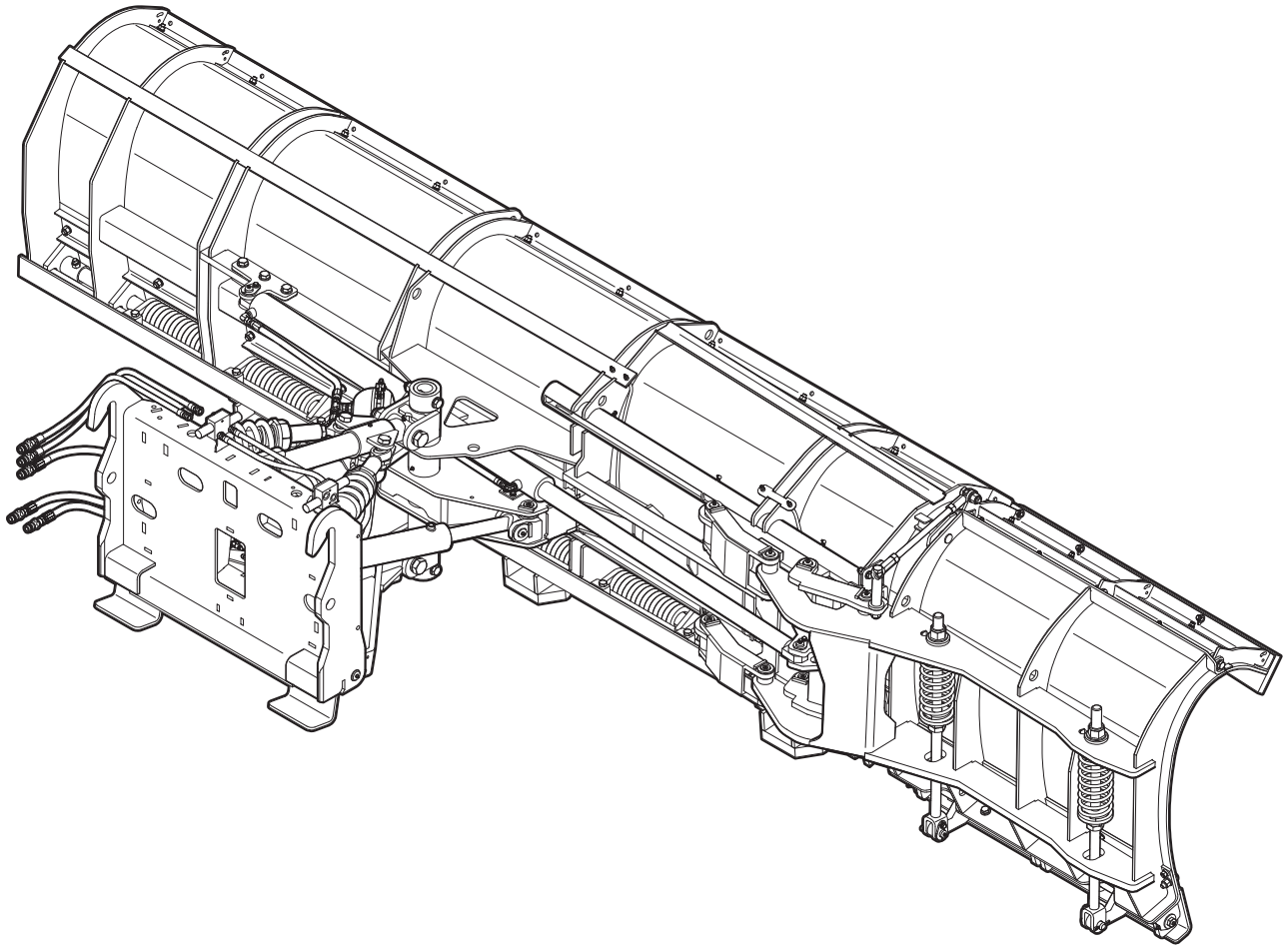
Owner's Manual

VCL Extendable Plow (XPLOW)



Introduction

Congratulations and thank you for your purchase of new Viking-Cives Ltd. Snow & Ice Control equipment. This manual has been created to provide you with installation, set-up, operation and maintenance information for the Viking-Cives Ltd. Extendable Plow. It has been prepared to familiarize you or any other person who will be assembling, operating, maintaining, or working with this product with the design features, and to instruct you in the recommended operation and maintenance of the unit.

Read this manual carefully before you operate or service your Extendable Plow. Remember that you're working with heavy equipment that can injure you or someone else. You can help lessen the chance of injury by following the procedures in this manual, carefully.

DANGER: If incorrectly used, this equipment can cause severe injury or death. Your chance of injury can be greatly reduced by following all safety decal notifications. All decals must be kept clean and complete. Replace any decals that are unreadable. Decals may be purchased directly from Viking-Cives Ltd. and/or you're nearest authorized dealer. All Operator/Service people should review this manual carefully and become familiar with its contents. **If anyone else beside you operates or services this equipment, make sure they read this manual and are instructed to follow all the safety procedures related to this equipment.** Keep this manual available for reference whenever this product is being handled or used. Provide this manual to any new owners and/or operators.

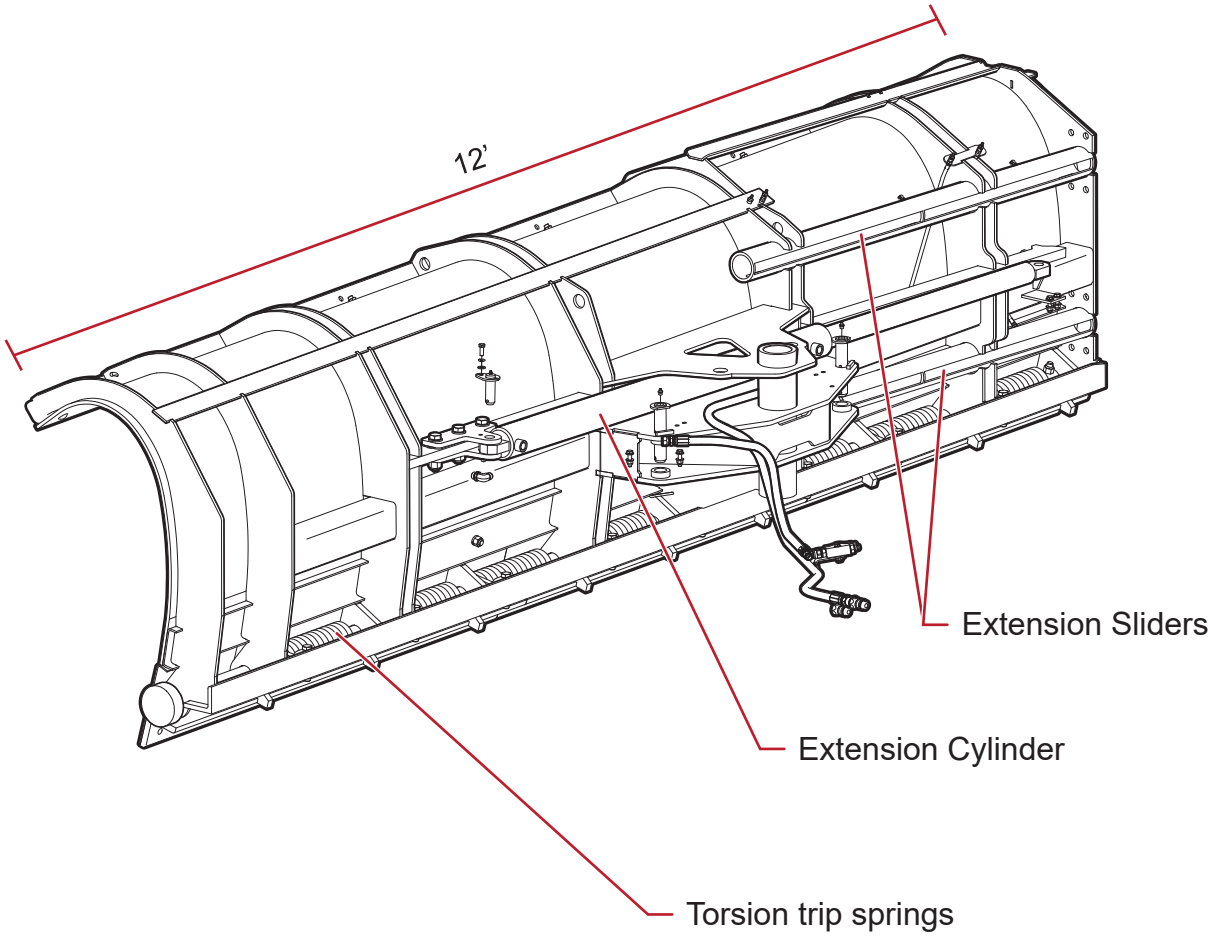
The Viking-Cives Ltd. Extendable Plow has been engineered and built with durability and safety of operation in mind. It has an integrated a torsion spring trip-edge mechanism to cushion sudden shock, in the event contact between the plow cutting edge and an obstruction such as railway tracks, manhole covers, etc... occurs. Viking-Cives Ltd. does not recommend any modifications to its products without prior written approval. **Any modifications carried out without prior approval from Viking-Cives Ltd. will VOID ALL WARRANTY, and will become the responsibility of the party who completed the modifications.**

To ensure safe and trouble-free operation of the Extendable Plow, careful attention must be given to the critical adjustments during the initial installation and set-ups, as well as following periodic maintenance and inspection schedules.

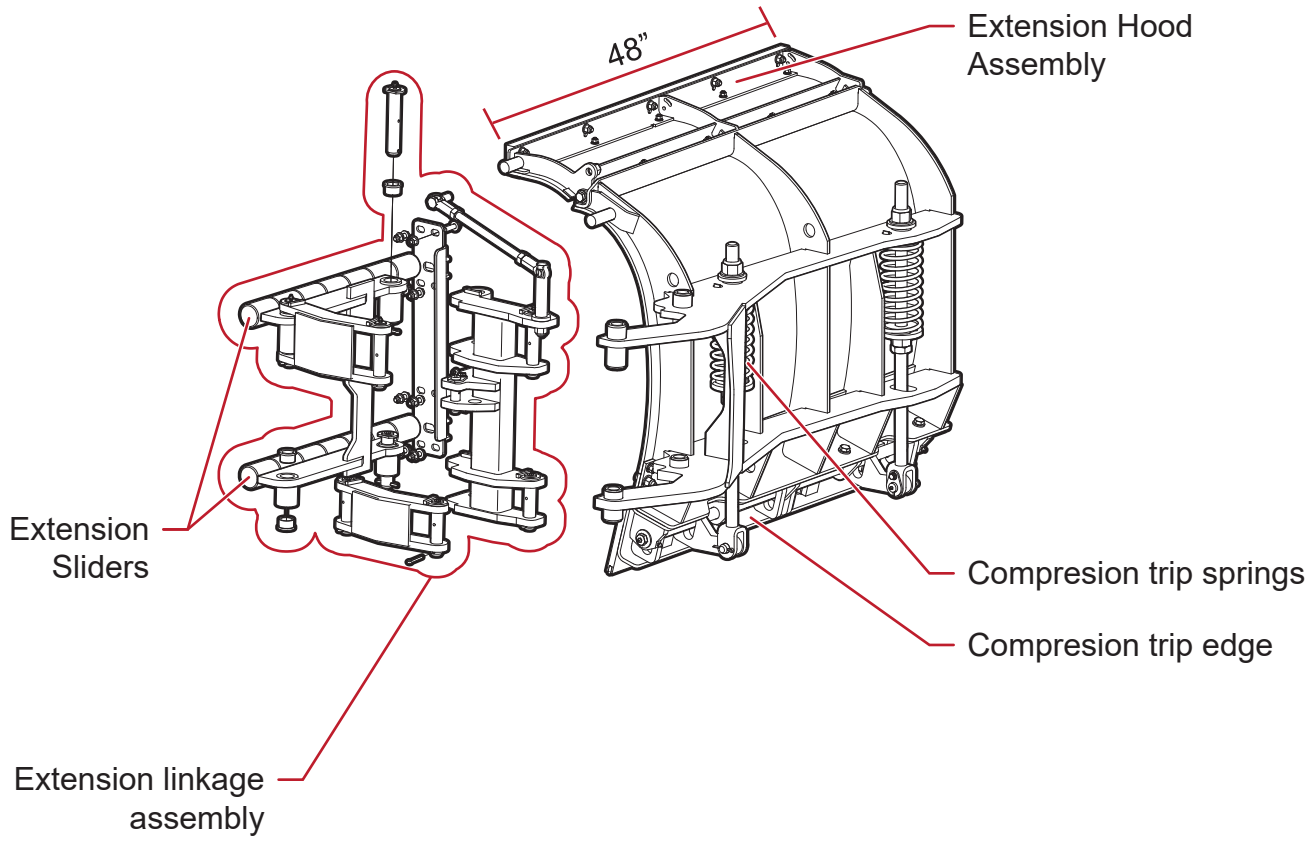
Main Moldboard

The Extendable plow (Xplow) is an innovative plow system that does not employ a wing plow. An extension on the curbside of the plow allows for the clearing path to be extended, without the additional weight of a wing. Eliminating the wing also allows for enhanced visibility for the drivers and will enable the plow truck to maintain narrower roads.

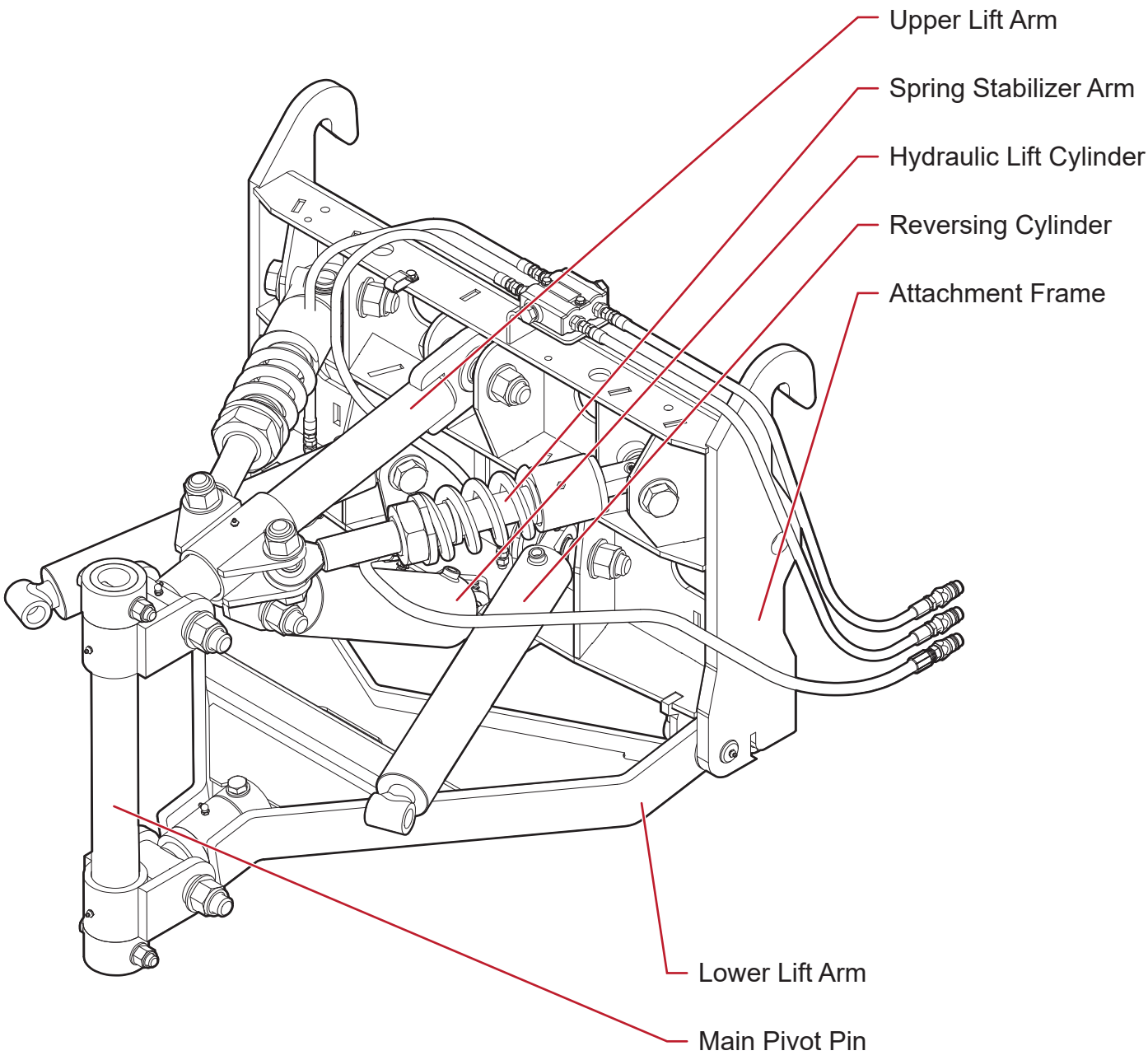
The design features a reversing polymer moldboard to shed wet snow and cast it smoothly to either side. The 48” (inch) retractable arm to increase the clearing path can be deployed or retracted while plowing for seamless control when operating.



Extension

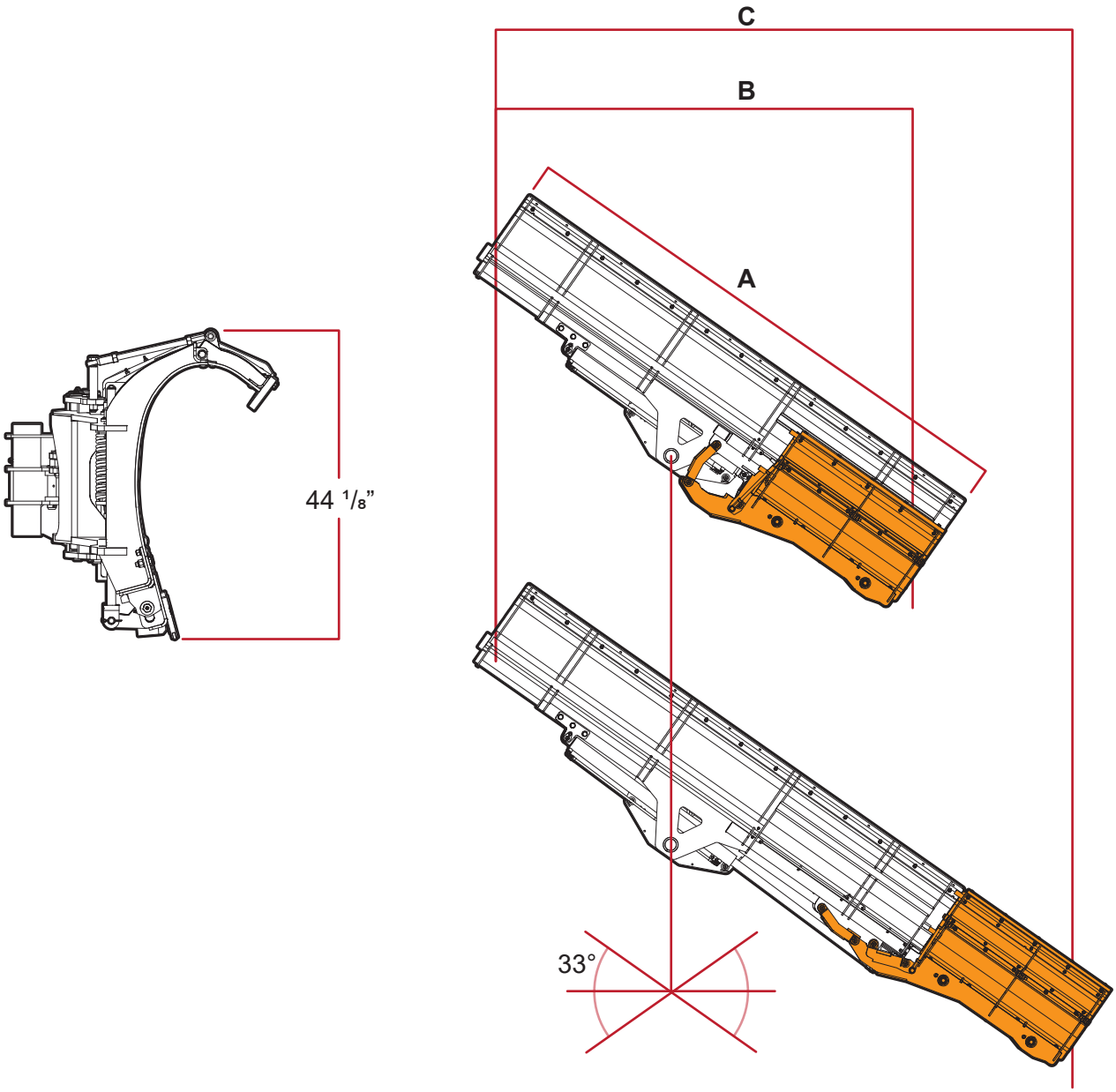

48”
Extension Hood Assembly
Extension Sliders
Compresion trip springs
Compresion trip edge
Extension linkage assembly

Level Lift Hitch Assembly



Operating Features
Dimensions

Dimension	Xplow 12’	Xplow 13’
A Moldboard Length	12’	13’
B Clearing Path	13’ 5 3/8”	14’ 1 5/16”
C Clearing Path (Extended)	9’ 8 5/16”	10’ 10 1/2”



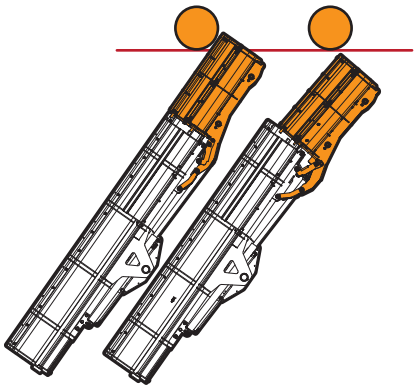
Power Float

The Power float system On the Xplow uses the hydraulic system to reduce the weight of the plow, allowing it to constantly follow the contours of the road surface. Power float should always be engaged to ensure proper plowing function. In instances where there is hard packed ice frozen to the road surface, power float can be momentarily disengaged to provide more downforce to the blade edge.

NOTE: The Powerfloat must always be turned off when attaching and detaching the plow.

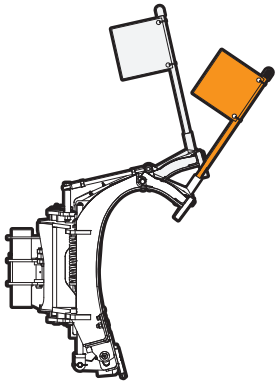
Extension Cushion

The moldboard extension is equipped with a relief valve that will allow the extension to trip backward when it encounters an immovable object on the extension side (curbs, bollards, light standard bases, etc…). The extension cushion will be able to retract 3” Inches to protect the plow and truck when obstacles are struck that are higher than the trip edge.



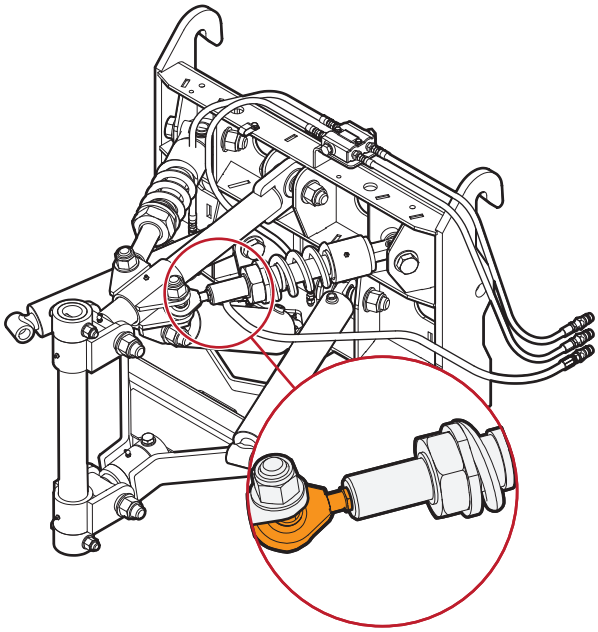
CAUTION: The relief valve is meant to protect the plow, and not intended to be used constantly. Care must still be taken to avoid obstacles.

NOTE: To see when the relief breakaway hits an obstacle, the operator will see the right marker flag tip upwards. The marker flag will tip forward to the same position as the left flag when the extension is fully deployed again.
The marker flag can be used by the operator during normal operation to indicate when the extension is fully deployed.



Leveling Adjustment

Leveling the moldboard is critical to the quick attach system, because connecting to the LPM (Low Power Mount Hitch) requires that all the components are level and In-Line. Difficulty in attaching the plow to the hitch can be greatly reduced by keeping the plow properly leveled and in-line with the other functional components in this system. A properly leveled plow will also contribute to even wear on the moldboard cutting edges.



1. Park the truck and plow on a level surface and raise the plow.

2. **With the moldboard extension retracted,** measure the height of the blade at both ends. Observe which end is lower.

3. Lower the plow and extend the spring strut arm on the lower side by loosening the lock nut on the spring strut shaft, rotating the spring strut shaft to lenghten the shaft. Re-tighten the jam nut.

4. Re-tighten the jam nut.

5. Lift the plow and measure the cutting edges. Measure the height of the blade at both ends.

6. Continue this process until the plow moldboard is level.

Installation

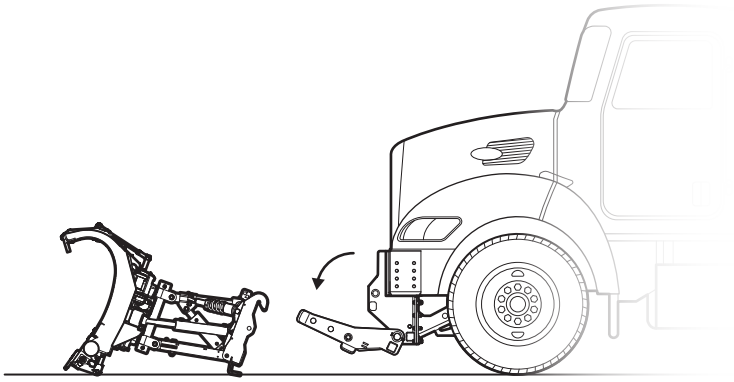
These installation instructions are intended as a guide to aid in the mounting of your Viking-Cives Extendable plow.

DANGER: NEVER stand between the prime mover and the plow pushframe when the vehicle is being moved into position.

Always ensure that the all bystanders are clear when moving equipment, as well as that the machine is off, parking brakes are engaged and all attachments are lowered before performing any adjustments.

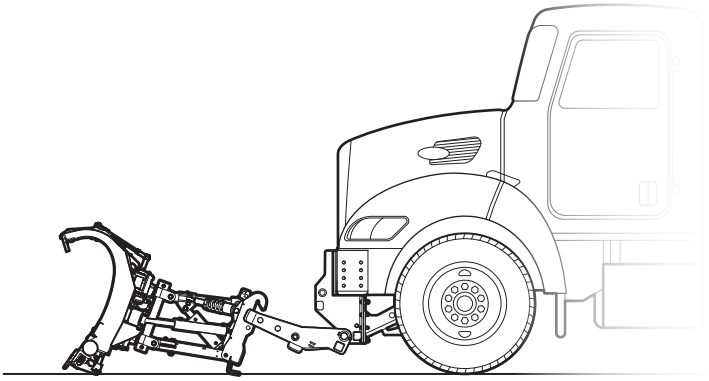
Attachment To Prime Mover

1. Set plow unit on a firm, level surface (such as a concrete garage floor or paved area) that is large enough to safely accommodate working on the truck.



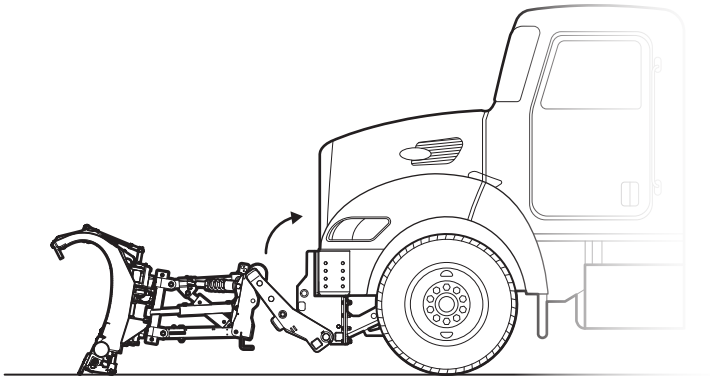
2.Relese the lock pins on the Low Power Mount (LPM) Hitch, and lower the swingarm on the LPM hitch assembly.

3. Slowly drive the vehicle forward, and line up the hitch swingarm with the attachment hookplate.



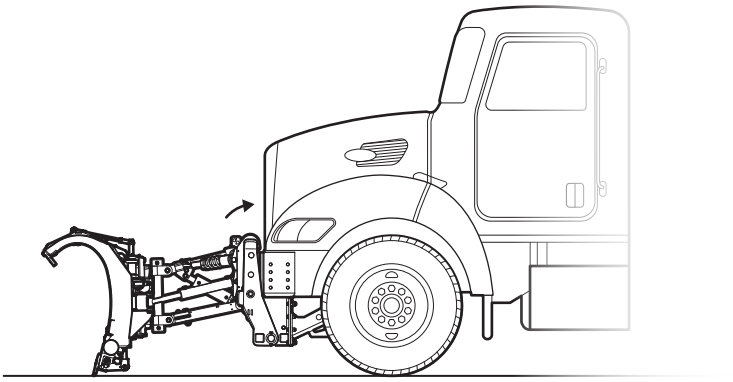
DANGER: Never stand between the truck and the plow when the vehicle is being moved into position.

4.When the swingarm contacts the attachment hookplate, slowly lift the swingarm and continue to drive forward until the the swingarm hook bars into the hitch assembly.



5. Raise the swingarm completely, and engage the swingarm lock pins, to lock the attachment hookplate and plow to the vehicle.

NOTE: If the swingarm does not align perfectly with the attachment hookplate (lock pins do not engage), connect the hydraulic fittings and lift and lower the plow to put more pressure on the hookplate to seat it properly on the swingarm.



6. Place the vehicle in park and exit the cab, to connect the hydraulic fittings located on the front hitch.

Replacement of Cutting Edge

1. Park the prime mover/vehicle on a level surface (such as a concrete garage floor or paved area) that is large enough to safely accommodate unit with the plow attached.

2. Place the vehicles transmission in “Park” and set the parking brake.

3. Lower the plow onto suitable blocking, which are positioned immediately behind the moldboard. This blocking must be of sufficient height to hold the cutting edge approximately 6” to 8” above the level surface.

DANGER: Never attempt to work under any raised equipment without proper blocking in place. Failure to do so can result in severe injury or death

4. Shut off the prime movers engine, remove the starter key, wait for all moving parts to come to a stop, and relieve all pressure in the hydraulic lines.

5. Loosen the nuts on all the cutting edge bolts; remove all nuts and bolts except the bolts on each end of the cutting edge.

6. While holding up the end of the cutting edge, remove the nut and bolt from that end and allow the cutting edge to pivot down to the level surface.

7. Repeat Step 6 for the other end of the cutting edge. If using a standard center punched reversible cutting edge, flip the edge from top-to-bottom and reinstall. Properly dispose of worn-out edges and all bolts and nuts.

8. Reinstall a new wear edge by reversing the procedures in steps 7 thrrough 5; tightening all nuts to recommended torque values.

Maintenance

Proper maintenance of your Xplow, Parallel Lift Harness and LPM Hitch is essential for a long service life as well as ensuring that the equipment performs optimally. The maintenance procedures outlined here will aid your Xplow system in performance and longevity.

Initial Maintenance

Xplow Assembly & Level Lift Hitch

- Inspect for loose bolts/pins and tighten/adjust as required.
- Inspect hydraulic hoses for leaks and ensure all hydraulic fittings are tight.

LPM Hitch

- Inspect for loose bolts/pins and tighten/adjust as required.
- Inspect hydraulic hoses for leaks and ensure all hydraulic fittings are tight.

Mid Season Maintenance

- Thoroughly lubricate all mechanical parts: bearings, pivot pins, slider mechanisms
- Inspect blades and moldboard & curb shoes for excessive wear. Replace if nescessary.

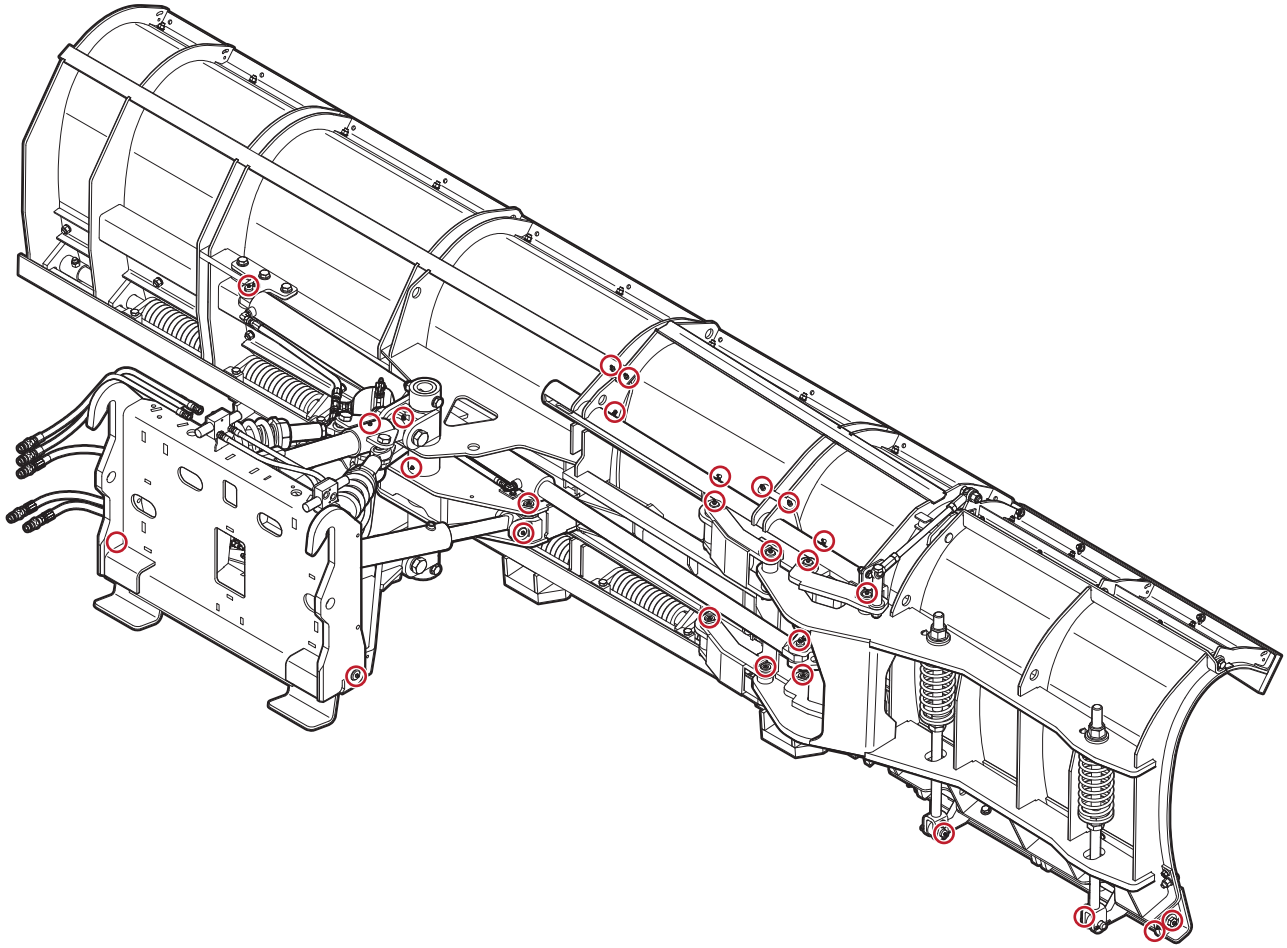
End of Season Maintenance

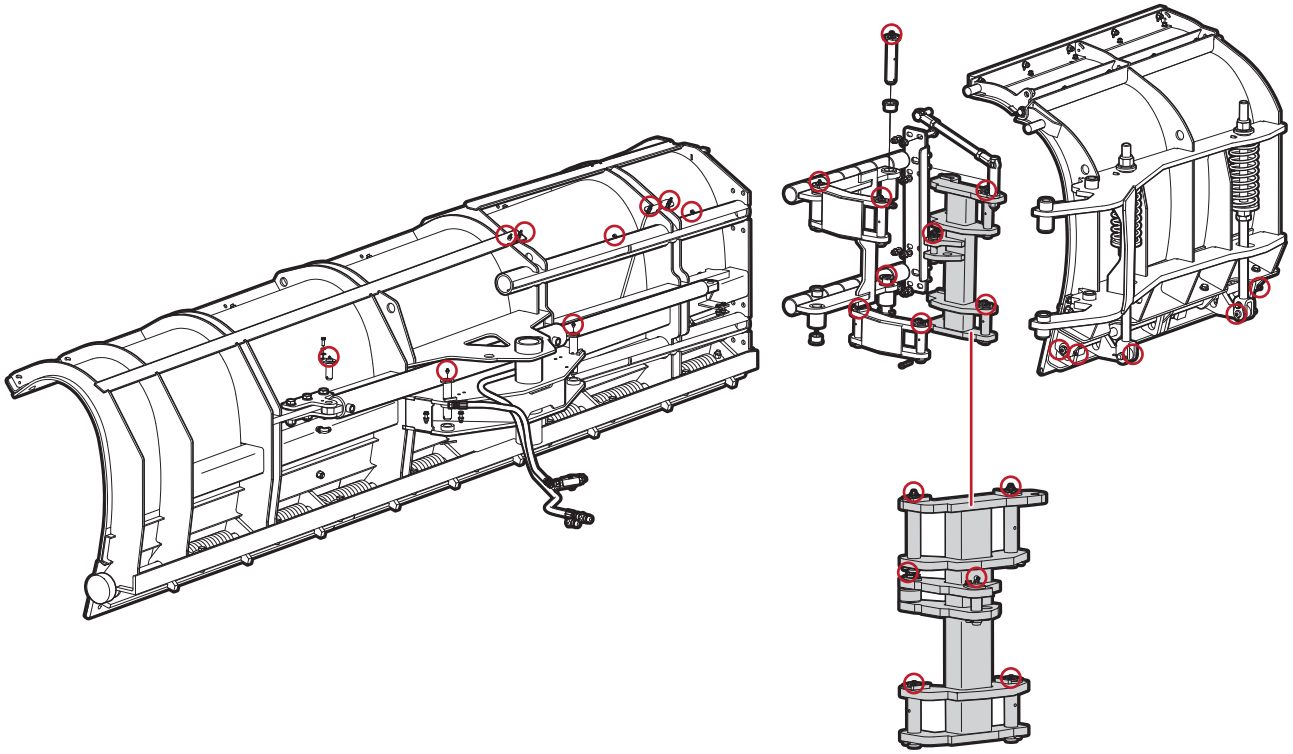
- Thoroughly lubricate all mechanical parts: bearings, pivot pins, slider mechanisms
- Inspect for loose bolts/pins and tighten/adjust as required. Replace if nescessary.
- Inspect hydraulic hoses for leaks and ensure all hydraulic fittings are tight.
- Inspect blades and moldboard & curb shoes for excessive wear. Replace if nescessary.
- Inspect for loose bolts/pins and tighten/adjust as required. Replace if nescessary.
- Inspect hydraulic hoses for leaks and ensure all hydraulic fittings are tight.
- Inspect swingarm hook bars for excessive wear.

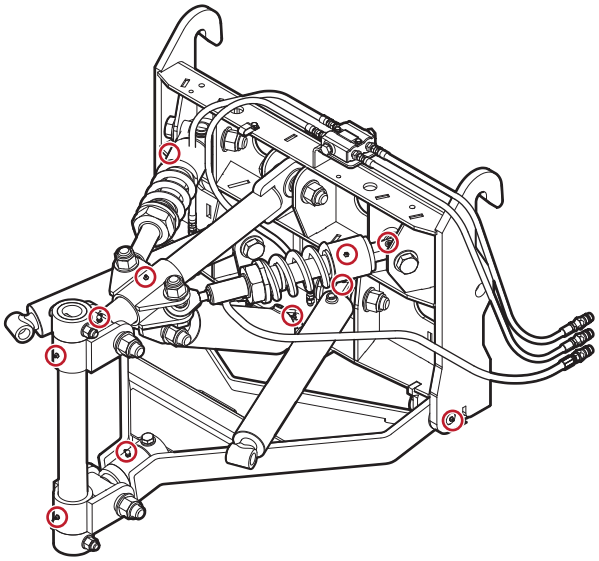
Lubrication Points

Below is a diagram of the many lubrication points on the Xplow and Parallel Lift Harness. Every moving part (hinges, pins, sliders, etc...) will have a corresponding grease port.

For optimal performance, Viking-Cives Ltd. recommends that the entire system is greased monthly.







Troubleshooting

Extension Cushion Troubleshooting

If the moldboard extension does not extend completely

Check that extension slider tubes are free of debris (stones, grit, hard packed snow, etc..)
Check that the mating ends of the main moldboard and moldboard extension are free of debris.
Check that the ectension linkage assembly is functioning properly and that there are no obstructions.

Plow Hook-up Troubleshooting

If the Parallel Lift Mounting Plate does not fully seat in the Hitch Pushplate

With the upper hooks engaged, connect the hydraulic lines and lift the plow. The weight of the the plow will force the lower mounting plate into the pushplate and line up the lock pin holes (on the mounting plate) to the lock pins on the hitch.

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