

### **Skid-Lift Model 2230s Scissor Stack Pin and Bushing Re-Lubrication Procedure**

Skid-Lift "s" model lifts do require periodic inspection, maintenance, and lubrication of all pins and bushings in the scissor stack. Pin inspection and lubrication should be done at a minimum of every 13 months according to the Aerial Lift Manufacturers Association. Failure to inspect and lubricate pins and bushings on a regular basis can result in damage and possible injury if not maintained. Pins do need to be removed in order to inspect and re-grease them. Maintaining the scissor stack pins and bushings will result in many years of safe and trouble-free use of your Skid-Lift.

We recommend the following Inspection and lubrication intervals for the usages below (roughly 150 hours of usage):

- High usage (Used daily) - Every 3 months
- Medium usage (3-4 times a week) - Every 6 months
- Low/ Occasionally usage (1-2 times per week) - Every 12 months

This service can be done by the user if they have experience working on equipment or by a local equipment mechanic. It does help having a 2<sup>nd</sup> person available when working with the pins on the center of the stack when in the up (on maintenance bars) position.

### **Tools and Materials needed to complete the service include:**

- Replacement Snap Ring Kit (available for purchase through Skid-Lift)
- EP Moly Grease made for High Impact and Pressure Applications
- Good Quality Snap Ring Pliers
- Steel Hammer
- Large Punch or Pin for Driving Pins Out
- Dead Blow Hammer or Rubber Mallet
- Block of Wood as shown in the photo below
- Brake or Contact Cleaner (optional)
- Latex Gloves if desired (optional)
- Large C clamp



Before starting this procedure, a snap ring kit should be ordered from Skid-Lift, LLC or from a suitable supplier. All snap rings used in Skid-Lifts are heavy duty snap rings based on the nominal size of the pin. Snap rings can distort during installation and removal so they must be discarded and replaced with new ones once they are taken off. Skid-Lift now offers snap ring replacement kits for all of it's models. Pin replacements can also be purchased upon request if needed.





This is a good example of the lubrication needed for the relubrication of pins and bushings. This lubrication can be purchased at most automotive parts stores.



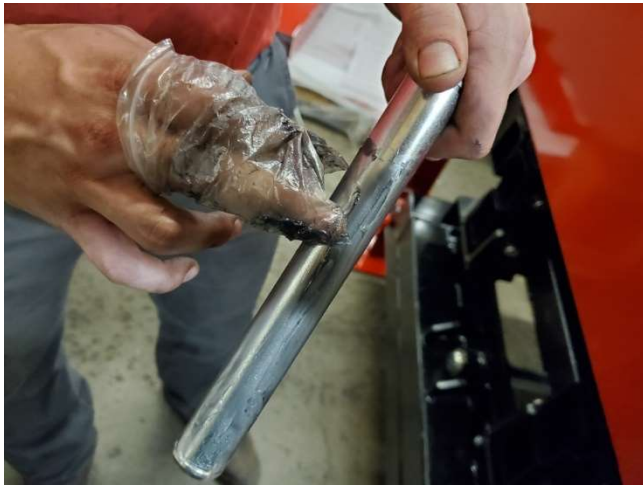
## Getting Started

Make sure your lift is down and un-attached to your skid steer or tractor. It is easiest to back your skid steer or tractor away from the lift to provide good access to the lift and not be in the way while working on the lift.

**Caution: Only one pin at a time should be removed and inspected, cleaned, and lubricated. Then it should be re-installed before removing the next pin. Removing multiple pins at one time can result in a lift collapse (if in the up position) or just a more difficult re-install process.**

1. At each corner of the lift (4 corners), start at the lowest pin and work your way up at each corner before moving to the next corner. **You do not need to lubricate the pin that is attached to the plastic slide block as the plastic will rotate freely on this pin without lubrication.** Starting at the lowest pin, remove the outer snap ring using the snap ring plier and discard (make sure you have new snap rings on hand). Use the punch and hammer to gently tap out the scissor lift pin tapping it to the inside of the lift. It should be easy to grab it as it comes out the back side. It is not necessary to remove the snap ring on the backside of the pin.
2. Clean both the pin and bushing with a rag. It is easiest to use some spray on brake cleaner or other suitable cleaner to clean the pins and bushings. This will clean them up very quickly. Be sure that both the pin and bushing are dry before applying new grease to either pin or bushing.
3. Inspect both pin and bushing for any signs of galling or cracking. Do this by visually inspecting both and also by feeling it with your finger. If galling does exist, light sandpaper can be used to help remove material that is attached to the pin or bushing. If bushing holes appear to be elongated or out of round, they can be measured and specifications can be obtained by calling Skid-Lift for exact specifications for your particular model. If they are found to be out of spec, arms and pins may need to be replaced with new ones.

4. Once pins and bushings are cleaned and inspected, use EP Moly Grease as shown and apply thoroughly first to the bushings and then the pin. Apply a light coat of grease and make sure the entire surface is coated on both the bushing and pin. Insert pin from the outside and use a rubber hammer, dead blow hammer, or block of wood with a hammer and tap the pin back into the bushing holes until the snap ring is seated on the face of the bushing. Wipe excess grease with finger and put back into the can or wipe with a disposable towel.
5. Insert new snap ring on the backside and make sure it seats properly into the groove in the pin. Again, never re-use old snap rings as they can be distorted and lose strength after being removed and installed repeatedly. Sometimes it is necessary to use a large c clamp in order to pull the two arms together as there may be clearance in between the two arms and bushings. This will give the pin more clearance to install the snap ring.
6. Move to the next pin in the stack and the next corner of the lift after completing the entire corner of the lift ensuring that all pins at each corner have been lubricated. Again, it is not necessary to remove and lubricate the pins and bushings that have plastic slide blocks attached to them.



Once all of the pins that can be accessed on the corners of the lift have been serviced with the lift in the down position, hook the skid steer or tractor back up to the lift. Activate hydraulics and raise the lift so that the maintenance bars can be put into position. Lower the lift down so that the lift is resting on the maintenance bar rests.

Repeat steps 1 through 6 above to corner pins that were not accessible due to the lower control tower blocking the pins. **Again, only one pin at a time should be removed especially when the lift is in the up position!**

Once all corner pins have been cleaned, inspected, and lubricated, move to the pins in the center of the stack. **Again starting with one pin at a time**, complete steps 1 through 6 shown above on all center stack pins that can be accessed (usually the top and bottom center pins on the stack) easily.

**Important Note:** It may be necessary to move hose holders or cylinder on the backside to allow pins to be removed. It can be beneficial to use the c-clamp to clamp the center tubes together next to the pin you are removing. This can help prevent the lift arm from moving and causing mis-alignment when re-installing the pin. Use a small piece of cardboard on each side of the c-clamp to help prevent scratching or marking the



painted surface of the arm. Inspect the pins for cracking or bending and replace as needed. Then re-grease the bushing and pin and reassemble with a new snap ring.

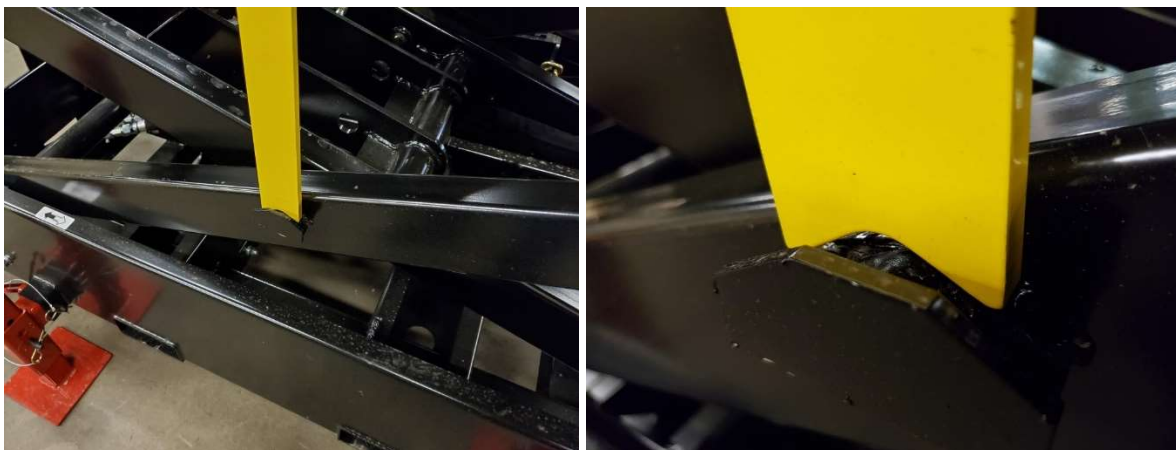
If you are just re-greasing the lift and not inspecting the pins (say at a 6 month interval), it is acceptable to push the pin about ½ way out. Then grease the inside of the bushing on one side and the pin on the other side. This should only be done if you are not do a full annual inspection.

**Important Note:** The pin directly above the maintenance bar (3<sup>rd</sup> from the bottom in the center of the lift) on both sides are the pins that see the most stress on the 2230s. Be sure to check these pins carefully and replace as needed if any cracking or bending is found.

The last two pins will be the pins have the maintenance bars attached to them. Both of these pins on both “s:” model lifts will have the hydraulic cylinder behind them as well. It is necessary to remove the upper lift cylinder pin so the cylinder can be moved out of the way to remove this pin fully if pushing it out from the inside of the lift. Pull the lift cylinder pin and use a 2x4 or something similar to rest the cylinder on. You could also drive the pin out from the backside of the pin (closest to the cylinder) which will allow you to take the pin out all the way.

To remove these two pins (one on each side), you will need to lift the scissor stack up just slightly using the skid steer or tractor to take any pressure that is on the maintenance bars off. It is important again to only remove one pin at a time and do not lift the lift so that the maintenance bars are higher than the maintenance bar stops. There should be no more than an 1/8” clearance between the bar and the rest as shown in the photo below. You should be able to slightly rock the maintenance bar back and forth on the stop having no pressure on the maintenance bar itself.

**Remember to install the maintenance bar back on this pin before re-installing the pin and snap ring!**



While the lift is in the up position on the maintenance bars, double check the that all snap rings are in place and have the same amount of gap in the snap ring which will mean that all snap rings are seated properly.

Once it is confirmed that all snap rings are in place, hook back up to the skid steer or tractor and lift the scissor stack up off the maintenance bars. Spin the maintenance bars back onto the maintenance bar holders and test the lift going



up and down several times from the lower base control. Make sure that the lift feels smooth and that no squeaks or binding is heard or felt.

This procedure should be completed periodically per the guidelines stated above. This will ensure your safety and the longevity of your Skid-lift.

If you have any other questions, please do not hesitate to call Skid-Lift, LLC.