

**KEEP FOR FUTURE REFERENCE**



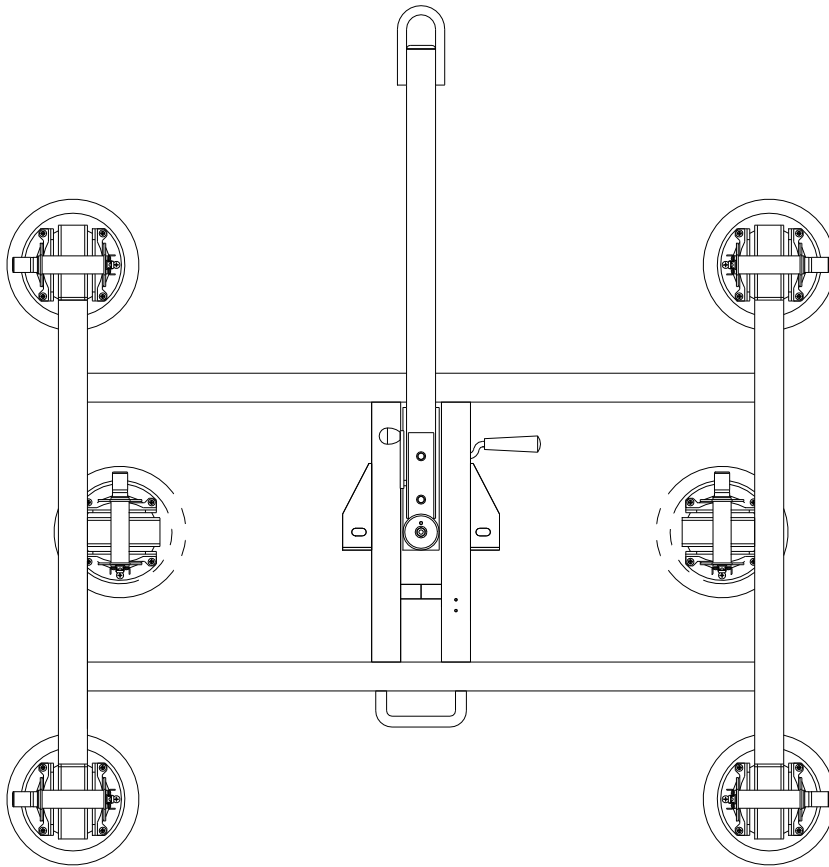
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# INSTRUCTIONS

International Version

MODEL NUMBERS: HFH6000, HFV6000

SERIAL NUMBER: \_\_\_\_\_  
(please see serial label and record number here)



**ROTATE AND TILT  
HAND CUP FRAME**



***READ ALL INSTRUCTIONS AND WARNINGS  
BEFORE OPERATING THIS LIFTER***



**DESIGNED FOR THE MATERIALS HANDLING PROFESSIONAL**



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# SPECIFICATIONS

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<b>Description:</b>	Designed for use with a crane or other hoisting equipment, HF Series lifters support loads using vacuum and manipulate loads using manual 180° rotation and 90° tilt motions.	
<b>Model Numbers:</b>	HFH6000	HFV6000
<b>Maximum Load Capacity:</b>	----- (rated on clean, smooth, nonporous flat surfaces <sup>1</sup> ) -----	
<b>Per-Pad:</b>		
With 8" [20 cm] pads:	90 lbs [40 kg]	90 lbs [40 kg]
With 9" [23 cm] pads:	110 lbs [50 kg]	110 lbs [50 kg]
With 11" [28 cm] pads:	150 lbs [68 kg]	150 lbs [68 kg]
<b>Total:</b>		
With 8" [20 cm] pads:	540 lbs [245 kg]	540 lbs [245 kg]
With 9" [23 cm] pads:	660 lbs [299 kg]	660 lbs [299 kg]
With 11" [28 cm] pads:	700 lbs [320 kg]	700 lbs [320 kg]
<b>Pad Spread:</b>	----- (to outer edges) -----	
With 8" [20 cm] pads:	45" x 56" [115 cm x 142 cm]	56" x 45" [142 cm x 115 cm]
With 9" [23 cm] pads:	46¼" x 57¼" [117 cm x 145 cm]	57¼" x 46¼" [145 cm x 117 cm]
With 11" [28 cm] pads:	49" x 60" [124 cm x 152 cm]	60" x 49" [152 cm x 124 cm]
<b>Lifter Weight:</b>	75 lbs [34 kg]	
<b>Rotation Capability:</b>	Manual, 180°, with automatic locking at each ¼ revolution (when desired)	
<b>Tilt Capability:</b>	Manual, 90°, with automatic locking in vertical position	
<b>Operating Elevation:</b>	Red-line vacuum indicator on hand cups may not perform reliably above 5000 ft [1524 m]; contact WPG or an authorized dealer for assistance before using the lifter at such elevations.	
<b>Operating Temperatures:</b>	10° to 120° F [-12° to 49° C]	
<b>Service Life:</b>	This lifter is designed to have a service life of 20,000 lifting cycles, when used and maintained as intended. Vacuum pads and other wear-out items are excluded; see MAINTENANCE and REPLACEMENT PARTS LIST for more information. For the DISPOSAL OF THE LIFTER after its service life, see INTENDED USE.	
<b>ASME Standard BTH-1:</b>	Design Category "B", Service Class "0" (see <a href="http://www.wpg.com">www.wpg.com</a> for more information)	

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**!!-CE-!!** Note: This symbol appears in the *INSTRUCTIONS* manual only when requirements of a CE Standard are *different* from requirements of other standards that also apply to this vacuum lifter. CE requirements are mandatory in geographical areas where CE Standards apply, but may be optional in other locations.

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<sup>1</sup> Load Capacity is based on a friction coefficient of 1; see MAINTENANCE: VACUUM PAD MAINTENANCE: Friction Coefficient for additional information.

# WARNINGS

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Powr-Grip is pleased to offer the most reliable vacuum lifters available. Despite the high degree of security provided by this product, certain precautions must be observed to protect the operator and others.



**Always** wear personal protective equipment that is appropriate for the material being handled. Follow trade association guidelines.

**Always** operate the lifter under conditions approved for its design (see INTENDED USE: OPERATING ENVIRONMENT).

**Never** operate a lifter that is damaged, malfunctioning, or missing parts.

**Never** operate a lifter if the sealing edge of any vacuum pad is cut or otherwise damaged.

**Never** remove or obscure warning labels.

**Never** operate a lifter if the Maximum Load Capacity or any warning appears to be missing or obscured.

**Always** make certain the contact surfaces of the load and all vacuum pads are clean prior to attaching the pads (see MAINTENANCE: VACUUM PAD MAINTENANCE).

**Never** exceed the Maximum Load Capacity or attempt to lift loads that the lifter is not designed for (see INTENDED USE: LOAD CHARACTERISTICS).

**Never** attempt to lift cracked or broken glass with this lifter.

**Always** position the vacuum pads correctly on the load prior to lifting (see OPERATION: To ATTACH THE PADS TO A LOAD).

**Never** lift a load when any vacuum indicator shows inadequate vacuum.

**Never** touch the vacuum release controls during a lift. This may result in loss of vacuum and release of the load.

**Never** allow people to ride on the lifter or the load being lifted.

**Never** lift a load higher than necessary or leave suspended loads unattended.

**Never** lift a load over people.

**Always** keep other personnel far enough away from the lifter to avoid injury in the event of an unexpected load release.

**Always** place the power control in the inactive position and, when possible, disconnect the power source before opening any enclosure on the lifter. (Only applicable to powered lifters)

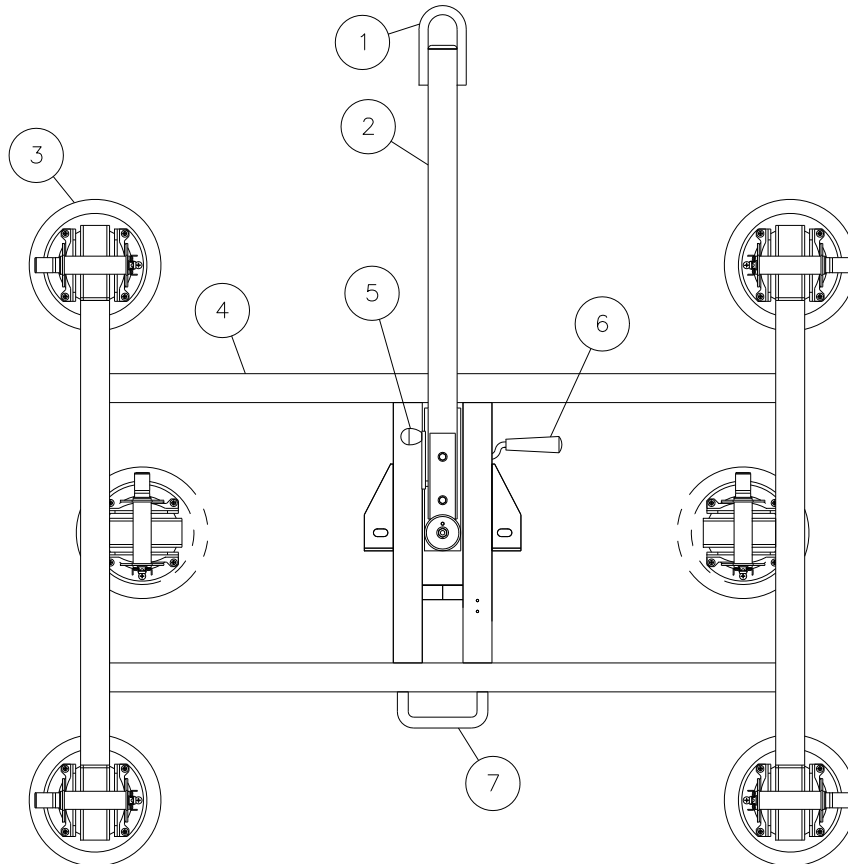
**Always** remember that modifications to the lifter could compromise its safety. Wood's Powr-Grip cannot be responsible for the safety of a lifter that has been modified by others. For consultation, contact Wood's Powr-Grip (see LIMITED WARRANTY).

**Never** disengage both the rotation latch and the tilt latch at the same time.

**Always** apply the lifter to surfaces which are clean, relatively smooth and nonporous. The lifter is not designed for use on other surfaces.

# OPERATING FEATURES

Note: Components featured in the following instructions for assembling, operating or maintaining the vacuum lifter are underlined> on their first appearance in each section.



Standard HFH6000 shown.

- |             |                            |                      |
|-------------|----------------------------|----------------------|
| 1 LIFT BAIL | 3 HAND CUP with VACUUM PAD | 6 TILT RELEASE LEVER |
| 2 LIFT BAR  | 4 PAD FRAME                | 7 CONTROL HANDLE     |
|             | 5 ROTATION RELEASE LEVER   |                      |

# ASSEMBLY

- 1) Open the shipping container and remove all materials for restraining or protecting the vacuum lifter during shipping. Save the container for use whenever the lifter is transported.
- 2) Suspend the lifter from a crane as follows: Select hoisting equipment (crane and hoist, when applicable) rated to carry the maximum load weight plus the lifter weight (see SPECIFICATIONS: Load Capacity and Lifter Weight).

Note: Any application of the lifter must conform to all statutory or regulatory standards that relate to the hoisting equipment when used in its geographical location (eg, relevant OSHA standards in the USA).

**⚠ WARNING: Hoisting equipment hook must be fitted with restraining latch to prevent lift bail from slipping off under any circumstances.**

Tilt the lifter upward enough for the lift bar to move freely, without interference from the shipping container. Swing the lift bar to the center position of the 180° rotation range, where it latches in position automatically.

Disengage the tilt latch (see OPERATION: TO TILT THE LOAD) and raise the lift bar to a vertical orientation. Then attach the hoisting equipment hook to the lift bail.

Note: Some hoisting equipment hooks could interfere with an upright load that extends beyond the lifter's pad frame. If the load would contact the hook during lifter operation, the operator must prevent this by attaching a sling (or other rigging that does not interfere with the load) between the hook and the lift bail.

**⚠ WARNING: Any sling used must be rated to carry maximum load weight plus lifter weight.**

Use the hoisting equipment to raise the lifter out of the shipping container.

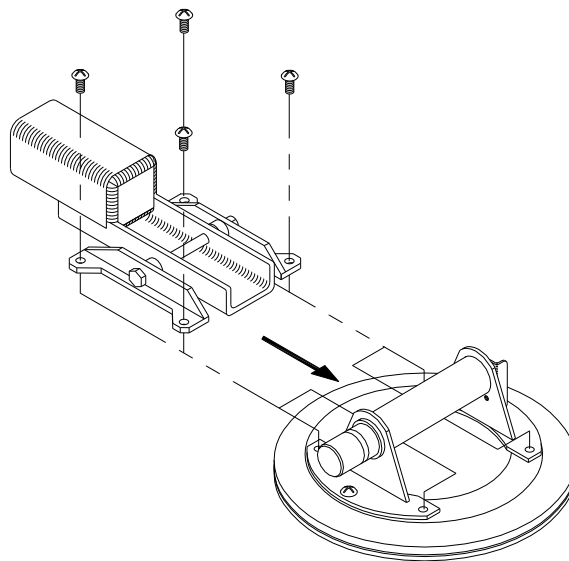
- 3) Attach each Powr-Grip model N5450 hand cup to the pad frame, as follows (see illustration):<sup>2</sup>

Remove the four screws from the corners of the hand cup's handle base.

Slide the hand cup over the mount on the pad frame.

Insert the 1/4-20 x 5/8" screws (provided) through the mount and into the hand cup; then tighten the screws securely. Now the lifter is operational.

- 4) Perform Operational and Load Tests for the lifter as directed in MAINTENANCE: TESTING SCHEDULE.



<sup>2</sup> Other hand cups may reduce load capacity or be incompatible.



# INTENDED USE

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## LOAD CHARACTERISTICS

 **WARNING: This lifter is NOT intended for lifting hazardous materials, such as explosives or radioactive substances.**

The operator must verify that the lifter is intended to handle each load, in accordance with the following requirements:

- The load must not exceed the maximum allowable weight specified under Load Capacity (see SPECIFICATIONS).

 **WARNING: Do not attempt to lift rough or porous materials.**

- The load must be a single piece of nonporous material with a flat and relatively smooth contact surface.<sup>3</sup> Do not attempt to lift rough or porous materials, such as unfinished wood or rough-cut stone. To determine whether a load is porous or too rough, first perform the VACUUM TEST as directed under MAINTENANCE. Once you have determined that the hand cups are capable of maintaining vacuum on smooth, nonporous materials, perform the same test on the load in question. If the hand cups' red-line vacuum indicators do not remain hidden, the load does not possess the characteristics required for using this lifter.
- The load's contact surface must be suitable for obtaining a friction coefficient of 1 with the lifter's vacuum pads (see MAINTENANCE: VACUUM PAD MAINTENANCE: Friction Coefficient), as verified by a friction test, or capacity should be derated appropriately. If necessary, contact Wood's Powr-Grip for help in conducting a friction test.
- In order to avoid damaging the vacuum pads, the load's surface temperature must not exceed the allowable Operating Temperatures (see SPECIFICATIONS). However, if such an application cannot be avoided, Wood's Powr-Grip does offer a heat-resistant rubber compound and other solutions that may enable you to lift loads with higher surface temperatures. Contact Wood's Powr-Grip or an authorized dealer for more information.
- While the *minimum* length and width of the load are determined by the Pad Spread (see SPECIFICATIONS), the *maximum* length and width are determined by the allowable overhang, or the amount of load material that can extend sideways beyond the vacuum pads without breaking or otherwise being damaged.

The allowable overhang depends on the kind of load material being lifted, the thickness of the material, and the angle at which it is handled (if any). Since materials such as glass, stone or sheet metal each have different physical properties, the allowable overhang must be evaluated separately for each type of load. If necessary, contact Wood's Powr-Grip or an authorized dealer for help in determining the recommended overhang in a specific situation.

- 1" [2.5 cm] is the maximum allowable thickness of loads at the maximum weight (see SPECIFICATIONS: Load Capacity). However, allowable thickness increases as load weight

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<sup>3</sup> Lifters that feature concave vacuum pads can also attach to some kinds of curved loads. Since curvature affects the lifting capacity, contact Wood's Powr-Grip for help in determining the Load Capacity for a particular curved load.

decreases. If necessary, contact Wood's Powr-Grip for help in determining the maximum thickness permitted when handling any specific load.

Note: Vacuum pads can stain or deform load surfaces with light colors or soft coatings. The operator should test such surfaces for detrimental effects before using the lifter on them.

## OPERATING ENVIRONMENT

The operator must determine whether the lifter is intended to be used in each work environment, in accordance with the following restrictions:

 **WARNING: Never use lifter in dangerous environments.**

- This lifter is not intended for use in any environment that is inherently dangerous to the operator or likely to compromise the lifter's ability to function. Environments containing explosives, caustic chemicals and other dangerous substances must be avoided when using the lifter.
- The lifter's work environment is limited by the Operating Elevation and Operating Temperatures indicated in SPECIFICATIONS.
- Using the lifter in wet environments may require the operator to take special precautions: Moisture on contact surfaces of the load or vacuum pads diminishes the lifter's slip resistance, thereby reducing the lifting capacity (see MAINTENANCE: VACUUM PAD MAINTENANCE: Friction Coefficient).

 **WARNING: Moisture reduces slip resistance of vacuum pads.**

Although the lifter's exterior surfaces can tolerate some exposure to water vapor, they are not designed to be watertight. Submerging the lifter or using it in rain may damage lifter components; these and similar conditions must be avoided.

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- **!!-CE-!!** If the lifter is employed in a construction area, CE Standard EN 13155 requires the use of a secondary positive holding device, such as a sling system, designed to support the load in case of a vacuum failure.

 **WARNING: Where CE Standards apply, secondary positive holding device is required for lifting loads in construction zones.**

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## DISPOSAL OF THE LIFTER

After the vacuum lifter has reached the end of its service life, you must dispose of the lifter in compliance with all local codes and regulatory standards that are relevant for the geographical region.

# OPERATION

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## BEFORE USING THE LIFTER

The operator must determine whether the lifter is capable of performing each intended task, in accordance with the SPECIFICATIONS and INTENDED USE sections of this *INSTRUCTIONS* manual. In addition, all of the following preparations must be completed prior to lifting any load.

### Taking Safety Precautions

The operator must be trained in all relevant industry and regulatory standards for the operation of the vacuum lifter in its geographical location (eg, ASME B30.20 in the USA).

The operator must read and understand this *INSTRUCTIONS* manual, including all **WARNINGS**, before using the lifter. If necessary, contact Wood's Powr-Grip or an authorized dealer for assistance.

 **WARNING: Always wear appropriate personal protective equipment.**

The operator must wear any personal protective equipment and take any other precautions required to handle the load safely. Consult appropriate trade association guidelines to determine what precautions are necessary for each type of load material.

### Performing Inspections and Tests

Perform all inspections and tests required by the INSPECTION and TESTING SCHEDULES (see MAINTENANCE). In addition, if the lifter has been in storage, always conduct a VACUUM TEST before placing it in service (see MAINTENANCE).

## TO APPLY THE PADS TO A LOAD

### Positioning the Lifter on the Load

Make certain that the contact surfaces of the load and all vacuum pads are free of any contaminants that could prevent the pads from sealing against the load (see MAINTENANCE: VACUUM PAD MAINTENANCE).

Center the lifter's pad frame to within 2" [5 cm] of the load center, since off-center loading can cause the load to rotate or tilt unexpectedly (see TO ROTATE THE LOAD EDGEWISE or TO TILT THE LOAD to follow), and it may also damage the lifter.<sup>4</sup> Make sure that all vacuum pads will fit entirely on the load's contact surface (see SPECIFICATIONS: Pad Spread) and that they will be loaded evenly while lifting (see SPECIFICATIONS: Per-Pad Load Capacity). Then apply the lifter to the load so that the pads are touching the contact surface.

### Sealing the Pads against the Load

Make certain the entire sealing edge of each vacuum pad is contacting the load surface. Then pump the plunger of each hand cup until the red-line stays hidden, indicating that the pad is securely attached (see TO LIFT AND MOVE THE LOAD: About Red-Line Indicators to follow).

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<sup>4</sup> The lifter is designed to handle the maximum load weight (see SPECIFICATIONS: Load Capacity) when the load's center of gravity is positioned within 2" [5 cm] of the pad frame's center point. Occasional loading deviations are permissible, provided that the operator can maintain control of the load at all times and that the load weight is low enough to avoid damaging the lifter.

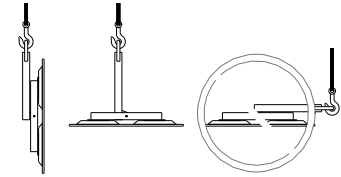
Note: If a vacuum pad has been lying against a hard object (as during shipping), it may be slightly distorted. Although initially it may be difficult to apply the pad to a load, this condition should correct itself with continued use.

## TO LIFT AND MOVE THE LOAD

### Positioning the Lift Bar

**⚠ WARNING: Lift bar must be oriented vertically to lift load.**

Never lift the load from a flat position with the lift bar latched parallel to the load. Always disengage the tilt latch (see TO TILT THE LOAD to follow) and raise the lift bar to a vertical orientation before attempting to lift.



### About Red-Line Indicators

Each hand cup is equipped with a red-line vacuum indicator. When the red-line indicators are hidden on all the hand cups, the lifter is ready to lift the load.

**⚠ WARNING: Never attempt to lift load when any red-line indicator is visible.**

Do not attempt to lift a load while any red-line indicator is visible; such an attempt could result in a load release and possible injury to the operator.

### Monitoring Vacuum Indicators

All hand cups must remain visible to the operator, so that the red-line vacuum indicators can be monitored throughout the entire lift. If any of the hand cups experiences leakage, its red-line indicator becomes visible, to signal the reduction in vacuum to the operator.

**⚠ WARNING: Monitor red-line indicators throughout entire lift; never leave suspended loads unattended.**

Check all red-line indicators frequently to make sure the vacuum pads are attached securely. If a red-line indicator becomes visible while you are lifting a load, move away and stay clear of the load until it can be lowered to the ground or a stable support.

**⚠ WARNING: Stay clear of suspended load while any red-line indicator is visible.**

Discontinue lifter use until the cause of the vacuum loss can be determined. If it is caused by contamination, thoroughly clean the contact surfaces of the load and the vacuum pads (see MAINTENANCE: VACUUM PAD MAINTENANCE: Cleaning), and reapply the lifter to the load. If a red-line indicator remains visible when the lifter is attached to clean, smooth, nonporous materials, the hand cup requires service or repair. Inspect the vacuum pad for damage (see MAINTENANCE: VACUUM PAD MAINTENANCE: Inspection) and consult the hand cup instructions for service directions. Perform inspection and maintenance as needed to identify and correct any deficiency before resuming normal operation of the lifter.

### Controlling the Lifter and Load

When the red-line vacuum indicators show that the lifter is ready, use the hoisting equipment to raise the lifter and load as needed to clear any obstacles in their path. Use the control handle and/or the hand cup handles to keep the lifter and load in the desired orientation while they are suspended from the crane. Once sufficient clearance is established, the load can be rotated or tilted as desired (see TO ROTATE THE LOAD EDGEWISE or TO TILT THE LOAD to follow).

## TO ROTATE THE LOAD EDGEWISE

**⚠ WARNING: Never disengage both the rotation latch and the tilt latch at the same time.**

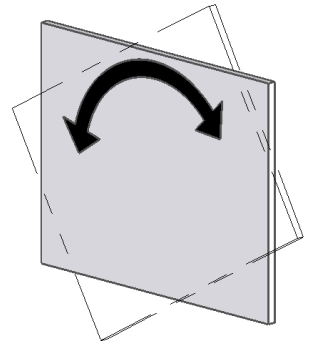
This lifter is not designed for rotation and tilt functions to be used at the same time. Disengaging the rotation and tilt latches simultaneously could cause uncontrolled and unpredictable load movement, potentially resulting in load damage or injury to the operator.

**CAUTION: Rotation function only works when pad frame is latched in vertical orientation.**

Make sure the pad frame is latched in the vertical position of the tilt range (see TO TILT THE LOAD to follow), as shown in the OPERATING FEATURES illustration, because the rotation function is not designed to work in any other position.

**⚠ WARNING: Make sure load is positioned correctly on lifter (see To APPLY); unbalanced loads may rotate unexpectedly when latch is disengaged.**

Remember that the load is longer in its diagonal dimensions than in its side dimensions. Make sure there is sufficient clearance for the load to rotate without contacting the operator or any nearby objects. Maintain a firm grip on one control handle to keep the load under control at all times. Pull the rotation release lever to disengage the rotation latch, and rotate the load to the desired position. To stop the load's motion automatically at each quarter turn, simply let go of the rotation release lever immediately after initiating the rotation, so that the rotation latch engages at the next stop. Whenever rotation is not required, keep the rotation latch engaged, to prevent accidental damage to the load and possible injury to the operator.



## TO TILT THE LOAD

**⚠ WARNING:** *Never disengage both the rotation latch and the tilt latch at the same time.*

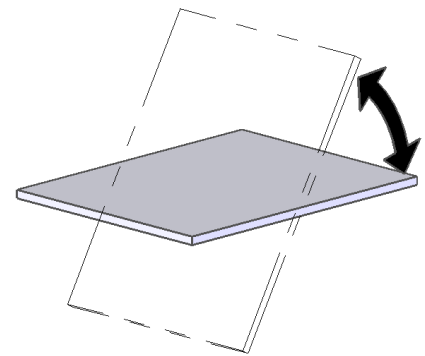
This lifter is not designed for rotation and tilt functions to be used at the same time. Disengaging the rotation and tilt latches simultaneously could cause uncontrolled and unpredictable load movement, potentially resulting in load damage or injury to the operator.

**CAUTION:** *Tilt function only works when pad frame is latched in center position of rotation range.*

Make sure the pad frame is latched in the center position of the rotation range (see TO ROTATE THE LOAD EDGEWISE preceding), as shown in the OPERATING FEATURES illustration, because the tilt function is not designed to work in any other position.

**⚠ WARNING:** *Make sure load is positioned correctly on lifter (see TO APPLY); unbalanced loads may tilt unexpectedly when latch is disengaged.*

Remember that the load requires more vertical space when tilted to the upright position, as well as more horizontal space when tilted to the flat position. Make sure there is sufficient clearance for the load to tilt without contacting the operator or any nearby objects. Maintain a firm grip on one control handle to keep the load under control at all times. If the pad frame is latched in the vertical position, pull the tilt release lever to disengage the tilt latch, and prepare for a slight surge of motion as the load begins to tilt. If load size permits, maintain control with the handle throughout the tilt. For loads with overhang, it may be necessary to release the control handle as the load approaches the flat position. If so, keep the load under control using hand cups or other appropriate means. The pad frame automatically latches in place when it returns to the vertical position.



## TO RELEASE THE PADS FROM THE LOAD

**⚠ WARNING:** *Load must be fully supported before releasing vacuum pads.*

When the load is at rest and fully supported, press the valve release lever (located opposite the plunger) on each hand cup until all the vacuum pads disengage completely from the load.

## AFTER USING THE LIFTER

Use the hoisting equipment to gently lower the lifter onto a stable support; then detach the hoisting equipment hook from the lift bail.

**CAUTION:** *Do not set the lifter against any surfaces which could soil or damage the vacuum pads.*

If the lifter is transported to another location, use the original shipping container and secure the lifter so as to protect the vacuum pads and all other components from damage while in transit.



# MAINTENANCE

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## HAND CUP MAINTENANCE

Refer to the instructions accompanying individual hand cups for information about Inspection, Cleaning, Service and Replacement Parts.

## INSPECTION SCHEDULE

Perform inspections routinely, according to the following frequency schedule:

### Every-Lift Inspection

- Examine the vacuum pads and load surface for contamination or debris.
- Examine the vacuum pads, controls and indicators for visual damage.

If any deficiency is detected during the inspection, correct it before using the lifter and perform the Frequent Inspection to follow.

### Frequent Inspection

*(following every 20-40 hours' use; or whenever lifter is out of service for 1 month or more)*

- Examine the lifter's structure for visual damage.
- Examine the hand cups (including vacuum pads) for visual damage.
- Perform the VACUUM TEST to follow.

If any deficiency is detected during the inspection, correct it before using the lifter and perform the Periodic Inspection to follow.

### Periodic Inspection

*(following every 250-500 hours' use; or whenever lifter is out of service for 1 year or more)*

- Examine the entire lifter for external evidence of looseness, excessive wear, deformation, cracks, excessive corrosion, dents to structural or functional components, cuts, or any deficiency that might constitute a hazard.
- Keep a written record of all Periodic Inspections.

If any deficiency is detected during the inspection, return the lifter to Wood's Powr-Grip or an authorized dealer for repair (see LIMITED WARRANTY).

### Infrequent Use

If a lifter is used less than 1 day in a 2-week period, perform the Periodic Inspection *each time before using the lifter*.



# TESTING SCHEDULE

Perform these tests when placing the lifter in service *initially* and *each time following a repair or modification*. Correct any deficiency and retest before using the lifter.

## Operational Tests

- Perform the VACUUM TEST to follow.
- Test all features and functions of the lifter (see OPERATING FEATURES and OPERATION).

## Load Test

Confirm that the lifter can lift 100% of its Maximum Load Capacity (see SPECIFICATIONS), using an actual load or an equivalent simulation.<sup>5</sup> Employ the following method to test with an actual load:

- 1) Place a test load with appropriate LOAD CHARACTERISTICS (see INTENDED USE) on a stable support. Make sure the load is oriented in the upright position.<sup>6</sup>
- 2) Attach the vacuum pads to the load as previously directed.
- 3) Raise the load a minimal distance, to make sure it is supported by the lifter.
- 4) Hold the load for 5 minutes. The load must not slip or fall during this time. If it does, service the hand cups as directed in their instructions, conduct a VACUUM TEST and inspect each vacuum pad as directed under VACUUM PAD MAINTENANCE: Inspection (see sections to follow). Correct any deficiency and retest the lifter.

# MAINTENANCE SCHEDULE

Although the lifter does not require maintenance on a routine basis, maintenance must be performed whenever a deficiency is indicated by routine inspections or tests. Any maintenance warranted must be performed before resuming normal operation of the lifter.

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<sup>5</sup> ASME Standard B30.20 requires the lifter to be tested to 125% of its Load Capacity.

<sup>6</sup> Flat Lifters are exempt from this requirement.

# VACUUM PAD MAINTENANCE

## Friction Coefficient

The friction coefficient represents the lifter's ability to resist load slippage when the load is oriented in any position except horizontal. If the contact surfaces of either the load or the vacuum pads are not clean, dry and in good condition, slippage is more likely to occur.

The Load Capacity of most Powr-Grip lifters is based on a friction coefficient of 1 (only Flat Lifters are exempt from this requirement). However, a vacuum pad's ability to maintain this friction coefficient is reduced by factors such as contamination, wear, age and exposure to sunlight, as well as the condition of the load's contact surface (see INTENDED USE: LOAD CHARACTERISTICS). Pads that have surface contamination must be thoroughly cleaned (see Cleaning to follow). Over time, the rubber in a pad may experience hardening or leaching of chemicals, resulting in stiffness or surface glaze. Pads that exhibit wear, stiffness or glaze must be replaced.

In addition, all pads should be replaced on a regular basis, preferably after no more than 2 years, to make sure that the friction coefficient is not compromised. If necessary, contact your dealer or Wood's Powr-Grip for more information.

## Inspection

Inspect each vacuum pad for the following deficiencies routinely, as directed in the preceding INSPECTION and TESTING SCHEDULES. Correct any deficiency before using the lifter.

- Contaminates on the pad face or sealing edges: Soil build-up can prevent pads from sealing adequately or reduce the friction coefficient (see discussion preceding). Follow the directions to clean pads as necessary (see discussion to follow).
- Air filter missing from pad face: This filter helps prevent debris from contaminating the vacuum pump. Replace any missing filter immediately (see hand cup instructions).
- Nicks, cuts or abrasions in sealing edges: Pad damage can reduce the lifting capacity of the lifter. Replace any damaged pad immediately (see hand cup instructions).

 **WARNING: Replace vacuum pad if sealing edge has any nicks, cuts or abrasions.**

- Wear, stiffness or glaze: See Friction Coefficient preceding. Replace any pad that exhibits wear, stiffness or glaze (see hand cup instructions).

## Cleaning

Regularly clean the face of each vacuum pad to remove oil, dust and any other contaminants. Acceptable cleaning agents include soapy water and other mild cleansers. Do *not* use solvents, petroleum-based products (including kerosene, gasoline and diesel fuel) or any harsh chemicals for cleaning. Do *not* use unauthorized rubber cleaners or conditioners, such as those intended for cleaning tires or vinyl surfaces, because those products can leave a hazardous film on vacuum pads that significantly reduces their lifting capacity (see Friction Coefficient preceding). The use of any unauthorized cleaning agent is prohibited because it could damage the pad and/or create a hazard to the operator or others.

 **WARNING: Never use solvents, gasoline or other harsh chemicals to clean vacuum pad.**

 **WARNING: Never use unauthorized rubber cleaners or conditioners to clean vacuum pad.**

To prevent liquid from contaminating the vacuum pump during cleaning, cover the suction hole in the recess for the air filter or make sure the pad faces downward. Use a clean sponge or lint-free cloth to apply an authorized cleanser and wipe the pad face clean. A toothbrush (or similar brush with bristles *that do not harm rubber*) may be used to remove contaminants clinging to sealing edges.<sup>7</sup> Wipe all residue from the pad face, and allow the pad to dry completely before using the lifter.

## VACUUM TEST

Test all of the hand cups for leakage routinely, as directed in the preceding INSPECTION and TESTING SCHEDULES.

- 1) Make sure the hand cups are functioning correctly (see hand cup instructions).
- 2) Attach the vacuum pads to a clean, smooth, scratch-free piece of glass or metal, as directed under OPERATION: TO ATTACH THE PADS TO A LOAD. **Do not attempt to lift the test material during the vacuum test.**
- 3) Monitor the hand cups' red-line vacuum indicators for approximately 2 hours: **All of the red lines must remain hidden during this time.** If not, perform general maintenance (see hand cup instructions) and repeat the test. If the problem persists, contact Wood's Powr-Grip or an authorized dealer for assistance.

 **WARNING: If hand cup fails vacuum test, discontinue use immediately.**

Correct any deficiency in the hand cups before resuming normal operation of the lifter.

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<sup>7</sup> If these cleaning methods are not successful, contact Wood's Powr-Grip or an authorized dealer for assistance.

# REPLACEMENT PARTS LIST

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<b>Stock No.</b>	<b>Description</b>	<b>Qty.</b>
91700	Hand Cup – Model N5450 / 9" [23 cm] Diameter	6
49110	End Plug – 2" x 2" x 3/16" Tubing Size	1
29353	Pad Cover	6
15794	Handle for Tilt Release Lever	1
15792	Knob for Rotation Release Lever	1
10194	Screw – 1/4-20 Thread x 5/8" Length (for mounting hand cups)	24

***SERVICE ONLY WITH IDENTICAL REPLACEMENT PARTS,  
AVAILABLE AT WPG.COM OR THROUGH AN AUTHORIZED WPG DEALER***

# LIMITED WARRANTY

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Powr-Grip products are carefully constructed, thoroughly inspected at various stages of production, and individually tested. They are warranted to be free from defects in workmanship and materials for a period of one year from the date of purchase.

If a problem develops during the warranty period, follow the instructions hereafter to obtain warranty service. If inspection shows that the problem is due to defective workmanship or materials, Powr-Grip will repair the product without charge.

## **WARRANTY DOES NOT APPLY WHEN:**

Modifications have been made to the product after leaving the factory.

Rubber portions have been cut or scratched during use.

Repairs are required due to abnormal wear and tear.

The product has been damaged, misused or neglected.

If a problem is not covered under warranty, Powr-Grip will notify the customer of costs prior to repair. If the customer agrees to pay all repair costs and to receive the repaired product on a C.O.D. basis, Powr-Grip then will proceed with repairs.

## **TO OBTAIN REPAIRS OR WARRANTY SERVICE**

For purchases in *North America*:

Contact the Technical Service Department at Wood's Powr-Grip Co. When factory service is required, ship the complete product—prepaid—along with your name, address and phone number to the street address hereafter.

For purchases in *all other localities*:

Contact your dealer or the Technical Service Department at Wood's Powr-Grip Co. for assistance.

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