

Maintenance for the Molnar  
Two Post Hoist (3 Tonne)

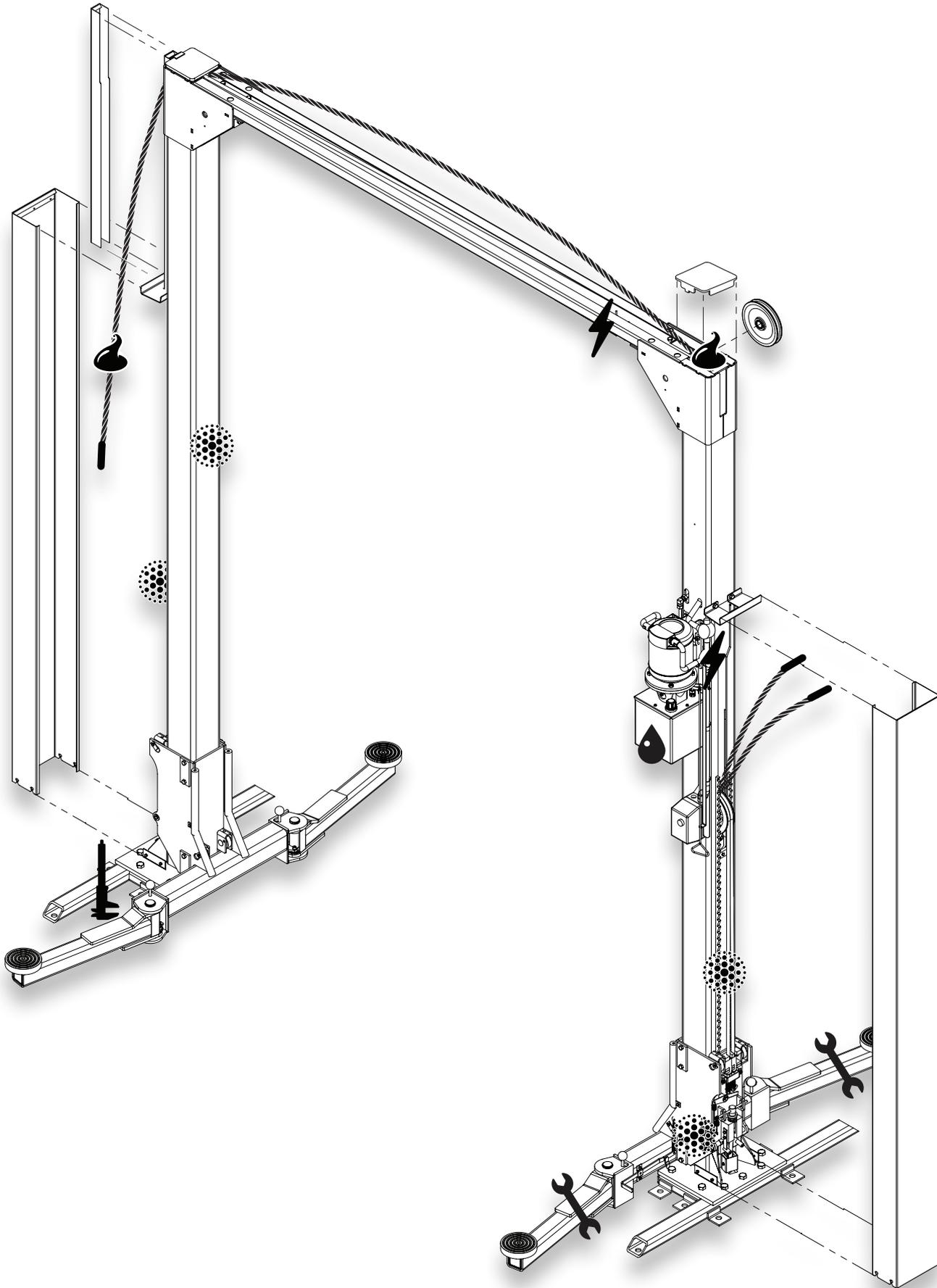
MF1705-93-OH-3T

# ALL ROUNDER SERVICING

# M O L N A R



HOISTS



BASE

OH

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## KEY

-  General warning
-  Electrical hazard
-  Servicing tip

## TERMINOLOGY

From time-to-time product or process descriptions can change or evolve, for the purposes of clarity:

- cables = wire ropes
- pulleys = sheaves
- shafts = pulley pins
- safety = lock
- lift pads = pick-up pads
- release lever = lowering handle

This is owner manual 3 of 4



*As the policy of Molnar Hoists is one of continuous improvement, the manufacturer reserves the right to change specifications without notice. Information is correct and true at time of printing (JULY 2012)*



# MAINTENANCE

## OWNER MAINTAINED - *described in this Operation Manual*



It is the Hoist Owner's responsibility and Duty of Care to maintain the hoist. This must be recorded and retained.



### DAILY

- Visual Inspection
  - Access & clearance
  - Work area clean & tidy
  - Structure
  - Loose or damaged parts
  - Decals & control markings
  - Hydraulic fluid levels
  - Pick up pads
- Functional Inspection
  - Operating controls
  - Safety mechanism**
  - Unusual noise or vibration
  - Hydraulic system leaks
- Check Accessories



### MONTHLY

- Isolation points
- Flooring
- Anchor bolts
- Structural alignment
- Structural integrity
- Visual appearance
- Displayed notices
- Compliant clearance
- Safety mechanism
- Pick up pads
- Limit switches
- Wire ropes
- Check accessories
- Lubrication
- Pulleys



### SIX MONTHLY

- Oil leaks from cylinder
- Oil leaks at pipe joints
- Anchor bolts

## SERVICE PROFESSIONAL - *described in this Manual*



Service and safety inspection on the hoist must be performed by a competent person. This must be recorded and retained.



### AFTER 6 WEEKS

The first oil change should occur within the first three months of operation (to remove any contaminants flushed through the system).

- change the hydraulic oil
- readjust long cable and arm locks



### ANNUALLY

If the 12 monthly service and safety inspection is not performed, the warranty is null and void.

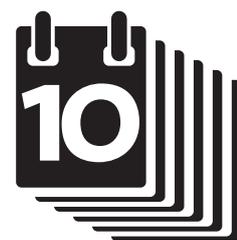
- Safety operation test
- Wire rope safety test
- Check carriage rollers
- Lubricate pulleys
- Wire Ropes
- Lift arms, pivot pins, pick-up pads
- Hydraulic oil and system
- Electrical, controls and travel limits
- Structural & general check
- Accessory conditions



### 2 YEARLY

To keep the hydraulic system (pump, seals, valves) in good working condition, oil changes are required every two years to ensure any degraded or contaminated oil is cleaned out of the system.

- Replace hydraulic oil
- Clean tank and filter



### 10 YEARLY

After 10 years of service, remove Wire Ropes and pulleys from hoist. Clean and inspect to ascertain serviceability, replace if required. It is recommended that pulley bushes be replaced at this time. If the hoist is in a high working or extreme environment the Wire Ropes should also be replaced.

- Replace pulley bushes
- Replace wear pads
- Replace pick-up pads
- Wire rope & pulley removal and inspection



## PRE SERVICING - EQUIPMENT

### PERSONAL PROTECTIVE EQUIPMENT

- Gloves
- Ear & eye protection
- Steel capped boots



- Safety cones, warning signs and tape



### ELECTRICIAN

A licensed electrician must perform all electrical work including power connection and wiring.



### TOOLS

- 2.4 metre platform-style step ladder or an appropriate elevated work platform
- HiLift / Wallaby Jack
- Safety prop, approximately 1800mm long
- 1200mm spirit level
- Pry bar - heavy and light duty
- Oil funnel with an end to fit into a 1/4 bsp hole
- Standard tool kit
  - 2 screwdrivers
  - Phillips Head screwdriver
  - Spark plug socket - 5/8" or 16mm
  - Allan Key, 6mm and 3mm
  - Clamp wrench (AKA vice grip)
  - Cutting pliers (AKA wire cutters)
  - Rubber mallet
  - Hammer
  - Adjustable wrench
  - Spanner (16mm, 10mm and 13/16th imp)
  - Shifting spanner - 450mm
  - Socket set
  - Needlenose pliers
  - External circlip pliers
  - Box cutter
  - Black Texta

### LUBRICANT

- Grease
- Dry lubricant
- General lubricant
- Wire Rope lube
- Hydraulic oil

### RECOMMENDED

- > Marine grade wheel bearing grease eg. molybdenum grease
- > CRC dry glide
- > Wurth HHS dry lube
- > CRC Tac-2
- > Wurth HHS Lube
- > Lanotec heavy duty liquid lanolin
- > 85-90 gear oil
- > 5 litres AWH46



# SAFETY OPERATION TEST

## BEFORE YOU SERVICE A HOIST

 Servicing a Hoist must be performed and recorded by a competent person. Ensure you are authorised to service a hoist and that you are familiar with all aspects of the hoist.



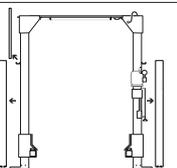
 Cordon off work area using safety cones or other safety barricade. Ensure area is clear of any obstruction prior to servicing.



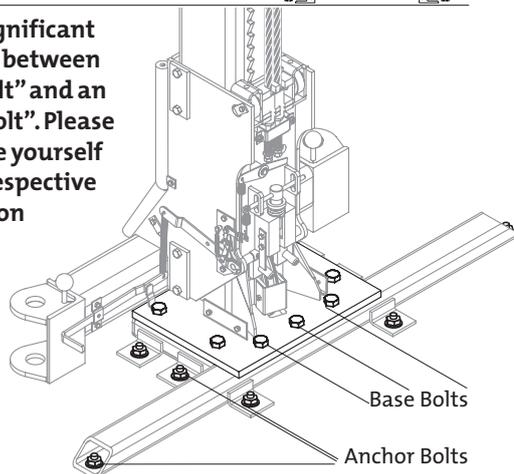
 Ensure there is no vehicle on the hoist.



 Remove post covers on both posts and the Wire Rope cover on non-control post.

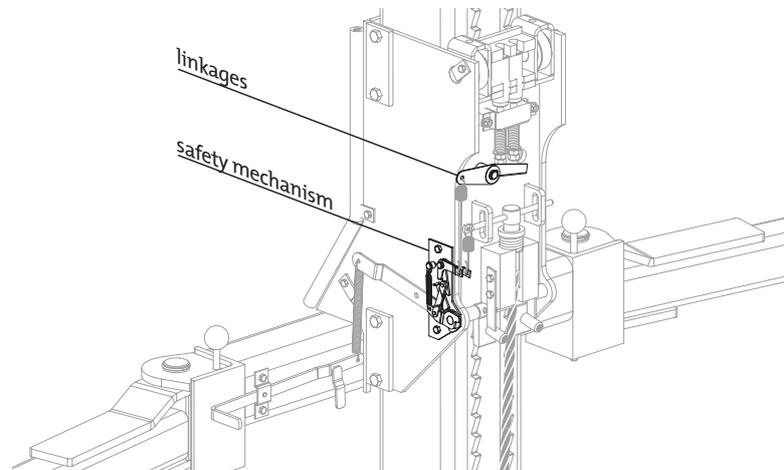


 There is significant difference between a “Base Bolt” and an “Anchor Bolt”. Please familiarise yourself with the respective bolt location before adjusting bolts.

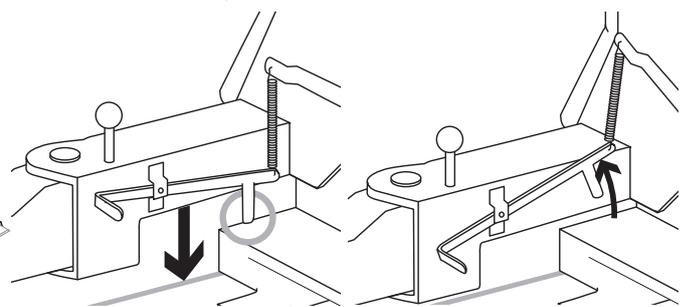


## MANUAL SAFETY OPERATION TEST

- 1 Raise hoist to waist height.
- 2 Switch LOCK lever to OFF position and ensure it remains in position.
- 3 Lubricate linkages and safety mechanism with spray lube.



- 4 Lower hoist to ground to check that the safety LOCK lever resets to the ON position.



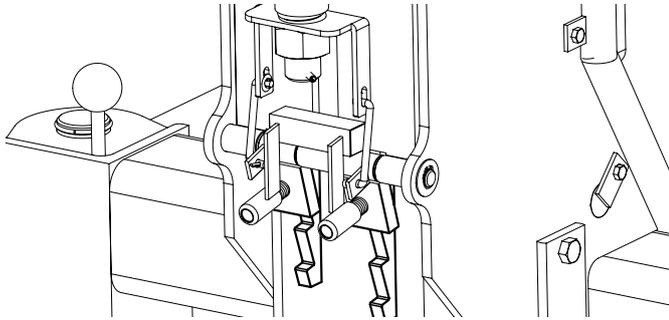
 If safety mechanism does not operate properly, check linkages or mechanism for damage.



## WIRE ROPE FAILURE TEST

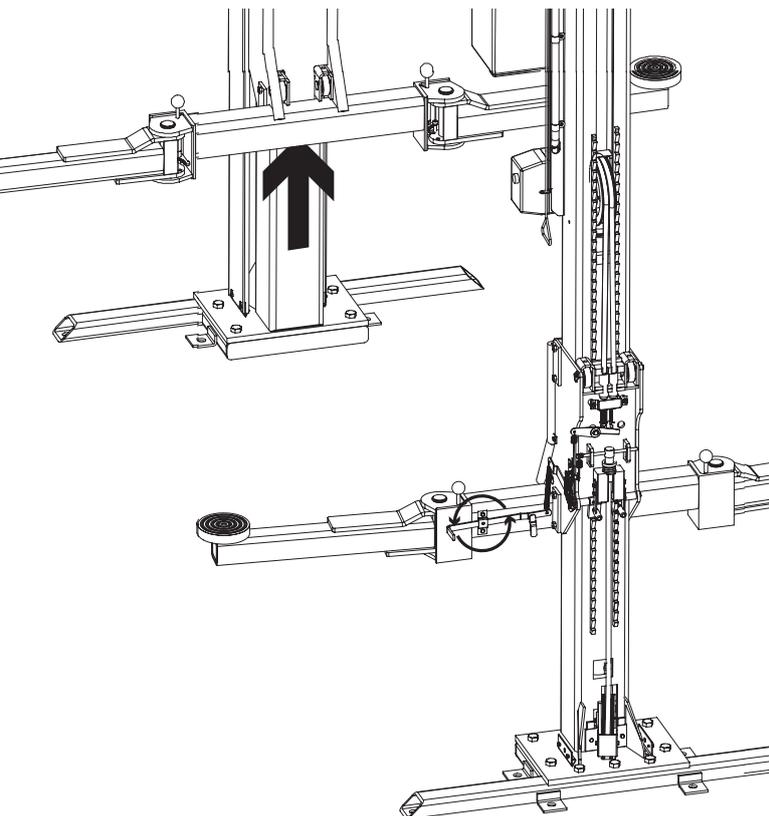
### WIRE ROPE TEST (AUTOMATIC SAFETY TEST)

- 1 Raise Hoist to approximately 600mm and ensure LOCK lever is in OFF position.
- 2 Using a lifting device (such as a Wallaby Jack), raise the non-control-post carriage another 200mm. Ensure the toggles on the back of the non-control-post carriage engage onto safety teeth.



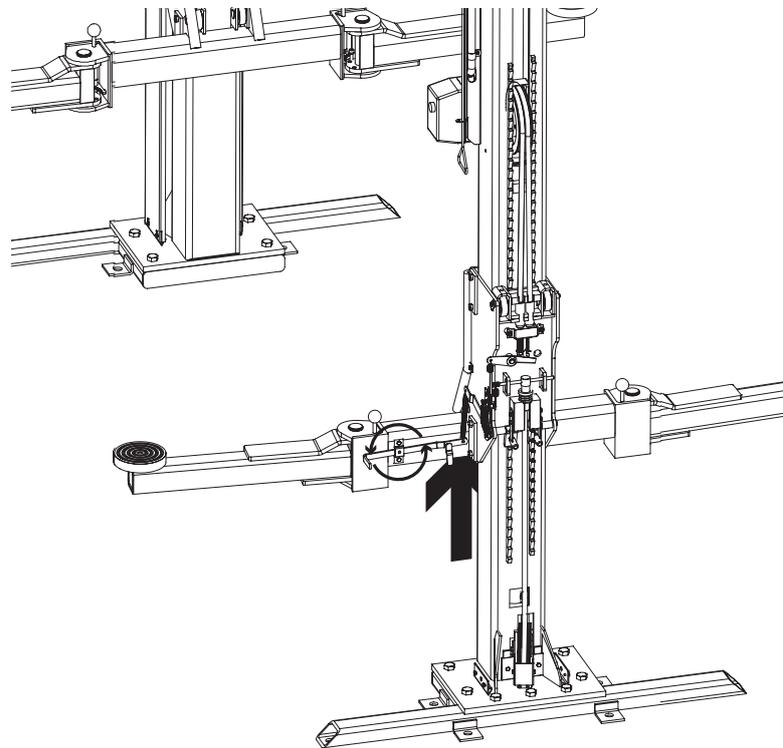
 If safety toggles do not engage, toggles may need to be lubricated or springs may need to be replaced

- 3 Check the manual safety has automatically reset to the ON position on the control post carriage.



- 4 Remove Jack

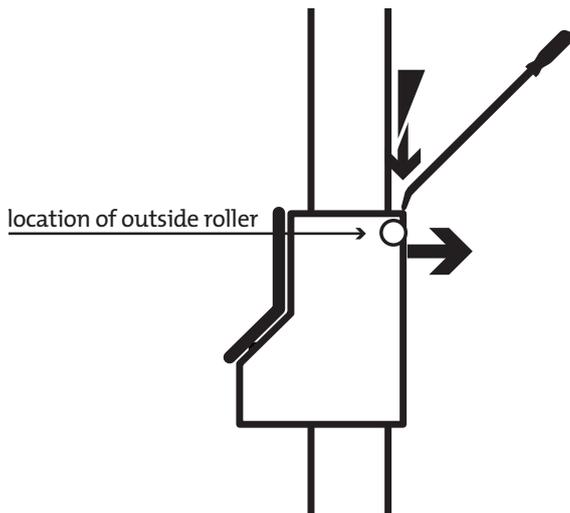
- 5 Raise the hoist and reset the safety to the OFF position and 'jack' the control carriage to test the manual safety resets automatically to the ON position and remove jack.



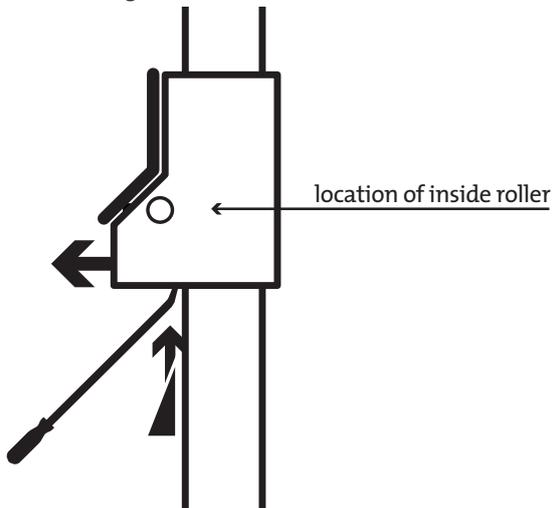


## CHECK CARRIAGE ROLLERS

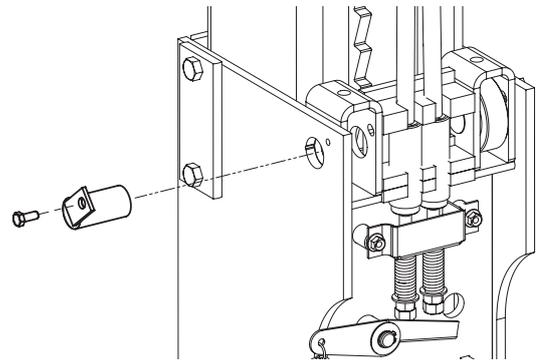
- 1 Raise hoist to a comfortable working height.
- 2 Pry the carriage away from post (to remove the load off the rollers) and wedge in position.



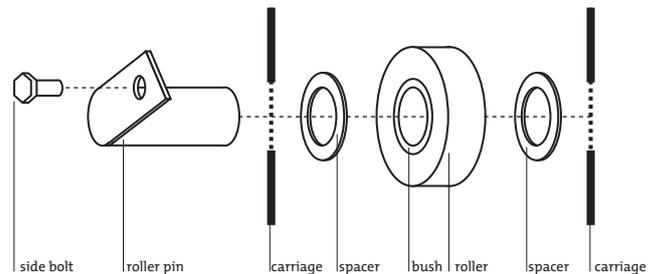
- 2b For the outside rollers wedge from the top of the carriage (as illustrated above). For the inside rollers, wedge from beneath the carriage (as illustrated below).



- 3 With the load off the rollers (load is now held by wedge) check that the rollers rotate freely
- 4 Remove side bolt and slide out roller pin, roller and spacers.



 **Note the orientation of the roller, as it must be refitted in the same orientation.**



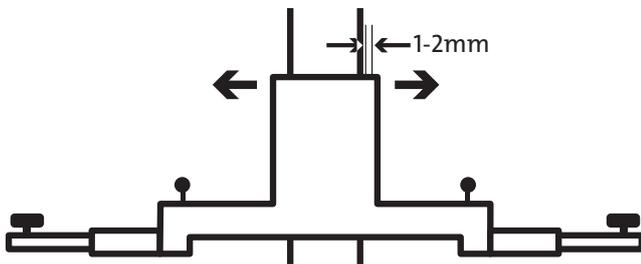
- 5 Remove spacers and clean bush and pin. Inspect bush and replace if necessary (ensure minimal non-rotational/sideways movement between pin and bush).  
The roller must be at least 60mm in diameter with no flat spots on the surface; otherwise replace.
- 6 Re-lubricate the inside of the bush (with grease). Use grease to adhere the spacers to the sides of the roller. Reinsert roller into carriage and insert the pin. Fasten the side bolt.
- 7 Use a pry bar to remove wedge.
- 8 Perform for all load rollers on both carriages.



## WEAR PADS

### WEAR PAD INSPECTION

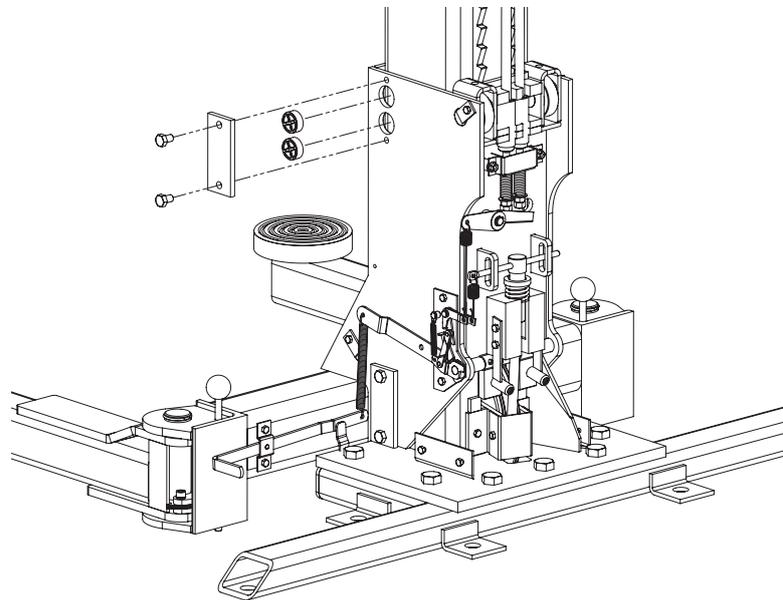
- 1 Raise hoist to a comfortable working height.
- 2 Check free play in carriages by rocking the carriages sideways. There should be 1-2mm of movement.



 If there is excessive movement, replace Wear Pads. **DO NOT** try to shim or adjust as this may cause the carriage to jam.

### WEAR PAD REPLACEMENT

- 1 Remove the two M10 bolts securing the cover bracket on the side of the carriage.
- 2 Using needle-nose pliers, remove the old pads and replace with new, ensuring the flat face is positioned towards the post (with the crosses are facing outwards).



- 3 Refit the cover bracket and re-secure with bolts.

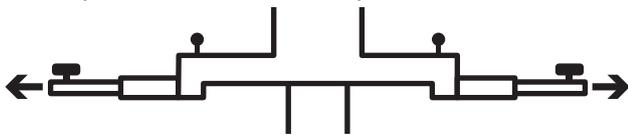


# LIFT ARMS, PIVOT PINS & PICK-UP PADS

## CHECK SWIVEL ARMS

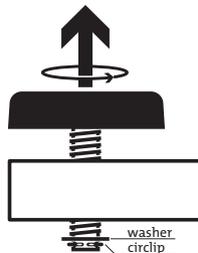
**1 Arm Extension:** pull arms out to ensure that Extension stops are in place.

If arms pull out, arms must be replaced.

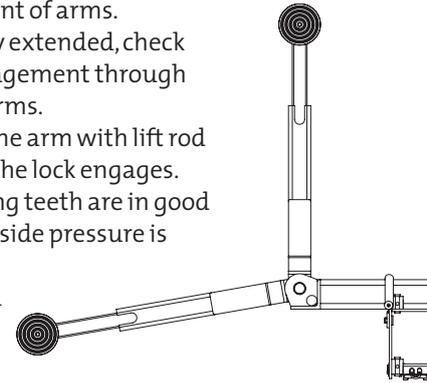


**2 Pads**

- Check the pads screw up and down freely.
- Check the thread is not worn, and there is not excessive rocking
- Check the retention washer and circlip is in place at the bottom of the pad shaft, so that the pads can-not screw out.
- Ensure that the rubber of the pad is still pliable and soft.



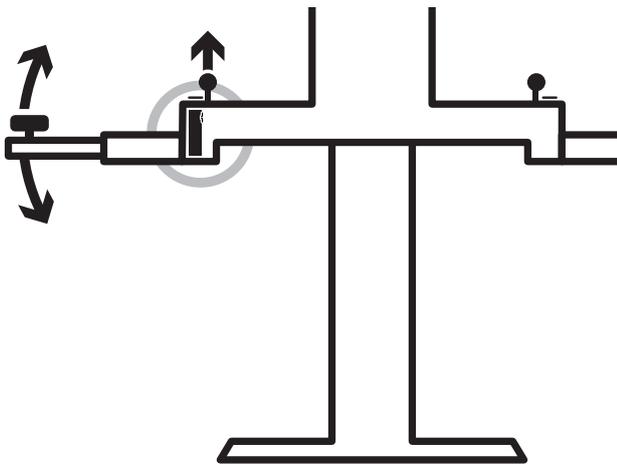
- Raise the Lift Rod and disengage lock mechanism to check smooth movement of arms.
- With extension arms fully extended, check engagement and disengagement through complete movement of arms.
- Raise the Lift Rod, rotate the arm with lift rod unencumbered to check the lock engages.
- Visually inspect the locking teeth are in good condition and hold when side pressure is applied.
- Lower hoist to the ground and test the Auto Release.
- lubricate Lift Rod shaft with dry-lubricant



**!** If there is an issue with any of the listed checks, disassemble the Arm Lock and reinstall, checking and replacing worn parts (as per installation instructions)

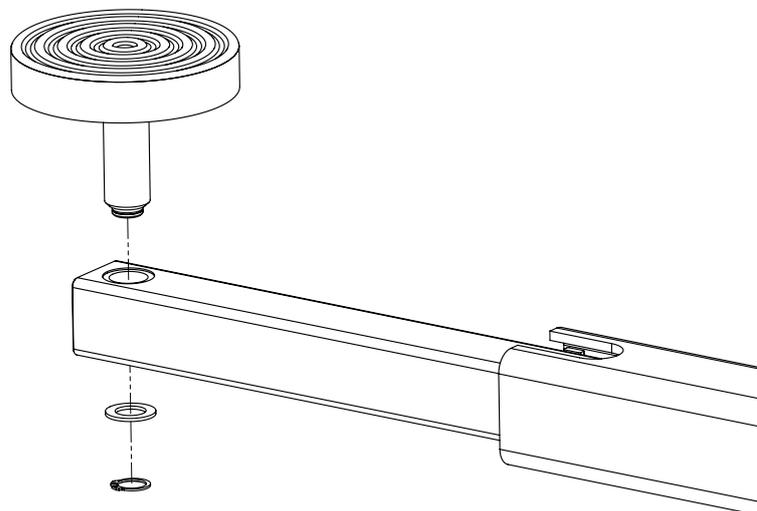
**3 Auto Arm Lock**

- Check there is not excessive vertical movement at the Arm Lock.
- Check the circlip on the pivot pin is in place.
- Check the split pin is still in place in the pivot pin.



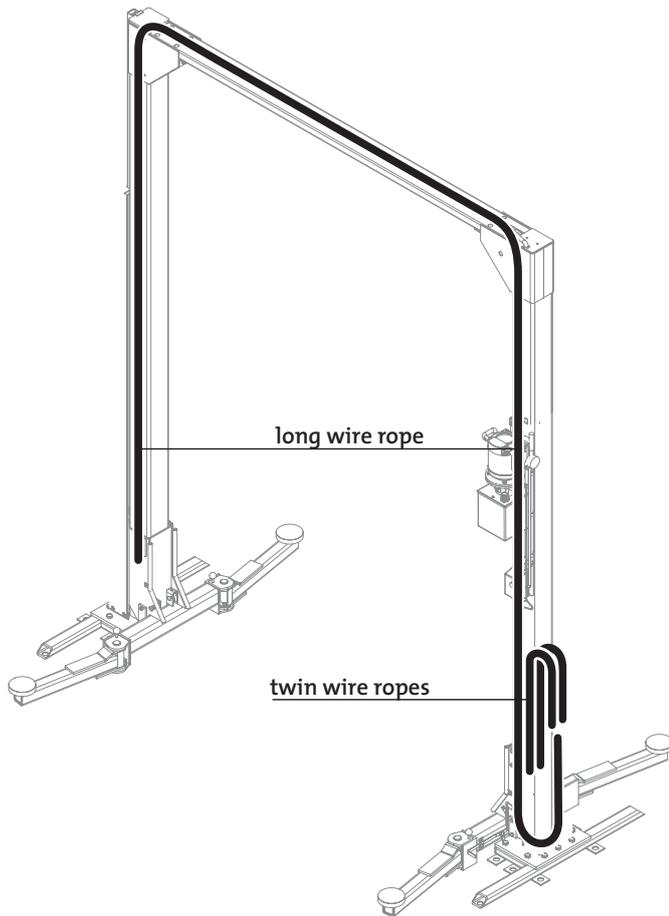
## REPLACE PICK-UP PADS

- Using circlip pliers, remove the circlip from the base of the pad. Remove the retaining washer and unscrew pick-up pad. Discard.
- Remove circlip and retaining washer from new pad and screw into the lift arm. Replace washer and circlip.
- Ensure that pad is secured and rotates freely.



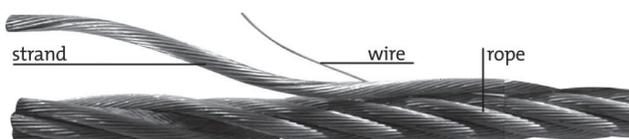


# WIRE ROPE CHECK



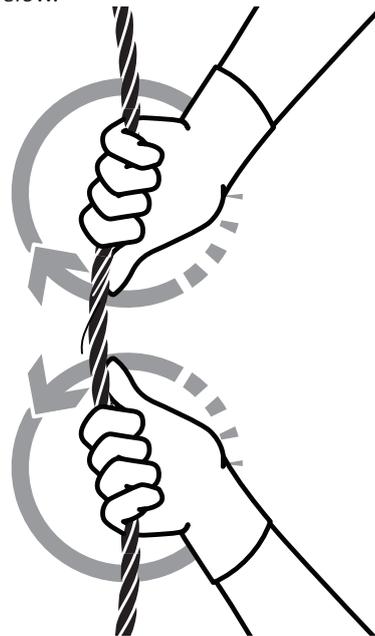
## Wire rope must be replaced if:

- A** At any point the visible number of broken wires exceeds 7 wires in 78mm length of rope or 14 wires in 390mm length of rope.
- B** The number of broken wires is likely to exceed the above measure by the next service.
- B** A strand of wire is broken.
- c** A rope has been physically damaged by crushing or deforming.
- D** If there are any inconsistent areas. If inconsistency is found, it should be replaced or referred to a wire-rope specialist for inspection.



## CONDITION OF TWIN WIRE ROPES

- 1** Remove the weight from the twin wire ropes: raise hoist until the safety toggles start to click. Lower the hoist onto locks (by pulling the LOWERING handle) continue to pull the LOWERING handle and simultaneously pull out the twin Wire Ropes to compress the cylinder (and create slack in the Wire Ropes).
- 2** Wipe the twin wire ropes clean (with a cloth).
- 3** Visually inspect for wear, rust and broken wires along the entire length of Wire Rope. Bend the Wire Rope to check for frays. Ropes are to be replaced according to the criteria listed below.



- 4** Lubricate the Wire Rope with approved lubricant.



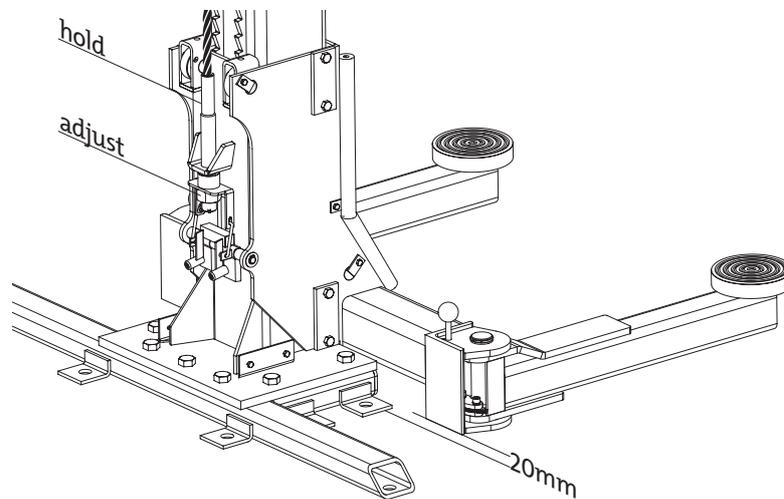
## WIRE ROPE CHECK

### CONDITION OF LONG WIRE ROPE

- 5 **Remove the weight from the long wire rope:** raise Hoist to approximately 200mm and switch LOCK lever to OFF position. Using a lifting device, raise the non-control-post carriage another 200mm, the toggles on the back of the carriage must engage onto safety teeth. Leave the lifting device in place, as a prop.
- 6 Repeat steps 2, 3 & 4 on the Wire Rope on the non-control-post and across the top brace.
- 7 Raise the hoist and remove the prop.
- 8 **Check the wire rope under the control unit:** raise hoist to maximum height and place safety prop under the non-control-post carriage and lower hoist back onto prop until the auto safety resets to the ON position.
- 9 Repeat steps 2, 3 & 4 on the Wire Rope on the control-post, between the carriage and the bottom pulley.
- 10 Raise hoist and remove prop. Lower hoist to ground.

### ADJUST LONG WIRE ROPE

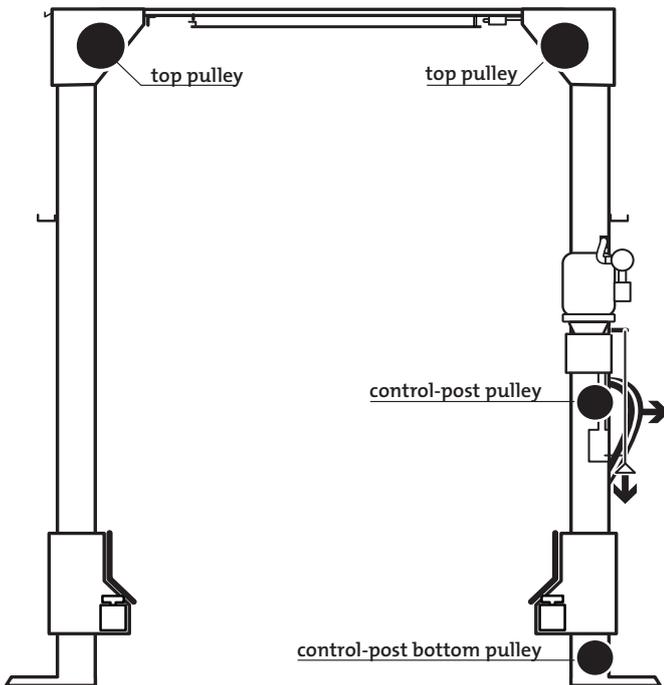
- 11 **Check and adjust long Wire Rope pre-stretch:** the non-control-post carriage should be 20mm off the ground. Adjust long wire rope as per installation instructions.



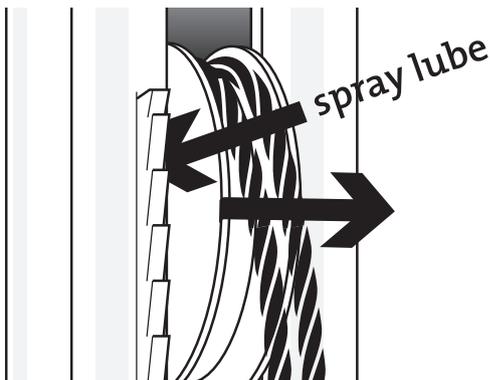


## PULLEY LUBRICATION

- 1** Raise hoist until the safety toggles just start to click. Lower the hoist onto locks (by pulling the LOWERING handle) continue to pull the LOWERING handle and simultaneously pull out the twin Wire Ropes to compress the cylinder (and create slack in the Wire Ropes).



- 2 Control-post pulley:** check pulley rotates freely and there is not excessive free play in bush. Push pulley to one side and lubricate the pin (spray lubricant with extension nozzle), push pulley to the opposite side and spray lubricate the other side. Rotate to work lube into bush.



- 3 Two top pulleys:** check each pulley rotates freely and there is not excessive free play in bush. Push pulley to either side and lubricate the pin (spray lubricant with extension nozzle) and rotate to work lube into bush. Ensure all bolts are tight.
- 4 Control-post bottom pulley:** create more slack in the wire ropes: use a lifting device to raise non-control-post up a further 200mm, and lower onto safety locks. Check each pulley rotates freely and there is not excessive free play in bush. Push bottom pulley to one side and lubricate the pin (with spray lubricant with extension nozzle), push pulley to the opposite side and spray lubricate the other side. Rotate to work lube into bush. Ensure all bolts are tight



**If pulleys are not rotating freely, remove and inspect pulley, pin and bush, replace as required**

- replace Pulley Bush (see page 15);
- control-post pulley removal as per Wire Rope & Pulley Removal (see page 16, steps 1 to 7);
- removal of top pulleys and control-post bottom pulley (see Hoist Installation Manual).



## HYDRAULIC OIL & SYSTEM

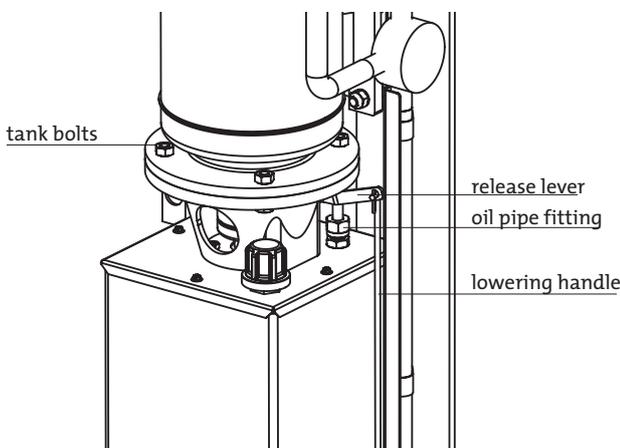
### BASIC CHECK

- 1 Check for oil leaks around all unions and hydraulic cylinder.
- 2 Check level and condition of the oil in the reservoir.
- 3 **Top up as required:** unscrew the breather cap and use a funnel to pour Hydraulic oil to the level indicated.

 **Oil must be replaced at first service; then at least every 2 years.**

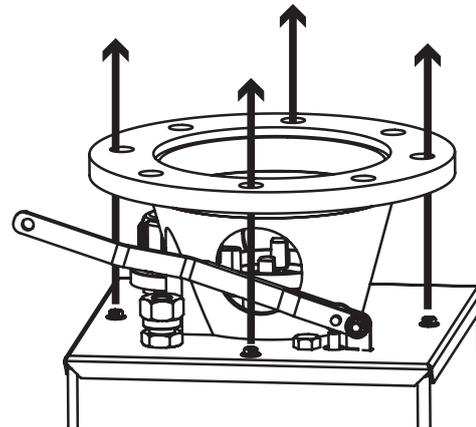
### TO REMOVE THE OIL TANK & REPLACE THE OIL

- 1 Fully lower hoist to the ground.
- 2 Turn off power to the hoist.
- 3 Remove the LOWERING handle by removing the split pin from the Lowering Handle and sliding out of the bracket near the control button.

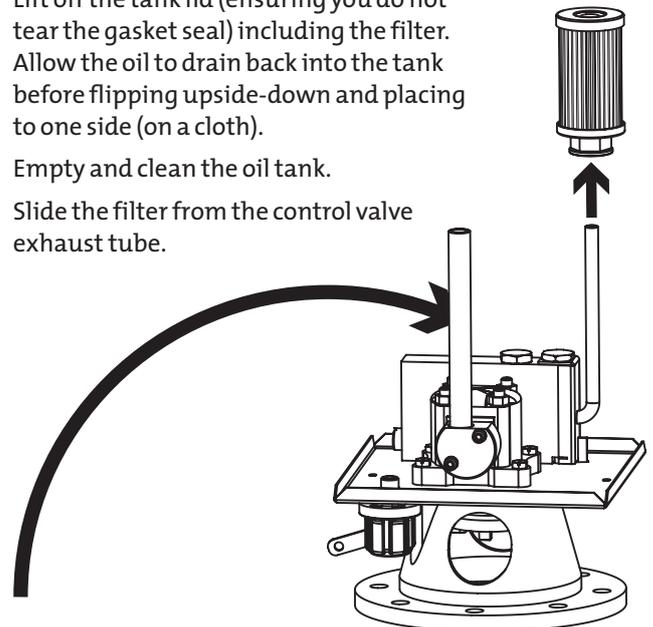


- 4 Disconnect the oil pipe fitting at the top of the tank. Clean any oil that might leak.
- 5 Loosen the four bolts securing the tank to the motor.
- 6 Supporting the tank with one hand, release the bolts and remove the tank from the motor.

- 6 On a stable surface, remove the four screws securing the oil tank top plate (with a 1/4" socket).



- 7 Lift off the tank lid (ensuring you do not tear the gasket seal) including the filter. Allow the oil to drain back into the tank before flipping upside-down and placing to one side (on a cloth).
- 8 Empty and clean the oil tank.
- 9 Slide the filter from the control valve exhaust tube.



Drain and clean the filter with degreaser. Blow it out and dry.

Inspect filter and replace if required.

Refit it to the control valve.

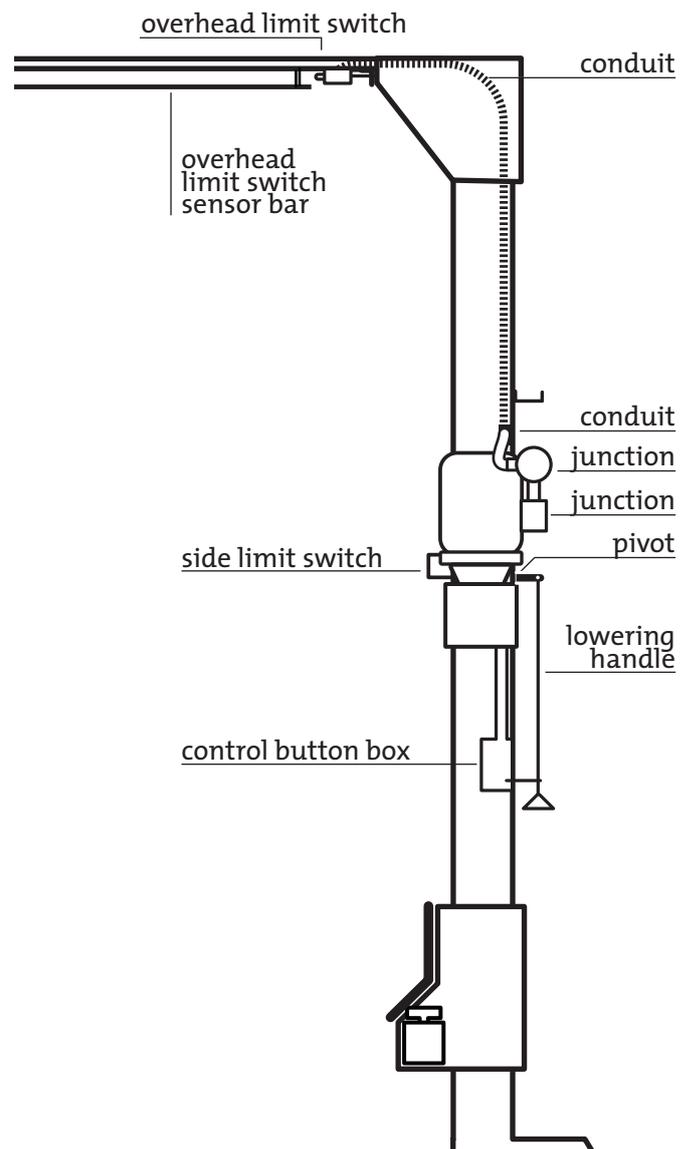
Clean the underside of the lid.

- 10 Refill the oil tank with 5 litres of recommended hydraulic oil.
- 11 Refit the tank lid to the oil tank (reverse steps 7 & 6).
- 12 Refit the tank to the motor (reverse steps 5 to 1).



## ELECTRICAL, CONTROLS & TRAVEL LIMITS

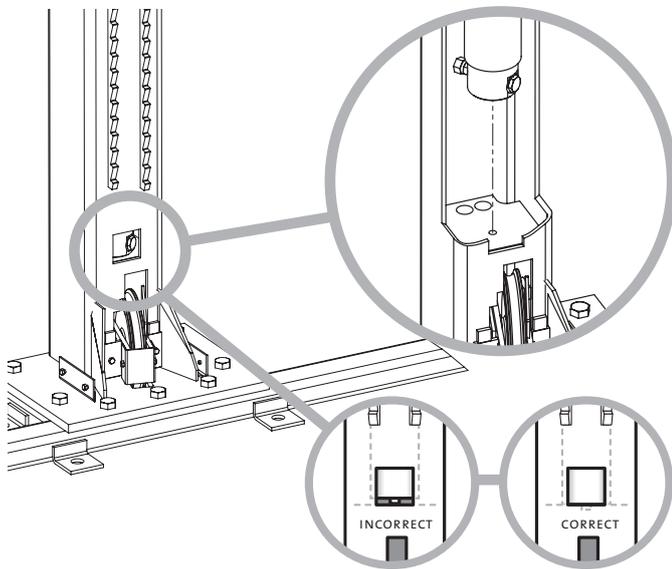
- 1 Check the operation of limit switches:** raise hoist to ensure that limit switches stop the hoist operating beyond the limits of travel.
- 2 Visually inspect electrical components for damage.**
  - **Overhead limit switch sensor bar:** ensure it is mounted securely to its mounting point, and moves freely. Lubricate slide pins.
  - **Electrical conduit:** ensure it is not worn, cracked or disconnected at either end.
  - **Side limit switch:** ensure it is mounted securely to its mounting point, and moves freely.
  - **Junction boxes:** check both boxes are mounted securely.
  - **Control button box:** check the box is mounted securely to its mounting bracket. Check that the cover is fitted securely and that the button moves freely.
- 3 Check LOWERING handle pivot is operating freely.** Ensure it does not hold the valve open. Lubricate with spray lubricant.
- 4 Ensure the LOWERING handle is not bent and is secured with split pin (at the pivot).**





## STRUCTURAL & GENERAL CHECK

- 1 Use a spirit level to check posts are vertical (in both directions).
- 2 Check shimming under post has not moved and is not rusted.
- 3 Inspect anchor bolts for rust and check tension.
- 4 Check the cylinder spigot pin is located in its mounting hole (in the bottom of the cylinder).



- 5 Visually inspect hoist for any signs of damage, rust or bent components.
- 6 Clean posts of old lubricant and re-lubricate rear tracks with spray lubricant. Apply dry lubricant to inner roller track and side wear pad tracks on both posts.

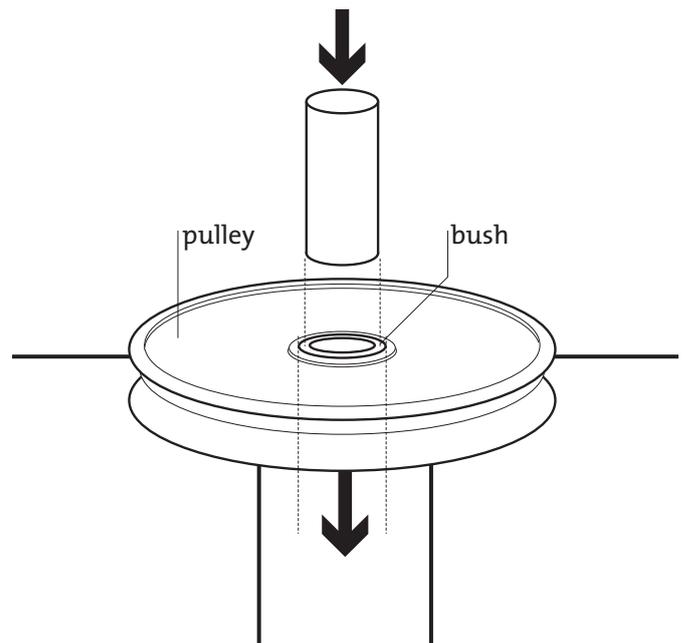
Apply grease to outer roller tracks.

*See Operation Manual for more information*

- 8 Refit covers to posts.
- 9 Check operating instructions are correctly positioned and clearly legible.
- 10 Complete Service/Inspection Report and owners Log Book.

## REPLACE PULLEY BUSH

- 1 Place pulley over an open brace (such as two planks or open vice) and use a 31 mm diameter steel or brass drift pin to drive out the old bush.



- 2 Replace with a new bush. Gently hammer new bush into pulley (with steel or brass drift pin), ensuring it is flush on both sides of the pulley.
- 3 Grease the sides and affix spacers (grease holds spacers in place while inserting pulley assembly into hoist).
- 4 Re-grease inside the bush.



# WIRE ROPE & PULLEY REMOVAL

## REMOVE TWIN WIRE ROPES

- 1 Raise hoist until the safety toggles start to click.

Lower the hoist onto locks (by pulling the LOWERING handle). Isolate power supply then continue to pull the LOWERING handle and simultaneously pull out the twin Wire Ropes to fully compress the hydraulic cylinder (and create slack in the Wire Ropes). Note: Cylinder must be fully compressed to access inside brackets.

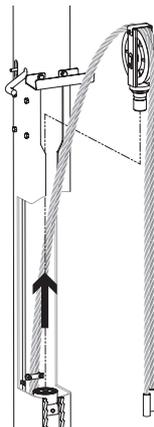
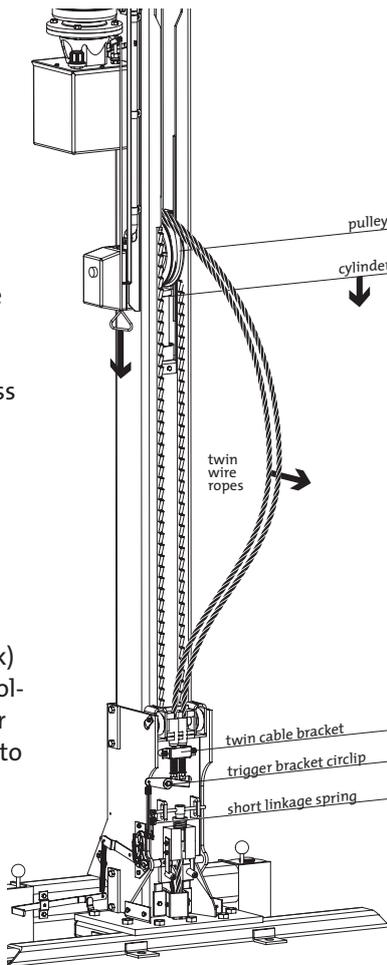
Use a lifting device (such as a Wallaby Jack) to raise the non-control-post carriage a further 200mm, and lower onto safety locks.

- 2 Use external circlip pliers to remove the trigger bracket circlip and let hang. Place retaining washer and circlip to one side.

- 3 Remove the 2 M6 bolts holding the cable bracket in position and slide the bracket from the ends of the twin cables.

Twin Wire Ropes can be slid down and removed from carriage.

- 4 Use a pry bar to lever the double pulley out of the cylinder
- 5 Raise the double pulley up the inside of the control-post and out through the wider opening at the top.
- 6 From the pulley, remove the two bolts that securing the cable retaining bracket and remove. The pulley is now free of the Wire Ropes - place to one side.



- 7 Inside the control-post, above hydraulic cylinder, is a bracket. Remove one bolt and swing the bracket away. Pull Wire Ropes down over this bracket and remove second bolt to remove.

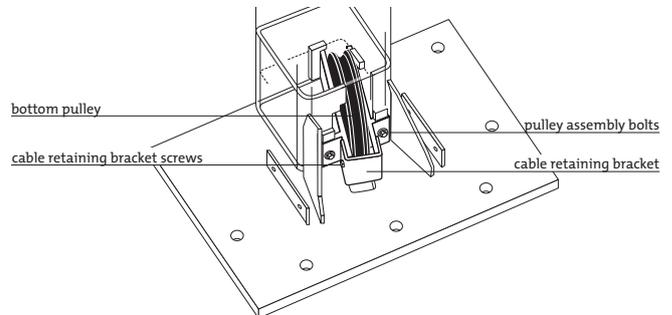
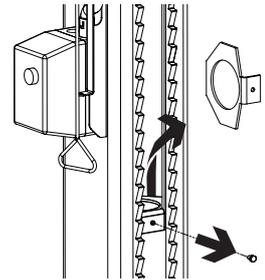
- 8 remove the M6 bolt holding the cylinder locating ring in position and remove ring.

- 9 On the control-post carriage, remove the short linkage spring between the safety mechanism and the axel.

Compress the long cable spring and remove the axel. Remove the spring and the collar.

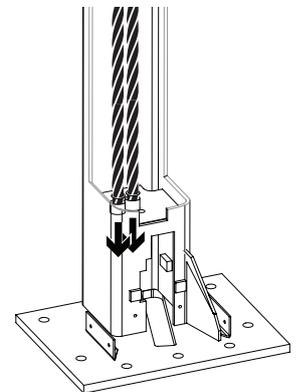
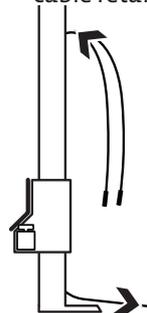
Slide the Wire Rope out of the carriage.

- 10 Remove the bottom pulley. Remove the cable retaining bracket by removing the two side screws. Remove the pulley by removing the two securing bolts that hold the pulley assembly to the post.



Lift pulley out from post and place to one side.

- 11 The twin Wire Ropes can now be pulled from the bottom of the control-post: loosen the Wire Rope ends (which appear as solid silver cylinders) from their cable retaining plate while simultaneously pushing Wire Ropes down into the control-post.



Wire Rope ends must be fed through the locators in the post.



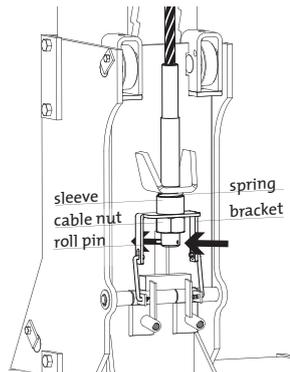
# WIRE ROPE & PULLEY REMOVAL

## REMOVE LONG WIRE ROPE

- 1 From the non-control-post carriage at the end of the long Wire Rope**, use a hammer and pin punch to drive the roll-pin out of the thread of the long Wire Rope.

Remove the nut from the end of the Wire Rope.

Pull the Wire Rope out of the bracket, placing the sleeve and spring to one side.



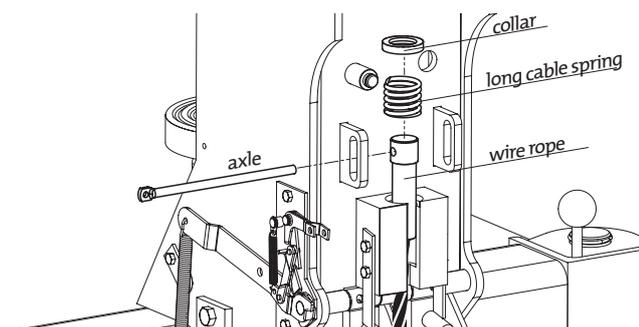
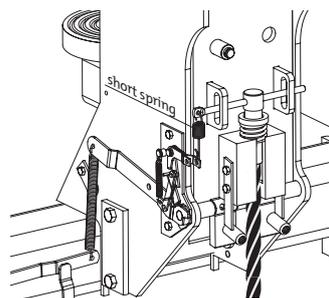
- 2 Remove the top pulley assembly from out of the top of the non-control-post.** Rotate it upside-down and place it on top of the hoist (for easy access). Remove the M6 bolt securing the pin at the side of the pulley housing and remove pin. Remove the pulley and remove the Wire Rope. Replace the pin in the pulley, and place pulley and housing to one side (away from hoist)

- 3 Remove the pulley from the top of the control-post.** Remove the M6 bolt securing the pin at the side of the posty cap. Support the pulley as you remove the pulley pin. Feed the pulley out through the bottom of the post cap, ensuring both pulley spacers remain with the pulley. Place pulley to one side.

- 4 On the control-post carriage, remove the short linkage spring** between the safety mechanism and the axel.

Compress the long cable spring and remove the axel. Remove the spring and the collar.

Slide the Wire Rope out of the carriage.



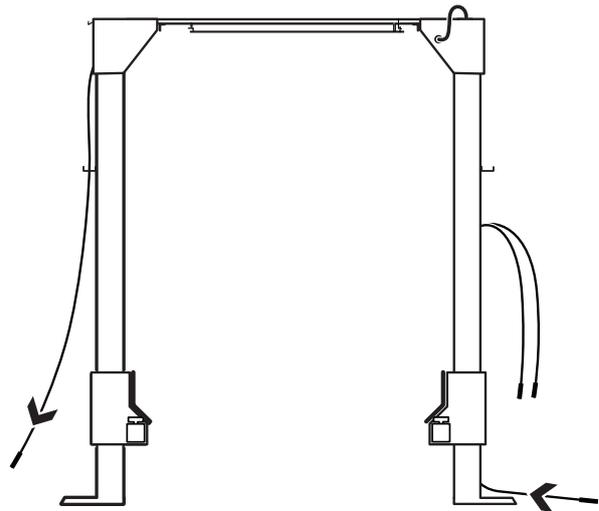
**⚠ Always discard removed/used split pins and roll pins and use new ones during reassembling**

- 5 Remove the bottom pulley.** Remove the cable retaining bracket by removing the two side screws. Remove the pulley by removing the two securing bolts that hold the pulley assembly to the post.

Lift pulley out from post and place to one side.

- 6 Pull the long Wire Rope on the non-control-post.** Feed the Wire Rope into the locator spot at the bottom of the control-post.

Continue pulling the Wire Rope through the non-control-post, until Wire Rope is completely removed.



**⚠ Always guide the long cable during removal to prevent accidents or injury!**

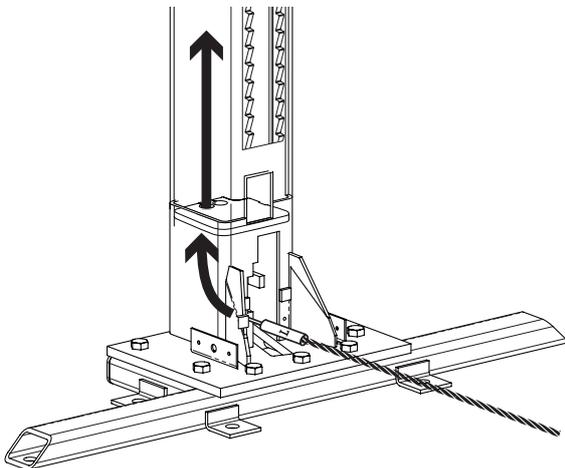


## WIRE ROPE & PULLEY RE-INSERTION

 **Unpack and place new Wire Ropes on clean surface to protect integrity**

 **When reinserting new twin Wire Ropes, clearly mark which Wire Rope is LEFT and which is RIGHT with a texta, to ensure Wire Ropes are not twisted when fed behind the hydraulics.**

- 1 Insert the LEFT Wire Rope into the LEFT hole (in the cable retaining plate, inside the control-post)  
Push the Wire Rope up the post.



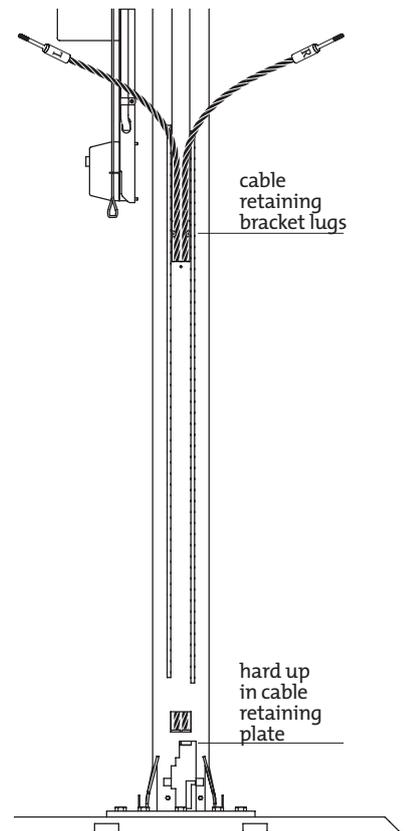
Keep a slight twist to the left-hand side (to ensure it remains to the left-hand-side of the post).

- 2 Pull the Wire Rope completely through the opening in the control-post and hang to left-hand-side of the control post.

- 3 Repeat the process for the right-hand Wire Rope (twisting Wire Rope to the right to avoid twists).
- 4 Check Wire Ropes have not crossed over.
- 5 Ensure both Wire Ropes are positioned between cable retaining bracket lugs.

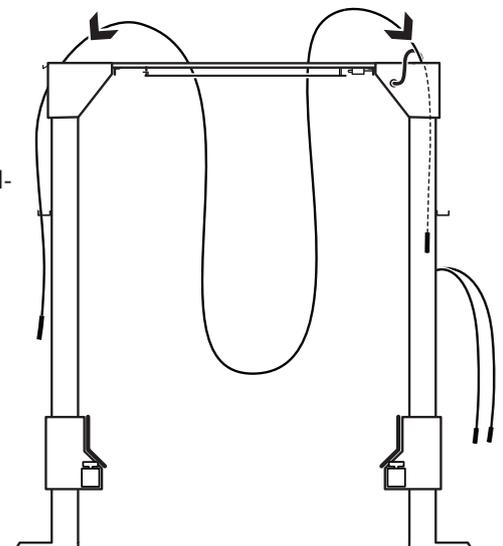
**Secure Wire Ropes with cable retaining bracket:** finger tighten screw one side (with M6 screw), swing into place and finger tighten screw on the other side.

Ensure the bottom Wire Rope-ends are seated “hard up” in the cable retaining plate (inside the bottom of the post) before tightening cable retaining bracket.



- 6 **Insert the long Wire Rope;** feed the non-threaded end of the long Wire Rope into the top of the control-post, down the inside of the post.

Feed the other end of the Wire Rope over the top of the hoist and down the outside of the non-control-post. Ensure the Wire Rope passes through the post cover mounting bracket.

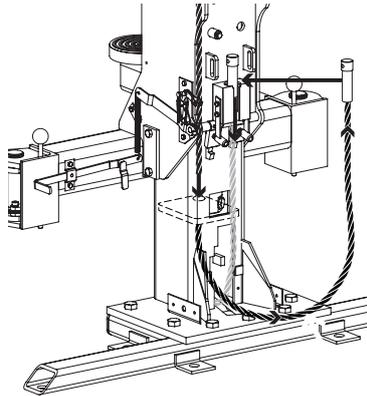




## WIRE ROPE & PULLEY RE-INSERTION

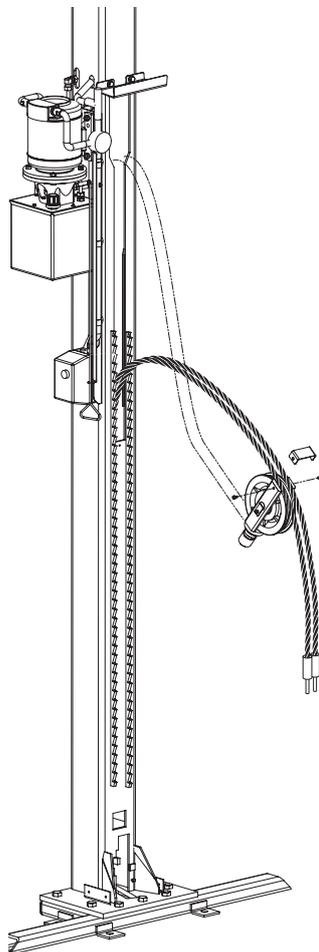
- 7** At the bottom of the control-post, pull the end of the long Wire Rope down through the cut-out in the right-hand side of the cable retaining plate.

Completely pull it out and sit the end into the back of the carriage.



- 8** Reinstall cylinder support ring:

insert into the cut-out sideways, feed it over the top of the hydraulic cylinder (ensuring the connector plate is pointing downwards) and secure with 12mm M6 bolt.

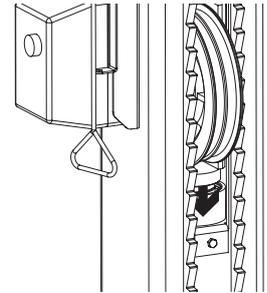


- 9** Reinstall double pulley: holding pulley in line with insert point; place Wire Ropes on pulley (ensuring correct and parallel alignment) and fit cable retaining bracket on double pulley (with 10mm M6 side bolts).

Lift pulley into larger cut-out in side of post, ensuring Wire Ropes sit into their grooves in the double pulley, when lowered inside the post.

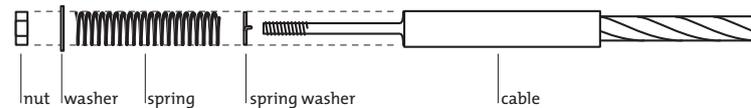
Lower down onto cylinder, ensuring Wire Ropes remain tight into their grooves.

Line up pulley fork spigot with the hole in the end of the piston rod and pull down on the twin wire ropes until the fork is fully seated.



- 10** Attach double Wire Ropes to carriage: assemble Wire Rope ends.

**NOTE:** Retrieve assembly from old Wire Ropes (springs and nuts etc) and attach to new Wire Rope.

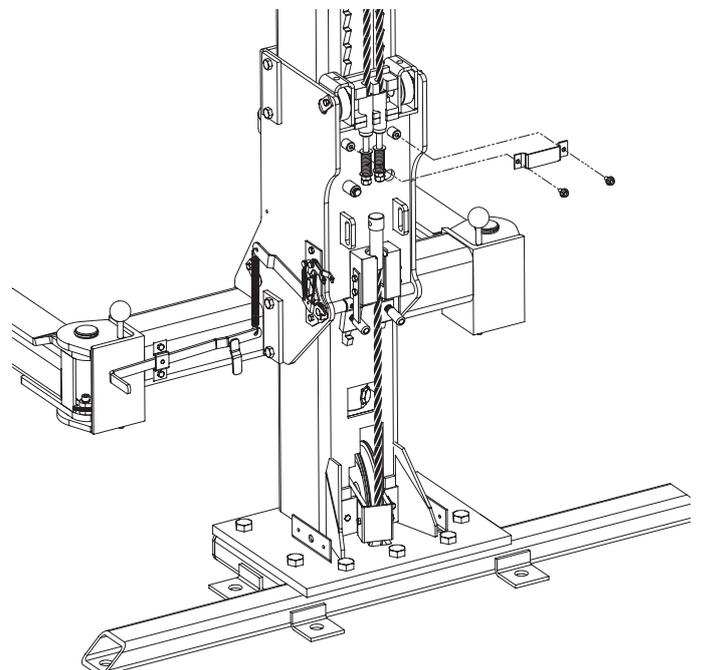


Slide on spring-washer, then spring. Compress the spring and place a washer and fix with cable nut. Wind nut on, until the screw is just proud.

Place both Wire Ropes onto carriage bracket slot and secure with bracket.

**NOTE:** the bracket mounts needs to be inserted between the spring-washer and the Wire Rope.

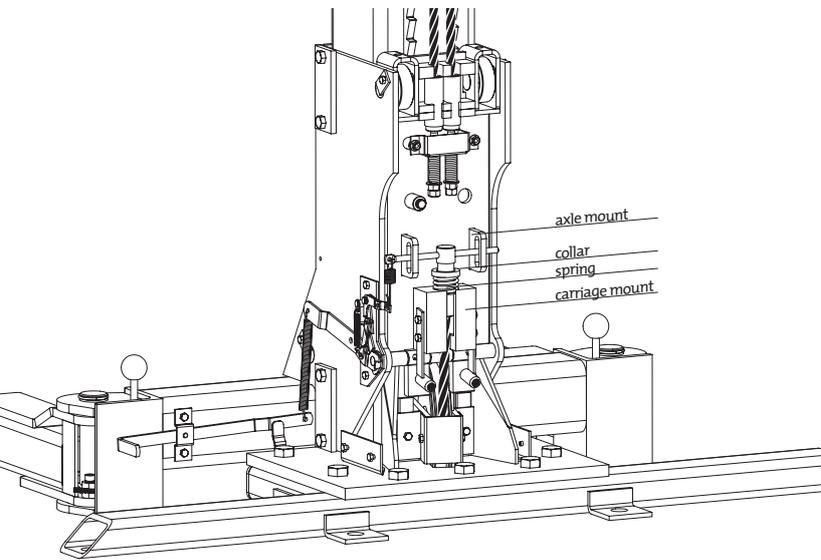
Affix bracket with 2 x 12mm M6 bolts.





## WIRE ROPE & PULLEY RE-INSERTION

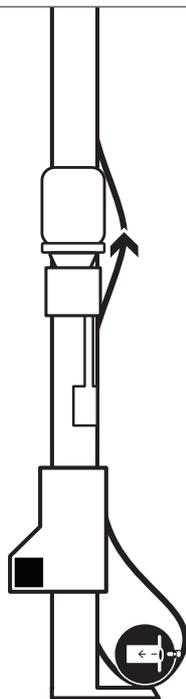
- 11 Refit spring and safety axle at end of the long Wire Rope:** with the end of the long Wire Rope in the carriage mount, place the spring and collar over it. Align the hole (in the end of the Wire Rope) with the axle mount. Push safety axle through. Reattached the linkage.



### 12 Install bottom pulley

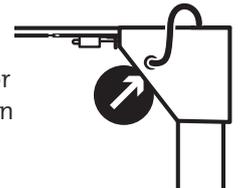
#### Re-grease all pulley bushes before refitting

- Reinsert the pulley assembly into the post, ensuring the side brackets locate into the mounting blocks inside the post.
- Fit 2 x M6 bolts through each side of the bracket and secure pulley to the mounting post. Do not over tighten.
- Reaching inside the post above the twin pulley, pull excess long Wire Rope to secure the Wire Rope into the bottom pulley groove.
- Recheck the Wire Rope is located in the pulley correctly and refit the cable retaining bracket to secure the Wire Rope within the pulley. Then retighten side bolts ensuring the bracket sits firmly against the stop.
- Check the pulley rotates freely.



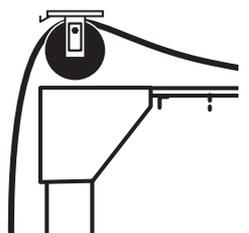
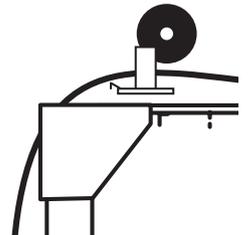
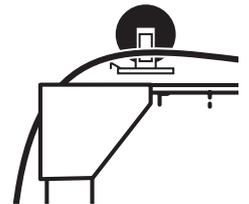
### 13 Insert control-post top pulley

- From the top of the control-post, locate the top pulley and remove. Using a small amount of grease for hold, position the pulley spacers on each side of the pulley. Re-grease the pulley bush.
- Reinsert the top pulley into the smaller of the two openings underneath the control-post cap, being careful not to dislodge the spacers on either side.
- Align pulley and pin holes before fitting the pulley pin and bolting to secure.
- Ensure the Wire Rope is laying correctly in the pulley groove.



### 14 Insert non-control-post top pulley

- At the top of the non-control-post, place top pulley. Unscrew the bolt and remove the pulley pin to remove the pulley and spacers.
- Feed the Wire Rope through the pulley assembly. Re-grease the pulley bush and re-grease spacers to re-attach.
- Slide the pulley back down until the pulley lines up with the pin hole, ensuring the spacers do not dislodge before refitting the pulley pin and securing the bolt. Check the pulley spins freely.
- Flip and insert the pulley assembly into the top of the post, with the bracket hook pointing outwards.

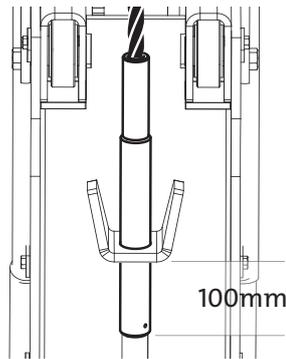




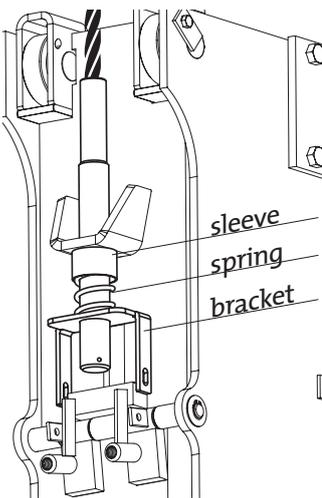
## WIRE ROPE & PULLEY RE-INSERTION

### 15 Attach the long Wire Rope to non-control-post carriage

→ Feed the threaded cable end through bracket on carriage. Note, the carriage may need to be raised to insert the cable end.

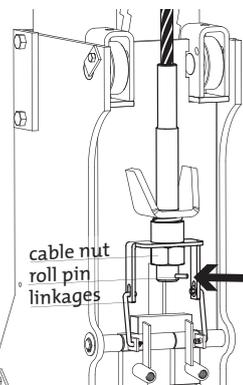


→ Insert spring and sleeve over cable end. Insert the bracket (with bracket arms positioned against the carriage) and secure cable end with the cable nut.

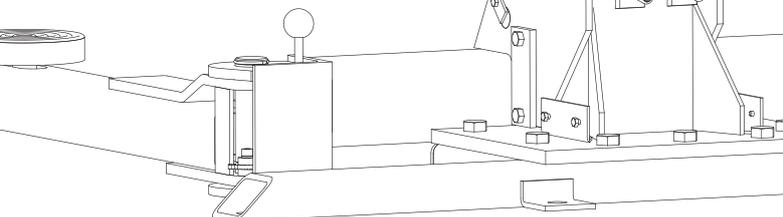


Tighten the cable nut approximately 30mm to fully expose the cable hole.

→ Feed linkages through inside of the bracket (washer at top) and attach to linkage holes. Insert split pins to secure.

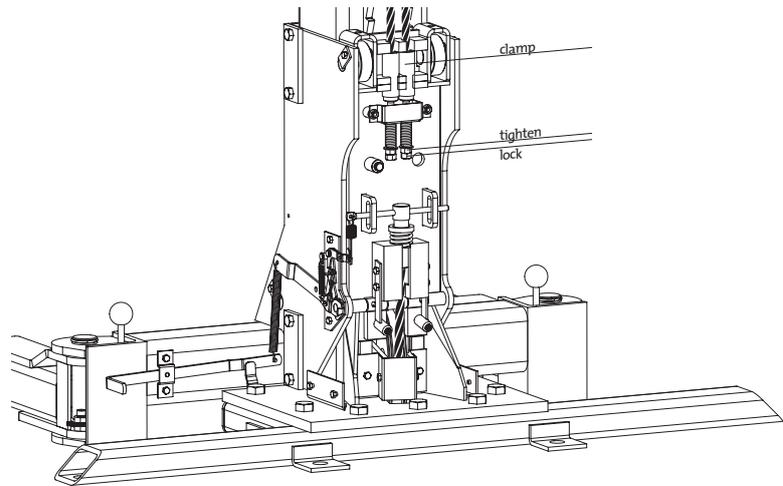


→ Fit roll pin through hole in the Wire Rope end and hammer, leaving a few millimetres protruding.



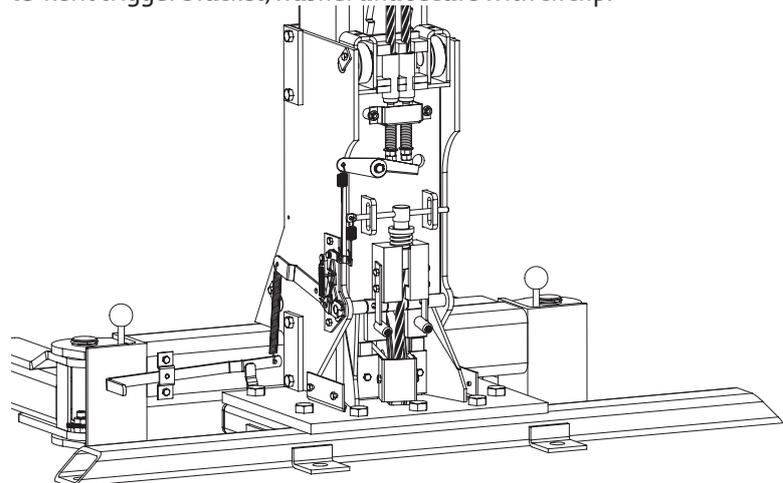
16 Remove isolation lock out (ie: turn hoist ON)

17 **Adjust twin springs:** Raise hoist and compress the twin springs. Using a clamp and 15mm spanner, tighten the nuts until the springs are almost fully compressed.



Refit the lock nuts to the end of each cable thread, ensuring you hold the upper nut in place as you tighten the lower nut (so as to not change the position of the springs).

18 Refit trigger bracket, washer and secure with circlip.



19 Readjust long cable ensure 25mm initial pre-stretch

20 Lubricate all cables

21 Re-lube posts and refit covers

 **Readjustment of long Wire Rope required after six weeks of operation**



# HYDRAULIC CYLINDER REPLACEMENT

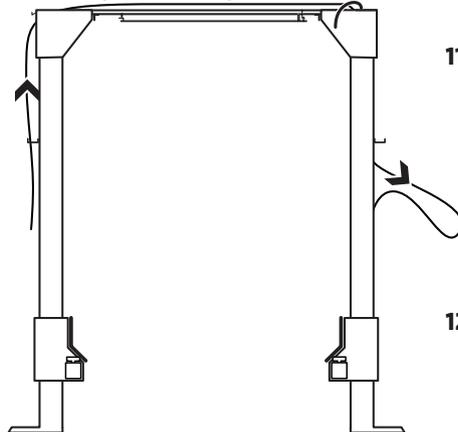
- 1 Isolate power to the hoist and apply lock out switch. ie: turn power off.

 **A licensed electrician must perform all electrical work**

- 2 Disconnect the wiring in the bottom junction box and pull the mains electrical cable out through the top junction box. Apply insulation covers to the exposed wires
- 3 Open the top junction box and retrieve excess coiled electrical wire (ready to be pulled out the top).
- 4 Remove the oil tank (*as per Hydraulic System, page 10*)
- 5 **Remove the lift arms from the control-post carriage:** remove the split pin from the pivot pin (in the Arm Lock) then remove the pivot pin. Remove the lift arm, and place to side.
- 6 **Remove the over-head limit switch trigger wires:** remove the conduit from the limit switch, and pull the wires coiled in the top junction box from the conduit. Disconnect the wires at the bullet points.

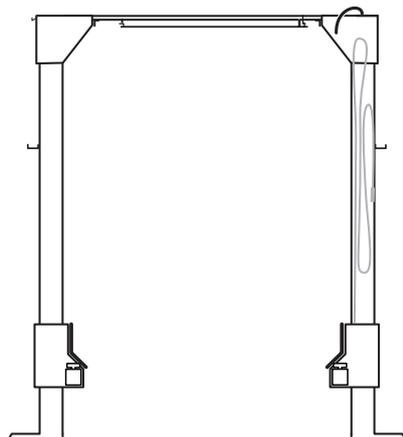
Remove dust cap. Feed the conduit (with electrical wires still inside) into hole in control-post end cap to secure.

- 7 Disconnect the long Wire Rope (*see Wire Rope & Pulley Removal: point 8, page 14*) and reach inside the cut-out in the side of the control-post to pull the long Wire Rope over the top brace and out. It may need to be fed through top pulley position.

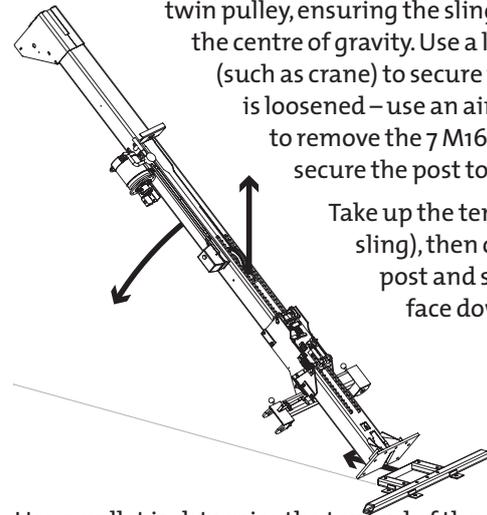


- 8 Feed the Wire Rope back into the control-post so the Wire Rope is secure as you lay the post down.

- 9 **Remove top brace:** remove the 6 x M10 bolts per side securing the brace to the post caps. Remove the brace and place to one side.



- 10 **Lift control post:** Place a sling around the post above the twin pulley, ensuring the sling is above the centre of gravity. Use a lifting device (such as crane) to secure the post as it is loosened – use an air impact gun to remove the 7 M16 bolts that secure the post to the base.



Take up the tension (on the sling), then carefully lift post and slowly lower face down.

Use a pallet jack to raise the top end of the post, to remove the control-post cap. Conduit will feed out through the top of the cap. Place cap to one side.

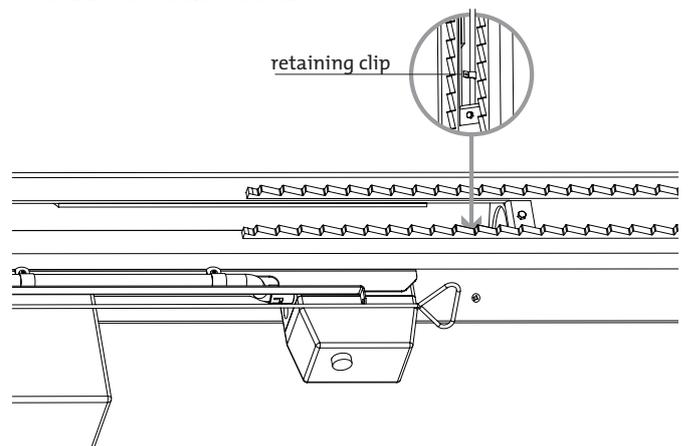
Lower the end of the post onto blocks. Remove the pallet jack.

- 11 Pull the long Wire Rope out from the top of the post. Disconnect the twin Wire Rope bracket (*as per Wire Rope & Pulley Removal: point 2 & 3, page 14*) and remove the twin pulley and disconnect the Wire Rope (*as per Wire Rope & Pulley Removal: point 4, 5 & 6, page 16*).

Place pulley to one side.

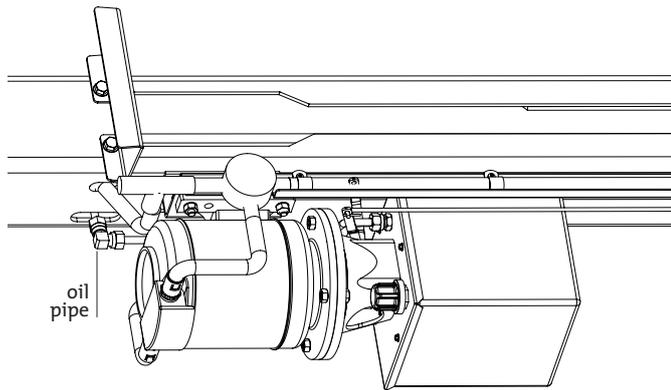
Lay the twin Wire Ropes down inside the post.

- 12 Remove the oil pipe retaining clip, located inside the post (roughly in line with the top of the hydraulic cylinder), held in position with a philips-head screw located under the control button box.





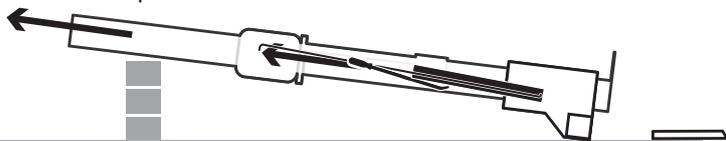
**13 Remove the pipe from motor:** hold the joint with a shifter and unscrew the pipe from the post. The oil pipe section (linking the post to the tank) can be placed to one side. Push the oil pipe into the post.



**14 Remove the cylinder retaining ring** by removing the screw. Use a pry bar to move the ring over the cylinder as needed.



With the help of a pry-bar under the cylinder, slide the cylinder towards the top of the post, and out the top of the post.



Inspect and repair or discard and replace cylinder.

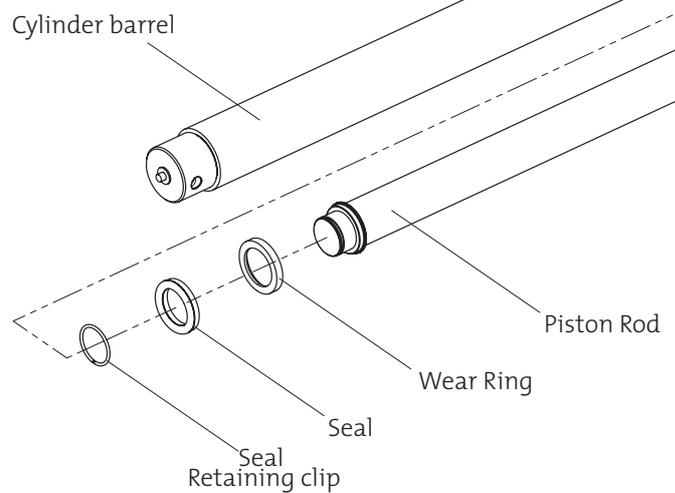
**15** When reinserting new cylinder, oil pipe must be inserted at a 45 degree angle, facing the front inside corner of the post.

With the cylinder in place, post may be raised and secured.

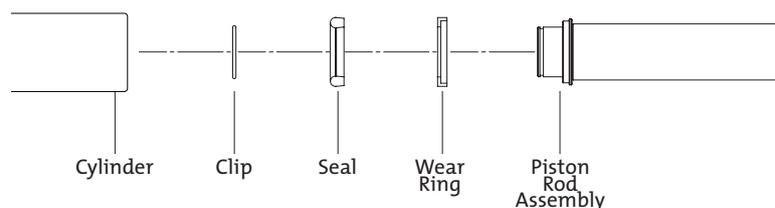
Re-attach cylinder retaining ring and follow steps in reverse order to reassemble.

## SEAL REPLACEMENT PROCEDURE

Mount cylinder in a vice before starting



- 1 Ensure the piston rod is fully compressed into the cylinder and remove the internal circlip.
- 2 Apply compressed air to the oil pipe fitting until the piston rod is half way out, the manually pull the rod out the remaining amount.
- 3 Remove the seal retaining clip, seal and wear ring. Clean the piston end and fit new seal assembly.
- 4 Clean and inspect the internal cylinder condition (do not wash with water), if there are any scores or rust (rust in the cylinder will show as a darkish shadow) the outer cylinder must be replaced.
- 5 Remove and replace the piston rod guide bush with new.
- 6 Apply a coating of hydraulic oil or rubber grease to the new seal and around the top of the cylinder and refit.



- 7 Refit the internal circlip



*For more information, please contact us or your local Molnar Representative*

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*onwards & upwards*