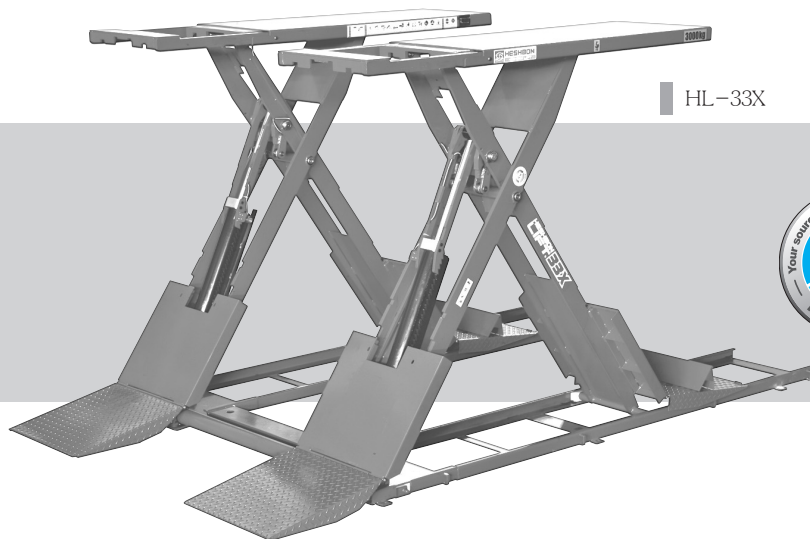


HESHBON WHEEL FREE SCISSOR LIFT

Installation/Operation & Maintenance Manual



Please read this manual before you get started.

You must read and understand the precautions for safety to protect your safety and any damage to your property.

NOTE TO THE USER

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

- This Manual is for model : HL – 33X
- As for the assurance of safety in design and construction of car lift, read this Manual first.
- Please make sure that this manual is delivered to end users for their implementation of safety.
- Don't use the car lift in a potentially explosive atmosphere.

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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Introduction

Safety

Installation

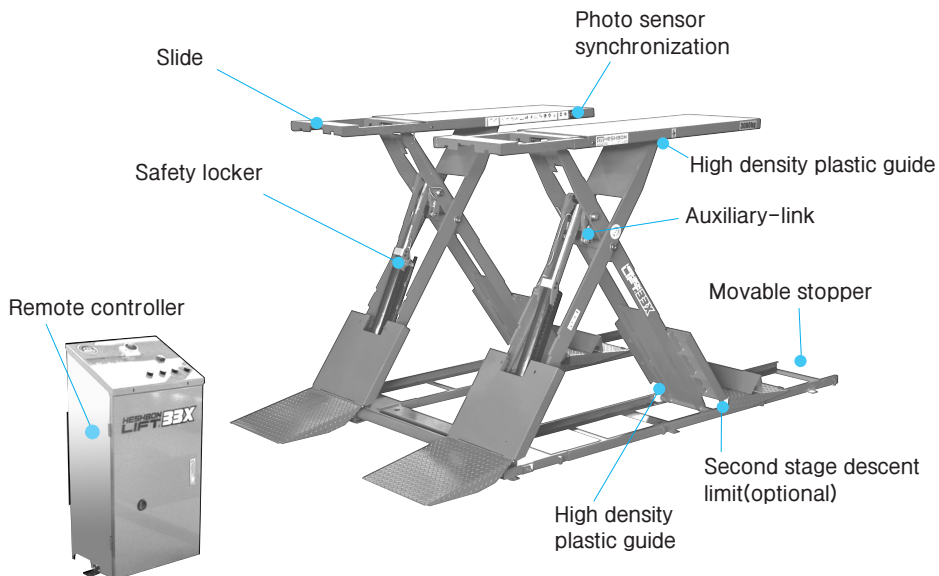
Operation

Maintenance

Partlist

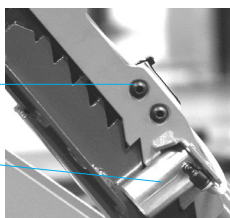
■ This manual was prepared in April,2005 the product specifications contained in this manual are subject to change without notice.

Features and characteristics



Safe lock

Cylinder



■ Safety locking system

► 4 groups of safety locker that is center of link help your safety work.

■ Realization of the lower ground lift

► Cars are entered easily and minimize lift drop accident from minimum height 125mm realization
[note : Maximum height : 2100mm]



■ Extension

► Extension beam is applied to the platform for the van or longer vehicle.

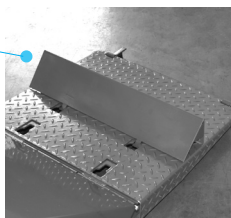




■ Auxiliary-link type

► Lift ascent is possible when the minimum underground height (minimum height : 125mm)

Detachable
Safety stopper



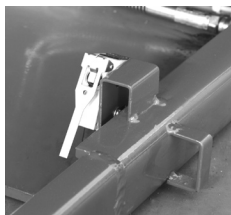
■ Safety stopper attachment/detachment type

► Entrance stopper could be attached or detached and space adjustment(2 stage) is possible when it attached.
[attention!] Use after assembling safety stopper



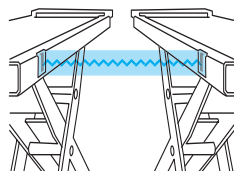
■ High density plastic guide

► Semi-permanent use is possible, because of the high density-plastic guide.



■ 2nd stage descent system (foot protection safety device)

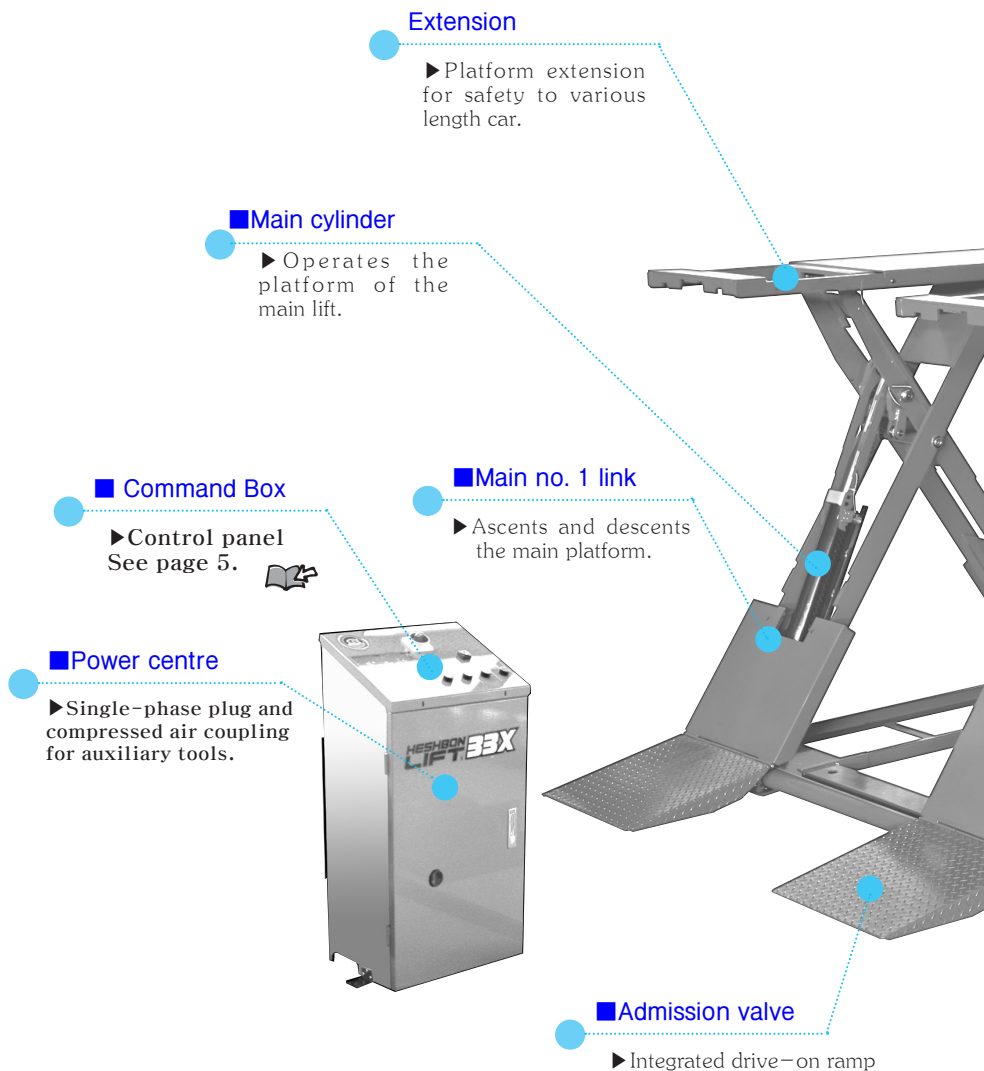
► Normal descent stops automatically at 150mm from the floor. The warning buzzer sounds, and the 2nd descent system allows full descent to the floor.

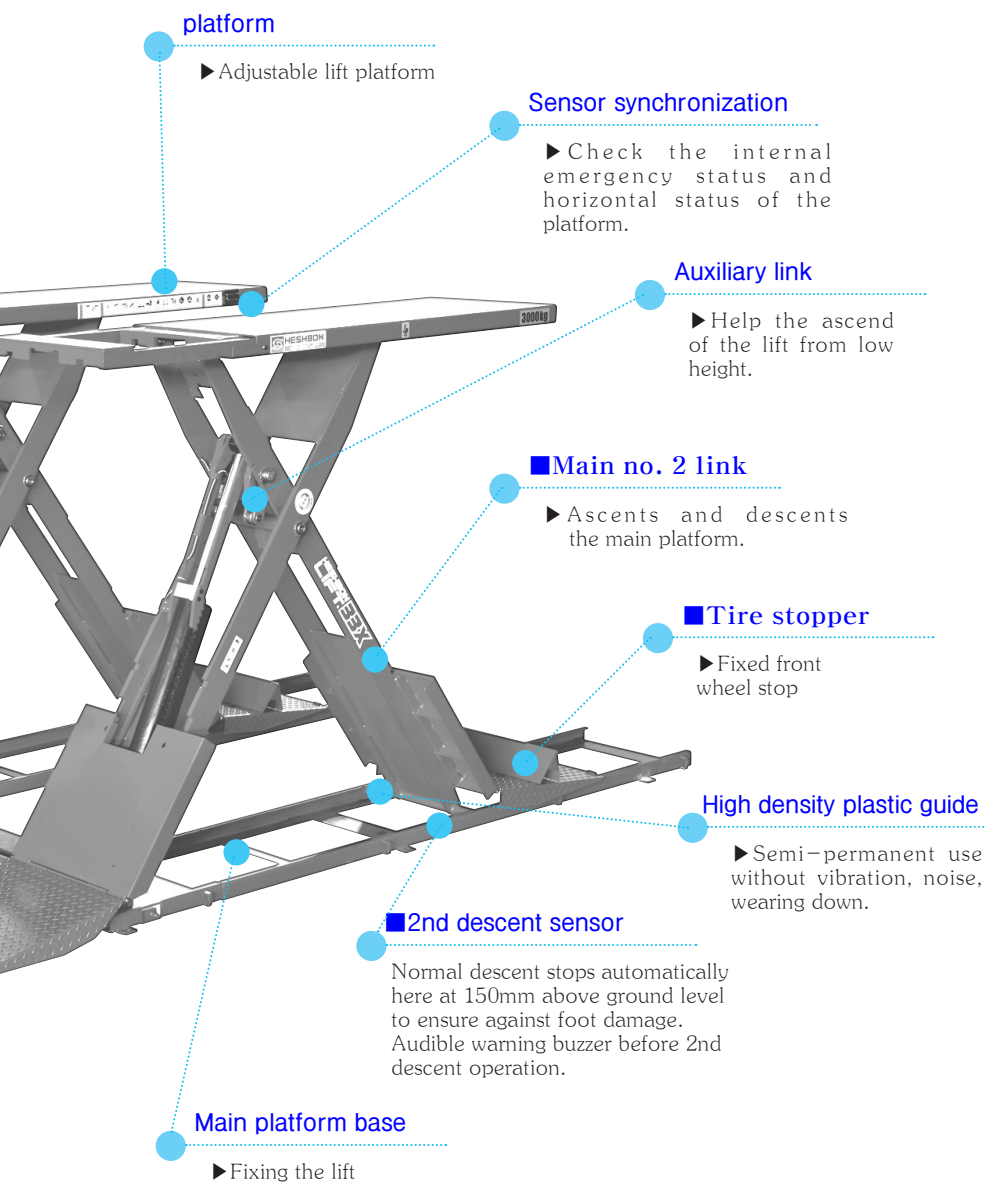


■ Synchronization photo cell

► Controls the synchronization of the 2 auxiliary lift platforms stops the function if the platforms are out of level.

Names of each part are described



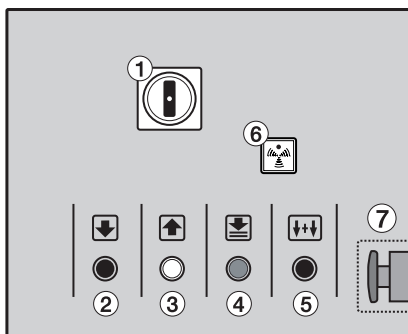


► See page "PARTS LIST"



Description

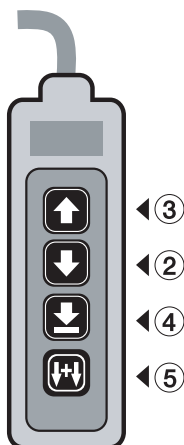
Control pannel



- ① Power switch
- ② Descent button
- ③ Ascent button
- ④ Locker
- ⑤ 2nd descent button
- ⑥ Buzzer
- ⑦ Emergency descent button

- ① Power switch – supply or isolate the power of the lift.
- ② Descent button – descends the main platform.
- ③ Ascent button – ascends the main platform.
- ④ Locker – (lock the main platform) function of hanging the safety locker on the locker rail.
- ⑤ 2nd Stage descent button – When the 2nd descent status of main platform, if you push the number 2 descent button with pushing this, platform descends to bottom.(optional)
- ⑥ Buzzer – When jack descends, operate photo sensor, emergency, main platform descends 2nd time, bell rings with red light.
- ⑦ Emergency descent button (inside of the panel) – Return to normal mode when emergency status.

Remote control (optional)



- ② Descent button
- ③ Ascent button
- ④ Locker
- ⑤ 2nd descent button

Warning to the remote controller use



Don' t use remote controller inside of the lift



Remote controller should be operated by the just one person.

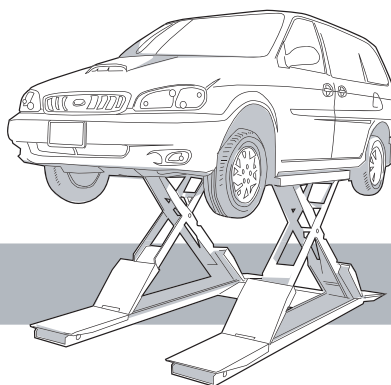
Specification

Model Name	HL – 33X
Capacity	3,000 Kg
Used Hydraulic Pressure	190 Kgf/cm ²
Overall Max.Height	2,007 mm
Min.Runways Height	125mm
Stroke	1,882 mm
Lifting Time	Approx. 40 ~ 60 sec
Lowering Time	Approx . 35 ~ 45 sec.
Standard Motor	3ph 2HP 4P 220,380V 60Hz
Net Weight	About 1,090 kg
Layout Dimension	3,906 × 2,100 × 2,007 mm

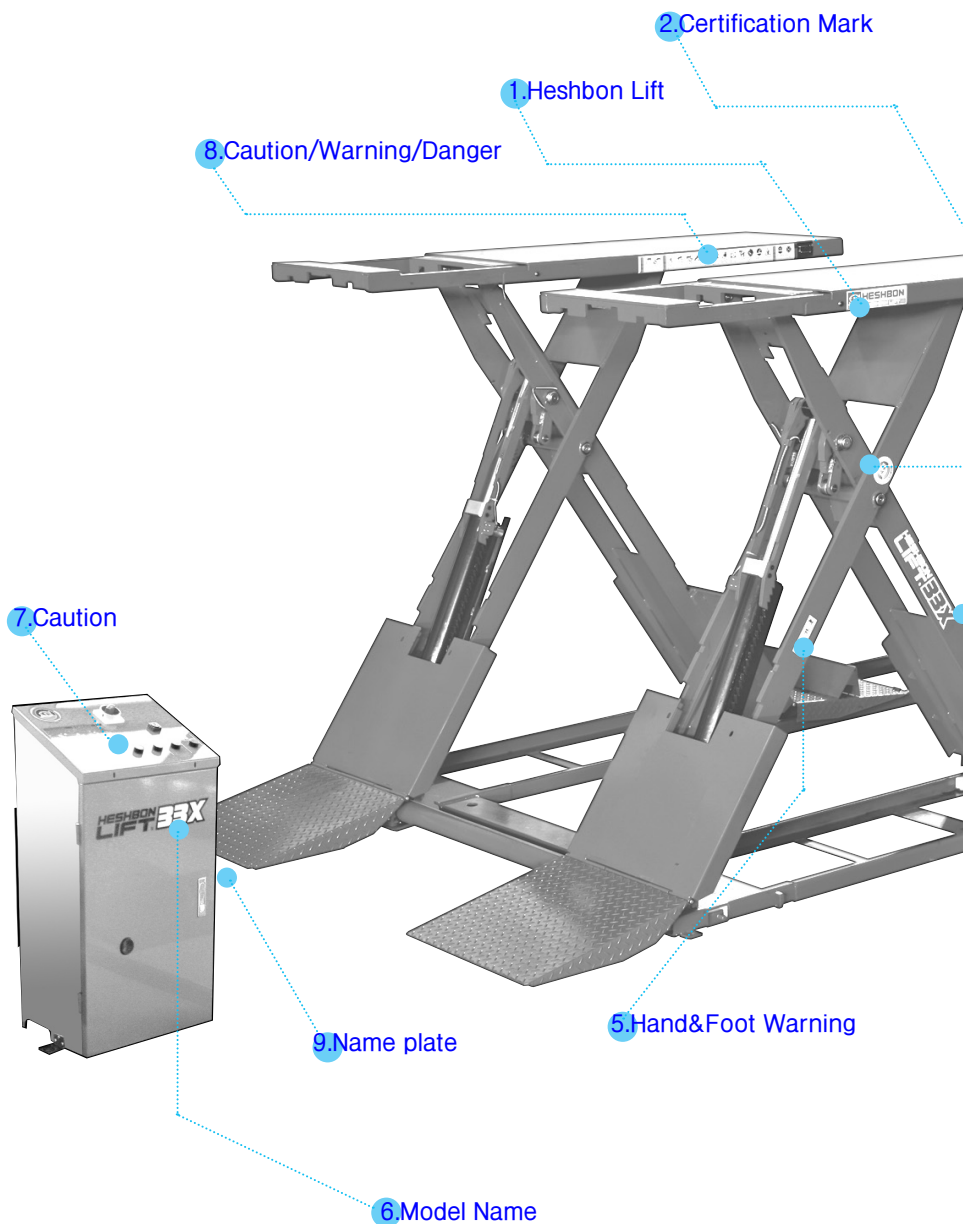
Introduction

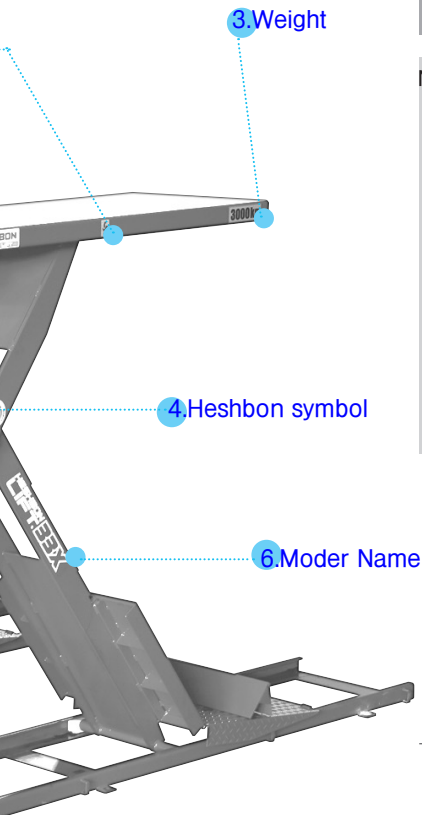
enjoy repairing

Your source of excellent Equipment - Heshbon



Caution Sticker layout





Sticker Layout

NO.	Sticker	Position	Qty
1	Heshbon Lift	Plate Side	2
2	Certification Mark	Plate Side	2
3	Weight	Plate Side	2
4	Heshbon symbol	Link center	2
5	Hand&Foot Warning	no.2 Link	3
6	Moder Name	no.1 Link	1
7	Caution	Countrol panel	1
8	Caution/Warning/Danger	Plate inside	1
9	Name Plate	Countrol panel	1

Safety

Name Plate

HL-33X

X-TYPE LOW PROFILE LIFT MADE IN KOREA

MODEL NO.	모델명	HL- 33X
CAPACITY	능력	3,000kg
MAX. HEIGHT	최대상승높이	2,007 mm
MIN. HEIGHT	최소높이	125 mm
LIFTING TIME	상승시간	Approx. 40~60sec
LOWERING TIME	하강시간	Approx. 35~45sec
POWER & MOTOR	전원및모터	1ph 2.5HP 4P 220V 60Hz 3ph 2HP 4P 220V/380V 60Hz
STANDARD AIR PRESSURE	적정에어압력	6.5 kgf/cm ² ~ 8 kgf/cm ²
NET. WEIGHT	자중	About 1,090 kg
SERIAL NO.	로트번호	33X

에스본주식회사
HESHBON CO.,LTD.

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410-2 HANJIN-RI, SONGAK-MYUN, DANGJIN-GUN, CHUNGNAM,
KOREA TEL:82-41-351X-5500 FAX:82-41-351X-3535
<http://www.heshbon.com> e-mail:heshbon@heshbon.com

Danger/warning/caution

Rules for illustrations in the Manual.

These are the rules for the illustrations in the manual. Make sure that you read them and understand them. The rules are applied only to the manuals of Heshbon Co., Ltd..



Make sure you follow the instructions, otherwise critical injury or death can occur.



Make sure you follow the instructions, otherwise critical injury or damage can occur.



Make sure you follow the instructions; otherwise, injury or damage can occur



The terms are described to enhance the understanding of the equipment.



Information to use the equipment efficiently.



Precautions or check points for the use of the equipment.

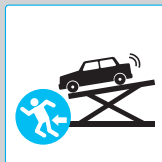


Please refer to the page

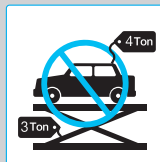
Do not come under the vehicle during operation.
► This can cause injury or death.



Evacuate to a safe place instantly in the event that the vehicle tips.
► This can cause injury or death.



Do not overload the rated capacity.
► This can cause injury or death.



※ Not following the instructions can lead to a critical accident involving your life.
Make sure you follow the instructions.

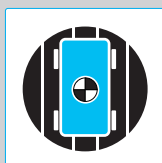


Warning before using the equipment

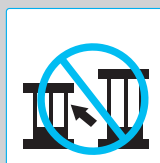
Only trained personnel may operate the equipment. Inexperience can cause accidents.



Position the vehicle to make sure that it is balanced front and rear, right and left (otherwise the vehicle may fall off).



Do not operate damaged equipment (a critical accident could occur – contact your Heshbon supplier)



After that a vehicle is placed on the lift make sure that the hand brake is applied. Passenger transport is forbidden.





Warning while operating

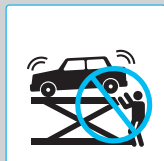
Allow no unauthorized persons in the work area.



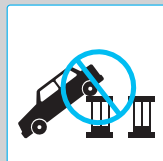
Before lowering the lift, check that there are no obstructions under the vehicle or the lift arms.



When the vehicle is lifted, do not rock it as this may dislodge it.



Do not lift a vehicle using one pair of arms only.

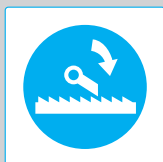


Warning while operating

To avoid injury, keep your feet clear of the arms and carriages.



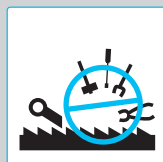
Before going under the lift, make sure that the safety pawls are engaged.



To avoid being electrocuted, disconnect the main power before opening the control panel.



Do not modify the control panel or the safety functions as this may impair their function.

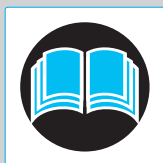


Warning when operating

Do not rock the vehicle when lifted. Do not use a high pressure cleaner as the vehicle lower part.



Read and fully understand the manual before using the lift

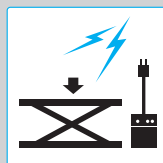


Warning before using the equipment

Check the safety devices to see that they are clean and operable.



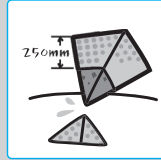
If the lift is idle for a long time, disconnect the main power supply. In the event of thunder storm, disconnect the main power supply.



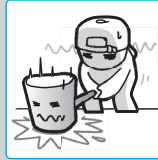
Checklist before installing

Installation site

The site must be flat and horizontal. The floor must have minimum 250mm depth of reinforced concrete.



Surface load under the posts must be minimum 350kN/m².



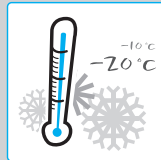
To maintain the warranty, the lift is intended for indoor installation only. In the event that it is installed outside it should be protected from snow and rain. Outdoor installation makes the warranty invalid.



Installation

Installation site

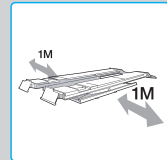
Ambient temperature 10°C to 50°C. Do not operate under freezing conditions.



Vehicle access to the lift must be safe and easy.

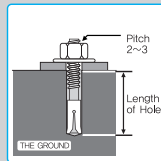


There must be a safe working distance of minimum 1m between the lift and the wall or any fixed object.



Installation site

To ensure that the anchor is secure, the hole for an anchor bolt must be more than 2/3 of the bolt length.



Skilled engineers of Heshbon or its sale representative agency shall install the lift, otherwise a failure may occur.



Please contact Heshbon head office or distributors for the removal of lifts.

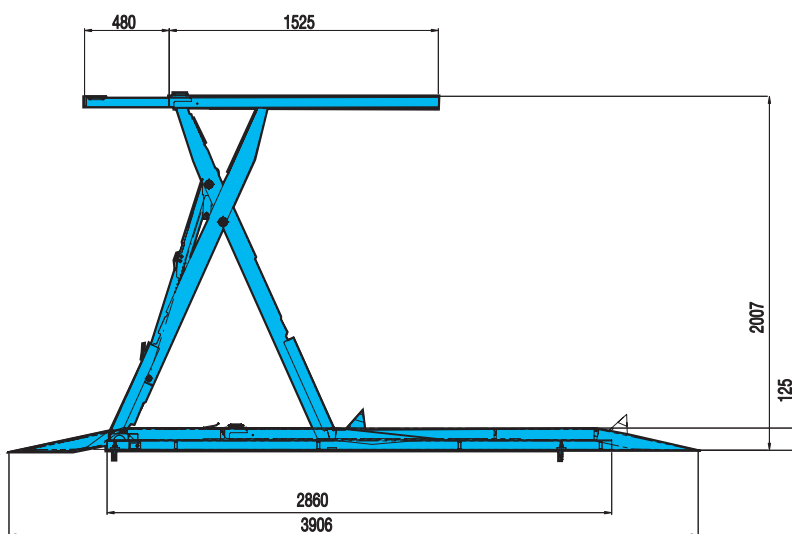
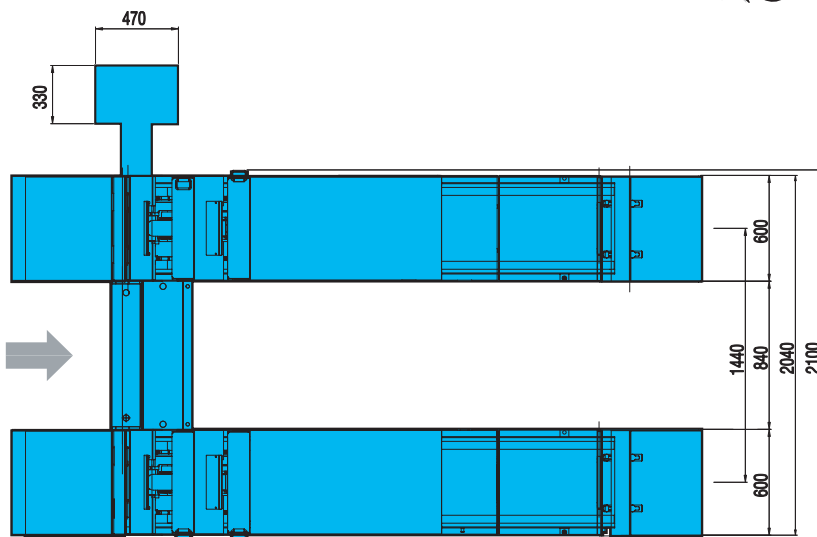


The lift should be installed by skilled engineers either from Heshbon or from Heshbon's appointed representatives. Failure to observe this makes the lift warranty invalid. If the lift is to be moved to another site at a later date, it must be reinstalled by skilled engineers either from Heshbon or from Heshbon's appointed representatives.

Place of installation (Layout)

Checkpoints before selecting the place of installation

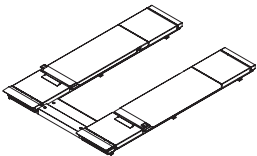
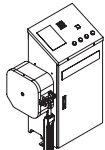
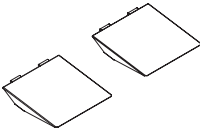
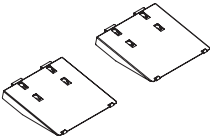

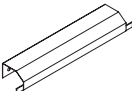
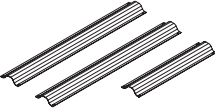
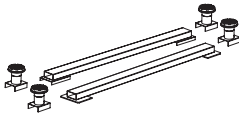
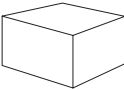

- ① Distance from the wall or any fixed object
- ② Drive-on direction
- ③ position of power post and slave posts
- ④ Ceiling height



Installation

Check if anything is missing.

■ Check the items of HL-33X

NO.	NAME	PICTURE	NO.	NAME	PICTURE
1	Main body		2	Control panel (Electric panel)	 Power-pack is Included
3	Entrance plate at front side		4	Entrance plate at rear side	
5	Stopper at rear side		6	Synchro-nization cover	
7	Hose cover	 1,000mm : 2EA / 600mm : 1EA	8	Extension beam (optional)	
9	Component box for shipment		10	Manual	

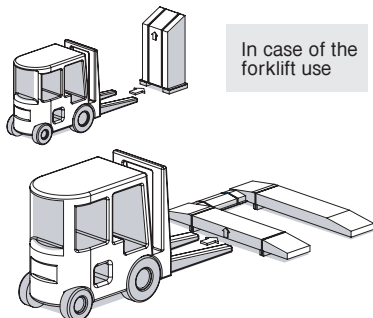


Check the items : If any of these items is missing from the box, contact your sales representative. Preparation for installation : Deploy the items in the installation site as specified in the layout. Check the positions of power and slave posts, drive-on direction, safe working area.

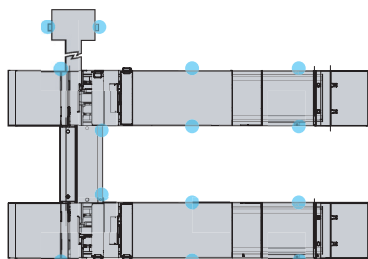
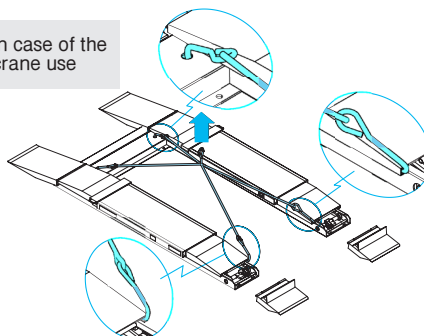
Installation procedures

■ Landing down the product at the place to be installed

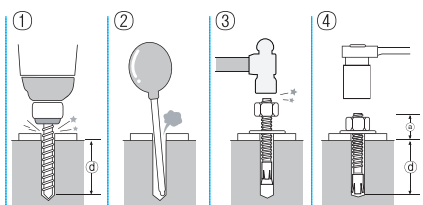
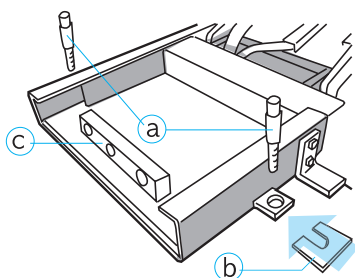
- ▶ Place the lift main body at the place to be installed referring to layout document.(Ref. 12page)
- ▶ Fixing the product after checking the caution notes.(Ref. 11page)



In case of the crane use



Ⓐ Precise horizon adjustment bolt Ⓑ Shims Ⓒ Anchor bolt



■ Fixation horizon of the base.

- ▶ Fix the 12pcs Anchor bolt of the base plate and 2pcs Anchor bolt of the control panel after supporting lift using liner.

■ Fixation horizon of the base.

- ▶ After adjusts horizon of the product precisely, fix up using anchor bolt.

1 Adjustment the horizon of the base.

After measure the horizontal status, lay down the lie.
(in case of precise adjustment, use 'a' bolt.)

2 Fixation of base (anchor)

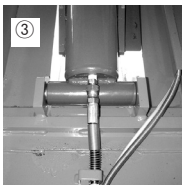
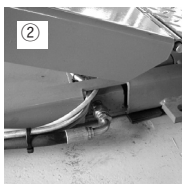
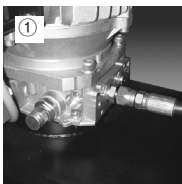
After adjusts horizon, fix up the base platform using anchor.

Anchor bolt installation.

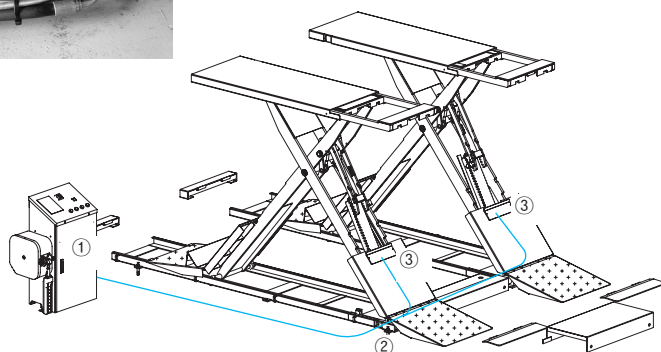
- ① Drill a hole (Ⓐ: hole depth)
- ② Clean the inside of the hole
- ③ Put the anchor bolt into the hole and hammer in until it reaches the bottom of the hole
- ④ Tighten the bolt with a spanner.
(Ⓐ35~45mm) – Torque : 125Nm

■ Connection of oil pressure hose

► Connect oil pressure hose by referring oil pressure line diagram. (Refer to part list oil pressure circuit)



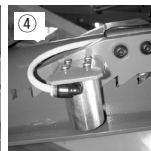
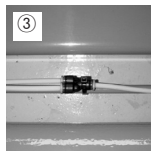
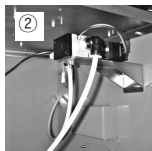
- ① Power Pack
- ② Base
- ③ Cylinder



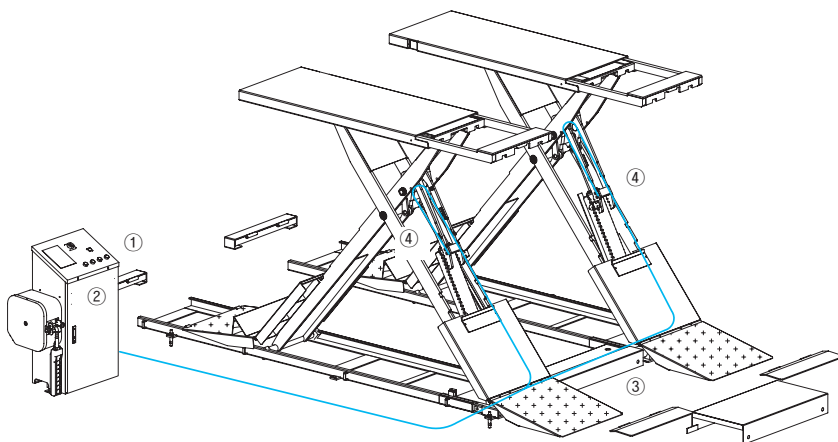
Installation

■ Connection of air hose

► Connect air hose by referring to air line diagram. (Refer to part list air circuit diagram)



- ① Air regulator
- ② Control panel
- ③ Base center
- ④ Air cylinder



Check points before operation

Before loading the lift, check the following points.

■ Test operation

► Operate ascent and descent 2~3 times under no load condition.

■ Switch operation

► Check that the ascent and descent pushbuttons operate correctly.

■ Hydraulic check

► Check that there are no hydraulic leaks from either cylinders, pipes, or hose joins.

■ Mechanical check

► Check the tightness of all nuts, bolts, etc.

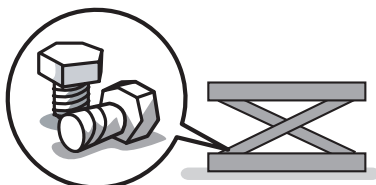
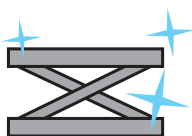
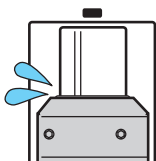
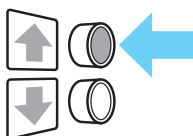
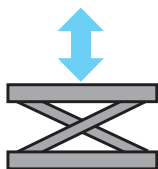
■ Exterior check

► Check the exterior of the lift to ensure that there is no obvious damage.

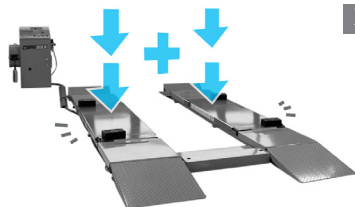
■ Cleanliness

► Check every day that the lift is clean and that the work area is clean and free from debris or obstructions.

Inspect the lift everyday to operate the lift safely for a long time.



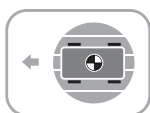
Operation



1 Prior to use

Check that the platforms are parked at floor level by using the descent button. Check that the auxiliary lift is at the down position.

5page



2 Prior to vehicle entry

Check that the position of the righthand (movable) platform is suitable for the majority of the vehicles to be lifted. Fix the platform at this position with the bolts provided.



Attention before you enter



Remove the humidity of the tire before you enter.



Attention the sudden stop.



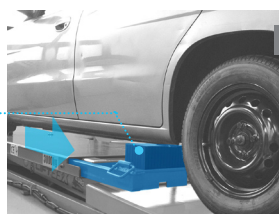
After you drive into the lift, hold the side break.



After you drive into the lift, get out of the car.

Operation

lift up the platform after making the rubber support to be attached



3 Lift up the lift to the second descent position

Press the ascent switch, and lift up to the 150mm height. Extract the platform slide plate at the 150mm height and adjust position to be lifted safely (use rubber support)



4 Vehicle repair

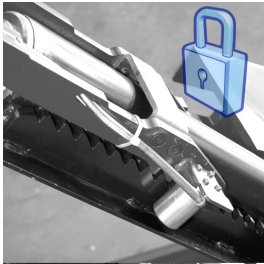
Perform the necessary repairs and/or maintenance on the vehicle. After completion, lower the auxiliary lift. As soon as the vehicle load is firmly on the platforms, stop the descent of the auxiliary lift, remove the rubber pads, push in the extensions, and lower to bottom position. Lower main lift.



5 Descent lift

Press the decent switch and descend to the position (150mm height), and return the platform slide plate to the original place, and descend to the bottom position.

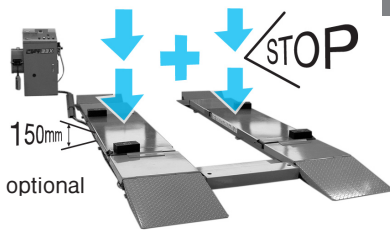
► Extract the car after checking it is descended to the bottom place completely.



1 Safety locker operation

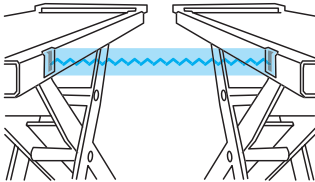
▶ You can work safely, If operate the safety equipment.
(operated at the link 1 center position)

Hang the locker using the lock button after ascending, and work safely.



2 Second descent equipment(foot protection)

▶ If you press the descent switch, it descends to the 150mm height position and stops.
At this point, check the status around the lift and press the descent switch and it descends to the ground.
(Pressing both the main descent button(2) and second descent button(5), make it second descent)



3 Synchronization sensor

▶ Photo sensor inside the left/right position of the main platform notice the emergency status which is mismatch height left/right platform, obstacle exists inside the platform



4 Emergency descent operation (switch 7)

1) Photo sensor stops the panel operation when the main platform is mismatched(buzzer rings)

2) At this time, if you press the emergency button 7, main and auxiliary lift descends to the bottom place.



▶ Emergency descent switch should be operated by the expert technician..
▶ Request the After Service when emergency status.

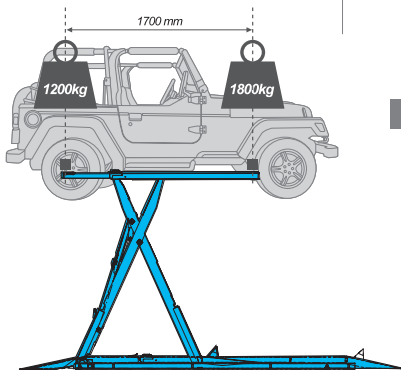


Proper car lift method (the weight setting)

■ Proper weight setting method(3-ton standard)

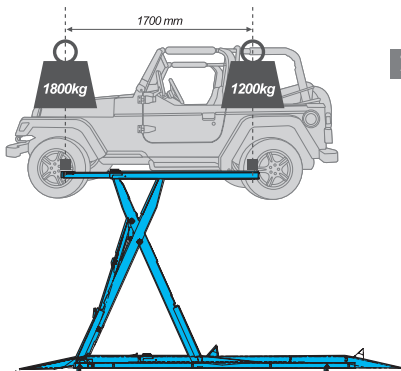
- Using the proper car weight setting method, lift would be maintained safely.

This guide follows the Europe CE standards



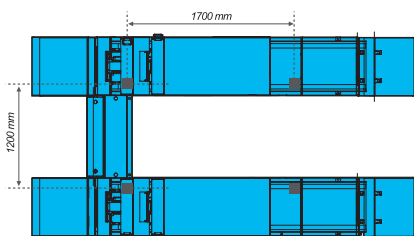
1 Entering from the front side

- Set the weight front/rear platform, each ratio 3:2
3/5 region is 1800kg, 2/5 region is 1200kg, total 3000kg setting is possible



2 Entering from the rear side

- Set the weight front/rear platform, each ratio 3:2
3/5 region is 1800kg, 2/5 region is 1200kg, total 3000kg setting is possible



3 Put the rubber plate on the proper position.

- Place the rubber switch on 1700mm X 1200mm region corner.
(Any place inside the 1700mm X 1200mm, cars are lifted safely)

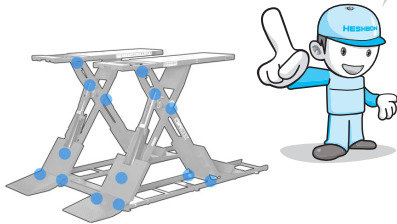


- This guide show the normal standard.
Following the car vendor,model, position of the engine, this guide would be modified.

Equipment maintenance and service



► Periodic grease and oil injection maintain the product to be safe.

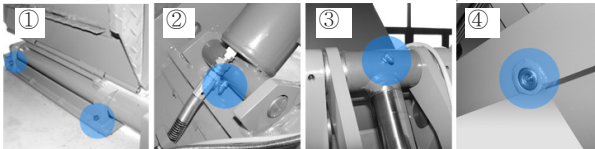


■ Lubrication

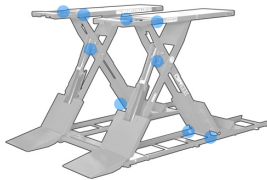
► Grease or oil should be applied every 2 or 3 months to the parts shown below.

1 Injecting grease

- Inject enough grease at shaft of auxiliary lift and roller. (2~3 month period)
- Auxiliary lift slide rubbing surface
- Grease Nipple Qty – 20

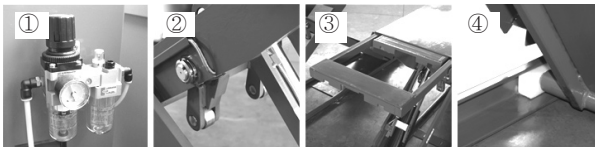


- ① Base synchronization bar
 - ② Cylinder lower part axis
 - ③ Cylinder upper part axis
 - ④ Link center and
- total 22 pcs



2 Injecting oil

- Location of injecting lubricating oil
- Paints the lubricant oil to the rubbing surface, base platform every 2~3 month.



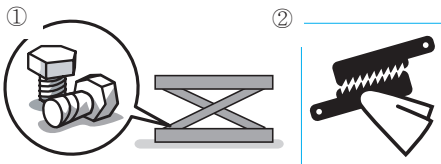
- ① Regulator oil refill
- ② Auxiliary link rubbing surface
- ③ Slide rubbing surface
- ④ MC guide rubbing surface

■ Cleanliness

- Check the working area under and around the lift for cleanliness. Check visibly if any nuts or bolts are loose or missing. Replace and retighten as necessary.

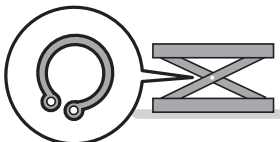
► Safety devices

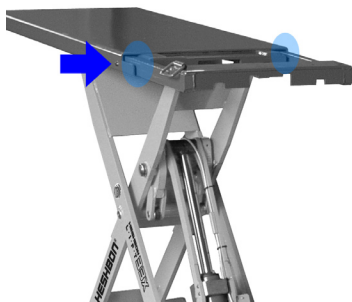
Check the area around the safety devices for cleanliness and any obstruction.



■ Check the snap-ring of the link axis

- check the existence of the inside and outside of the link axis.
- Snap Ring Qty – 42





■ Auxiliary lift platform extensions

► Check that the rear extensions can be adjusted throughout the full length of their travel without obstruction. Check that the stop bolts at full travel are in place and are tight. Check the surfaces of the extension arms for wear.

■ Emergency descent

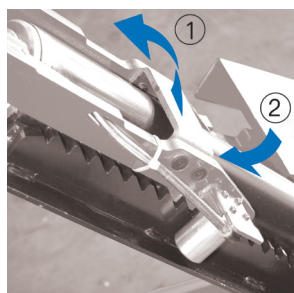
1 How to descend the lift manually in emergency

It is necessary

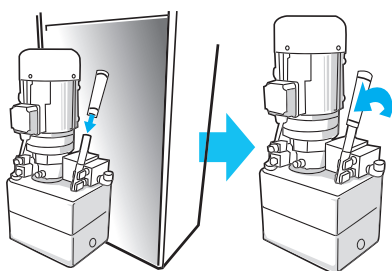
- ① When a blackout or the hydraulic circuit failure occurs
- ② When the lift cannot descend as specified in the troubleshooting in Page 30

Preparation before operating

- ① Remove any object under the lift. .
- ② Turn off the main power switch and panel power switch.
- ③ Manually release the locker
In case of locking state, releases the locker while another hydraulic device is lifting the locker 30 mm high. .
- ④ After taking to pieces in manually, put the supports between lockers.

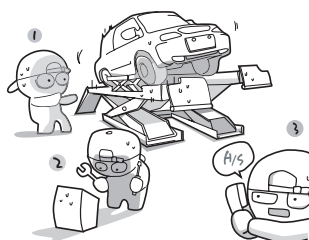


- Release of the main, auxiliary lift locker-2
- ① Release of the locker
 - ② Lay down lies.

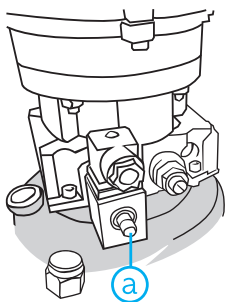


Tip Locker release method using manual pump.

► With putting on manual handle, if you operates 30~40 times, platform is lifted in locke



This situation is potentially very dangerous.
This operation should not be undertaken by unskilled staff.
Therefore, if in any doubt, call your lift supplier immediately for after sales service.



Operation procedure of manual descent

► Remove the cover of the powerpack. Remove the solenoid valve hexagon cap (19mm) in the middle of the pump manifold.
Turn the emergency cock lever (a) very slowly anti-clockwise. Too much movement will increase descent speed too much.



Turn the emergency cock lever very slowly to ensure that descent speed is slow and safe, especially if there is a vehicle on the lift.



Steps after completing the operation

► Turn the lever clockwise and lock it securely when the lift reaches bottom position. Replace and refit the hexagon cap. Request after sales service to check the lift.

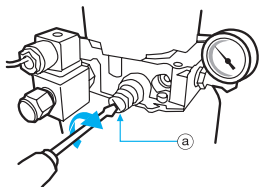
2 Powerpack pressure



The pressure is set by the factory. The lift may be damaged if the operator increases the pressure.
If the equipment does not lift the rated capacity, contact your lift supplier for engineer assistance.

Maintenance

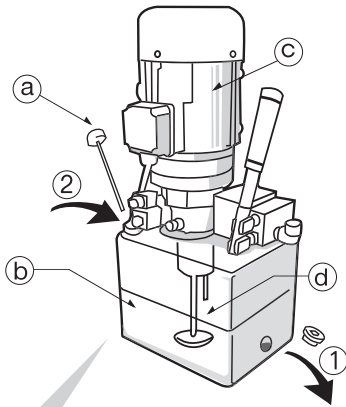
Information for the authorized service engineer only



Open the control panel and install a pressure gauge in the pump manifold as shown. The pressure adjusting screw (a) is sealed by the factory.
Remove the seal and adjust the pressure with a screwdriver. This should be done while pressing the ascent button at the same time and with the lift loaded with the full rated capacity.

Proper pressure by model _____

HL-33X - 200kgf/cm²



- a Cap of the oil tank
- b Oil tank
- c Cover of the hydraulic unit
- d Pump filter

- ① Oil injection
- ② Oil discharge

3 Oil change

Oil should be changed 3 months after installation and thereafter annually.

Oil change procedure

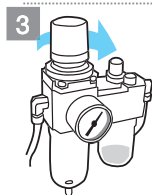
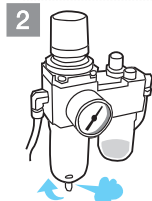
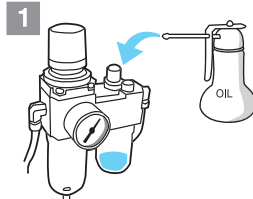
- ① Remove the cover of the hydraulic unit.
- ② Remove the oil filter cap and dipstick. Carefully remove the oil drain plug and allow the oil to discharge into a suitable container.
- ③ Refit the drain plug and tighten.
- ④ Refill the oil tank with new oil.
- ⑤ Check with the dipstick that the level is correct, raise and lower the lift and recheck that the level is still correct. If not, top up with oil.
- ⑥ Refit the cover.



At the annual oil change, after having drained the oil tank, remove the oil tank from the pump and check the condition of the pump filter.

Clean or replace as necessary. Replace tank and follow the above procedure.

■ Air regulator maintenance



1 Lubricator

Disconnect the air line. Check the level of oil in the lubricator and top up at intervals as necessary. Type of oil according to the air tool manufacturer's specifications. Refit air line.

2 Moisture separator

Check at regular intervals and drain the moisture separator glass through the drain plug as necessary. Refit air line.

3 Pressure adjustment

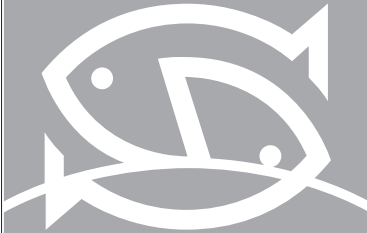
Pressure should be maintained at minimum 6kg/cm² and maximum 8kg/cm². Adjust regulator cap as necessary.

TROUBLE SHOOTING

Symptoms		Check point	Corrective Action to be taken
Hydraulic Cylinder And its units	The abnormal noise at motor listened.	1. Rated capacity is exceeded. 2. Relief pressure is low. 3. Shortage of hydraulic oil.	1. Operate within rated capacity. 2. Adjust to 3 ton. 3. Let air out of the hydraulic unit after supplying the oil.
	Hydraulic Oil is leaked.	1. Defect in hydraulic hoses. 2. Leakage from connecting parts. 3. Bad cylinder packing.	1. Replace the hydraulic hose. 2. Tighten the connection. 3. Request A/S.
	Oil is contaminated.	Check if an water or Foreign substance comes into the cylinder.	Exchange oil (annually) (Hydraulic oil : 32CST/12liter)
	The lift is not move up .	Check if the oil is leaked or hydraulic pump are damaged.	Request A/S.
	The lift is not lowered.	Check if the value is properly operated.	Request A/S.
	The fitting parts is rusted.	Check if the grease is not sufficiently injected.	In jet the grease every 1 month.
Electric Devices	Motor is not operated and the abnormal noise at motor is listened	1. Check if the motor is damaged. 2. Check if the fuse is opened. 3. Check if the push button is damaged. 4. Check if the upper limit is operated. 5. Check if wiring gauge is proper. 6. Check if the input power less than 200V is supplied.	1. Replace the motor (Request A/S). 2. Replace the fuse after solving trouble. 3. Replace the push button (Request A/S). 4. Re-operate after lowering the lift. 5. Replace to the cable with over 3.5mm ² diameter. 6. Increase the input power capacity.
	Fuse is snapped	1. Check the Contact of magnetic contactor. 2. Check the capacity of circuit breaker. 3. Check if the wire is damaged.	1. Replacement (Request A/S). 2. Replacement (Request A/S). 3. Replacement after checking.
	Motor is operating but lift is not moved up.	1. Check if the rotating direction of motor is correct. 2. Check if hydraulic lines is damaged.	1. Re-operate after changing the phase connection. 2. Refer to check points for hydraulic cylinder and unit.

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
	Axle for wire pulley	Noise and abrasion	Visual	Replacement	5 year
	Wire pulley	Abrasion	Visual	Replacement	5 year
6 months	Electrical components	Damage of components	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



PARTS LIST

MODEL

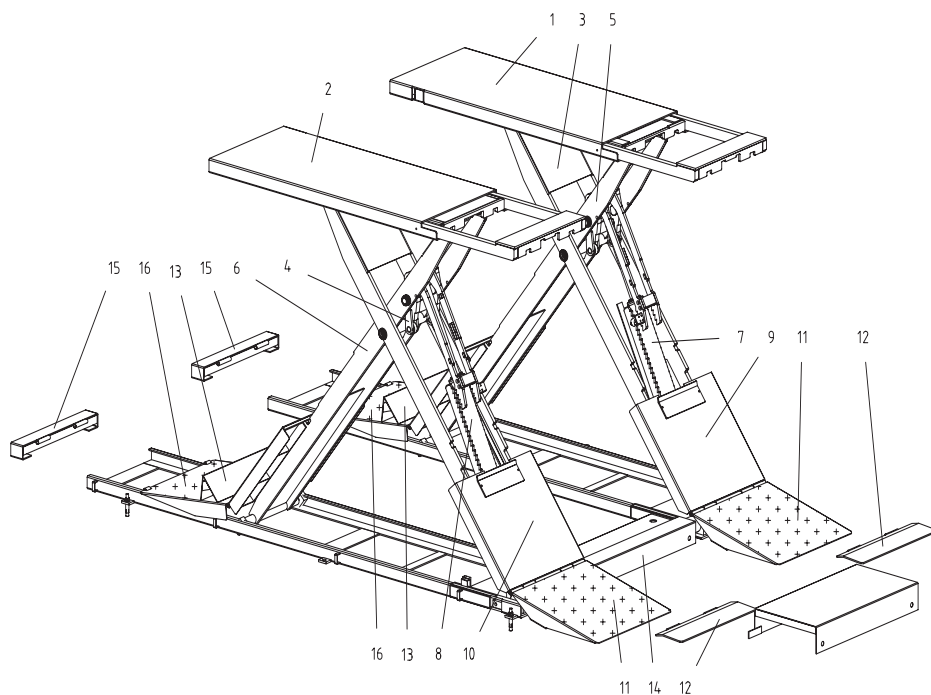
HL - 33X

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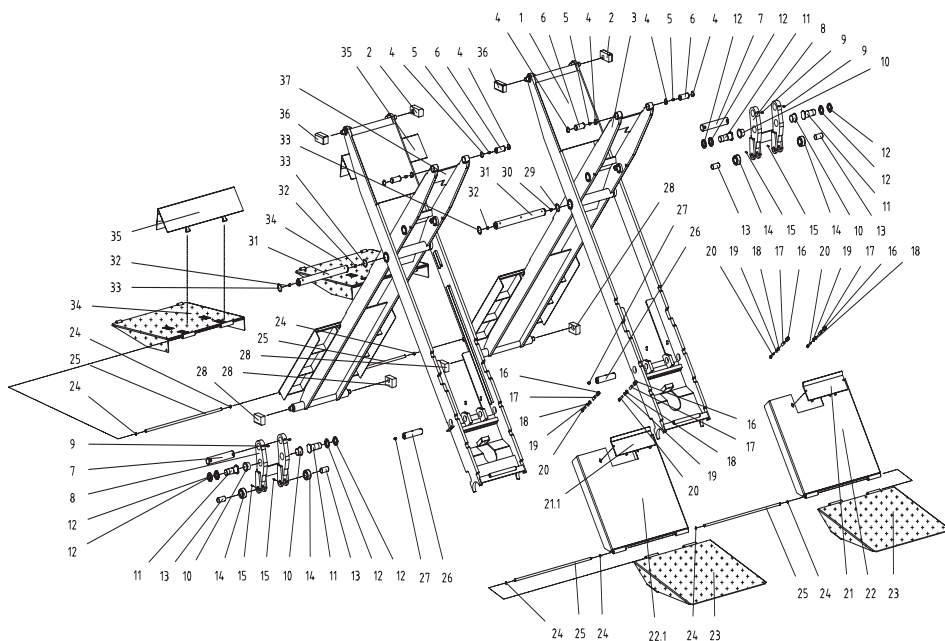
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This installation manual is prepared as of July 2004. This manual is subject to change without prior notice if the lift specification is changed.

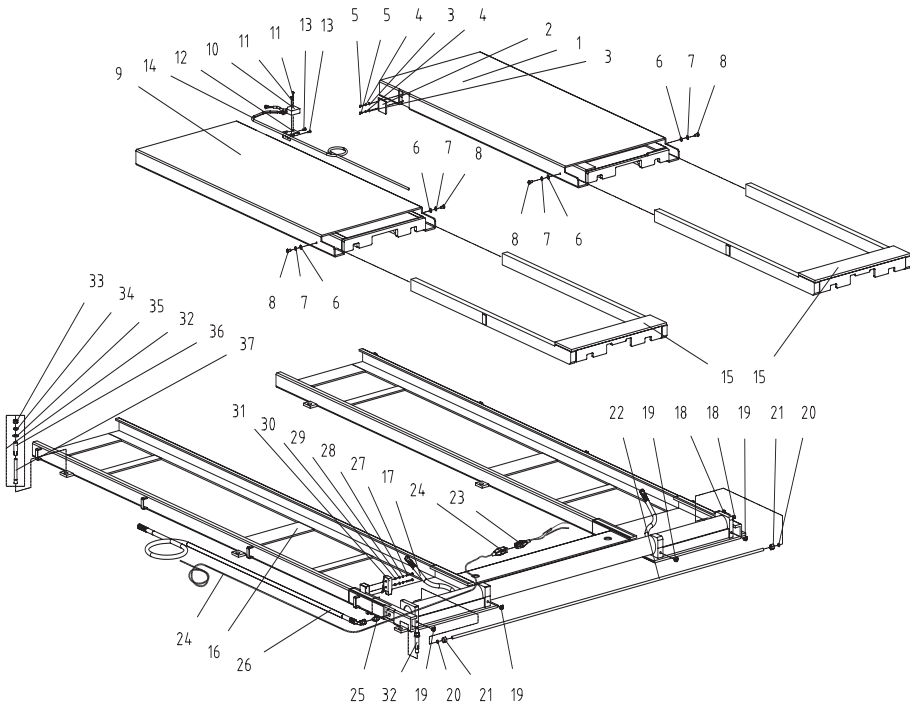


16	B3X90100	ADJUSTABLE RAMP PLATE PARTS		EA	2	B3XG000	8	B3X71000	CYLINDER ASSY.(DRIVE)		SET	1	B3XH00E
15	B3X90200	INGROUND RAMP PL. PARTS		SET	2	B3XJ00B	7	B3X72000	CYLINDER ASSY.(DRIVEN)		SET	1	B3XH00E
14	B3X00200	SYNCHRONIZATION BAR COVER PARTS		SET	1	B3XL00B	6	B3X31000	2nd LINK PARTS(DRIVE)		SET	1	B3XF00D
13	B3X90400	ADJUSTABLE RAMP STOPPER PARTS		EA	2	B3XG30A	5	B3X41000	2nd LINK PARTS(DRIVEN)		SET	1	B3XF50A
12	B3X90300	INGROUND ACCESS PARTS		SET	2	B3XJ50A	4	B3X61000	SUPPORT LINK PARTS		SET	2	B3XI00A
11	B3X90500	RAMP PL. 2 PARTS		EA	2	B3XG50C	3	B3X11000	BASE PARTS		SET	1	B3XB00C
10	B3X11700	LINK ACCESS PL.(HIDRIVE) PARTS		SET	1	B3XD00C	1	B3X22000	BOARD PARTS(DRIVE)		SET	1	B3XC00C
9	B3X11800	LINK ACCESS PL.(HIDRIVE) PARTS		SET	1	B3XD00C	0	B3X00000	BOARD PARTS(DRIVEN)		SET	1	B3XC50A
Item	Remark	Description	Standard	Unit	Qty	DWG. No.	Item	Remark	Description	Standard	Unit	Qty	DWG. No.



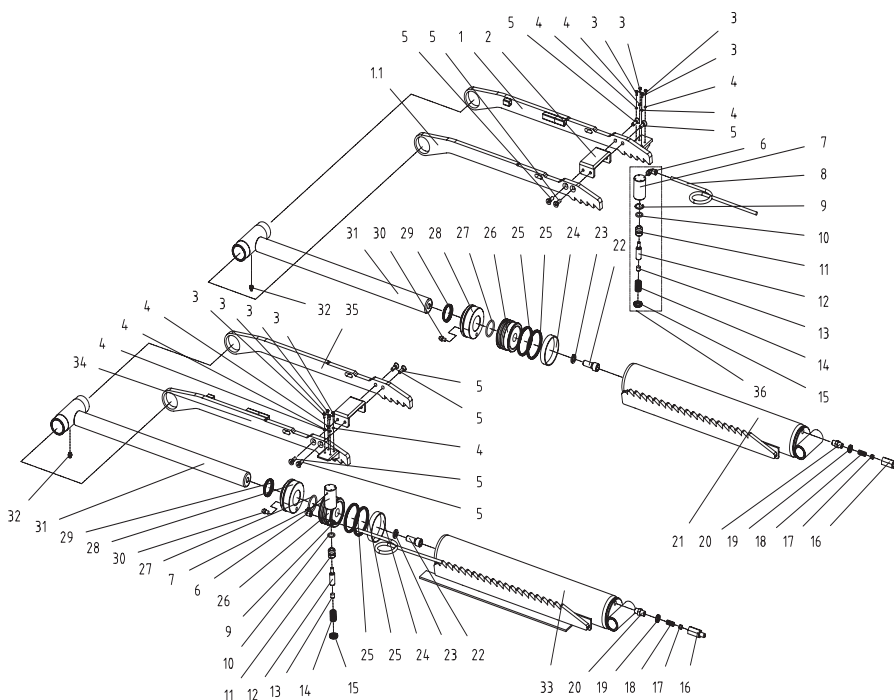
							20	WBM0835	WRENCH BOLT	M8x35L	EA	4	
37	B3X31000	2nd LINK PARTS(DRIVE)			SET 1	33XF00D	19	WSM08	SPRING WASHER	M8	EA	8	
36	B3X00020	1st LINK UPPER BOARD SLIDER(R/L)	35.5x40x86		EA 4	33XE24C	18	WPM08	PLATE WASHER	M8	EA	8	
							17	B3X00030	UPPER COVER FIX RING	12x27L	EA	4	33XD14A
35	B3X90400	ADJUSTABLE RAMP STTOPER PARTS			EA 2	33XG30A	16	B3X00090	1st RAMP PL SHOCK ABSORBING SPRING	1x1D 14x9Cx22L	EA	4	33XD08B
34	B3X90100	ADJUSTABLE RAMP PARTS			EA 2	33XG00D	15	MWBM0615	SET SCREW	M6x15L	EA	8	
33	SN-CS35	SNAP RING	CS35		EA 4		14	B3X61045	SUPPORT LINK ROLLER	50x26L	EA	1	33X105A
32	GN-1/8S	GREASE NIPPLE	PT1/8"xST		EA 10		13	B3X61050	SUPPORT LINK ROLLER PIN	25x52L	EA	4	33X106A
31	B3X00060	LINK CENTER PIN	35x383.6L		EA 2	33XE07B	12	B3X61070	ROLLING B/R NUT	M30x15P	EA	8	
30	GN-1/8S	GREASE NIPPLE	PT1/8"xST		EA 10		11	B3X61060	SUPPORT LINK BOLT	50x90L	EA	4	33X107C
29	SN-CS35	SNAP RING	CS35		EA 4		10	DJ3225F	DU B/R (FLANGE)	3225F	EA	2	
28	B3X00040	2nd LINK BASE SLIDER	32.5x45x68		EA 4	33XF23D	9	MWBM0815	SET SCREW	M8x15L	EA	8	
27	GN-1/8-45	GREASE NIPPLE	PT1/8"x45E		EA 8		8	B3X61000	SUPPORT LINK PARTS	SET 2	33X100A		
26	B3X00010	CYLINDER BOTTOM PIN	30x139L		EA 2	33XE12B	7	B3X00070	CYLINDER UPPER PIN	35x199L	EA	2	33X104A
25	B3X00120	RAMP PLATE PIN(GILT)	11x596L		EA 4	33XD10B	6	B3X00080	2nd LINK UPPER PIN	25x67.8L	EA	4	33XF03A
24	SN-CS11	SNAP RING	CS11		EA 8		5	GN-1/8S	GREASE NIPPLE	PT1/8"xST	EA	10	
23	B3X90500	RAMP PLATE 2 PARTS			EA 2	33XG50C	4	SN-CS25	SNAP RING	CS25	EA	8	
22	B3X11700	LINK RAMP PLATE(DRIVE)PARTS			SET 1	33XD00C	3	B3X41000	2nd LINK PARTS(DRIVEN)	SET 1	33XF50A		
22	B3X11800	LINK RAMP PLATE(DRIVE)PARTS			SET 1	33XD00C	2	B3X00020	1st LINK UPPER BOARD SLIDER(R/L)	35.5x40x86	EA	4	33XE20C
21	B3X11760	1st RAMP UPPER COVER PARTS(DRIVE)	61x103x306		SET 1	33XD12B	1						
21	B3X11860	1st RAMP UPPER COVER PARTS(DRIVE)	61x103x306		SET 1	33XD12B	1	B3X1000	BASE PARTS	SET 1	33XB00C		
Item	Remark	Description	Standard	Unit	Qty	DWG. No.	Item	Remark	Description	Standard	Unit	Qty	DWG. No.

HL-33X



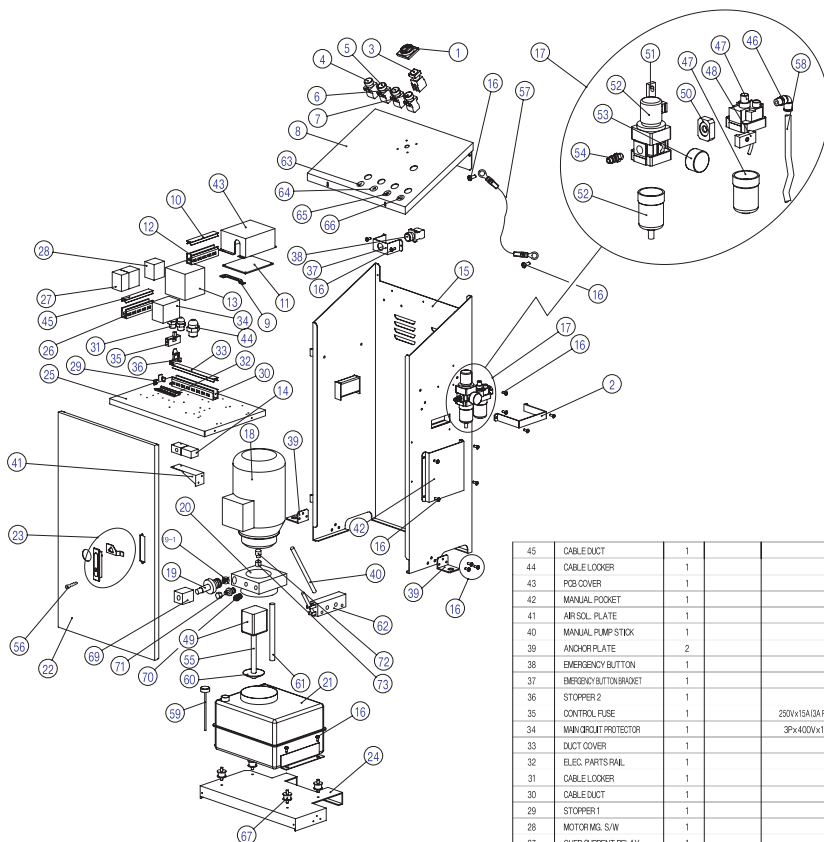
37	ANC-12-100	SET ANCHOR BOLT		EA		19	GN-1/8-45	IGREASE NIPPLE	PT1/8"×45도	EA	8		
36	ANC-12-100	SET ANCHOR BOLT		EA		18	MWBPT1/4	SET SCREW	PT1/4	EA	8		
35	ANC-12-100	SET ANCHOR BOLT		EA		17	B3X00015	HYDRAULIC HOSE	1/4"×1W×480L×ST×ST	EA	2	33X001C	
34	ANC-12-100	SET ANCHOR BOLT		EA		16	B3X10000	BASE PARTS		SET	1	33XB00C	
33	ANC-12-100	SET ANCHOR BOLT		EA		15	B3X51000	SLIDE PARTS		SET	2	33XM00B	
32	ANC-12-100	SET ANCHOR BOLT		EA		14	B3X51000	SLIDE PARTS		SET	2	33XM00B	
31	B1S80165	HARNES(DOWN LIMIT S/W 9)	1/2"×100L	EA	12	13	TR18M0513	TRUSS HEAD TAPPING BOLT(TH3)	M5×13	EA	2		
30	HN004	HEX. NUT	M4	EA	2	12	B1S80170	HARNES(PHOTO SENSOR 10)	포토센서포함	EA	1	31SK04B	
29	WPM04	PLATE WASHER	M4	EA	6	11	B1S80170	HARNES(PHOTO SENSOR 10)	포토센서포함	EA	1	31SK04B	
28	WSM04	SPRING WASHER	M4	EA	14	10	B1S80170	HARNES(PHOTO SENSOR 10)	포토센서포함	EA	1	31SK04B	
27	RHCBM0435	ROUND HEAD BOLT	M4×35L	EA	2	9	B3X21000	BOARD PARTS(DRIVE)		SET	1	33XC00C	
26	B1X00110	HYDRAULIC HOSE	5/16"×1W×8000L×ST×EL	EA	1	X31002B	8	WRB0815	ROUND HEAD WRENCH BOLT	M8×15L	EA	4	
25	HMC1/4-1/4	HOSE NIPPLE	1/4PF×050×ST	EA	1		7	WSM08	SPRING WASHER	M8	EA	8	
24							6	WPM08	PLATE WASHER	M8	EA	8	
23							5	RHCBM0410	ROUND HEAD BOLT	M4×10L	EA	10	
22	B3X00115	HYDRAULIC PIPE PART	10×1838L	EA	1	33XB16A	4	WSM04	SPRING WASHER	M4	EA	14	
21	BMC10-1/4	MALE CONNECTER	10×1/4PT	EA	2		3	WPM04	PLATE WASHER	M4	EA	6	
20	BMC10-1/4	MALE CONNECTER	10×1/4PT	EA	2		2	B1S80170	HARNES(PHOTO SENSOR 10)	포토센서포함	EA	1	
Item	Remark	Description	Standard	Unit	Qty	DWG. No.	Item	Remark	Description	Standard	Unit	Qty	DWG. No.
							1	B3X11860	RAMP UPPER (COVER PARTS(DRIVE))	61×103×306	SET	1	33XD12B

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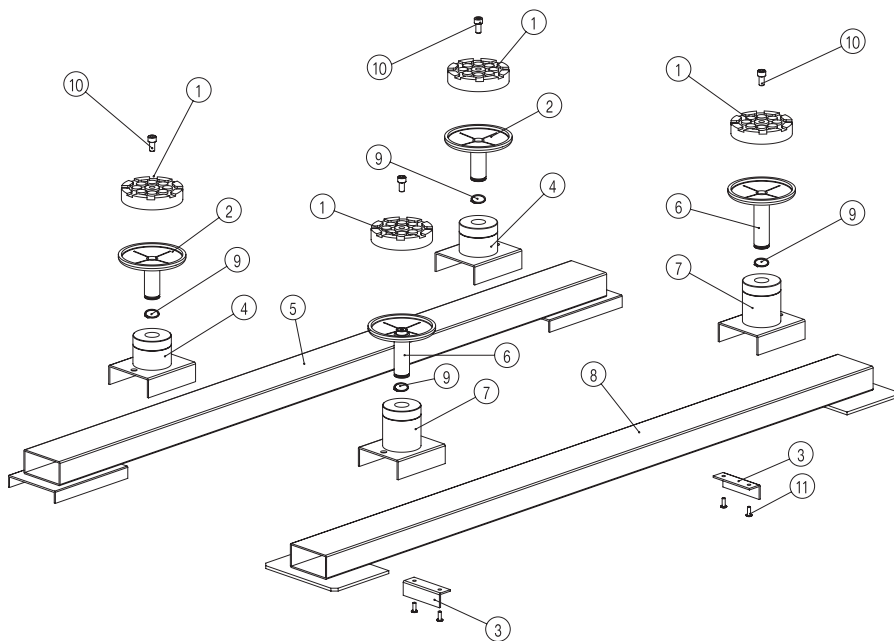
36	B3X91000	LOCKER AIR CYLINDER ASSY.		SET 2	33XU00C	17	B1S71201	PRIFICE	10.5x1.2x7.5L	EA	1	31SH10F	
35	B3X05110	UPPER LOCKER(R)	141x75x660	EA	1	33XH51C	16	B1S71202	FRANCE ORIFICE	19x19x55L	EA	1	31SH08C
34	B3X05100	UPPER LOCKER 2(R)		EA	1		15	B0N93160	AIR CYLINDER HEAD COVER	75x4.5L	EA	1	31SU06A
33	B3X71000	CYLINDER ASSY(DRIVE)		SET 1	33XH00E	14	B0N93150	LOCKER AIR CYL. SPRING(GILT)	18.4x16x36x5C	EA	1	31SU05A	
32	GN-1/8S	GREASE NIPPLE	PT1/8"xST	EA	10								
31	B3X71150	ROD BAR PARTS		SET 1			13	42F04759	AIR CYL. ROD GUIDE	11x10L	EA	1	42FU07A
30	SNK-PT1/8H	SILENCER	PT1/8"x15H	EA	2		12	B3X91040	LOCKER CYL. ROD BAR	15x4.9L	EA	1	33XU04B
29	DHS4048065	DUST SEAL(DHS40)	40x48x6.5/5B	EA	1		11	B3X91030	LOCKER CYL. PISTON	20x17L	EA	1	33XU03B
28	B3X71200	HEAD COVER	86x40L	EA	1	33XH04C	10	DRP16	O-RING(AIR TYPE)	P16	EA	1	
27	DRP40	O-RING	P40	EA	1		9	SN-CR25	SNAP-RING(HOLE TYPE)	CR25	EA	1	
26	B3X41200	PISTON	79x44L	EA	1	33XH03A	8	AH0604	URETHAN AIR HOSE(BLUE)	6x4	M	76	
25	LHP70806	U-PACKING	70x80x6B	EA	2		7	B0N93120	LOCKER AIR CYLINDER	35x58L	EA	1	31SU02C
24	WEART58015	WEAR-RING	75x80x15H	EA	1		6	EC0564E	ONE TOUCH AIR NIPPLE(EI BOW)	M5x6x4	EA	2	
23	WSM16	SPRING WASHER	M16	EA	1		5	WBDM0825	COUNTERSINK HEAD WRENCH BOLT	M8x25L	EA	8	
22	WBM1435	WRENCH BOLT	M14x35L	EA	1	52FG02	4	WSM04	SPRING WASHER	M4	EA	14	
21	B3X72000	CYLINDER ASSY(DRIVEN)		SET 1	33XH00E	3	RHEBM0410	ROUND HEAD BOLT	M4x10L	EA	10		
20	HMM-1/4-05U	STEEL NIPPLE(ST.)	PT1/4"x05U	EA	3		2	B3X05140	UPPER LOCKER BRACKET	61x350x97	EA	2	33XH52B
19	52FG7205	ORIFICE GUIDE	70x13.5x5t	EA	1	52FG27A	1.1	B3X05210	UPPER LOCKER PART(L)	141x75x660	EA	1	33XH51C
18	B1S71203	ORIFICE SPRING(GILT)	1x9x11x8Cx18L	EA	1	26KE09B	1	B3X05200	UPPER LOCKER ASSY(L)		SET 1		
Item	Remark	Description	Standard	Unit	Qty	DWG. No.	Item	Remark	Description	Standard	Unit	Qty	DWG. No.

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45	CABLE DUCT	1				30H4180-5
44	CABLE LOCKER	1				NEC0120A
43	PCB COVER	1				31580066
42	MANUAL POKKET	1				31579320
41	AIR SOL. PLATE	1				31579420
40	MANUAL PUMP STICK	1				P/P-ST
39	ANCHOR PLATE	2				31580066
38	EMERGENCY BUTTON	1				31580070
37	EMERGENCY BUTTON BRACKET	1				31580102
36	STOPPER 2	1				30H4130
35	CONTROL FUSE	1		250Vx15A(3A FUSE)		90000015
34	MAIN CIRCUIT PROTECTOR	1		3P x 400V x 16A		90000010
33	DUCT COVER	1				30H4180-4
32	ELEC. PARTS RAIL	1				30H4150
31	CABLE LOCKER	1				NEC0111A
30	CABLE DUCT	1				30H4180-3
29	STOPPER 1	1				30H4130
28	MOTOR MG. S/W	1				90000040
27	OVER CURRENT RELAY	1				90000050
26	CABLE DUCT	1				30H4180-2
25	ELECTRIC PARTS BASE	1				31580061
24	PANEL BASE	1				31580016
23	DOOR LOCKER KEY	1				315015A
22	FRONT COVER	1				33X80041
21	OIL TANK	1				K081088164
20	MD BLOCK	1				K081088162
19-1	FLOW CONTROL VALVE	1				V38671900H
19	2-PORTED VALVE (3/8" BORE)	1				V386030E10
18	MOTOR (3P x 230/400V)	1				MT3P2.0
17	AIR REGULATOR	1				TAW3000
16	BODY BOLT	31				TR18M0513
15	PANEL BODY	1				33X80030
14	AIR SOLENOID VALVE	1				90000030
13	TRANSFORMER	1		50VA x 400V/24V		31579010
12	CABLE DUCT BASE	1				30H4180-1
11	CONTROL PCB	1				31579015
10	CABLE DUCT COVER	1				30H4180
9	EARTH STEEL	1				31580090
8	UPPER COVER	1				31580024
7	2nd DESCENDING BUTTON	1				KP56PREG
6	LOCK (PARK) BUTTON	1				KP56PREG
5	ASCENDING SWITCH	1				KP56PREG
4	DESCENDING SWITCH	1				KP56PREG
3	Buzzer	1				31580060
2	REGULATOR GUIDE	1				31580093
1	POWER CAM SWITCH	1				30H4155
0	COMMAND BOX (ALL)	1SET				31579000

MARK	DESCRIPTION	QTY	MATERIAL	CODE	WEIGHT OR SIZE	MARK	DESCRIPTION	QTY	MATERIAL	CODE	WEIGHT OR SIZE
73	COUPLER	1			P/M-C02	26	CABLE DUCT	1			30H4180-2
72	MOTOR SHAFT COUPLER	1			P/M-C01	25	ELECTRIC PARTS BASE	1			31580061
71	RELIEF V/V	1			V388904423	24	PANEL BASE	1			31580016
70	CHECK V/V	1			V38822600	23	DOOR LOCKER KEY	1			315015A
69	SOLENOID COIL	1			C16411002	22	FRONT COVER	1			33X80041
68	INSTRUCTION STK	1			3150103A	21	OIL TANK	1			K081088164
67	ANTI-VIBRATION RUBBER	4			30N80100	20	MD BLOCK	1			K081088162
66	2nd DESCENDING STK	1			ST-2DC	19-1	FLOW CONTROL VALVE	1			V38671900H
65	LOCKING STK	1			ST-LOC	19	2-PORTED VALVE (3/8" BORE)	1			V386030E10
64	ASCENDING STK	1			ST-ASC	18	MOTOR (3P x 230/400V)	1			MT3P2.0
63	1st DESCENDING STK	1			ST-DES	17	AIR REGULATOR	1			TAW3000
62	MANUAL PUMP	1			K250182000	16	BODY BOLT	31			TR18M0513
61	RETURN PIPE	1			P/P-RP	15	PANEL BODY	1			33X80030
60	STRAINER	1			P/P-STRI	14	AIR SOLENOID VALVE	1			90000030
59	DIP STICK	1			P/P-DIP	13	TRANSFORMER	1		50VA x 400V/24V	31579010
58	AIR HOSE	2m		4x6x2000L	HOSE-AR-6	12	CABLE DUCT BASE	1			30H4180-1
57	EARTH CABLE	150MM			CAB-EA01	11	CONTROL PCB	1			31579015
56	KEY				315015A	10	CABLE DUCT COVER	1			30H4180
55	STRAINER PIPE	1			P/P-SP	9	EARTH STEEL	1			31580090
54	AIR PIPE (8MM)	1		8MM	90000070	8	UPPER COVER	1			31580024
53	PRESSURE GAUGE	1			TAW30-07	7	2nd DESCENDING BUTTON	1			KP56PREG
52	FILTER REGULATOR	1			TAW30-06	6	LOCK (PARK) BUTTON	1			KP56PREG
51	T-TYPE BRACKET	1			TAW30-05	5	ASCENDING SWITCH	1			KP56PREG
50	SPACER 1	1			TAW30-04	4	DESCENDING SWITCH	1			KP56PREG
49	OIL PUMP	1			P/P-PUM	3	Buzzer	1			31580060
48	SPACER	1			TAW30-02	2	REGULATOR GUIDE	1			31580093
47	LUBRICATOR	1			TAW30-01	1	POWER CAM SWITCH	1			30H4155
46	TWO TOUCH ELBOW	1			L4N64PT1/4	0	COMMAND BOX (ALL)	1SET			31579000



11	TRUSS HEAD BOLT	4		M5x15L	TRTBM0515
10	WRENCH BOLT	4		M6x20L	WBM0620
9	SNAP RING	4		CS25 (25)	SN-CS25
8	EXTENSION BAR(2)	1			30N90200
7	EXTENSION BRACKET (H)	2			30N90310
6	ADJUSTABLE RUBBER PLATE(H)	2			26K25010
5	EXTENSION BAR(1)	1			30N90100
4	EXTENSION BRACKET (L)	2			30N90410
3	SQUARE PIPE STTOPER	2			31S85120
2	ADJUSTABLE RUBBER PLATE(L)	2			26K25010
1	ADJUSTABLE RUBBER	4			26K25030
MARK	DESCRIPTION	Q'TY	MATERIAL	CODE	WEIGHT OR SIZE



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