



Moose Vacuum Lifter User Manual



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1. Safety



Read and understand this manual and all safety instructions before using this product. Failure to do so can result in serious injury or death.

This document is intended for current and future operators of the Moose lifting device. This operator's manual must always be available at the operation site or with the lifter. The Moose is made to handle nonporous, inanimate products, close to the ground, and not exceeding the stated capacity of the attached vacuum pad nor the rated capacity of the lifter unit chassis.

Ensure all operators are familiar with this lifting device and all applicable health and safety rules and regulations within the local jurisdiction and associated workplace. MQUIP Group Inc. takes no responsibility for the inappropriate or negligent use of this lifting device or associated products.

The product shall only be used by personnel who have fully read and understood the contents of this user manual.

Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.

1.1. Explanation of safety warnings

DANGER

Danger indicates a hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Warning indicates a hazardous situation that, if not avoided, may result in death or serious injury.

CAUTION

Caution indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates information considered important, but not hazard related.

1.2. General safety rules



DANGER Improper use of lifting equipment can result in serious injury and death! Read all instructions carefully and use caution during each lift. These general safety rules and all safety warnings in this manual must be adhered to at all times.

- Always wear personal protective equipment that is appropriate for the material being handled and the operating site.
- Do not exceed the labeled safe working load of either the Moose frame or the attached vacuum pad.
- Remain clear of the load whenever it is elevated. Never place any part of your body underneath the load.
- Loads must be lifted in the true horizontal orientation to achieve the pad's rated horizontal capacity as marked on the vacuum pad. Ensure the load is centered and does not cause the lifter to tilt.
- Loads must be handled close to the ground.
- Do not drag loads across the ground.
- Do not lift or lower load faster than 1 m/s or 3 ft/s.
- All movements with the lifter while supporting loads should be executed with smooth and steady controls.
- Do not perform abrupt or fast movements when moving loads.
- Ensure that the vacuum lifting device is not used in explosive/hazardous environments.
- The supporting lift equipment must be rated to lift more than the sum weight of all components being lifted: the lifting unit, vacuum pad, and load.
- Load must be clear of dirt, debris, mud, water, and any other objects or substances that would impede effective sealing of the vacuum pad to the surface of the load.
- Load must be free of contaminants that may adversely affect the vacuum seal material, such as chemicals or oils.
- Operating temperature range is -20°C to 60°C (-4°F to 140°F).
- Do not submerge the Moose in water.

1.3. Alarms

This lifting device is equipped with a red warning light and an audible buzzer. These should be maintained in good working conditions at all times. They indicate whether sufficient vacuum has been achieved to lift the load rating listed on the vacuum pad. When these alarms are off and the pressure gauge needle is between -100 and -60 kPa (see below), the load is safe to lift. When these alarms are on, the load is not safe to lift.

Also refer to the pressure gauge on the lifting unit front. The gauge shows a vacuum range from -100 to 0 kPa. When the gauge needle indicates a vacuum of between -100 and -60 kPa, the load is safe to lift and the alarms should turn off. The gauge is marked with a green safe zone between -100 and -60 kPa. If the safe zone marking is not present, contact MQUIP Group and do not use the vacuum lifter.

2. Overview

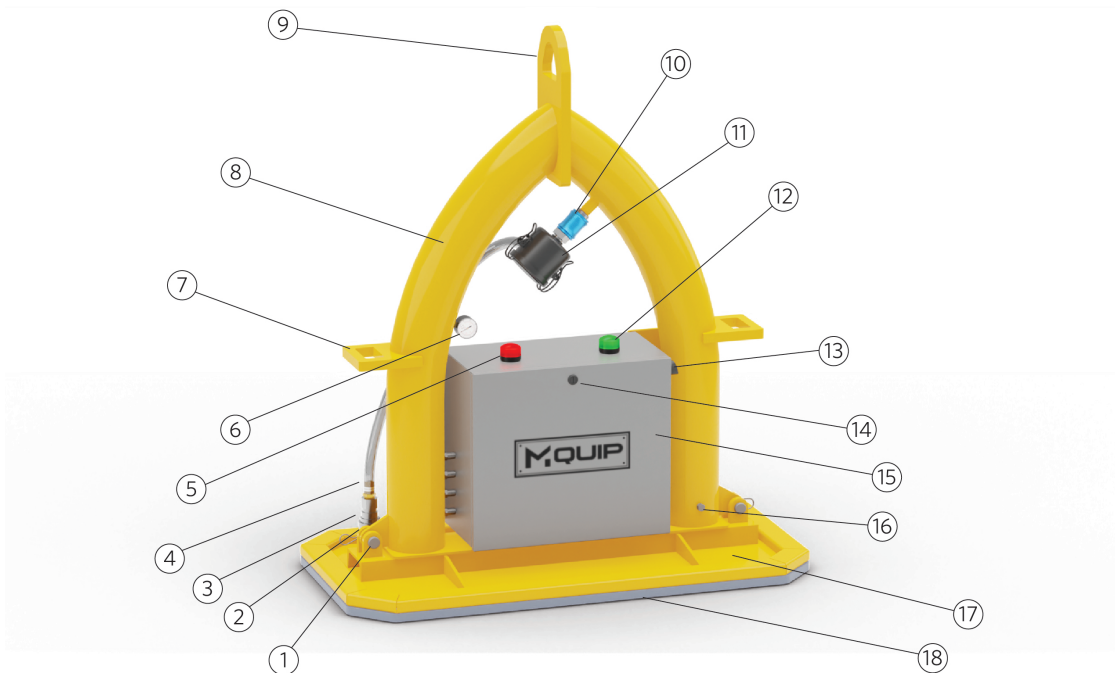
2.1. Description

The MQUIP Moose is one of many vacuum lifting devices offered by MQUIP Group. The Moose assists in moving nonporous loads up to 2,000 kg (4,400 lb), depending on the vacuum pad attached. Loads must be lifted in the horizontal orientation as shown, by properly rated lifting equipment. The Moose is powered by a 12v rechargeable batter. It also features a sealed electronics enclosure for enhanced reliability.

This document will outline how to safely use, maintain, and troubleshoot the Moose. Before operating the lifter, ensure that you and any other users have thoroughly read and understood this manual and its safety instructions.

If any part of this manual is unclear, or there is an issue with the lifting unit, please contact our support staff at (905) 315 1955.

2.2. Main components



1. Vacuum pad clevis pin & cotter pin
2. Hose plug (pad side)
3. Hose socket (lifter side)
4. Vacuum hose
5. Red LED alarm light & buzzer (not safe to lift)
6. Pressure gauge
7. Transport handles
8. Vacuum reservoir tube
9. Lift point
10. Slide valve
11. Inline air intake filter
12. Green LED indicator (safe to lift)
13. Main power switch
14. Enclosure cam lock
15. Electronics enclosure door
16. Breather vent
17. Vacuum pad seal
18. Vacuum pad (95 x 50 shown)

3. User Assembly

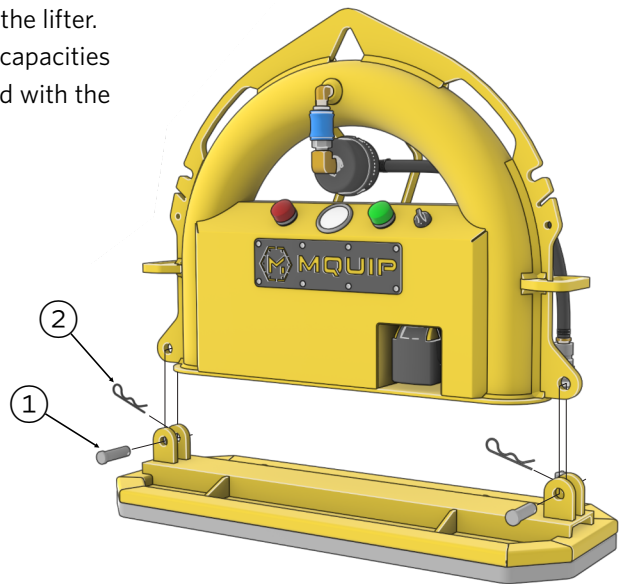
The vacuum lifter has been assembled and tested at the factory, and only minor final assembly is required.

3.1. Attaching pads

Note: Grizzly unit pictured for demonstration purposes only. Moose vacuum lifters follow the same assembly procedure.

One or more vacuum pads may have been included with the lifter. These vacuum pads are available in a range of sizes and capacities for different lifting applications. To connect a vacuum pad with the Moose lifter unit:

1. Remove the clevis pins ① located towards the bottom of the lifter by removing the two hairpin cotter pins ② which secure the clevis pins in place.
2. Use the transport handles to lower the lifter unit onto a vacuum pad.
3. Line up the holes and insert the clevis pins, then secure these with the hairpin cotter pins.
4. Connect the vacuum hose socket to the pad hose plug.



To disconnect a pad from the lifter unit, follow the above steps in reverse.

CAUTION Never attempt to connect or disconnect a vacuum pad or battery when a load is being lifted or when the lifter is suspended. Always change vacuum pads or battery packs with the lifter and pad placed on the ground.

WARNING Do not exceed the load capacity marked on the vacuum pad. Do not install or use a vacuum pad with missing lifting capacity markings!

4. Operating Instructions

4.1. Lifting

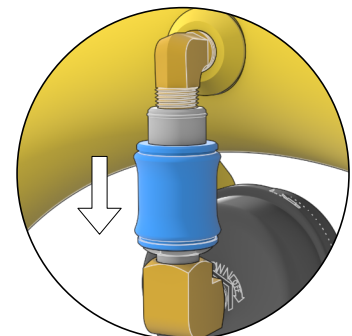
1. Ensure the slide valve is closed by sliding it upwards away from the vacuum pad. Check that the vacuum pad is securely connected to the lifter with clevis and hairpin cotter pins, and that the vacuum hose socket is properly connected to the plug on the vacuum pad. Perform the “each lift” inspections (and others when appropriate) listed in section 5.2, Inspection.
2. Power on the lifter by turning on the main power switch.
3. The vacuum pump will run, creating a vacuum in the reservoir. The red LED alarm light will turn on and the buzzer will sound at this time indicating it is not safe to lift.

WARNING If the alarm light and buzzer do not initially turn on, do not use the lifter. Contact MQUIP Group for repair or replacement.

4. When the internal pressure switch detects the vacuum has reached -60 kPa, the red alarm light and buzzer will turn off, and the green light will turn on. The vacuum pump may cycle to maintain a safe vacuum.
5. Prepare the load for lifting. Ensure the lifting surface is clean, dry, nonporous, and flat. Double check that the load is within the capacity of the attached vacuum pad and any supporting equipment.

WARNING Do not exceed the load capacity marked on the vacuum pad. The supporting lift equipment must be rated to lift more than the sum weight of all components being lifted: the lifting unit, vacuum pad, and load.

6. Lower the lifter onto the load, ensuring that the entirety of the vacuum seal sits completely on the lifting surface. Also ensure that the load is centered so it does not tilt the lifter when suspended.
7. Open the slide valve by sliding it downwards towards the vacuum pad. The vacuum pump will run to pull a vacuum through the pad, compressing the pad seal. The red alarm light and buzzer may turn on while the pump works to maintain the vacuum.
8. When sufficient vacuum has been reached, the red alarm light and buzzer will turn off, the green light will turn on, and the pressure gauge needle will be inside the green safe zone. The pump may run periodically to maintain the vacuum and stay in the safe vacuum range for lifting.



Slide down to collect load.

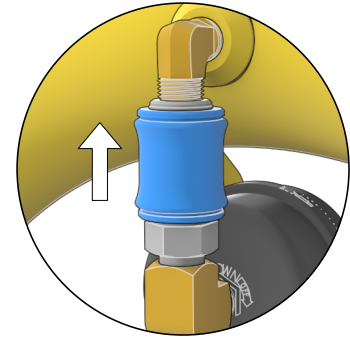
WARNING If the alarm light and/or buzzer remain on, or the pressure gauge needle is not in the green safe zone, do not attempt to lift. Make sure the battery is charged and the lifting surface is clean and nonporous. See section 6, Troubleshooting.

9. If the load is somewhat porous, the vacuum pump may run continuously. If the alarm light and buzzer turn off and the pressure gauge indicates that the vacuum level is in the green safe zone, but the vacuum pump runs continuously, the load may be lifted only low to the ground (within 2 feet). If a fault occurs in this situation,

there is very limited time to lower the load before the vacuum is lost.

⚠ WARNING It is critical to be mindful of the pressure gauge and alarm conditions. If the alarm light or buzzer activate, or the pressure gauge needle leaves the green safe zone, carefully but quickly lower the load to the ground and determine the reason for the loss of vacuum.

10. Position and lower the load, checking that slack exists in the lifting line when the load is fully seated. Pull the slide valve upwards away from the vacuum pad to close the reservoir-pad vacuum connection and release the pad's grip on the load.



Slide up to release load.

⚠ WARNING Never adjust the slide valve while a load is suspended. Vacuum will be lost and the load will be released. Protect the slide valve from snagging, dropped items, or other hazards.

5. Maintenance

5.1. Components

Vacuum pump

The pump should be virtually maintenance-free. If the vacuum pump takes an abnormally long time to reach optimal vacuum, check that all filters are clean and do not need replacement, and ensure all air tubes are properly fitted and sealed. Contact MQUIP Group for repair or replacement if it is suspected that the pump is leaking internally.

Chassis

The chassis is built to handle a maximum capacity of up to 2,000 kg or 4,400 lb with the proper vacuum pad attached. A visual inspection should be sufficient to see if any damage has occurred. Check for wear on lift points, dents in the reservoir tube, and degradation of enclosure seals. If maintenance is required, contact MQUIP Group.

Battery

Charge all batteries with the supplied charger. If a battery does not hold a charge, contact MQUIP Group for replacement.

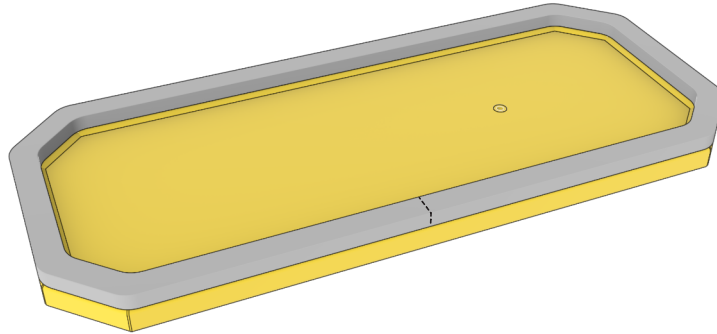
⚠ WARNING If a battery pack does not hold a charge, contact MQUIP Group for replacement.

Vacuum pads

Check the vacuum pad and seals condition at the beginning of every work shift. If any cut or damage is present on the seal, do not use the lifter, and replace the seal immediately. The seal is inexpensive and can be easily removed

from the vacuum pad. The steel pad does not need to be replaced unless it has sustained damage.

To replace the seal, use a flat blunt tool to force the seal into the slot on the underside of the pad. Ensure the ends meet at the center of a pad edge (shown below) and not at a corner, and glue the ends together to form a continuous airtight seal.



5.2. Inspection



WARNING

For safe operation of the lifter, it is critical that these inspections are performed. Conduct inspections at the following intervals:

Each lift

- Visually inspect the lifter for damage to the chassis or pad.
- Ensure the battery is sufficiently charged.
- Check that the vacuum seal is not compromised.
- Ensure that alarms and gauges are fully operational.
- Ensure that the pump sounds strong and maintains vacuum on the material to be lifted.

Daily checks

- Ensure that the battery is sufficiently charged for the work to be performed.
- Examine the lifter, all pads, and connection points for any evidence of looseness, excessive wear, deformation, cracks, corrosion, dents to structure, or damage to functional components which may have occurred during use or transport.
- Check for damage to air hose and inline components. If found, contact MQUIP Group for repair or replacement.
- Check for water or debris inside the enclosure. If found, fully dry and clean all components. Check for gaps in the enclosure seal and repair.
- Before first lift, test the lifter on the ground with the material to be used and ensure a proper seal is made and a safe level of vacuum is produced.

Weekly checks

- Drain reservoir of moisture through the reservoir drain plug on the rear of the lifter.

- If the lifter has been used in a dusty environment for a prolonged period, replace the filter.
- Lubricate the side valve if needed.
- Check that pressure switches are actuating the pump and alarms at proper set points. Contact MQUIP Group for adjustment if errors are found.

Annual checks

If the lifter is not used for over a year, these checks should be conducted by a certified technician. Contact MQUIP Group for details.

- Check wear on all lift points. If significant wear, or any bending or damage is found, the unit should be replaced.
- Visually inspect the vacuum pads and seals for cracks, corrosion, degradation, and excessive wear.
- Vacuum test the unit and ensure it maintains a proper working vacuum level.
- Check that the high and low pressure sensors are properly activating the pump and alarms.
- Check the vacuum pump, air hose, and fittings for leaks.
- If batteries do not maintain a charge, or have sustained damage or corrosion, dispose of them properly (see section 8, Battery disposal) and replace.
- Conduct a load test by suspending a load low to the ground and check for any other issues.

5.3. Travel & storage

To transport the product safely:

1. Make sure that the lifting device is switched off. Clean the lifter if needed.
2. With 2 people, use the side transport handles to lift the device.
3. If placed in a vehicle, properly tie down the lifter and secure any handles, if fitted.

If the lifter will not be used for a long period, store in a dry, temperature-controlled area. Perform the inspection checks above before returning to use.

6. Troubleshooting



WARNING

When troubleshooting issues, ensure the lifter is safely lowered. If the enclosure needs to be opened, switch off the lifter and remove the battery.

Issue	Possible cause	Solution
Pump does not turn on.	Switch not turned on.	Ensure the switch is turned on.
	Battery not charged.	Check the battery charge level and swap for a charged battery pack.
	Tripped breaker.	Reset breaker inside electrical enclosure.
	Loose wire, damaged connection or components.	Inspect cabinet. Contact MQUIP Group for repairs.
Lifter is not reaching or maintaining -60 kPa for a safe lift.	Load is too porous.	Check the lifter on a completely nonporous surface, like a steel plate. Do not lift loads that are too porous. A turbine lifter may be required, contact MQUIP Group for recommendations.
	Pad is partially off the load, creating an opening.	Ensure the seal is properly positioned over the lifting surface.
	Roughness or irregularities on the lifting surface are causing leaks.	Lightly pressing down on the lifter may help form a complete seal. Do not lift loads that are too irregular to form a complete seal.
	Dust, dirt, debris, liquids, or other materials prevent a proper seal.	Clean the lifting surface well before lifting.
	The vacuum seal is cracked, split, or drying.	Replace the seal. See section 5.1, Components, Vacuum pads.
	The inline air intake filter is plugged, preventing effective airflow.	Replace or clean the filter.
	The pad connection hose socket and plug are not fully engaged, causing a leak.	Ensure the connection is clean and properly seated.
	The battery is not charged.	Charge the battery and replace if needed.
	The pump turns off too early.	The pressure switches may be incorrectly set. Contact MQUIP Group for recalibration.
	Water in the air system is causing blockages.	Drain the reservoir through the reservoir plugs at the bottom of the lifter.

7. Warranty

The MOOSE vacuum lifter is covered by a 1 year limited warranty on workmanship and quality. Items not covered by the warranty include consumables such as the vacuum pad seals, filters, and any damage through the neglectful or improper use of the vacuum lifter.

The warranty will be voided if the product is not operated, serviced, and inspected according to this manual. Repairs under warranty may only be carried out by qualified personnel after consulting MQUIP Group. Any modifications to the product or the use of non-original parts will void the warranty.

8. Battery disposal

The product contains a lead-acid battery. Batteries may not be disposed of with domestic waste. They may contain toxic heavy metals and are subject to hazardous waste regulations. To dispose of the battery, please contact your local battery recycling depot for environmentally safe disposal.

9. Product & order information

Standards: ASME B30.20 using ULC/CSA approved components.

Harmonized code: 8428.90

Made in Canada with domestic and imported parts.

Self weight, lifter only (without pad: 130 lb

Information	Value
Model	Moose
Serial number	
Date of construction	

Vacuum pads

Vacuum pad	Size		Lifting capacity at -60 kPa		Self weight		Included
	cm	in	kg	lb	kg	lb	
60/45	60 x 45	24 x 17	435	960	36	80	
95/30	95 x 30	37½ x 12	453	1000	34	75	
95/35	95 x 35	37½ x 13¾	498	1100	36	80	
95/50	95 x 50	37½ x 19¾	839	1850	45	100	
95/75	95 x 75	37½ x 29½	1360	3000	52	115	
100/100	100 x 100	39¾ x 39¾	1995	4400	68	150	

10. Document revisions

Revision	Date	Description
1	Dec 12, 2022	Initial publication.