

KEEP FOR FUTURE REFERENCE

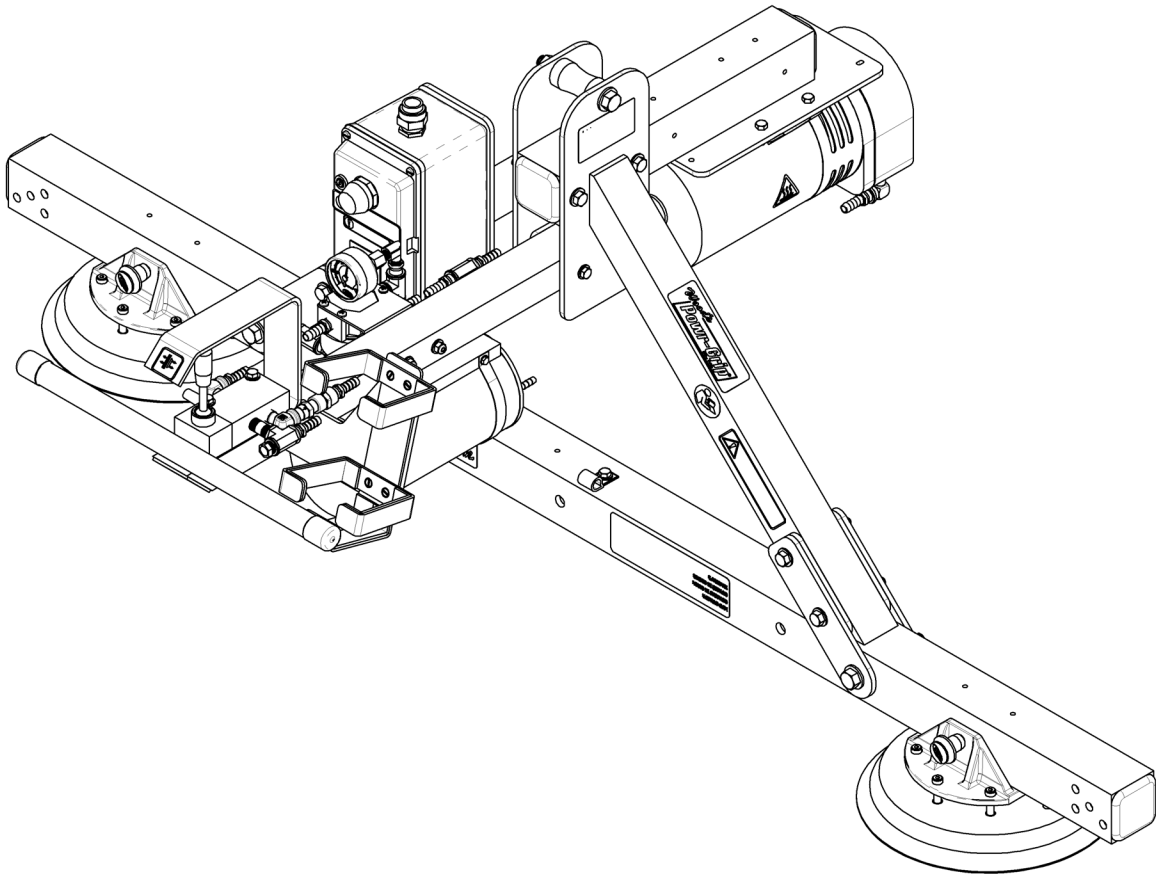
# OPERATING INSTRUCTIONS



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**INTENDED FOR USE BY SKILLED  
PROFESSIONALS • READ AND  
UNDERSTAND BEFORE OPERATING**



## **FLEX SERIES FLAT LIFTER, AC-VOLTAGE**

Model numbers: FLEX2HV11AC, FLEX3HV11AC, FLEX4HV11AC, FLEX5HV11AC

Serial number: \_\_\_\_\_ (to locate, see serial label on the product)








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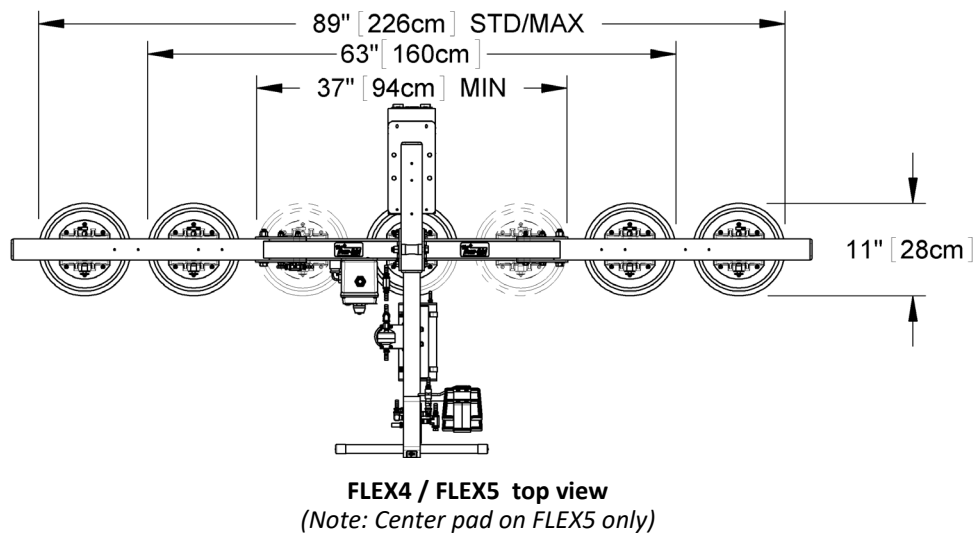
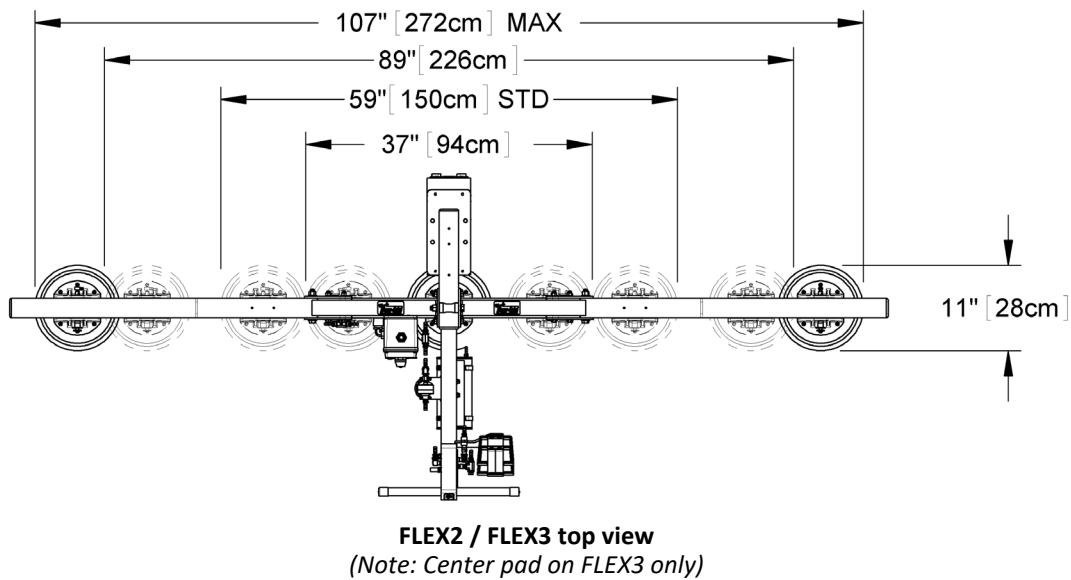
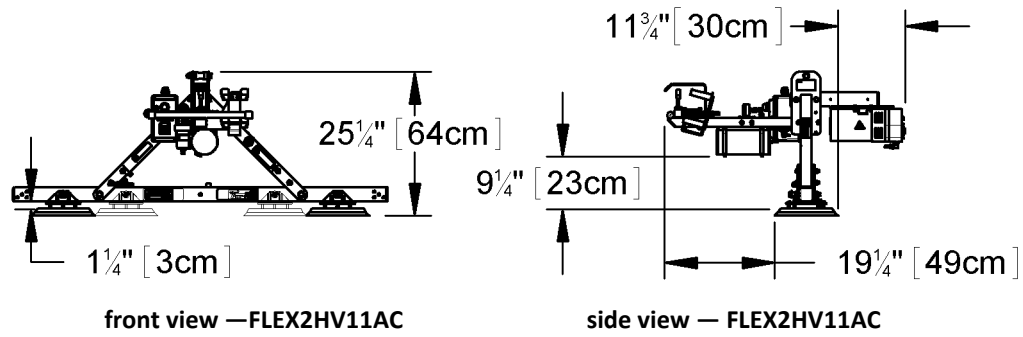
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# SPECIFICATIONS

<b>Product Description</b>	Designed for use with hoisting equipment, FLEX-HV11AC lifters support loads using vacuum in the flat orientation.			
<b>Model Number</b>	FLEX2HV11AC	FLEX3HV11AC	FLEX4HV11AC	FLEX5HV11AC
<b>Pad Spread<sup>1</sup></b> (to outer edges)	(w/ 2 pads)	(w/ 3 pads)	(w/ 4 pads)	(w/ 5 pads)
<b>Minimum</b>	11" x 37" [28 cm x 94 cm]	11" x 37" [28 cm x 94 cm]	11" x 63" [28 cm x 160 cm]	11" x 63" [28 cm x 160 cm]
<b>Maximum</b>	11" x 107" [28 cm x 272 cm]	11" x 107" [28 cm x 272 cm]	11" x 89" [28 cm x 226 cm]	11" x 89" [28 cm x 226 cm]
 <b>Maximum Load Capacity<sup>2</sup></b>				
<b>Per Pad</b>	300 lbs [136 kg]	300 lbs [136 kg]	300 lbs [136 kg]	300 lbs [136 kg]
<b>Total</b>	600 lbs [270 kg]	900 lbs [410 kg]	1,200 lbs [545 kg]	1,500 lbs [680 kg]
 <b>Lifter Weight</b>	110 lbs [50 kg]	115 lbs [53 kg]	120 lbs [55 kg]	125 lbs [57 kg]
<b>Vacuum Pads</b> (standard rubber <sup>3</sup> )	10" [25 cm] nominal diameter, lipped (Model HV11)			
<b>Power Source</b>	See serial number plate for specific AC voltage, frequency and amperage.			
 <b>Product Options</b>	Available with Individual Pad Shutoffs. Available with Adjustable Control Handles. See separate instructions about other options.			
 <b>Operating Elevation</b>	Up to 6,000' [1,828 m]			
 <b>Operating Temperatures</b>	32° — 104° F [0° — 40° C]			
<b>Service Life</b>	20,000 lifting cycles, when used and maintained as intended <sup>4</sup>			
<b>ASME Standard BTH-1</b>	Design Category "B", Service Class "0"			
<b>Troubleshooting Guide<sup>5</sup></b>	<a href="#">TST-016_GENERIC_LEAK_TEST_rev_2014-086</a>			

- ..... Specifications represent the maximum and minimum Pad Spread dimensions possible among all lifters in the FLEX Series. Dimensions for individual lifters fall somewhere within this range, depending on the length of the main beam selected.
- ..... The Maximum Load Capacity is rated at a vacuum of 16" Hg [-54 kPa] on clean, smooth, nonporous flat surfaces with a friction coefficient of 1. Pad compound, load rigidity, strength, surface conditions, overhang, angle, center of gravity and temperature can also affect the lifting capacity. A "qualified person" should evaluate the effective lifting capacity for each use (see definition under "Rated Load Test").
- ..... Available with other rubber compounds for special purposes (see [www.wpg.com](http://www.wpg.com)).
- ..... Vacuum pads, filter elements and other wear-out items are excluded.
- ..... To view this guide, click the link at right. Additionally, you can search for your lifter's Model Number at [www.wpg.com](http://www.wpg.com) and select the "Troubleshooting" link on the product page.

# SPECIFICATIONS



# SAFETY



Wear personal protective equipment that is appropriate for the load material. Follow trade association guidelines.



Do not remove or obscure safety labels.



Do not make any modifications to the lifter (see "LIMITED WARRANTY").



Use the lifter only in an approved "OPERATING ENVIRONMENT" (see "INTENDED USE").



Do not use a lifter that is damaged, malfunctioning, or missing parts.



Do not use a lifter if the sealing edge of any vacuum pad is cut or otherwise damaged.



Do not use a lifter to lift cracked or broken glass.



Do not exceed the Maximum Load Capacity or lift loads the lifter is not designed for (see "INTENDED USE").



Do not use a lifter if the Maximum Load Capacity or any safety label appears to be missing or obscured.



Make sure the contact surfaces of the load and vacuum pads are clean before attaching the lifter (see "MAINTENANCE").



Position the vacuum pads correctly on the load before lifting (see "OPERATION: Positioning the Lifter on the Load").



Do not lift a load if any vacuum indicator shows inadequate vacuum.



Keep unauthorized personnel away from the lifter, to avoid injury in case of an unintended load release.



Do not touch the vacuum release controls during a lift.



Do not allow people to ride on the lifter or the load.



Do not lift a load higher than necessary or leave suspended loads unattended.



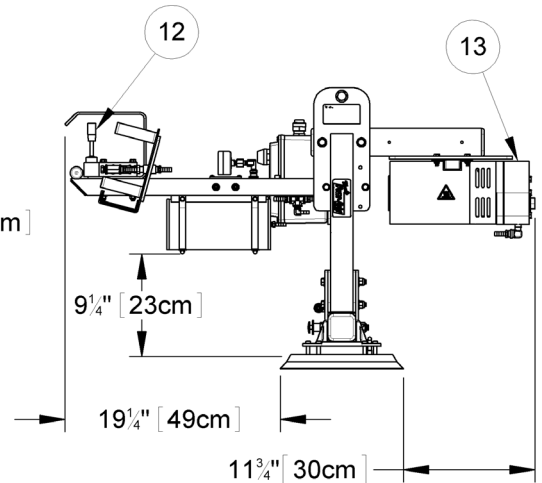
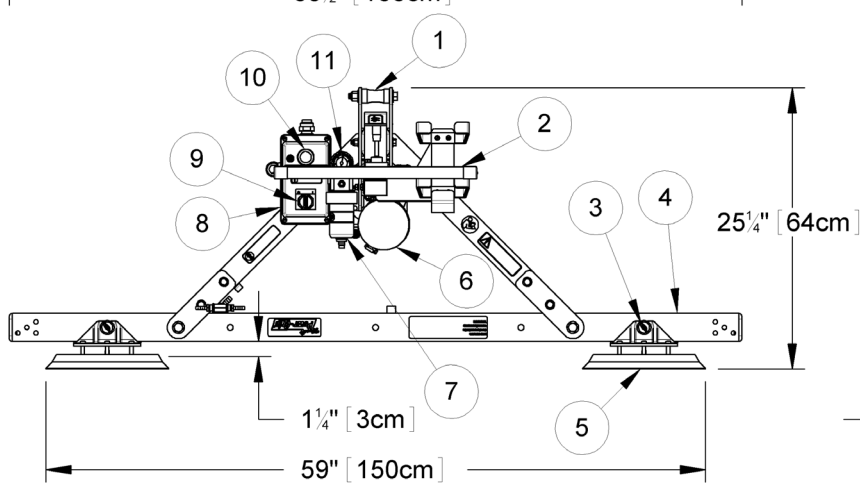
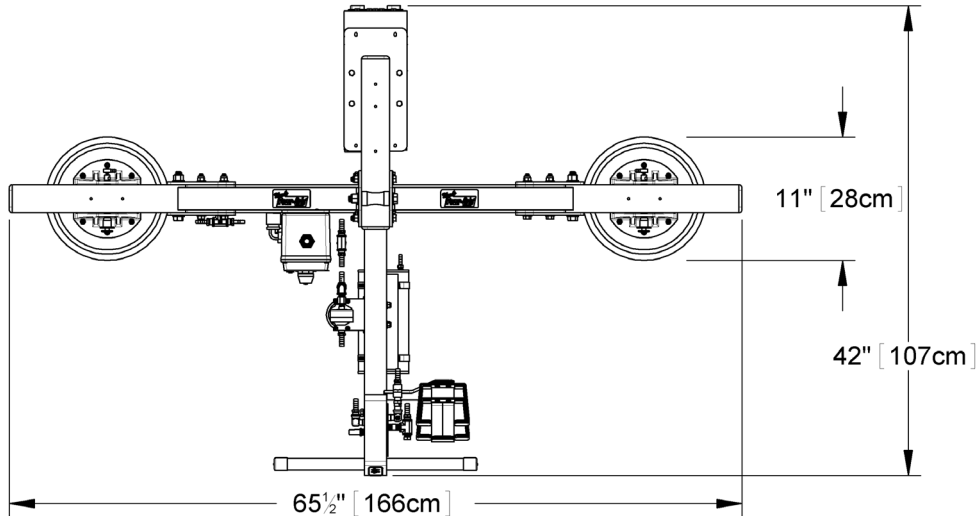
Do not position a loaded or unloaded lifter over people.



Before servicing a powered lifter, place the power control in the inactive position and, when possible, disconnect the power source.

# OPERATING FEATURES

Features shown here are underlined> on their first appearance in each section following.



- |    |                   |    |                              |    |                      |
|----|-------------------|----|------------------------------|----|----------------------|
| 1  | LIFT POINT        | 2  | CONTROL HANDLE               | 3  | MOVABLE PAD MOUNT    |
| 4  | PAD FRAME         | 5  | VACUUM PAD                   | 6  | VACUUM RESERVE TANK  |
| 7  | AIR FILTER        | 8  | Enclosure with VACUUM SWITCH | 9  | POWER SWITCH         |
| 10 | VACUUM LIFT LIGHT | 11 | VACUUM GAUGE                 | 12 | VACUUM CONTROL VALVE |
| 13 | VACUUM PUMP       |    |                              |    |                      |

*Note: A standard FLEX2HV11AC is shown. Although some of the following photos do not show this specific lifter, they all illustrate how this kind of lifter functions.*

For information about specific parts, see [“REPLACEMENT PARTS”](#) and/or any separate instructions for Product Options.



# ASSEMBLY

- 1) Remove all shipping materials and save them with the shipping container for future use.
- 2) Connect the power cable:



***Make sure power source has ground fault circuit interrupter.***

- 2.1) Wire the female connector provided to an appropriate power source, as indicated on the label attached.



***Wiring must be performed by qualified service personnel, taking all appropriate safety precautions.***

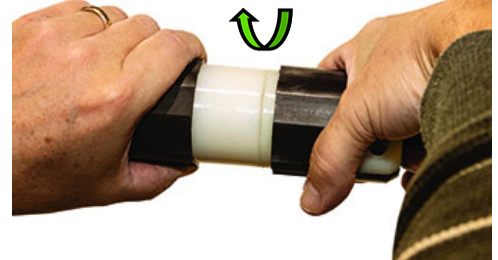
- 2.2) Route the power cable so that it does not become damaged during operation.

- 2.3) Insert the power cable's male connector into the female connector and twist to secure them together (fig. 2A-B).

**2A**

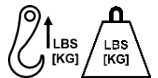


**2B**



- 3) Suspend the lifter from appropriate hoisting equipment:

- 3.1) Select a crane and/or hoist rated for the Maximum Load Capacity plus the Lifter Weight.



*Note: Any lifter use must comply with all statutory or regulatory standards for hoisting equipment in your region.*

- 3.2) Attach the hoisting hook to the lift point (fig. 3C).

**3C**



**3D**



***Make sure hook has restraining latch (fig. 3D).***

- 3.3) Use the hoisting equipment to remove the lifter from the shipping container. Avoid damaging the vacuum pads.

# ASSEMBLY

4) Remove the pad covers (fig. 4A) and save them for future use.

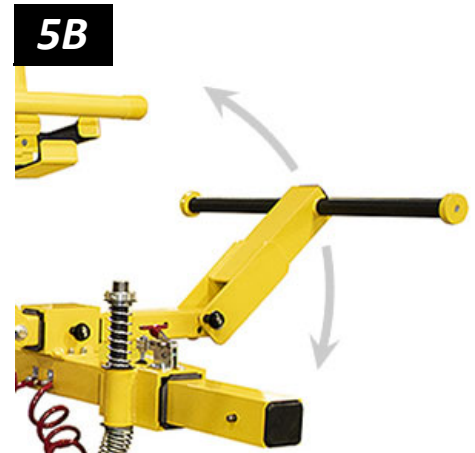


5) If the lifter has adjustable control handles, position them for optimal load handling:

5.1) Remove the cotterless hitch pin (fig. 5A).



5.2) Move the control handle to a suitable position where pin holes align (fig. 5B).



5.3) Reinsert the pin, to secure. Repeat with the other control handle.

6) Perform tests as required under [“TESTING”](#).

# INTENDED USE

## LOAD CHARACTERISTICS

Make sure the vacuum lifter is intended to handle each load according to these requirements:



***Do NOT lift explosives, radioactive substances or other hazardous materials.***



- The load weight must not exceed the Maximum Load Capacity.
- The load must be a single piece of relatively nonporous material with a flat and relatively smooth contact surface.<sup>1, 2</sup> To determine whether the load is too porous or rough, perform a “[Lifter/Load Compatibility Test](#)”.
- The load's surface temperature must not exceed the Operating Temperatures.<sup>3</sup>
- The load's *minimum* length and width are determined by the current Pad Spread (see “SPECIFICATIONS”).
- The load's *maximum* length and width are determined by its allowable overhang.<sup>4</sup>



*Note: Standard vacuum pads can stain or deform load surfaces with light colors or soft coatings. Test such surfaces for damaging effects before using the lifter on them.<sup>5</sup>*

---

1..... Although concave vacuum pads can also attach to some curved loads, curvature can reduce lifting capacity. Contact WPG for more information.

2..... A “single piece” of material includes curtainwall assemblies, unitized glazing systems and similar construction units.

3..... Vacuum pads made from a heat-resistant rubber compound can enable you to lift loads with higher surface temperatures. Contact WPG or an authorized dealer for more information.


4..... The allowable overhang is the amount of load material that can extend sideways beyond the vacuum pads without breaking or otherwise being damaged. This depends on the load material, its thickness, and the angle of handling (if any). Since every material has different physical properties, the allowable overhang must be evaluated separately for each load type. Contact WPG or an authorized dealer for more information.

5..... Alternative rubber compounds are available for these purposes. Contact WPG or an authorized dealer for more information.

## OPERATING ENVIRONMENT

Make sure the vacuum lifter is intended for use in each work environment, given the following restrictions:

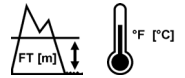
- This lifter is not intended for any environment that is dangerous to the operator or damaging to the lifter. Avoid environments containing explosives, caustic chemicals and other dangerous substances.

 **Never use lifter in dangerous environments.**



***Metal particles and similar environmental contaminants could result in vacuum pump failure.***

- The work environment is limited by the Operating Elevation and Operating Temperatures.<sup>1, 2</sup>
- The lifter is not designed to be watertight. Do not use it in rain or other unsuitable conditions.



***Moisture can result in reduced lifting capacity.***

**CE/UKCA** — *A secondary positive holding device is required to lift loads on construction sites.*

## DISPOSAL OF THE LIFTER

After the Service Life of the vacuum lifter has ended (see “SPECIFICATIONS”), dispose of it in compliance with all local codes and applicable regulatory standards.

1..... Although lifter use may be possible at higher elevation, lifting capacity is reduced whenever the lifter is unable to attain vacuum in the green range on the vacuum gauge. Contact WPG for more information.

2..... Special provisions may allow the lifter to operate outside the specified temperature range. Contact WPG for more information.

## BEFORE USING THE LIFTER

Determine whether the vacuum lifter is capable of each intended task (see “SPECIFICATIONS” and “[INTENDED USE](#)”). Then complete the following preparations:

### Taking Safety Precautions

- Be trained in all industry and regulatory standards for lifter operation in your region.
- Follow trade association guidelines about precautions needed for each load material.



***Read all directions and safety rules before using lifter.***



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

### Performing Inspections and Tests

- Follow the “[INSPECTION SCHEDULE](#)” and “[TESTING](#)”.
- Examine the air filter and perform service whenever its bowl contains liquid or other contaminants or its element appears dirty (see “AIR FILTER MAINTENANCE” in [SERVICE MANUAL](#)).<sup>1</sup>



***Examine air filter regularly and service when needed.***

1..... Lifters used on wet load surfaces must be equipped with 2 or more filters connected *in series*. See “[OPERATING ENVIRONMENT](#)” for restrictions.

# OPERATION

## TO USE THE OPTIONAL PAD SHUTOFFS

Each pad shutoff on the pad frame controls the vacuum line to the adjacent vacuum pad. Activating or deactivating the airflow at specific pads enables the lifter to handle loads with different weights and dimensions (see “SPECIFICATIONS”) or to avoid holes in the load surface.

To support the maximum load weight and larger load dimensions, all pads must be activated; for smaller weights and dimensions, some pads may be deactivated, ***provided that the lifter still has sufficient capacity to support the load*** (see “LOAD CHARACTERISTICS”).



***Closing any pad shutoff reduces lifting capacity.***

To activate a pad, open the shutoff valve (ie, place lever *parallel* with vacuum line — fig. 1A).



To deactivate a pad, close the shutoff valve (ie, place lever *perpendicular* to vacuum line — fig. 1B).



To calculate the lifting capacity when some pads are deactivated, consult the Per-Pad Load Capacity and multiply by the number of pads currently activated. Always activate pads in a symmetrical configuration and use as many pads as possible for each load being lifted, to maximize lifting capacity and to minimize load overhang.





# OPERATION

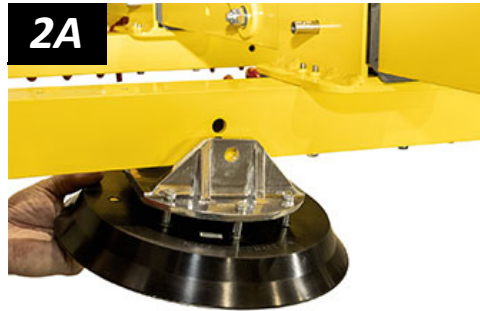
## TO ADJUST PAD POSITIONS

To reposition the vacuum pads on the pad frame for handling various load dimensions (see “SPECIFICATIONS”), move the movable pad mounts as needed to provide optimal load support and to minimize load overhang.

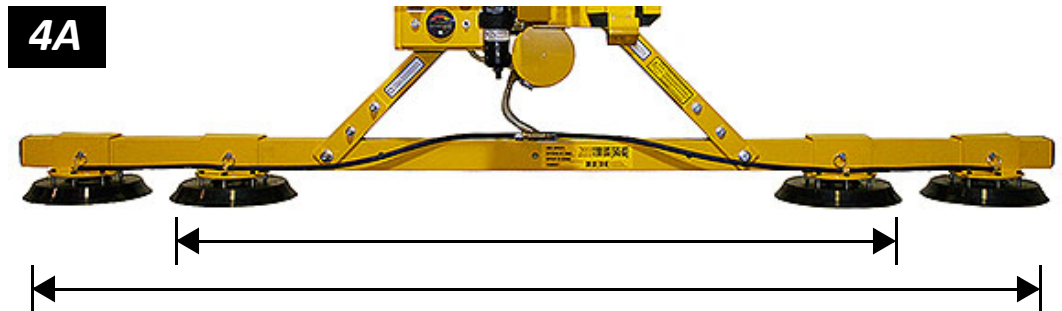
*Note: The pads must be arranged symmetrically, to keep the load balanced.*



**Position vacuum hoses as needed to prevent damage to them during lifter operation.**



- 1) Remove the cotterless hitch pin from one movable pad mount (fig. 1A).
- 2) Move the pad mount to a suitable position where the pin holes align (fig. 2A).
- 3) Reinsert the pin (fig. 3A).
- 4) Reposition the corresponding pad mount on the main beam at an equal distance from the lift point (fig. 4A).



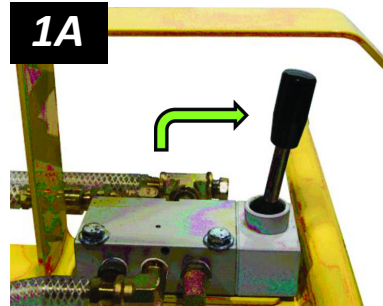
- 5) Repeat these steps for other pad mounts as needed.

# OPERATION

## TO ATTACH THE PADS TO A LOAD

### Generating Airflow

- 1) Make sure the lever on the vacuum control valve is in the “release” position (|→) — fig. 1A).
- 2) Place the power switch in the “on” position (| — fig. 2A), to engage the vacuum pump.



The lifter is designed for the pump to run continuously. Placing the power switch in the “off” position (○) during lifter operation could result in a load release and personal injury (see “In Case of a Power Failure”).



**Keep pump running throughout lift.**

### Positioning the Lifter on the Load

- 1) Make sure the contact surfaces of the load and vacuum pads are clean (fig. 1B; see “Pad Cleaning”).



- 2) Center the pad frame on the load (fig. 2B).<sup>1</sup>

**2B**



**Always center pad frame on load.**

Off-center loading could result in unexpected load movement, release or personal injury.

1..... The lifter is designed to handle the maximum load weight when the load’s center of gravity is positioned within 2" [5 cm] of the pad frame’s center point.



# OPERATION

- 3) Make sure all vacuum pads will fit on the load and will be loaded evenly. Consult the Per-Pad Load Capacity.
- 4) Place the vacuum pads in contact with the load surface.



## Sealing the Pads on the Load

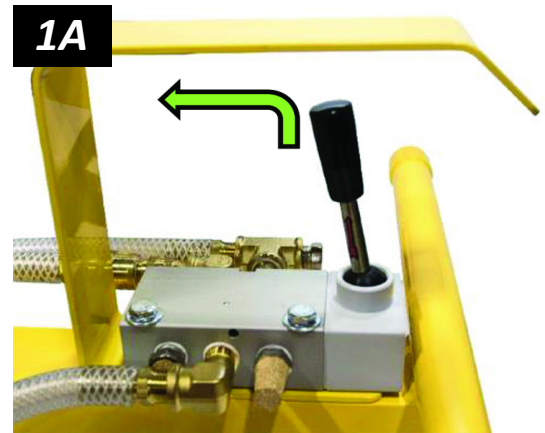
- 1) Place the lever on the vacuum control valve in the “attach” position (← — fig. 1A), to draw air immediately at the vacuum pads.<sup>1</sup>



**Keep valve lever in “attach” position throughout lift.**

Any interruption of airflow during lifter operation could cause a load release and personal injury.

- 2) Make sure the vacuum pads seal completely against the load.<sup>2</sup>



## Reading the Vacuum Gauge

A vacuum gauge shows the current vacuum level in positive inches of Hg and negative kPa:

- **Green range** ( $\geq 16$ " Hg [-54 kPa]): Vacuum level is sufficient to lift the maximum load weight (fig. 1B).
- **Red range** ( $< 16$ " Hg [-54 kPa]): Vacuum level is **not** sufficient to lift the maximum load weight (fig. 1C).

If it takes more than 5 seconds for the vacuum level to reach 5" Hg [-17 kPa], press on any vacuum pad that has not yet sealed.

Once the pads have sealed, the lifter should be able to maintain sufficient vacuum for lifting, except when used above the maximum Operating Elevation.<sup>3</sup> If it does not, perform the “**Vacuum Test**”.



1..... Do not place the valve lever in the “attach” position until the pads are contacting the load.

2..... Although a vacuum pad may become distorted during shipping or storage, this condition should correct itself with continued use.

3..... If the lifter is used above the maximum Operating Elevation (see “SPECIFICATIONS”), it may not be able to maintain sufficient vacuum for lifting. Contact WPG for more information.

# OPERATION

## TO LIFT AND MOVE THE LOAD

### Interpreting the Lift Light



When vacuum is sufficient vacuum to lift the Maximum Load Capacity, the vacuum lift light turns on automatically.



***Never lift load unless lift light is illuminated, because premature lifting could result in load release and personal injury.***

### Monitoring Vacuum Indicators

Monitor the vacuum lift light and the vacuum gauge (fig. 1B) throughout the entire lift.

The vacuum pump runs continuously to maintain sufficient vacuum for lifting the maximum load weight.

However, if the lift light turns off and the ***vacuum gauge shows a level less than 16" Hg [-54 kPa]:***

- 1) Keep everyone away from a suspended load until it can be safely lowered to a stable support.

- 2) Stop using the lifter until the cause of the vacuum loss can be identified: Conduct the “[Pad Inspection](#)” and perform the “[Vacuum Test](#)”.
- 3) Correct any faults before resuming normal operation of the lifter.



***Make sure all vacuum indicators remain completely visible.***



***Stay clear of any suspended load while indicators warn of low vacuum.***

# OPERATION

## Controlling the Lifter and Load

When the lifter is ready, use the hoisting equipment to raise the lifter and load as needed.

Use a control handle (circled in fig. 1A) to keep the lifter and load in the required position.

Once there is enough clearance, you may move the load as required.



***Never allow any pad shutoff to be opened or closed while lifting, because this could result in a load release and personal injury.***

## In Case of a Power Failure

A vacuum reserve tank helps maintain vacuum temporarily in the event of a power failure. Although the lifter is designed to support the load for at least 5 minutes without power, this depends on many factors, including the “[LOAD CHARACTERISTICS](#)” and the condition of the vacuum pads (see “[VACUUM PAD MAINTENANCE](#)”).

If a power failure occurs, keep everyone away from a suspended load until it can be safely lowered to a stable support. Correct any faults before resuming normal operation of the lifter.



***Stay clear of any suspended load during power failure.***

# OPERATION

## TO RELEASE THE PADS FROM THE LOAD



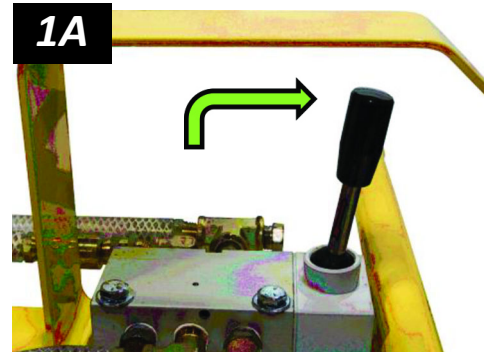
***Make sure load is at rest and fully supported before releasing vacuum pads.***

- 1) Move the lever on the vacuum control valve to the “release” position (I→II — fig. 1A), to break the vacuum seal.



***Do not move lifter until pads release completely, because such movement could result in load damage or personal injury.***

- 2) After the load is successfully released, move the lifter away.
- 3) Before you lift another load, perform the Every-Lift Inspection (see “[INSPECTION SCHEDULE](#)”).



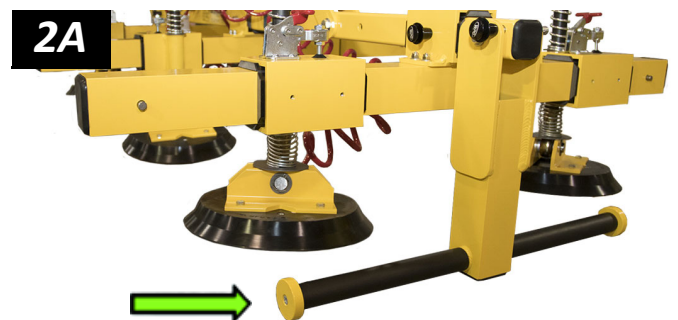
## AFTER USING THE LIFTER

- 1) Place the power switch in the “off” position (○ — fig. 1B).
- 2) Use the hoisting equipment to lower the lifter gently onto a stable support. Then detach the hoisting hook from the lift point.

***Caution:* Do not set the lifter on surfaces that could soil or damage vacuum pads.**



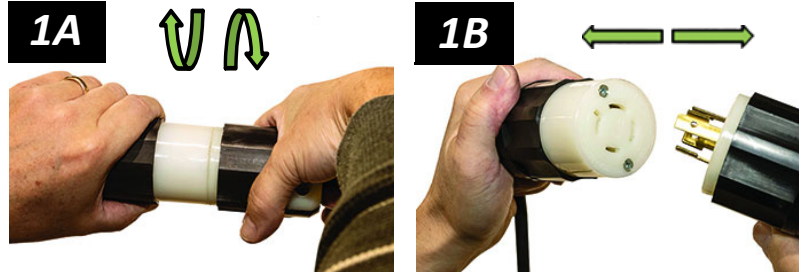
*Note: If the lifter has adjustable control handles (arrow in fig. 2A), they can be used to support an unloaded lifter when not suspended: Remove the cotterless hitch pins, move both handles to the position shown, and reinsert the pins.*



# OPERATION

## Storing the Lifter

- 1) Disconnect the power cable (fig. 1A-1B).



- 2) Use the covers supplied to keep the vacuum pads clean (fig. 2A).



- 3) Store the lifter in a clean, dry location.

## Transporting the Lifter

Secure the lifter in the original shipping container with the original shipping materials or equivalent.

# INSPECTIONS AND TESTS

## INSPECTION SCHEDULE

Perform inspections according to the following frequency schedule. If any fault is found, correct it and perform the next most frequent inspection before using the vacuum lifter.

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

Action	Every Lift	Frequent <sup>1</sup> (every 20-40 hrs)	Periodic <sup>2</sup> (every 250-400 hrs)
Examine <u>vacuum pads</u> for contaminates or damage (see <a href="#">“Pad Inspection”</a> ).	✓	✓	✓
Examine load surface for contaminates or debris.	✓	✓	✓
Examine controls and indicators for damage.	✓	✓	✓
Examine lifter’s structure for damage.		✓	✓
Examine vacuum system for damage (including <u>vacuum pads</u> , fittings and hoses).		✓	✓
Examine <u>air filter</u> for conditions requiring service (see <a href="#">“AIR FILTER MAINTENANCE”</a> in <a href="#">SERVICE MANUAL</a> ).		✓	✓
Perform <a href="#">“Vacuum Test”</a> .		✓	✓
Check for unusual vibrations or noises while operating lifter.		✓	✓
Examine entire lifter for evidence of: <ul style="list-style-type: none"> <li>• looseness, excessive wear or excessive corrosion</li> <li>• deformation, cracks, dents to structural or functional components</li> <li>• cuts in vacuum pads or hoses</li> <li>• any other hazardous conditions</li> </ul>			✓
Inspect entire electrical system for damage, wear or contamination that could be hazardous, in compliance with all local codes and regulatory standards. <b>Caution:</b> Use appropriate cleaning methods for each electrical part, as specified by codes and standards. Improper cleaning can damage parts.			✓

1..... The Frequent Inspection is also required whenever the lifter has been out of service for 1 month or more.

2..... The Periodic Inspection is also required whenever the lifter has been out of service for 1 year or more. Keep a written record of all Periodic Inspections. If necessary, return the lifter to WPG or an authorized dealer for repair (see [“LIMITED WARRANTY”](#)).

## TESTING

Perform the following test to determine whether or not a load surface is too porous or rough:

### Lifter/Load Compatibility Test

- 1) Make sure the vacuum generating system is functioning correctly (see “[Vacuum Test](#)”).
- 2) Thoroughly clean the load surface and the vacuum pads (see “[Pad Cleaning](#)”).
- 3) Place the load in the flat position on a stable support.
- 4) Attach the vacuum pads to the load as previously directed.
- 5) After the vacuum level appears in the green range on the vacuum gauge, place the power switch in the “off” position (○).
- 6) Raise the load a minimal distance, to make sure it is supported by the lifter.
- 7) Watch the vacuum gauge: ***Starting from a vacuum level of 16" Hg [-54 kPa], the lifter must maintain a vacuum level greater than 12" Hg [-41 kPa] for 5 minutes.***<sup>1</sup> If not, lifting this load requires additional precautions (eg, a load sling). Contact WPG for more information.
- 8) Lower the load *after* 5 minutes or *before* the vacuum level diminishes to 12" Hg [-41 kPa].



***Take precautions in case load should fall during test.***

1..... Under CE and UKCA requirements, the lifter must maintain a vacuum level ***greater than 8" [-27 kPa]***.




# INSPECTIONS AND TESTS


Perform the following tests before placing the lifter in service *initially, following any repair,* when directed in the “*INSPECTION SCHEDULE*”, or *whenever necessary*:


## Operational Tests


Test all features and functions of the lifter (see “OPERATING FEATURES” and “OPERATION”).

## Vacuum Test

- 1) Clean the face of each vacuum pad (see “*Pad Cleaning*”).
- 2) Use a test load with weight equal to the Maximum Load Capacity, a clean, smooth, nonporous surface and other appropriate “*LOAD CHARACTERISTICS*”.<sup>1</sup> 
- 3) Attach the lifter to the test load as previously directed.
- 4) After the vacuum level appears in the green range on the vacuum gauge, raise the load a minimal distance and place the power switch in the “off” position (○). 

 ***Take precautions in case load should fall during test.***
- 5) Watch the vacuum gauge: *The vacuum level should not decrease by more than 4" Hg [-14 kPa] in 5 minutes.*
- 6) Lower the load after 5 minutes or whenever a lifter fails the test, and release the load as previously directed. 

 ***Never use lifter that has failed test.***
- 7) Qualified service personnel must correct any fault in the vacuum system before the lifter can be returned to service. 

 ***This service must be performed by qualified service personnel.***

1..... The load should have either a flat surface or no more curvature than the lifter is designed for, if any.



# INSPECTIONS AND TESTS

## Rated Load Test<sup>1</sup>

The following steps must be performed or supervised by a qualified person:<sup>2</sup>

- 1) Use a test load that weighs 125% ( $\pm 5\%$ ) of the Maximum Load Capacity and has the appropriate “LOAD CHARACTERISTICS”.
- 2) Attach the vacuum pads to the load as previously directed.
- 3) Position the load to produce the greatest stress on the lifter consistent with “INTENDED USE”.
- 4) Raise the load a minimal distance and leave it suspended for 2 minutes.
- 5) Once the test is completed, lower the load for release as previously directed.
- 6) Inspect the lifter for any stress damage, and repair or replace components as necessary to successfully pass the test.
- 7) Prepare a written report of the test and keep it on file.



***Take precautions in case load should fall during test.***



***Never use lifter that has failed test.***

1..... An equivalent simulation may also be used. Contact WPG for more information.

2..... A “qualified person” has successfully demonstrated the ability to solve problems relating to the subject matter and work, either by possessing a recognized degree in an applicable field or a certificate of professional standing, or by possessing extensive knowledge, training and experience.

# MAINTENANCE

Note: Refer to **SERVICE MANUAL #35275** when applicable.

## VACUUM PAD MAINTENANCE

The Maximum Load Capacity is determined by testing of clean, new, standard rubber vacuum pads on clean, dry, regular glass. ***If the lifter is used under any other conditions, a qualified person must first determine the effective lifting capacity.***<sup>1</sup>



Long-term exposure to heat, chemicals or UV light can damage vacuum pads. Replace pads every 2 years or more often when necessary.

### Pad Inspection

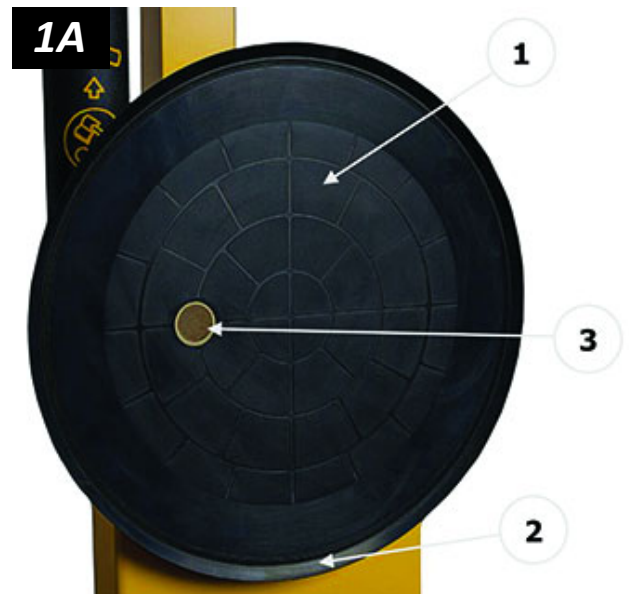
Inspect each vacuum pad (fig. 1A) according to the “**INSPECTION SCHEDULE**” and correct the following faults before using the lifter (see “**REPLACEMENT PARTS**”, when applicable):

- Contaminates on the face (item 1 in fig. 1A) or sealing edges (item 2 in fig. 1A).
- Filter screen (item 3 in fig. 1A) missing from face.



***Replace any pad that has damaged sealing edges.***

- Nicks, cuts, deformation or abrasions in sealing edges.
- Wear, stiffness or glaze.



1..... A “qualified person” has successfully demonstrated the ability to solve problems relating to the subject matter and work, either by possessing a recognized degree in an applicable field or a certificate of professional standing, or by possessing extensive knowledge, training and experience.

## Pad Cleaning

- 1) Regularly clean the face of each vacuum pad (fig. 1A), using soapy water or other mild cleansers to remove oil, dust and other contaminants.



***Never use harsh chemicals on vacuum pad.***

Solvents, petroleum-based products (including kerosene, gasoline and diesel fuel) or other harsh chemicals can damage vacuum pads.



***Never use rubber conditioners on vacuum pad.***

Many rubber conditioners can leave a hazardous film on vacuum pads.

- 2) Prevent liquid from entering the vacuum system through the suction hole on the pad face.
- 3) Wipe each pad face clean, using a clean sponge or lint-free cloth to apply the cleanser.<sup>1</sup>
- 4) Allow each pad to dry completely before using the lifter.

**1A**



<sup>1</sup>..... A brush with bristles *that do not harm rubber* can help remove contaminants clinging to sealing edges. If these cleaning methods are not successful, contact WPG or an authorized dealer for assistance.

# REPLACEMENT PARTS

Stock No.	Description	Qty.
93012	Pad Shutoff Valve Assembly (assembly only)	2/3/4/5
93011	Pad Shutoff Valve Assembly (retrofit assembly kit)	2/3/4/5
65443	Vacuum Hose – 3/8" ID x 5/8" OD – Clear	*
65440	Vacuum Hose – 0.245" ID x 3/8" OD – Red	*
65438	Vacuum Hose – 1/8" ID x 1/4" OD – White	*
65301	Handle Grip Foam (for optional control handles)	*
65014	Pad Spring – Wave Type (option)	2/3/4/5
64284	Bulb – 6.3 V – Bayonet (for vacuum lift light)	1
64262	Green Lens (for vacuum lift light)	1
59028	Movable Pad Mount – 2-1/2" Tubing Size	2/3/4/5
53130	Pad Fitting – Tee – 5/32" ID – Long Stem	**/1/2/3
53124	Pad Fitting – Elbow – 5/32" ID – Long Stem	2
49606T	Vacuum Pad – Model HV11 / 10" [25 cm] Dia. – Lipped – Oil-Resistant (option)	2/3/4/5
49605T	Vacuum Pad – Model HV11 / 10" [25 cm] Dia. – Lipped (standard)	2/3/4/5
49150	End Plug – 2-1/2" x 2-1/2" x 1/4" Tubing Size	4
35275	Service Manual – AC	1
29353	Pad Cover	2/3/4/5
29306AM	End Cap – 1" ID Tubing Size	2
20270	1/4" Open-End Wrench (for adjusting vacuum switch)	1
15630	Pad Filter Screen – Large	2/3/4/5
13532	Cotterless Hitch Pin – 1/2" x 4" (for movable pad mounts)	2/3/4/5
13522	Cotterless Hitch Pin – 3/8" x 3-1/2" (for optional control handles)	2
10904	Shoulder Bolt – Socket Head – 5/16" X 1" X 1/4-20 Thread (for mounting pads)	12/18/24/30

\* — Length as required; sold by the foot (approx 30.5 cm).

\*\* — This part does not apply to model FLEX2HV11AC

See **SERVICE MANUAL #36275** for additional parts.

**SERVICE ONLY WITH IDENTICAL REPLACEMENT PARTS,  
AVAILABLE AT [WPG.COM](http://WPG.COM) OR THROUGH AN AUTHORIZED WPG DEALER**

# LIMITED WARRANTY

Wood's Powr-Grip® (WPG) 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 below to obtain warranty service. If inspection shows that the problem is due to defective workmanship or materials, WPG 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, and/or;
- the product has been damaged, misused or neglected.

If a problem is not covered under warranty, WPG 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, then WPG will proceed with repairs.

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

### **For purchases in *North America*:**

Contact the WPG Technical Service Department. When factory service is required, ship the complete product – prepaid – along with your name, address and phone number to the street address listed at the bottom of this page. WPG may be reached by phone or fax numbers listed below.

### **For purchases in all *other localities*:**

Contact your dealer or the WPG Technical Service Department for assistance. WPG may be reached by phone or fax numbers listed below.

Wood's Powr-Grip Co., Inc.

908 West Main St.

Laurel, MT 59044 USA

406-628-8231 (phone)

800-548-7341 (phone)

406-628-8354 (fax)

KEEP FOR FUTURE REFERENCE

# ENGINEERING DRAWINGS



908 W. Main • P.O. Box 368  
Laurel, MT USA 59044  
800-548-7341 (phone) • 406-628-8231 (phone)  
406-628-8354 (fax) • [www.WPG.com](http://www.WPG.com)



**INTENDED FOR USE BY SKILLED TECHNICAL  
PROFESSIONALS • READ AND UNDERSTAND  
BEFORE ROUTING, WIRING AND/OR ASSEMBLING**



## **FLEX SERIES FLAT LIFTER, AC-VOLTAGE**

Model numbers: FLEX2HV11AC, FLEX3HV11AC,  
FLEXH4V11AC, FLEX5HV11AC

WIRE LEGEND: CONTROLLED BY  
WIRING SYMBOLS DRAWING  
EXCEPT AS NOTED AND BELOW.

LINE STYLES AND WIDTHS FOR  
WIRE UNLESS NOTED OTHERWISE.

N/A	18AWG	N/A	16AWG
N/A	14AWG	N/A	N/A

PRODUCT MANAGER:

GARY B.

DATE:

02/05/2016

CHECKED:

CR

05-17-17

APPROVED:

Cmr

5-17-17

TYPE:  
STANDARD

FILE DIRECTORY:  
FILE (SHEET):

700-W04 [W04]

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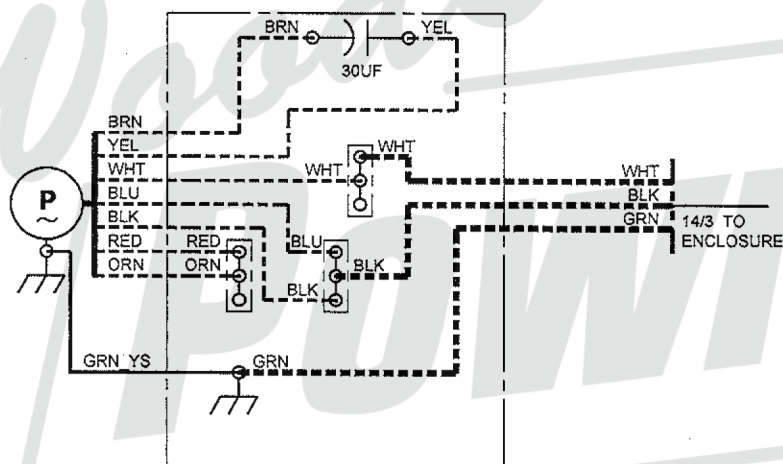
LAUREL,  
MONTANA  
U.S.A.

STANDARD PARTS

N/A

120VAC 4SCFM WOBBLE PISTON VAC PMP WIRING SCHEMATIC  
D700-W04 [W04]

SIZE:	SCALE:	REVISION:	ECN NUMBER:	ECN DATE:	ECN BY:	EST. WEIGHT:
A	NONE	02.A	4328	05/09/2017	CCH	N/A



WIRE LEGEND: CONTROLLED BY  
WIRING SYMBOLS DRAWING  
EXCEPT AS NOTED AND BELOW.

LINE STYLES AND WIDTHS FOR  
WIRE UNLESS NOTED OTHERWISE.

N/A	18AWG	N/A	16AWG
N/A	14AWG	N/A	N/A

PRODUCT MANAGER: GARY B. DATE: 02/05/2016

CHECKED: CR 05-17-17

APPROVED: *Chm* 5-17-17

TYPE: STANDARD

FILE DIRECTORY:  
FILE [SHEET]:

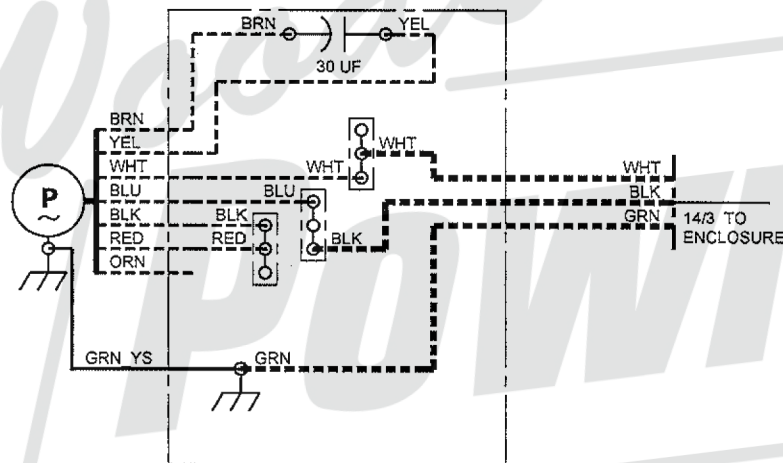
700  
700-W04 [W05]

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STANDARD PARTS  
N/A  
240VAC 4SCFM WOBBLE PISTON VAC PMP WIRING SCHEMATIC  
D700-W04 [W05]

SIZE: A	SCALE: NONE	REVISION: 02.A	ECN NUMBER: 4328	ECN DATE: 05/09/2017	ECN BY: CCH	EST. WEIGHT: N/A
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WIRE LEGEND: CONTROLLED BY  
WIRING SYMBOLS DRAWING  
EXCEPT AS NOTED AND BELOW.

LINE STYLES AND WIDTHS FOR  
WIRE UNLESS NOTED OTHERWISE.

N/A	N/A	N/A	16AWG
N/A	N/A	N/A	N/A

PRODUCT MANAGER:

GARY B.

DATE:

01/10/2018

CHECKED:

CR

01-15-18

APPROVED:

Dmm

1-15-18

TYPE:

STANDARD

FILE DIRECTORY:

FILE [SHEET]:

700-W06 [W06]

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LAUREL,  
MONTANA  
U.S.A.

STANDARD PARTS

N/A

4SCFM 100/120/240VAC 50/60HZ ROT VANE VAC PMP WIR SCH  
D700-W06 [W06]

SIZE:

A

SCALE:

NONE

REVISION:

01.A

ECN NUMBER:

4478

ECN DATE:

01/10/2018

ECN BY:

JAC

EST. WEIGHT:

N/A

