of the safety lockrail, and then press the lock switch to level the plate.
- (2) Pull the wire ropes of the 4 posts evenly, and tighten the wire rope fixing bolt with the 46mm spanner.



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3-2-15. Finish of post

Apply the post covers on the top of the posts (4).



3-2-16. Assembling drop plate ramp

- (1) Assemble the drop plate.
- (2) Lift down the plate to set the position of the ramp to the main body, mark the position for anchor bolt, drill a hole, and then fix the ramp to the ground. (at the intervals of 100mm on the support beam for plate.)





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3-3 Trial Operation Checkpoint

1. Unloaded state check

NO	Checkpoint	Check
1	Oil leakage from each hydraulic line and nipples.	
2	Electric fault	
3	Motor noise	
4	Electric leakage	
5	Noise	
6	Oil leakage from the cylinder	
7	Movement of manual down valve	
8	Operation of lock	

2. Vehicle lifting state check

NO	Checkpoint	Check
1	Oil leakage from each hydraulic line and nipples.	
2	Oil leakage from the cylinder	
3	Lifting action	

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CHAPTER 4. OPERATION

4-1 Warning for use



4-2 Checking point before operation

• Check the below items every day before operation.

During checking, do not load a car on the lift.

• When you find the fault of lift 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.

- Check if the lift is normally operated during lifting and lowering. And check if an abnormal noise is occurred.
- (2) Check if the lift is properly operated when the button is pressed. And check if the lift is stopped when the button is released.
- (3) Check if an oil is leaked from the hydraulic line, the hydraulic cylinder, and the hydraulic unit. And check if an abnormal noise is occurred at them.
- (4) Check if the safety lock device is normally operated during lifting.
- (5) Check if screws are loosened.
- (6) Check if the appearance of the lift's body is damaged or twisted.
- (7) Check if the electric parts is normally operated.
- (8) Check if the lift and working place keeps the clean condition..



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4-3 Preparation before operation

Check the following items before loading a car into the lift;

- (1) Lower completely the lift to the bottom.
- (2) Prohibit the unauthorized persons from accessing to the lift.
- (3) When use the lift which has not operated for a long time, check the oil conditions and functions of each part and then, use the lift after lifting and lowering to press the UP and DOWN switch 2 or 3 times at the intervals of about 2 seconds without load.
- (4) During the winter season, operate the lift 3 to 5 times without load in temperature 5℃ ~-20℃.Do not use the lift in the temperate below -20℃.
- (5) During entering the car into the car lift, be careful to do not go off safety value.
- (6) After setting the safety value, do not adjust the setting value of safety value.
- (7) When the oil level is not maintained the proper pressure, do not operate the life.
- (8) Before lowering the car lift, check if a persons or children's stay under the lift.
- (9)Traveling on the load carrying devices is forbidden.



4-4 Description of control panel

4-4-1 Configuration of control panel

The configuration of control panel is as follows.

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4-4-2 Description of control panel

Switch and Lamp	Function description
P	CAM switch for supplying the power at the car lift Before the machine is operated, this switch should be turned ON. And also, this switch may use to turn off the power when the Emergency situation is occurred at the machine.
	KEY switch for supplying the control power. When KEY switch is positioned to ON, Up, DOWN and LOCK switch can be operated.
\bigcirc	Push button switch for moving up the lift. When KEY switch is positioned to ON and UP button is pressed, the lift is moved up.
\bigcirc	Push button switch for lowering the lift. When KEY switch is positioned to ON and DOWN button is pressed, the lift is moved down.
\bigcirc	Push button switch for locking the lift. When KEY switch is positioned to ON and LOCK button is pressed, the lift is locked at locker (4 position).
\bigcirc	Power lamp for indicating that the power is supplying at the lift. When the CAM switch is turned on, the lamp is lighted on.

The lift is operated in accordance with the following procedures.

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1. How to operate the lift for repairing the car

Make sure that the lift is operated by qualified personnel only.

- After putting the car on the main board by driving the car, should lock the parking brake and get off at the car.
- 2) Turn on the power switch on the control panel.
- 3) Raise the lift to a desired height by pressing UP button of control panel.
- 4) To ensure the safety, press the locking button of control panel and fix the lift in the locking position.
- 5) When the DOWN button of control panel is pressed, the lift moves up for 2~3 sec and then, starts the lowering operation.
 When the limit switch for prohibiting the lifting operation is on the operation, it is lowered after staying for 2~3 seconds without the raising operation if the DOWN button is pressed.
- 2. How to operate the lift for wheel alignment
- Raise the lift to a height of about 850 mm or higher depending on the wheel pull-in/pull-out order.
- 2) Press the locking button of control panel in order to fix the lift into the lock position.
- After raising the vehicle using the two step operated jack depending on the wheel installation and removing order, place the alignment turntable below the 4 wheels.
- 4) Lower two step operated jack and then, place the wheel onto the table.

5) The vehicle should be aligned toward the left and right in order to carry out the alignment job.

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- 6) Once the alignment job is completed, move up the two step operated jack and then, remove the alignment turntable. And lower the two step operated jack in order to move down the wheels on the main board.
- 7) After raising the lift slightly by pressing UP button for a short time, press DOWN button to lower the lift of lift.
- 3. How to pull out and pull in the wheel

 Raise the platform to a height where wheels can be easily replaced in accordance with the procedures to operate the lift for repairing the vehicle.

2) Move the two step operated jack under the supporting part of the vehicle and then, place a rubber plate on the upper slides that have been widened properly as shown in Fig.



 Raise the two step operated jack to a wanted position by pressing the jack UP button of the control panel. Do not move up the cylinder to full stroke.



4) For your safety, turn the safety lever of the two step operated jack as shown in Fig.

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- 5) Press the LOCKING button at control panel
- 6) Once the wheel pull-out/pull-in job is completed, raise the lift slightly by pressing UP button for a short time, and then, release the safety lever



7) Lower the vehicle first by pressing the jack down button and then,lower the main board by pressing the DOWN button of control panel

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4-6-1 Manual Lowering Condition

- ▶ Workers should lower the manually in the following cases;
- 1) In case the lift cannot be lowered due to power failure.
- 2) When the hydraulic circuit experiences trouble.
- 3) When the lift can not be lowerd manually due to power supply conditions.

4-6-2 Preparation Before Operation

- 1) Remove obstacles under the lift before lowering it.
- 2) Turn off the power switch.
- 3) Check whether the four locking devices are in the locked position. (pis.2)
- 4) If in the locking position, use the separate hydraulic jack.
- 5) Be sure that are no persons under the lift.
- 6) Use a 19mm spanner and + driver for adjustment.

4-6-3 Lowering Order

- 1) Loosen the round head 4bolt of the unit panel using the + driver and then, open the cover.
- 2) When requiring to lower the two staged jack.
- 3) Release the safety lever of the two staged jack as shown in pis.1.

PIS.1



PIS.2



- 4-6-5 Turn cock valve counterclockwise as (pis.3/fg 2) carefully and turn cock valve on manifold counterclockwise as (pis.3/fg 3)
- 4-6-6 Then main plate will be downed.

	Loosen the bolts slowly in order not to descend the lift too fast, Especially with the behicle in the lift.
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Make sure be careful while work above, The downward can be stopped by closing the cock clockwise when any problem to be occurred.

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4-6-7 Make sure above things must be recovered after done the work.

- 1) Restore the manual descend valve into orignal status.
- 2) Return the locking solenoid release device into the automatic operation mode.
- 3) Close the cover of the unit panel.
- 4) Contact our company for A/S when faults are found as a result of the inspection

► PRECAUYION

- Be sure to turn the slowly if there is vehicle.
 - When jack and jack 2 are untightened in the above order, the 2 stage jack is lowered slowly due to it's own weight.
 - Ones completely lowered, it should be locked in the reverse other.
- Jacks may be damaged and accordingly, should not be tightened force fully lowering when the main lift is in the locked state by the locking button.

CHAPTER 5. TROUBLESHOOTING

5-1 Inspection and repair

Symptoms		Check point	Corrective Action to be taken
Wire Rope and Locking device	Platform is not leveled when lift is moving up by wire rope	 Check if wire rope is partially loosened. Check if clip of wire rope is loosened. 	 Adjust the fixing bolt of wire rope after checking the levelity. Tighten clips after adjusting levelity.
	Lift is not moved when DOWN button is pressed.	 Check if the carry is cached to lock device. Check if the power is supplied t solenoid valve. 	 Lower again after moving up the lift. Repair the wire connection and lower the lift in accordance with the manual operation procedure.
	Platform is inclined during lowering.	 Check if the oil at load head cover is sufficient. Check if the air is mixed at the hydraulic oil. 	 Supply the oil. Let air out of the hydraulic unit after supplying the oil.
	Lock is not working when lifting or lowering.	 Check the connection of wire and connector. Check the operation of manual lever. 	 Connect them and request A/S. Release manual lever.
	The abnormal noise at motor is listened.	 Rated capacity is exceeded. Relief pressure is low. Shortage of hydraulic oil. 	 Operate within rated capacity. Adjust to 4 ton. Let air out of the hydraulic unit after supplying the oil.
	Hydraulic Oil is leaked.	 Defect in hydraulic hoses. Leakage from connecting parts. Bad cylinder packing. 	 Replace the hydraulic hose. Tighten the connection. Request A/S.
	Oil connections	1. Influx of water or Foreign substance	 Exchange oil (annually) (Hydraulic oil : 32CST/12litter) Fist oil exchange : 2 months after operation Afterwards regular exchange
Hydraulic Cylinder and its units	The lift is not moved up.	 Check if the oil is leaked or hydraulic units are damaged. Check if the lift is operated improperly. Check if the carrying load capacity is over. Check if pressure at relief valve is proper. 	 Request A/S. Relieve the air in hydraulic hoses Load within the rated capacity. Adjust to 2.5ton.
	The lift is not lowered.	 Check if the safety device is locked. Check if the electric circuit is damaged. Lower it in accordance with the procedure 	 Re-lowering after lifting slightly. Refer to electric check points. re to lower manually the lift during emergency,
		and then, request A/S.	
Electric Devices	Motor is not operated and the abnormal noise at motor is listened.	 Check if the motor is damaged. Check if the fuse is opened. Check if the push button is damaged. Check if the upper limit is operated. Check if wiring gauge is proper. Check if the input power less than 200V is supplied. 	 Replace the motor (Request A/S). Replace the fuse after solving trouble. Replace the push button(Request A/S). Re-operate after lowering the lift. Replace to the cable with over 3.5mm2 diameter. Increase the input power capacity.
	NFB or circuit breaker (30A) is operated.	 Check the Contact of magnetic contactor. Check the capacity of circuit breaker. Check if the wire is damaged. 	 Replacement (Request A/S). Replacement (Request A/S). Replacement after checking.
	Motor is operating but lift is not moved up.	 Check if the rotating direction of motor is correct. Check if hydraulic lines is damaged. 	 Re-operate after changing the phase connection. Refer to check points for hydraulic cylinder and unit.



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5-2 How to adjust the inner width of the Lift Platform

 After moving down the lift to bottom, loosen four flat head wrench bolts located at the front and rear part of the lift platform as shown in Fig. (At this time, do not move the lift platform).



2) Loosen the bolts fixing the sliding arm of two step operated jack as shown in Fig.



- 3) Narrow or widen the width of the lift platform by using the lever and then, align wrench bolt holes (Narrowed width : 40mm, Widened width : 50mm).
- 4) Check if the sliding arm's width of two step operated jack has been adjusted properly. Then, tighten the flat headed bolts on the lift platform as shown in Fig.



 After adjusting the position of the two step operated jack, fasten the bolts fixing the sliding arm



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5-3 How to check and replace the Wire Rope

- Check the wire rope before supplying the oil every month.
 If necessary, replace it immediately.
- 2) The life span of the wire rope can be extended considerably when applying watery turbine oil on it every month.
- 3) Be sure to use only wire ropes manufactured or approved by our company.
- 4) The wire rope can be replaced by our technicians only or when they are present.
- 5) The wire rope should not be used in excess of the rated capacity of the lift. Our company is not responsible for problems and accidents generated as a result of doing so.
- 5-4 How to adjust the upper limit position
 - 1) The maximum height of the lift can be adjusted freely.
 - 2) Loosen the limit bracket that is fixed on the activation post with a "+" driver and then move it into a desired position before fixing it as shown in Fig.



3) At this time, the lock E..... the middle or higher position of the lock rail groove.

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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 disassembling 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 of control box inside, check whether CAM switch is in "OFF" position.
- 8) During replacement of electrical component, fasten the terminal bolts

of part tightly after checking the wire no. (or color) and parts no.

- 9) Clean the control box inside by air once a month.
- Check once a week whether the bolts are loosen, and if the bolts are loosen, fasten the bolts tightly.
- Don't open the control box without permission of authorized persons during maintenance of control box.

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6-2 Check List and periodic maintenance

Inspection period	Points to be checked	Items to be checked	Inspection method	Action to be taken	Replacement period
1 week	Rubber Support for adjustment	Abrasion and deformation	Visual	Replacement	1 year
	Magnetic contactor	Damage of contact	Measurement	Replacement	2 year
3 months	Wire Rope	Abrasion, deformation and Breaking of wire	Visual	Replacement	2 year
	Post Guide	Abrasion	Visual	Replacement	4 year
	DU bush	Abrasion	Visual	Replacement	4 year
	Axis for wire pulley	Noise and abrasion	Visual	Replacement	5 year
	Wire pulley	Abrasion	Visual	Replacement	5 year
6 months	Electrical component	Damage of component	Measurement	Replacement	3 year
	Hydraulic Oil	Shortage of oil	Visual	Replacement	1 year
1 year	Piston Seal Kit	Oil leak or deformation	Visual	Replacement	3 year
	Load Seal Kit	Oil leak or deformation	Visual	Replacement	3 year

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	Kinds of oil or grease	Period of exchange
Post	SAE 20 or SAE 30	Supply every 6 months



APPENDIX

- 1. ctric drawing
- 2. Hydraulic circuit
- 3. Pneum atic



APPENDIX

1.ELECTRONIC CIRCUIT





2.HYDRAULIC CIRCUIT





3. Pneumatic Circuit





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