Bishamon®

2 POSTS LIFT

Operation and Service Manual

SPA4000
SPA4000W

For regular users

Thank you for your purchase of the Bishamon post lift.
Make sure to read and thoroughly understand the manual before use.
Failure to thoroughly understand the precautions and use methods in the manual for correct use risks not only failure to manifest full performance, but also vehicle falling and personal injury, so make sure to thoroughly understand the device before use.
Further, store this manual carefully, and if it should be lost, request a replacement promptly.
If the wrong manual is supplied with the lift, contact your supplier for the correct manual.

Maintenance, inspection, and management

To operate the lift safely and to maintain lift functions thoroughly, implement periodic maintenance inspections.

Preface

Thank you for your purchase of the Bishamon 2 posts lift.
Make sure to read and thoroughly understand the manual before use. Failure to thoroughly understand the precautions and use methods in the manual for correct use risks not only failure to manifest full performance, but also vehicle falling and personal injury, so make sure to thoroughly understand the device before use.
Due to revisions, the contents of the manual and the specifications of the purchased product may differ. If you have any questions regarding the product or user manual, do not hesitate to contact your supplier.
Further, store this manual carefully, and if it should be lost, request a replacement promptly from your supplier.

Explanation of Terminology and Symbols

The definitions and warning symbols for "Danger", "Warning", and "Caution" in this manual are described below. Warning displays are important for working safely. Important information is described to prevent personal injury and damage to property, so make sure to read thoroughly before use.

⚠ Danger	Misoperation may imminently risk dangers such as death or serious injury to the user.
⚠ Warning	Misoperation may risk dangers such as death or serious injury to the user.
⚠ Caution	Misoperation risks injury to the user, or property damage only. Further, the risk of danger is lower than the risk of a warning.

⚠ Caution

This lift is not for outdoor installation or car wash use.
Do not use in car washes, outdoors, or in high humidity locations.

Contents

1. Intended Use

This lift is for indoor use, and is for oil changes, parts replacement, general maintenance, and inspections of lightweight to regular passenger vehicles and compact trucks. (Some vehicle models may be restricted.)

2. Dangers, Cautions, and Warnings

Safety precautions

Describes important items to prevent personal injury and vehicle damage during use, so make sure to read and understand thoroughly before use.

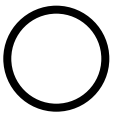
2-1. General Safety Observations

1. Thoroughly read and completely understand the manual before use.
2. Make sure only people who thoroughly understand the use methods use the lift.
3. Make sure to follow the manual during start of work inspections and periodic inspections.
4. If an abnormal noise occurs during operations, or the status is different from normal operations, prohibit lift use, and contact your dealer to request an inspection.
5. Do not use the lift for any purpose other than vehicle repairs.
6. Do not remove or modify the warning labels.

2-2. Precautions for Use

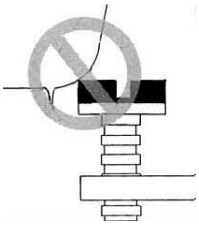
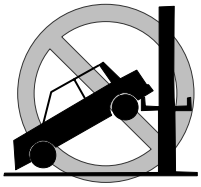
Graphic symbols in the background of picture displays have the following meanings.

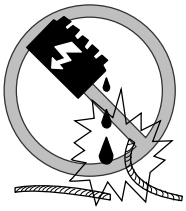
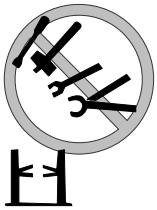
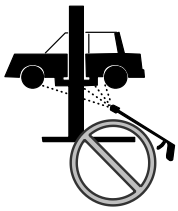

Special never-do actions


Special must-do actions


Warnings and cautions risked by misoperation.

⚠ Danger	
	**Never pass or stand under a vehicle during operation** *There is a danger of death or serious injury.
	**If the vehicle starts to fall, do not try to support it, and flee the lift area** *Being crushed under a vehicle risks death or serious injury.

⚠ Warning	
	**Thoroughly read and understand the user manual before using the lift** *The manual explains important warnings. Failure to follow warnings may result in a major accident.
	**Prohibit use by anyone not thoroughly knowledgeable of the methods of use** *Incorrect use may cause unintended accidents.
	**Correctly align the supporter to the specified lifting point** *When setting the supporter, pause when aligned to the lifting point, and check that the supporter is correctly aligned. Incorrect alignment risks the supporter slipping and the vehicle falling.
	**Lowering with a pole, etc., under the vehicle for parts installation and removal is strictly prohibited** *There is a risk of the supporter set detaching and the vehicle falling.
	**Do not rock a raised vehicle strongly** *There is a risk of the supporter set detaching and the vehicle falling.
	**Use of other than the official attachments is prohibited** *There is a risk of 3rd-party attachments detaching due to vibration when raising, lowering, or working, and the vehicle falling.
	**"Listing" front, back, left, or right is strictly prohibited** *There is a risk of the vehicle falling or becoming deformed. Further, there is also a risk of damage to the lift.
	**Use of extremely one-sided loads is strictly prohibited** **Always pay attention to vehicles listing** *There is a risk of vehicles falling due to vibration when raising, lowering, working, or mounting and removing parts.

⚠ Warning	
	**When lowering, do not place your feet under the swing arms or carriage, etc.** *There is a risk of major crush injury.
	**If battery fluid adheres to the synchronizing cable, immediate use of the lift is strictly prohibited** *There is a danger of the synchronizing cable breaking. Make sure to replace with a new synchronizing cable.
	**Remodeling the safety equipment is strictly prohibited** *There is a risk of disabling operations, or of a major accident.
	**Strictly observe the designated vehicle front/back orientation** *There is a risk of vibration falling the vehicle due to the weight distribution front and back of the vehicle.
	**Caution: Electric Shock** **When opening operations panels and control panels, make sure not to touch the terminals.** *There is a risk of electric shock.
	**Cannot be installed in car washes or outdoors** *There is a risk of water damage or unexpected accidents.

⚠ Caution

Thoroughly read the manual and completely understand its contents before use.

<Operations Preparations>

1. The device is a lift for vehicle repairs. Do not use for any other purpose.
2. The device does not have any outdoor or car wash specifications. Do not use in car washes, outdoors, or in high humidity locations. Malfunctions and non-conformances due to water leaks are not covered by the warranty.
3. Do not lift vehicles over the maximum performance. The maximum performance is 4,000kg.
4. If any of the safety devices do not operate normally, do not use the lift.
5. Make sure to always keep the rubber supporter surface clean, and do not use if there are any oil or dirt adhesions.
6. Do not use anything other than the designated supporter to lift vehicles.
7. If adjusting or storing the swing arm or supporter, take care not to crush your hands or fingers.
8. Accurately set the supporter on the lifting point, and do not lift vehicles that have no clear lifting point. For correct lifting points, see the vehicle log book.
9. If a vehicle pinch panel, etc., is interfering with the arm, adjust the supporter height before use.
10. The arm restraint device does not support abnormal loads that occur due to vehicle weight or shock. Correctly align the supporter to the jack point to prevent eccentric loads or defective supporter alignment applying abnormal force to the runout device.
11. Adjust the height of the supporter so that loads are applied to the arms as evenly as possible, and check that the arm is securely mounted to the arm restraint device before raising a vehicle.
12. The lengths of the swing arms may differ at the front and back of the vehicle. Set so that the heavier vehicle weight is on the short arm, and the lighter vehicle weight on the long arm.

<Raising and Lowering Operations>

1. During lift operations, always pay attention to the vehicle and the lift surroundings, and never operate while looking away.
2. Do not raise vehicles while a person or luggage are on board.
3. When raising, pause when the supporter rubber aligns with the vehicle, and then check that the supporter rubber is correctly aligned.
4. When lowering, do not approach or touch the vehicle or lift moving parts.
5. Do not leave tools or parts in the posts or under the lift during use. Doing so may cause lift malfunction or the vehicle to fall.
6. Check that there are no people or objects in the vehicle or the vicinity of the lift when lowering.
7. Lower the carriage completely before loading or unloading a vehicle. Also, make sure that the swing arms are fully open before loading or unloading a vehicle.
8. Unloading is a 2-step operation.
   The 1st step is to release the lowering stock hook, and the 2nd step is the lowering operation.
9. If the operations lever is heavier than usual during the 1st step of the operation, raise briefly, and then lower again.
   Forcing an operation risks the vehicle tilting or lift malfunction.
10. Stop vehicles with high roofs before their roofs reach the roof sensor.
    Upon contact with the roof sensor the rising will stop, but there is a risk of scratching the roof.

<During Work>

1. When raising a vehicle for work, always make sure to raise to a position higher than the operating height of the natural lowering prevention device (300mm min. from the lower limit position). Natural lowering may damage the vehicle, and surrounding equipment and tools.
2. Prohibit anyone other than workers from entering the lift area.
3. Do not leave a raised vehicle unattended for long periods of time.
4. When not using the lift, make sure to lower the lift to its lowest position. Even when not in use, however, fully raising the lift at least once a day extends the lift service life.

<Other>

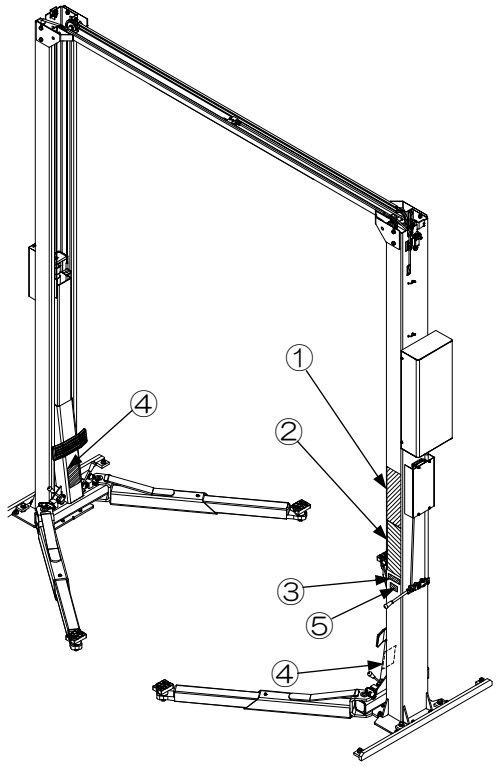
1. Do not modify the lift without permission from the manufacturer. There is a risk of poor performance and major accidents.
2. If a defect is discovered during use or maintenance, stop use immediately, and repair the defect. Further, do not use the lift until repairs are complete.
3. This lift is not for outdoor installation or car wash use. Do not use in car washes, outdoors, or in high humidity locations.

[Glossary]

"Lifting point": ……The part designated for raising vehicles. See the description in the vehicle log book for details. If there is no description, check with the vehicle manufacturer.

"Side seal": ……The welded part at the bottom of the rocker panel. For regular passenger vehicles, the lifting point is here.

3. Location of the Labels



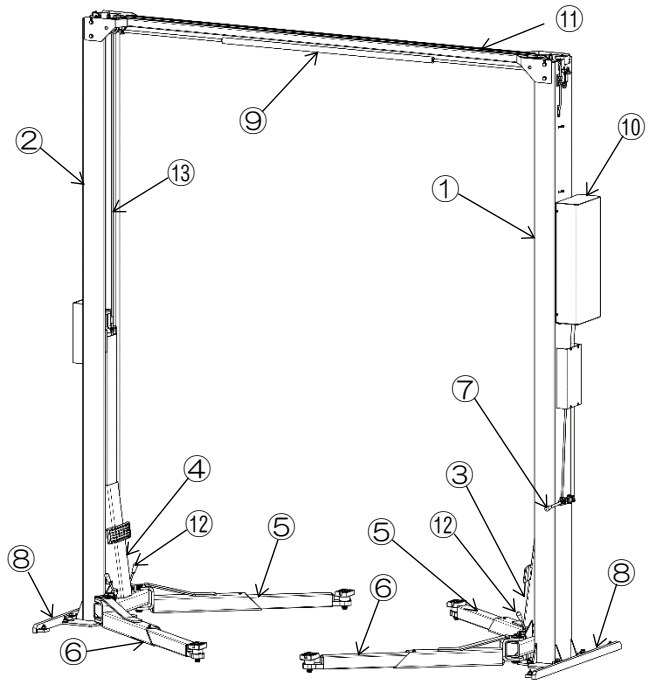
Warning decals are mounted as described on the left, so check them thoroughly.

No.	Type	Notes
①	Danger and Warning Decals	
②	Caution and Inspection Decals	
③	Nameplate	Also shows lift performance
④	Runout decal	
⑤	"Raise" and "Lower" labels	

⚠ Caution

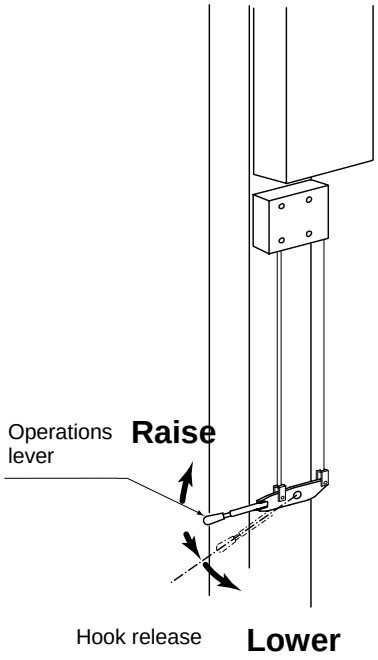
If a decal is worn, defaced, or peeling during use, buy and correctly mount new ones promptly.

4. Names and Functions of Components



①	M post
②	S post
③	M carriage
④	S carriage
⑤	Swing arm (front)
⑥	Swing arm (back)
⑦	Operations lever
⑧	Base
⑨	Roof sensor
⑩	Hydraulic Unit
⑪	Post beams
⑫	Runout device release lever
⑬	Adjustment wire

■ Operations lever



This lever controls the raising of the lift.

Raise operations

Lift the lever to rotate the motor and raise the lift.

Raise stop operation

Remove your hand from the lever to stop the motor and stop the lift at its current position. Further, at the top limit the lever returns forcibly and the lift stops.

Lowering operations

Lower the lever to release the lowering stop hook, and lower the lever further to open the lowering valve and lower the lift. Adjust the lowering speed using subtle control of a hand force on the operations lever.

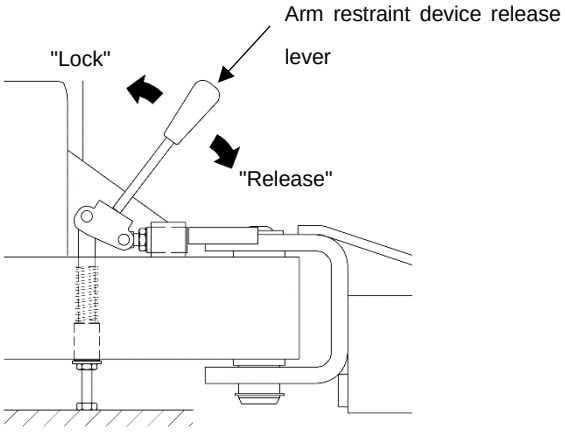
Lowering stop operation

Release your hand from the lever to close the lowering valve and stop the lift lowering.

⚠ Caution

Operating the lever while the lowering stop hook is ON for any reason makes the lever extremely heavy. In this case, do not force the lowering operation, but raise the lift slightly before lowering again.
(Forcing the lowering operation risks damaging the lift.)

■ Arm restraint device release lever



This lever releases the arm restraint device. Set the arm to the vehicle lifting point and lower the lever before releasing to rotate the arm freely.

When the arm is set, release the lever to operate the arm restraint device and lock the arm. At the lift's lowest point, the arm restraint device release lever "releases" automatically, and when raising, locks automatically.

Operations when unlocked

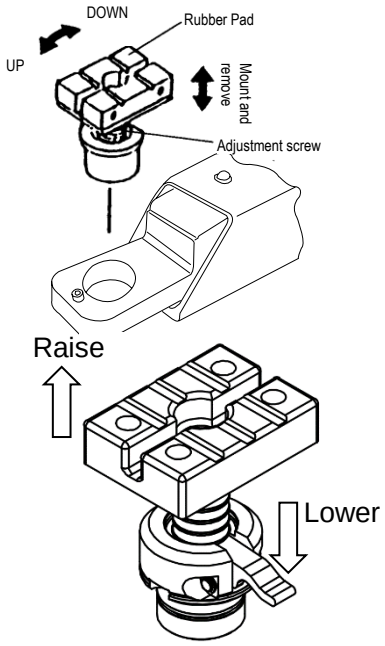
⚠ Warning

Do not raise a vehicle when the arm restraint device is not functioning.
There is a risk of the rubber pad supporter detaching and the vehicle falling due to the swing arm operating.

⚠ Caution

The arm restraint device does not support vehicle loads or shocks.
(Abnormal loads applied due to eccentric loads or defective supporter mounting are not prevented, so be very careful when applying the vehicle position or supporter.)

■ Rubber Pad Supporter



Adjustable supporter

Rotate the supporter to adjust the height. Further, lift the supporter to remove it, making swapping for the optional frame attachments (for wagons, RVs, and trucks) easy.

Easy attachments (optional)

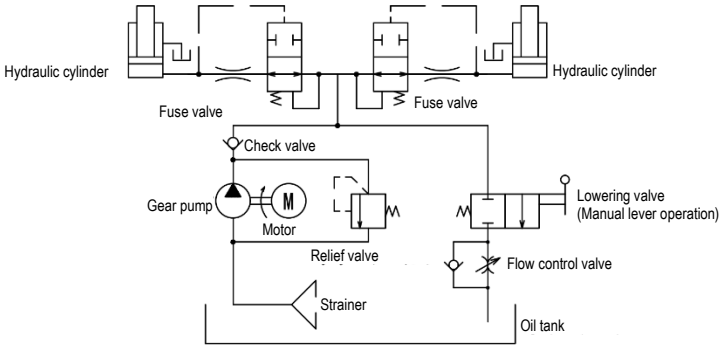
You can raise the supporter simply by pulling up, and lower just by pushing down, making raising and lowering the supporter easy.

The O-ring mounted to the slide arm insert is there to prevent disconnection when raising the supporter.

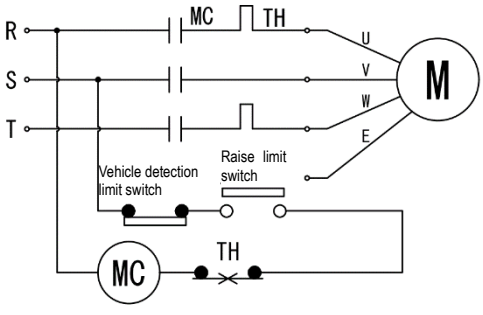
Align the orientation of the vehicle side seal and the rubber supporter gutter, and raise the supporter to set the side seal in the rubber supporter groove.

5. Hydraulic and Electric Circuit Diagrams

Hydraulic circuit diagrams



Electric circuit diagrams



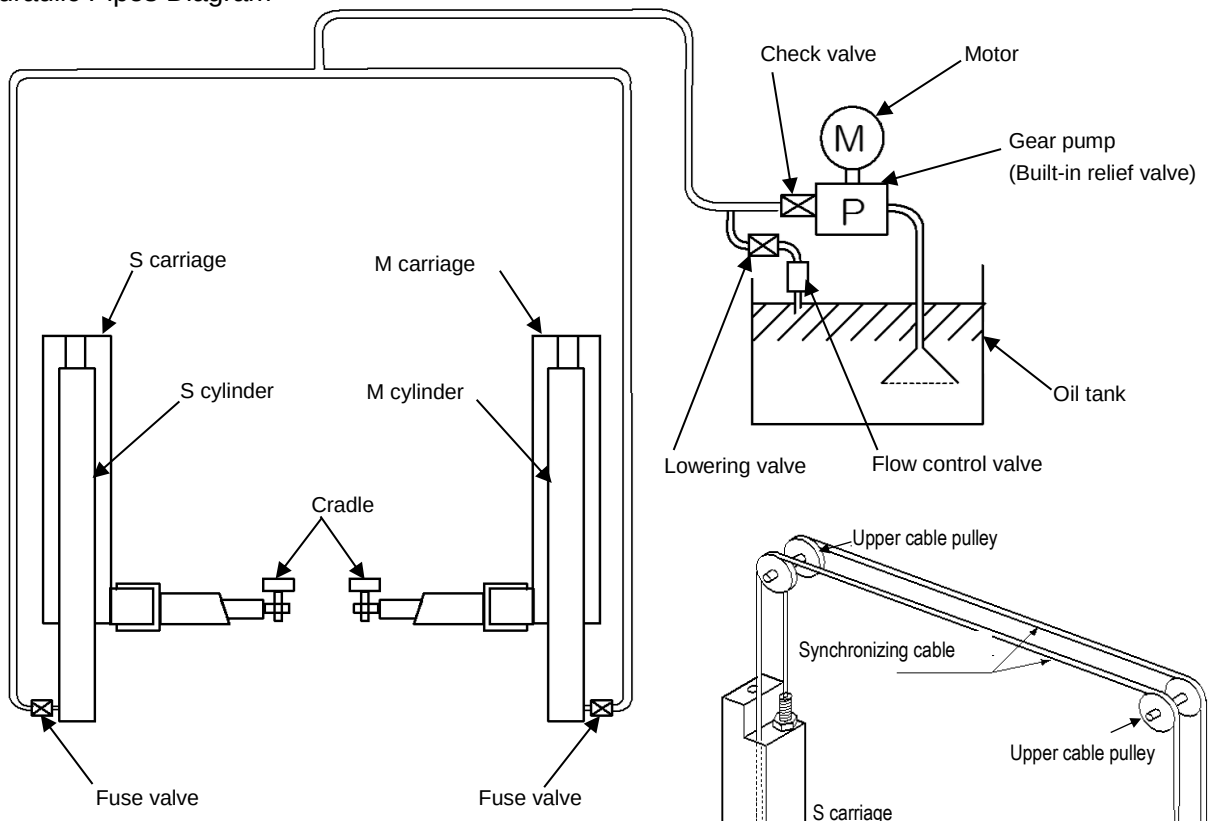
6. Operating Principles

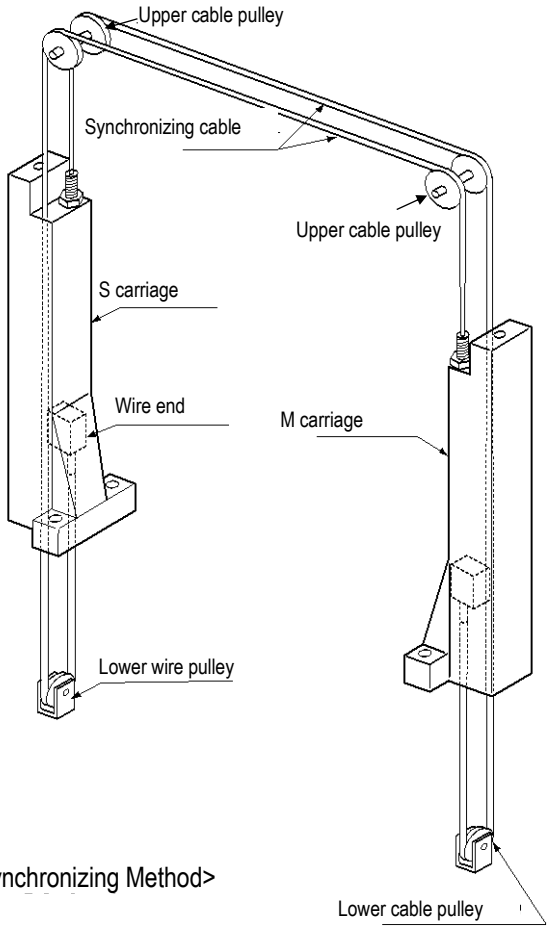
The device uses an electric hydraulic pump to operate the hydraulic cylinder and raise the M and S carriages directly.

The M and S carriages are mutually connected by the synchronizing cable, so align both carriages to implement raise and lowering operations.

- ●Raise: Raising the operations lever turns the motor, so the hydraulic fluid is fed into the M and S cylinders by the pump to raise the M and S carriages.
- ●Stop: Releasing the operations lever stops the motor, and the hydraulic fluid is stopped by the check valve, so the cylinders stop where they are.
- ●Lower: Lowering the operations lever opens the lowering valve, so the hydraulic fluid in the cylinder returns to the oil tank via the lowering valve and flow control valve to lower the cylinders.

<Hydraulic Pipes Diagram>



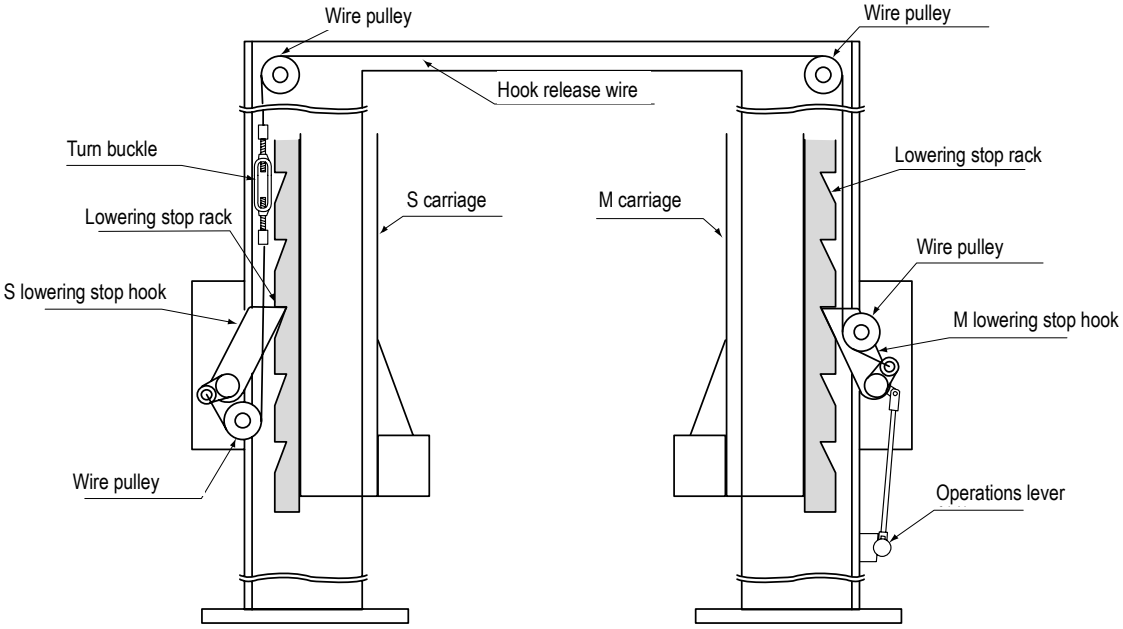


<Synchronizing Method>

7. Safety Devices

■ M and S side lowering stop devices

Prevents lowering due to damaged hydraulic pipes, natural lowering due to oil leaks, and progressive leaning due to damaged synchronizing devices.
The lowering stop hook is constantly "ON" due to the strength of the spring, and so is always "ON" except during lowering operations.
If an error occurs during lift operations, removing your hand from the lift prevents the error status from progressing.



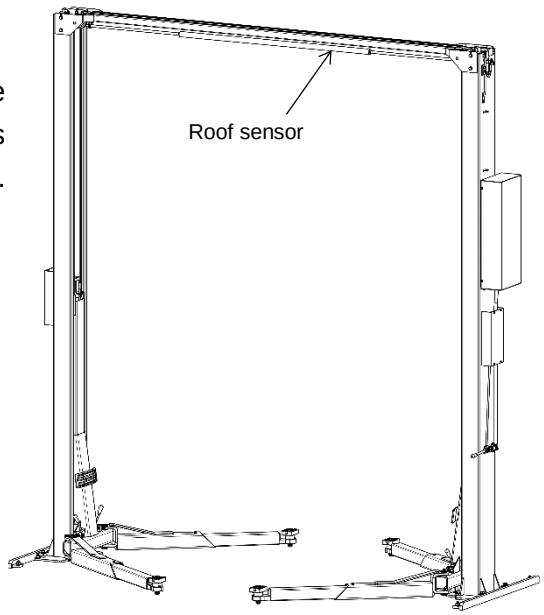
The hook release wire operates in tandem with the M-side operations lever to release both the M and S sides.

⚠ Caution

Unless raised to 250mm min. higher than the lowest position, the lowering stop hook will not operate.

■ Roof sensor

When raising a tall vehicle such as a wagon or RV, when the roof of the vehicle touches the roof sensor, the lift stops electrically to prevent the vehicle roof striking the post beam.

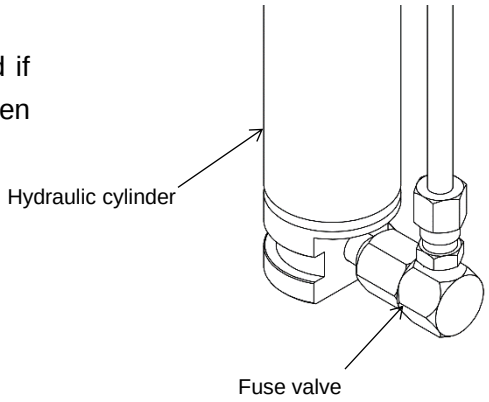


⚠ Caution

Stop tall vehicles and those with roof attachments before the roof strikes the roof sensor. Contact with the roof sensor stops the raising, but risks scratching the roof or damaging any roof attachments. Damaging a post beam risks causing major accidents such as falling vehicles, etc.

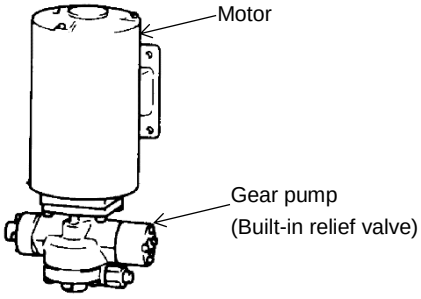
■ Fuse valve

The Fuse valve is mounted to the hydraulic cylinder, and if there is a rapid outflow of oil from the cylinder due to a broken hydraulic circuit, the valve cuts off the oil outflow.



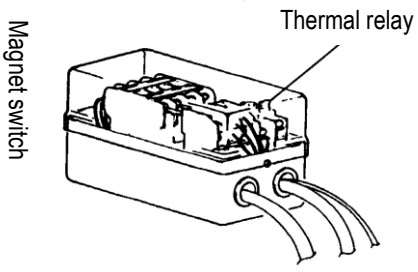
■ Relief valve

Attempting to raise a vehicle over the lift performance or raising the pressure within the hydraulic circuit abnormally due to a malfunction will release hydraulic pressure to prevent lift damage and malfunction. Built into the gear pump.



■ Thermal relay

Detects overload current and cuts OFF the electrical circuits to prevent a motor fire. Mounted to the magnet switch.



8. Pre-operation Check

Make sure to implement pre-operation check before work. Make sure there is no vehicle loaded during the inspection.

⚠ Caution

If you discover a site suspected of malfunctioning, prohibit use of the lift until the malfunction has been completely repaired, and contact your dealer immediately. Using while malfunctioning risks lift damage and major accidents.

Inspection site	Inspection details	Inspection method
Rubber Pad Supporter	Is the supporter rubber deformed, broken, or worn?	Visual
	Are the supporter adjustment screws deformed or worn?	Visual
Swing arm Carriage	Deformed?	Visual
	Is the arm restraint device operating normally?	Inspect visually
	Is there any major rattle?	Shake
	Is there a difference in the swing arm height?	Visual
Main unit	Is raising smooth, or is there contamination in the sliding parts?	Visual
	Any abnormal noise?	Listen
	Is the appearance damaged or warped?	Visual
Operations lever	Are operations OK?	Inspect visually
	Is return to neutral position sure and certain?	Visual
Lowering stop device	When raising, does the lowering stop hook operation make a (rattling) noise from both the M and S sides?	Listen
Hydraulic circuit	Is oil leaking from the hydraulic pipes, cylinders, or hydraulic unit?	Visual and touch
	Any abnormal noise?	Listen
Bolts and screws	Anything loose?	Tighten
Synchronizing Cable	Any sag, breaks, bends, dirt, sand, or other contaminants?	Visual
Electrical circuit	Is the device properly grounded?	Visual
Roof sensor	Any bends or deformations?	Visual

9. Operation Instructions

9-1. Drive-In Method

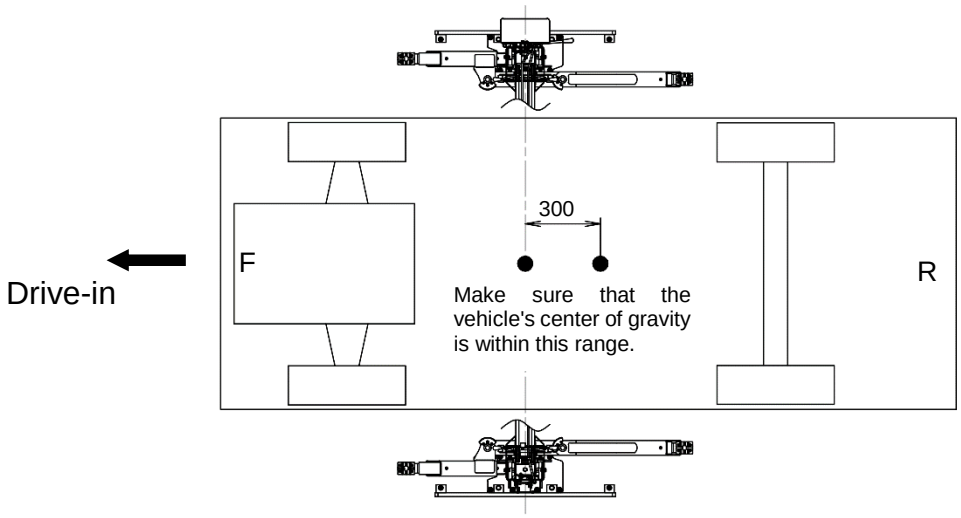
1. Open the post sides of the 4 swing arms, and mount the vehicle between the posts. At this time, advance so that the center of the vehicle's width matches the center between the two posts.

2. Stop when the vehicle's center of gravity is over the center line for the two posts, or within the range described below. For the model's center of gravity position, see the vehicle's service manual.

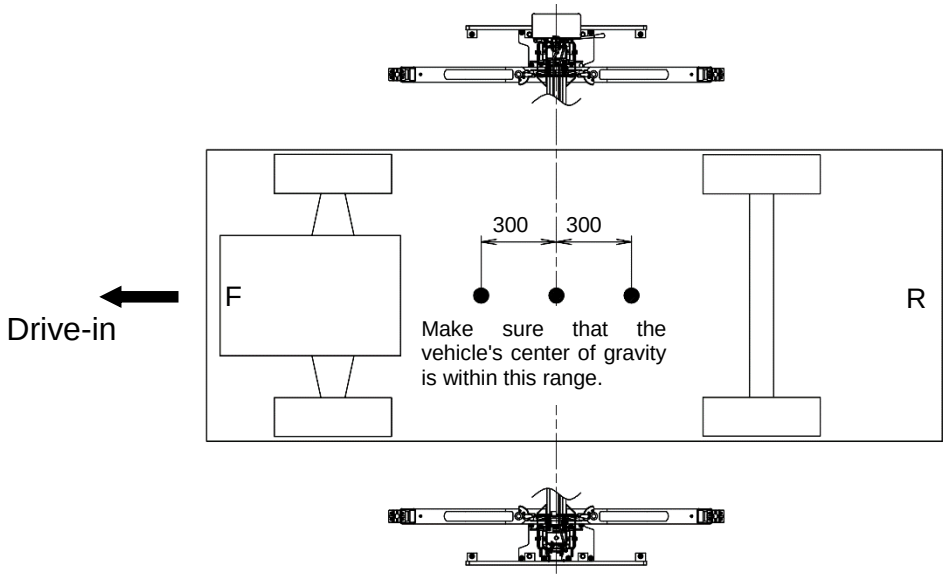
⚠ Warning

If the vehicle's center of gravity is outside the following range, when raised the vehicle's balance will be unstable, and there is a risk of the vehicle falling, so make sure to stop with the vehicle's center of gravity within the range described below.

SPA4000



SPA4000W



9-2. Setting the Supporter

1. The swing arm rotates freely when at its lowest position. Rotate, extend, and retract the swing arm to adjust so that the supporter reaches the correct lifting point for the vehicle model.

⚠ Caution

For correct lifting points, see the respective vehicle service manual.

2. Raise the vehicle horizontally, and rotate the supporter and adjust the height of the supporter rubbers so that the supporter rubbers accurately contact the lifting point to distribute the weight on all 4 supporter sites equally.

⚠ Warning

* **Adjust the height of the supporter so that the weight is distributed on the 4 supporter points evenly before use.**
  There is a risk of the supporter detaching and the vehicle falling if the weight is uneven.
* **Make sure to set the supporter on the lifting point correctly.**
  Incorrect setting risks the supporter detaching and the vehicle falling or being damaged.
* **Replace promptly if the supporter rubber is damaged or worn.**
  There is a risk of the supporter detaching and the vehicle falling.

⚠ Caution

* **Depending on the vehicle model, the swing arm may hit easily under the door.**
  If so, adjust the supporter adjustment screws to a suitable height before use.
* **Spread the swing arm as wide as possible before use.**
* **When raising a RV or compact truck, use the special frame attachments for truck. Lifting recklessly using the passenger vehicle supporter risks the supporter detaching and the car falling.**

■Reference

Generally, contact the supporter rubber to the side seal (welded surface) under the body of a passenger vehicle for use. Insert the side seal in the rubber groove before use.

9-3. Lifting up a Vehicle and Stopping the Lift

⚠ Danger

***Never stand under a vehicle when the lift is operating.**

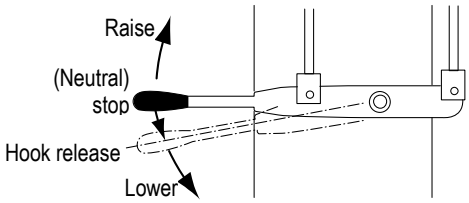
***If a vehicle looks like falling, do not try to support it, and flee from the lift.**

⚠ Warning

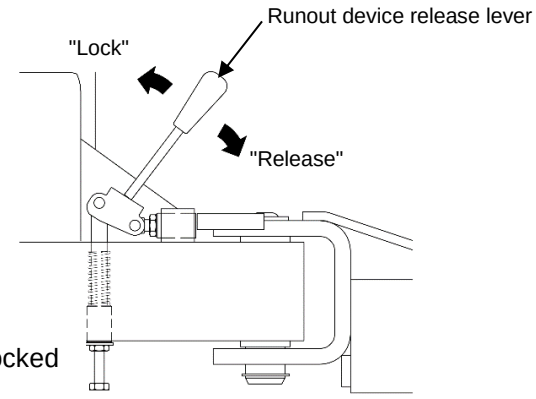
***Do not raise a vehicle with people or luggage still on board.**

***During lift operations, always pay attention to the vehicle and the lift surroundings, and never operate while looking away.**

1. Set the operations lever to Raise, and raise the vehicle until the supporter rubber touches the lifting point. Also, check that the supporter and lifting point positions align squarely. If misaligned, adjust the supporter position again.



* Raising the lift automatically engages the arm restraint device. If it is necessary to rotate the swing arm after raising the lift, release the arm restraint device release lever to release the swing arm.



Operations when unlocked

⚠ Warning

Do not raise a vehicle when the arm restraint device is not functioning. There is a risk of the supporter detaching and the vehicle falling due to the swing arm operating.

⚠ Caution

The arm restraint device does not support vehicle loads or shocks.

(Abnormal loads applied due to eccentric loads or defective supporter mounting are not prevented, so be very careful when applying the vehicle position or supporter.)

2. If the supporter position is correct, raise until the vehicle tires are barely floating above the floor, and slowly shake the vehicle with care to ensure that the supporter are engaged and that the vehicle is well-balanced.

3. Check that the runout device is secure and that the vehicle is horizontal front, back, left, and right before pressing the operations lever to raise the vehicle to the desired height. Check that while

raising, the natural lowering prevention device is constantly rattling.

⚠ Caution

While working, make sure that the lift is raised to a height at which the lowering stop hook is activated.
The lowering stop hook will not activate unless the upper surface of the supporter is approx. 250mm max. above the floor. so be careful.

9-4. While Working

⚠ Danger

If a vehicle looks like falling, do not try to support it, and flee from the lift.

⚠ Warning

Do not swing a raised vehicle strongly.

⚠ Caution

***Prohibit anyone other than workers from entering the lift area.**

***Do not leave a raised vehicle unattended for long periods of time.**

***Check that the lowering stop hook is "ON" before starting work.**

9-5. Lowering Operations

⚠ Danger

***Never stand under a vehicle when the lift is operating.**

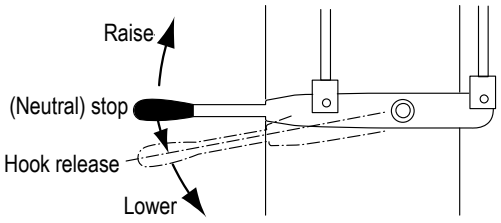
***If the vehicle starts to fall, do not try to support it, and flee from the lift area.**

***Do not leave any objects under the vehicle. There is a risk of the vehicle falling.**

1. Check that there is nothing under the vehicle, and then lower the operations lever to release the lowering stop hook, and then gently press the operations lever down further to lower the vehicle.

⚠ Caution

- **If the lowering stop hook engages the rack (i.e., the hook is active), the operations lever will feel heavy, so in this case, do not force the lowering operation but raise the lift slightly before lowering again.**
- **If stopping the lift to perform work when lowering the lift, release the operations lever, and check that the lever is in the "Stop" position.**



9-6. Drive out (Exit) the Vehicle

⚠ Caution

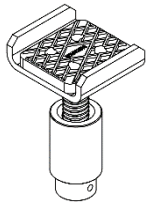
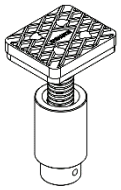
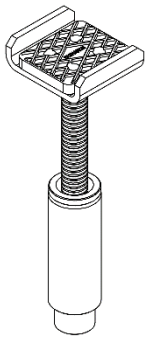
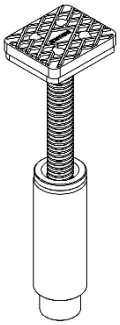
Even if the tires touches the ground, unless the lift is lowered to its lowest position, the arm restraint device will not release automatically.

1. Lower the lift to its lowest position, and then fully open the 4 swing arms.
2. Drive out the vehicle.

9-7. Options

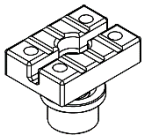
■ Frame attachments

Use the frame attachments for vehicles with lifting points on the frame, such as RVs and wagons. Choose from 4 types according to the application.

			
LA	LB	HA	HB
With guard	Without guard	With guard	Without guard
169 to 233mm*		256 to 430mm*	

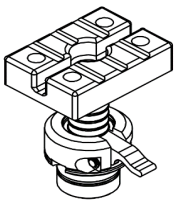
*Dimensions from the floor to the upper surface of the supporter.

■ Adjustable supporter: Suited to low vehicles.

	
Adjustable supporter (standard)	Adjustable supporter S
121 to 161mm*	97 to 117mm*

*Dimensions from the floor to the top of the cradle.

■ Easy attachments


121 to 167mm*

*Dimensions from the floor to the top of the cradle.

10. Cleaning up After Service Work

When work is finished, wipe away any oil or grease adhering to the supporter and lift area. Also thoroughly use an air blower on the lift parts to eliminate any water or mud.

Also clear any water or mud from around the lift. If you detect any abnormality at this time, contact your dealer immediately. Further, to be safe, lower the lift to its lowest position and turn OFF the power supply (breakers).

11. Maintenance Inspections

For safe use, not only must you implement pre-operation check every day, but also implement maintenance inspections once a month. Further, make sure there is no vehicle loaded during the inspection.

⚠ Caution

If you discover a site suspected of malfunctioning, prohibit use of the lift until the malfunction has been completely repaired, and contact your supplier immediately for repairs. Using while malfunctioning risks lift damage and major accidents. Further, use only Bishamon products for repairs.

Inspection site	Inspection items	Inspection elements
Lowering stop hook	Lowering stop hook operations	11-1
Arm restraint device	Operations checks	11-2
Lubrication site	Lubrication implementation	11-3
Swing arm	Stopper check, thickness, deformation, droop	11-4
Supporter	Supporter rubber and adjustment screws	Any damage or wear?
Roof sensor	Operations checks	See roof sensor (P12)
Cable pulley	Bearing lubrication	Smooth rotation? Any wear?
Hydraulic system	Cylinder, hydraulic unit	Oil leaks?
Base	Anchor bolts	11-5
Rust	Rust check	11-6
Synchronizing cable	Tension and deformation	11-7
Hydraulic pipes	Check bundling	11-8
Hydraulic fluid	Replace hydraulic fluid	11-9

⚠Caution: <u>During checks, wear protective gear as necessary.</u>

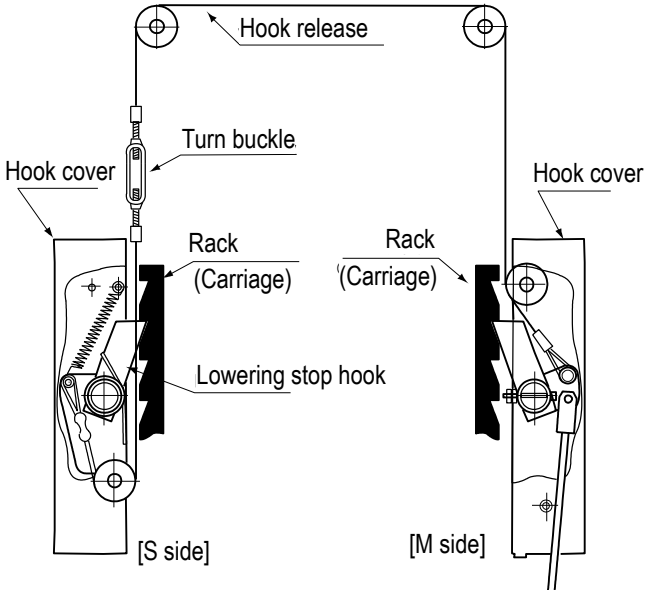
For safe use

In addition to the inspections described above, also make sure that a specialist implements annual periodic inspections.
Ask your supplier to implement periodic inspections.

11-1. Lowering Stop Hook

<Checking Lowering Stop Hook Operations>

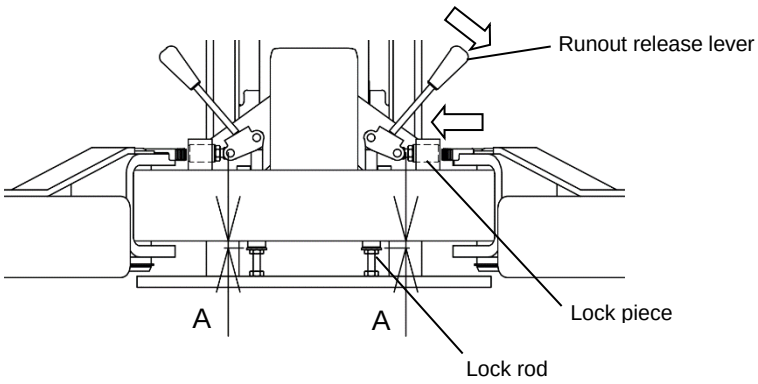
1. Remove the M and S hook covers, raise and visually inspect the operation while the M and S hooks securely engage the racks at one place each.
2. When operating the operations lever to the "hook release" position, check that the lowering stop hook on the S side is released directly overhead.
3. If not unlocked directly overhead, sag can be expected in the hook release wire, so adjust the tension using the S-side turn buckle.



11-2. Arm Restraint Device

1. Check that the arm restraint device lock is unlocked at the lowest lift position, and that all 4 swing arms rotate smoothly.

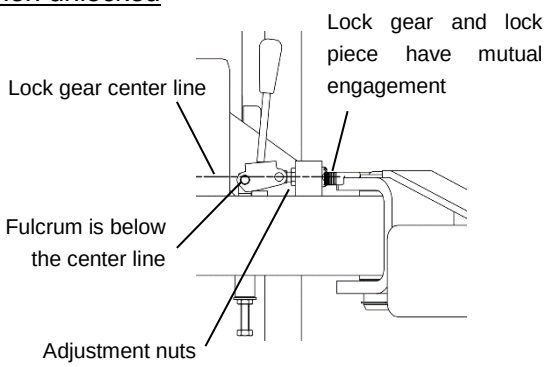
   ⇒If not released, adjust so that the lock rod gap when the carriage is at its lowest position (Fig. A on the right) is 1 to 2mm.



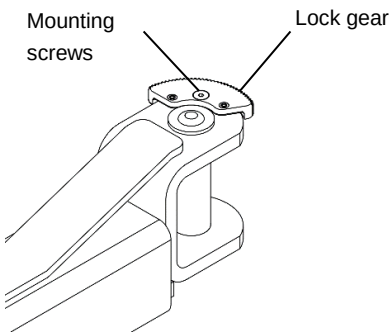
Operations when unlocked

2. Raise the lift 50mm min., and check that there is firm bite between the runout device lock gear and lock piece, and that all 4 swing arms do not rotate.

   ⇒If the lock engagement is poor, consider worn parts or poor adjustment. Replace the parts or adjust the lock gear and lock piece engagement. Also adjust the adjustment nuts as shown on the right.



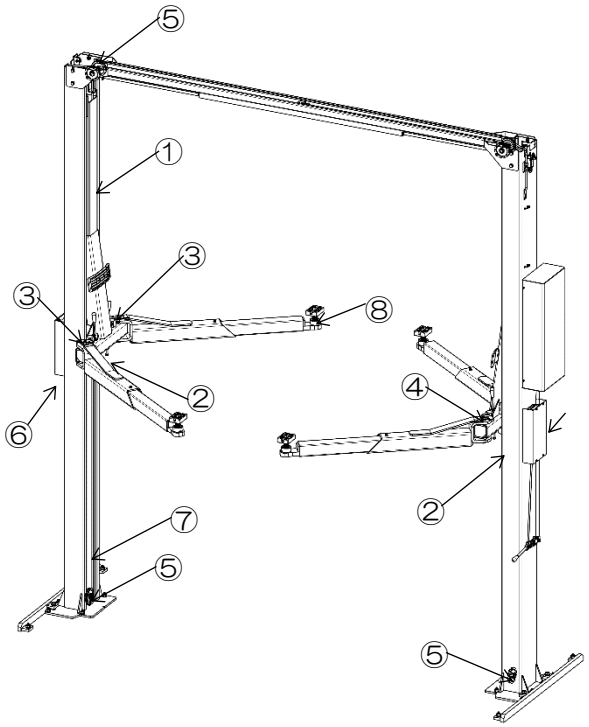
3. Check that the lock gear mounting screws for the swing arms are not loose.

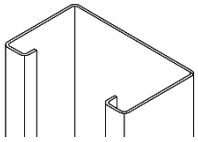
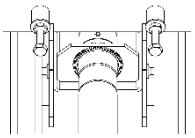
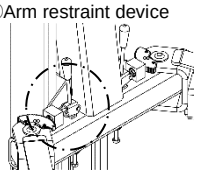
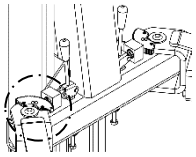
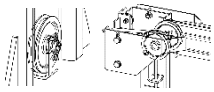
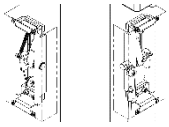
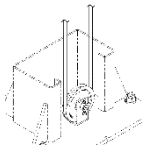
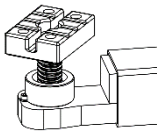


11-3. Lubrication Sites

<Lubrication / Greasing>

1. ① to ⑧ below are important inspection and lubrication sites, so frequently inspect and lubricate during the first 3 months.
   Subsequently, inspect and lubricate periodically.



Lubrication site	Type	Lubrication method
①Post interior 	Grease	Coat the inside of the post evenly from top to bottom with grease using a brush, etc.
②Outer cylinder circumference 	Grease	Coat the outer cylinder circumference with grease using a brush, etc.
③Arm restraint device 	Grease	Use a brush to coat the arm restraint device handles and shafts, etc., with grease. (4 sites)
④Arm pin 	Oil	Coat the contact surfaces of the arm pins and swing arms with oil.
⑤Synchronizing cable pulley shaft 	Oil	Coat the synchronizing pulley shaft with oil.
⑥Lowering stop hook shaft 	Oil	Coat the hook shaft with oil.
⑦Synchronizing cable 	Rustproof grease	Coat the wires with grease using a brush, etc.
⑧Adjustment screws 	Grease	Coat the supporter adjustment screws with grease using a brush, etc.

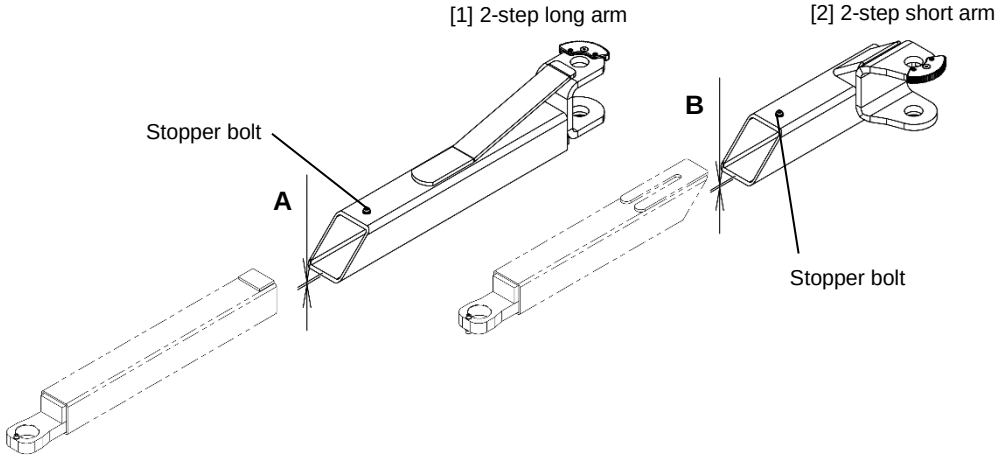
11-4. Arms

1. Check that the stopper is effective when fully withdrawing the slide arm, and that the stopper bolts are not loose.

2. Check that the slide is not inhibited by contaminants, rust, etc.

3. Check the lift arm thickness.
   Replace if 20% less than the standard dimensions.

		Standard thickness	Limit thickness
[1] 2-step long arm	A dimensions	6.0mm	4.8mm
[2] 2-step short arm	B dimensions	6.0mm	4.8mm



11-5. Base

1. Tighten the anchor bolts with 100N·m torque.

2. Check that there are no abnormalities such as bulges or cracks in the floor around the anchor bolts.

3. Tighten the bolts (M16) that secure the post and base using 250N·m torque.

11-6. Rust

1. Check for rust.
   ⇒Remove any rust, and then paint repair coats.
   Thoroughly check the posts, carriages, and arms.

11-7. Synchronizing Cables

1. Inspect the synchronizing cables for lubrication, rust, kinks, and broken cables.

2. Replace the synchronizing cables after 4 years or 8,000 uses.
   (Also replace synchronizing cables after less than 4 years if their tension is no longer adjustable (cable adjustments). Also replace if an abnormality is discovered such as rust, kinks, or broken cables.)

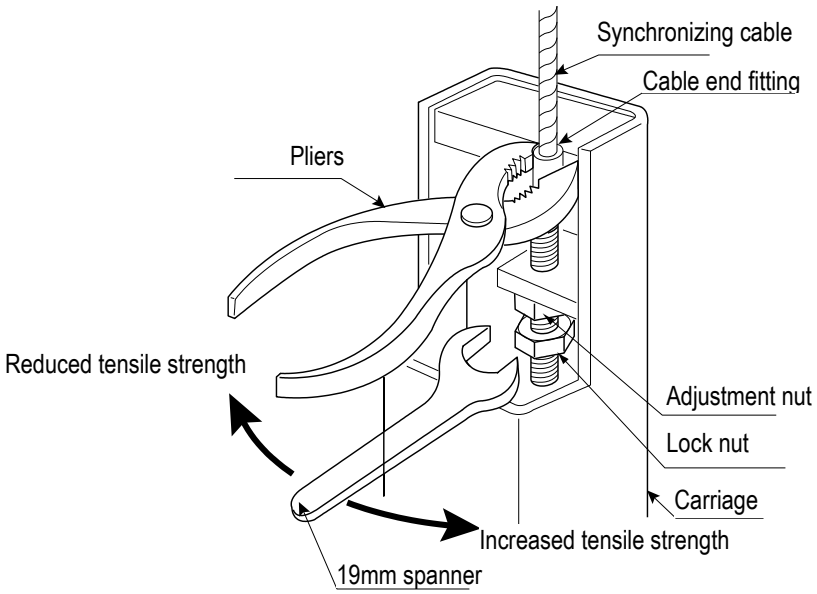
3. If there is a difference between the M and S carriages when raising with no load, the synchronizing cable sadjustments are defective, so readjust using the following steps.

Synchronizing cable adjustment method

① As shown in the diagram, grasp the metal fitting using pliers so that the cable does not rotate, and rotate the adjustment nut to adjust the synchronizing cable tension. After adjustment, secure using the lock nuts.

② Checking the tension
Raise the lift 2 or 3 times, and measure the height of the M and S carriages, and check that the difference between the M and S sides is 1mm max.

③ If the difference in the measured M and S values is 1mm or greater, increase the tension of the lower carriage to align the height.



Handling initial cable tension

Adding major tension to a new cable slightly occurs permanent extension initially. Further, permanent extension occurs even with cable getting old. Such permanent extension that occurs initially is called "initial extension". Initial extension is not an abnormality. No major tension is applied to the cable within the scope of regular lift use, so no sudden initial extension will occur.

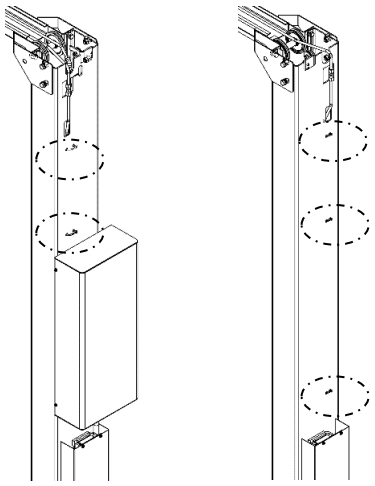
However, initial extension (20 to 30mm) will occur with high levels of use or eccentric loads.

The synchronizing cable will loosen or vehicles tilt during raising if the synchronizing cable are over-extended, so adjust as shown in the diagram above.

11-8. Hydraulic Pipes

<Hydraulic pipe bundling>

1. Check that the hydraulic pipes are securely bundled to the post.
2. In particular, repair if the bands as shown in the diagram on the right are broken or loose.



M post S post

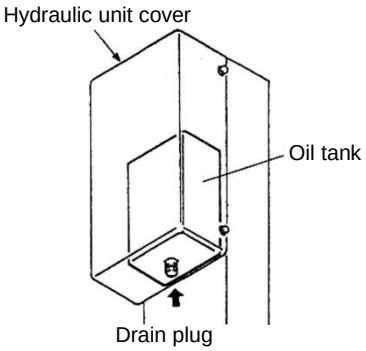
11-9. Hydraulic Oil

<Replacing hydraulic Oil>

1. Replace the hydraulic oil 1 year after start of use. Replace completely every 3 years from the 2nd time onwards.

Replacement method

① Remove the hydraulic unit cover.
② Remove the drain plug at the bottom of the oil tank (see arrow in the diagram on the right), and drain the hydraulic fluid. Securely tighten the drain plug after drainage.
③ Remove the oil tank lid, and check the suction filter condition. Clean or replace if there is any dirt or rust.
④ Add hydraulic oil from the top of the oil tank to the regulation amount (8.5L).
⑤ Raise the lift and check that there are no abnormalities.



Further, the device uses gear pumps and performance is greatly affected by the hydraulic fluid used, so make sure to select from among the following reputable brands.

Viscosity: ISO VG32 wear-resistant hydraulic fluid (use amount: 8.5L)

Idemitsu	Super Hydraulic Fluid 32	JX Nippon Oil & Energy	Super Hydrand 32
Esso	Nuto H32, Unipower SQ32, XL32	Mobil	Mobil DTE Oil 24
Showa Shell Sekiyu	Terasu Oil 32, K32		

⚠ Caution

1. **Be very careful not to touch the high-voltage parts during inspections.**
2. **After removing the cover and implementing inspections, make sure to use all the mounting screws to restore the original condition.**
3. **If, as a result of the inspection, an abnormality is detected, stop using the lift immediately and contact your supplier for repairs.**

12. Periodic Replacement Parts

To maintain device safety, and to forestall malfunctions, it is necessary to replace the following parts periodically.

* Replacement periods do not denote parts warranty periods.

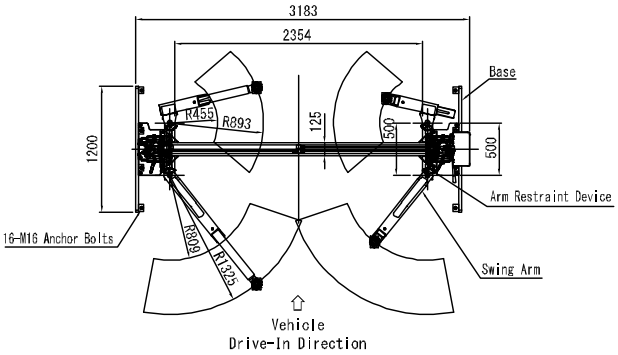
Also, replacement may be necessary sooner than described below depending on operation condition and environment, and some parts not cited here may require replacement.

Ask your supplier about the replacement of parts other than consumables.

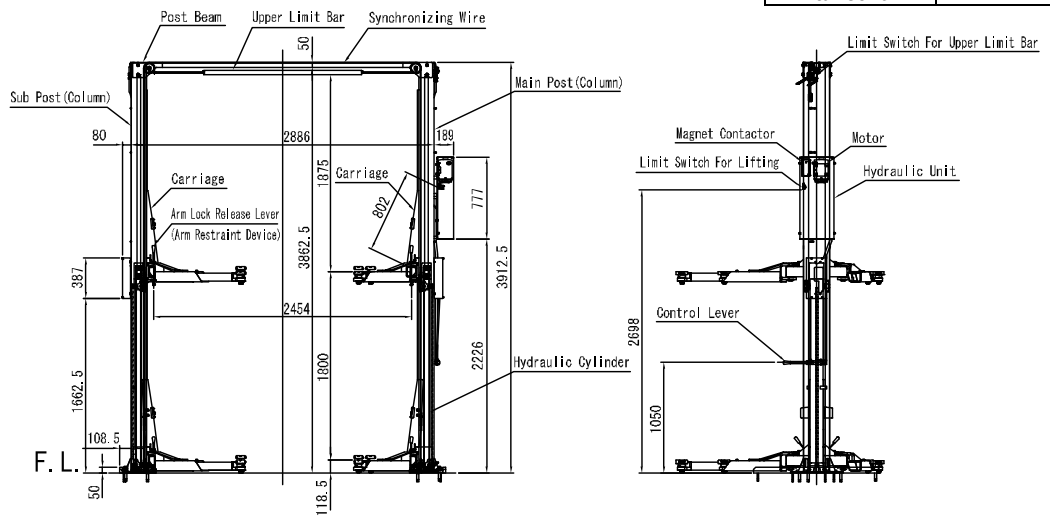
Replacement period	Part name
Annually	●Attachment rubbers
Every 3 years	●Oil (1 year after installation, and every 3 years subsequently)
Every 4 years	●Synchronizing cable

13. Specifications

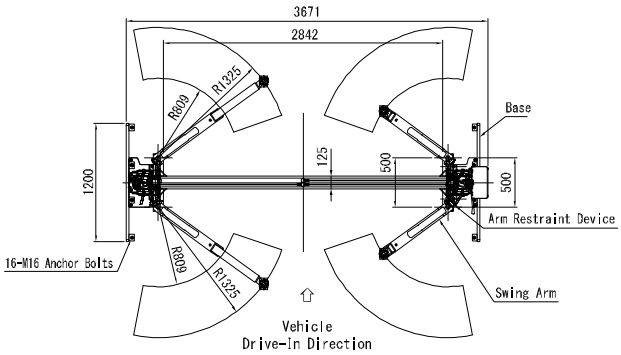
SPA4000



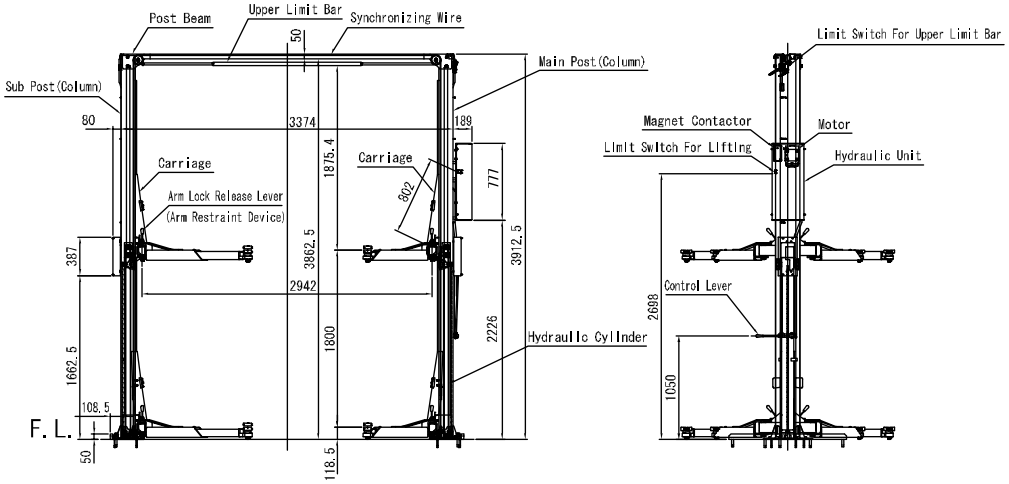
Model	SPA4000
Performance	4,000kg
Lifting height	1,800mm
Operating Method	Lever type
Power	3-phase 220/380/415V, 50/60Hz
Lifting motor	1.5kW 4P (10 mins. rated)
Lifting time	Approx. 64s (60Hz) Approx. 77s (50Hz)
Hydraulic fluid	ISO standards: VG32 hydraulic fluid
Total oil amount	8.5L



SPA4000W



Model	SPA4000W
Performance	4,000kg
Lifting height	1,800mm
Operating Method	Lever type
Power	3-phase 220/380/415V, 50/60Hz
Lifting motor	1.5kW 4P (10 mins. rated)
Lifting time	Approx. 64s (60Hz) Approx. 77s (50Hz)
Hydraulic fluid	ISO standards: VG32 hydraulic fluid
Total oil amount	8.5L



*The specifications above may change without notice due to improvements.

14. Troubleshooting

Check once again before considering malfunctions.
If a malfunction occurs, first read the manual thoroughly and inspect the following, and if the nonconformance still persists, contact your supplier.

Symptom	Cause	Solution
No raising performed.	<Motor does not turn> Defective power cable connection or broken wire	Check cable connection and for broken wires
	Magnet switch thermal operated	Check the cause and press the reset button
	Primary breaker is OFF	Turn ON the primary breaker
	Roof sensor has operated	Check the cause and cancel
	<Motor is turning> Motor is reversing	Switch power cable R and T
	Lack of hydraulic oil.	Replace hydraulic fluid
	Overload	This is normal; vehicle will not rise above limits
Natural lowering occurs.	1.0mm/5 min. max. natural lowering	Within tolerances; this is normal
	Hydraulic oil leak from pipes	Tighten pipes
	Hydraulic oil leak from cylinder	Replace cylinder gasket
Rise speed is slow	Overload	Vehicle is on the edge of tolerances. Check vehicle weight
Abnormal noise	Lack of hydraulic oil.	Replace hydraulic oil
	No more grease on post sliding surfaces	Apply oil to the designated sites
	Pipes not secured	Secure pipes
	Cover not secured	Secure cover

⚠ Warning

If repairing electrical systems, make sure to turn OFF the power first.

15. Installation and Relocation

If installing or moving the lift, consult your supplier.
If moving the lift, have your supplier implement an inspection.

16. Disposal

If disposing of the lift, separate the ferrous metals, non-ferrous metals, plastics, and hydraulic oil, and then process as industrial waste. In particular, there are legal obligations regarding how to process hydraulic oil. Dispose of it in a proper manner, in accordance with relevant laws and ordinances.

17. Product Warranty Regulations

We warrant the products manufactured by Sugiyasu Corporation to be free from defects in workmanship and material for 1 year.
Our obligation under this warranty is limited to repair or replacement, at our option, of any parts or material which, within this warranty period, are found to our satisfaction to be defective.

The belows are not covered by the warranty.

1. The damage or trouble caused by the false operation, negligence of the maintenance and storage required.
2. The damage or trouble caused by the modification that affects the originally designed functions.
3. Any consumable parts that need to be replaced.
4. The damage or trouble caused by natural disaster such as fire, earthquake, flood etc.
5. The damage or trouble caused by not using the original manufacturer's parts.
6. The required information such as serial No. etc. would not be provided.
7. The damage or trouble caused by improper installation.

※ Any consumable parts such as rubber parts etc. are not covered under this warranty
※ As this lift is not weatherproof, trouble caused by corrosion, rust, short circuit from water are not covered under warranty.

How To Claim

Contact your lift supplier.

18. After-Service

Something is wrong.	Check in accordance with this manual.
Something is still wrong	Contact your supplier for repair.
Repair under the warranty period	Will be repaired in accordance with the warranty rules
Repair after the warranty period	Contact your supplier for repair.
Availability of spare parts	The spare parts is available for 8 years after discontinuing manufacturing.

Contact your supplier for any information regarding to the after service. When contacting your supplier, provide Model No., Serial No., purchase date, and conditions of trouble.

Record the above information in the table below for future inquiries.

Type		
Serial No.	No.	
Purchase date	Date	
Supplier	Name:	Contact person:
	Address:	Tel:
Installer	Name:	Contact person:
	Address:	Tel:
Trouble date and conditions	Date	
	Date	
	Date	

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EOM-SPA4000W 1606-PT