

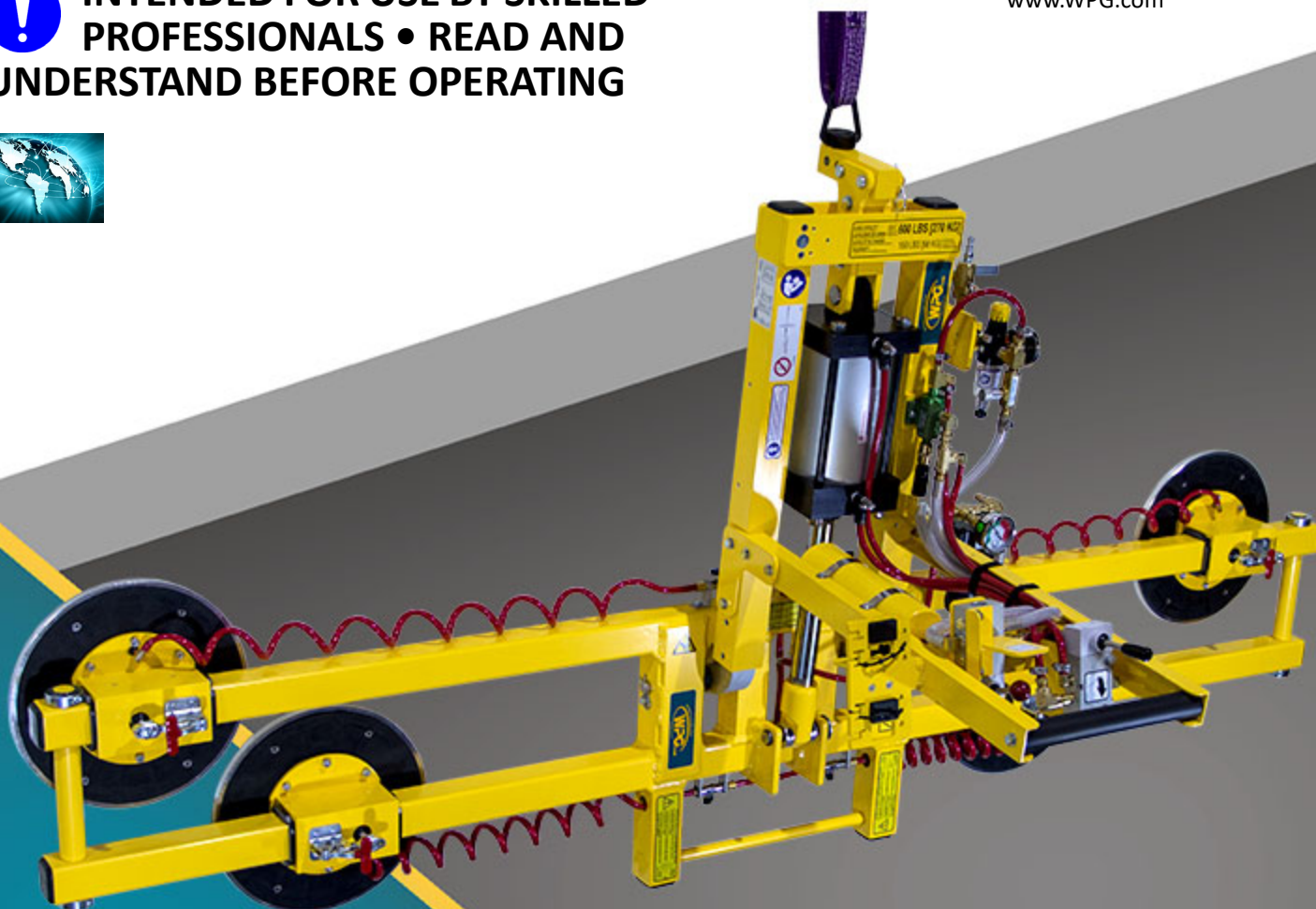
KEEP FOR FUTURE REFERENCE

# OPERATING INSTRUCTIONS



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[www.WPG.com](http://www.WPG.com)

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



**POWER FILTER,  
AIR-POWERED**

Model number: PT410TAIR

Record serial number in blank space above (to locate, see serial label on the product).









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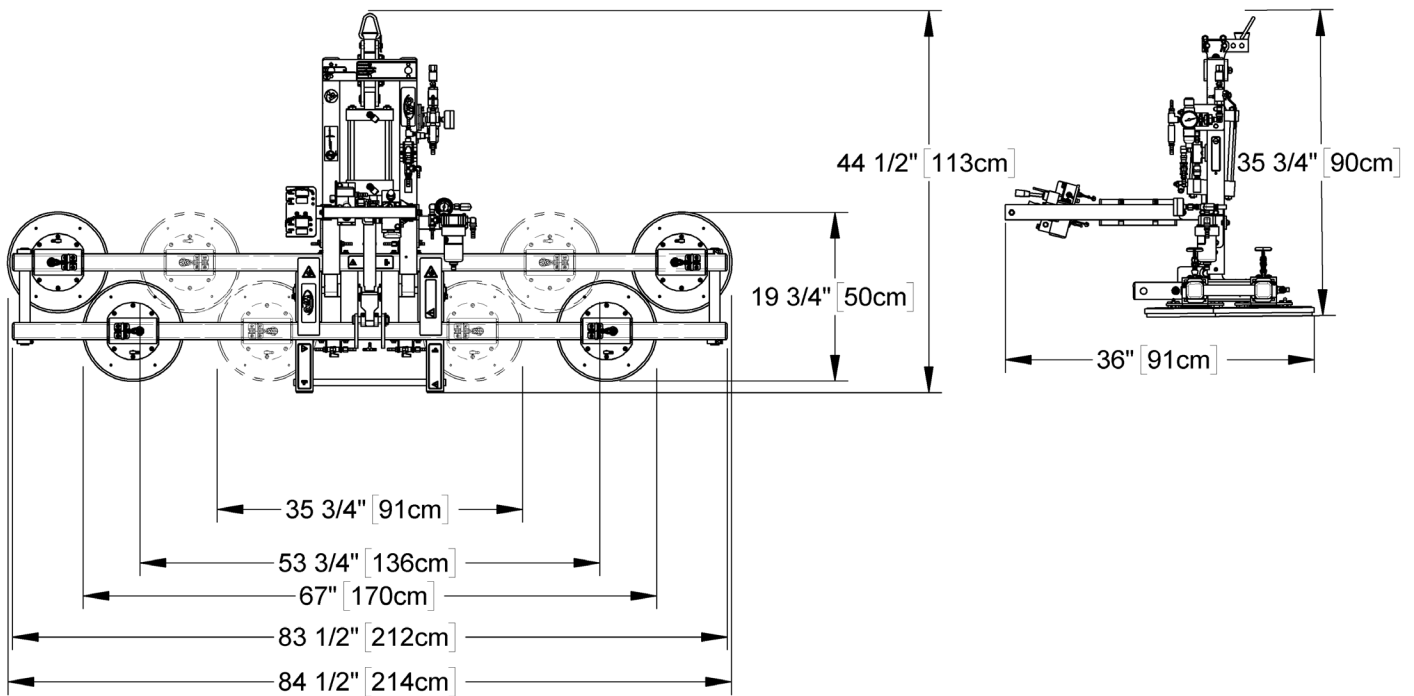
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# SPECIFICATIONS

<b>Product Description</b>	Designed for use with hoisting equipment, PT4-AIR lifters support loads using vacuum and manipulate loads using powered 90° tilt motions.
<b>Model Number</b>	PT410TAIR
<b>Vacuum Pads</b> (standard rubber <sup>1</sup> )	Four 10" [23 cm] nominal diameter, w/ring (Model VPFS10T <sup>2</sup> )
<b>Pad Spread</b> (to outer edges)	Minimum: 19¾" x 53¾" [50 cm x 136 cm] Maximum: 19¾" x 84½" [50 cm x 214 cm]
 <b>Maximum Load Capacity</b> <sup>3</sup>	Per pad: 150 lbs [68 kg] Total: 600 lbs [270 kg]
 <b>Lifter Weight</b>	150 lbs [68 kg]
<b>Power Source</b>	Compressed air, 80-150 psi [550-1035 kPa] line pressure, 8 SCFM [226 liters/minute] @ 80 psi [550 kPa]
 <b>Tilt Capability</b>	Powered, 90°, continuous-duty type with adjustable-flow valves to control tilt speed; Standard speed = approx. 8 seconds per tilt travel in one direction. <sup>4</sup>
 <b>Product Options</b>	See separate instructions about 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>5</sup>
<b>ASME Standard BTH-1</b>	Design Category "B", Service Class "0"
<b>Troubleshooting Guide</b> <sup>6</sup>	<a href="#">TST-020_PT-AIR_REV-2017-246_2021-02-12-163436</a>

- 1..... Available with other rubber compounds for special purposes (see [www.wpg.com](http://www.wpg.com)).
- 2..... Standard with replaceable sealing rings for rough or textured surfaces (see **"REPLACEMENT PARTS"** on page 30).
- 3..... The Maximum Load Capacity is rated at 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"** on page 25).
- 4..... Tilt speed can be adjusted as directed under **"TILT COMPONENTS MAINTENANCE"** in the **SERVICE MANUAL**.
- 5..... Vacuum pads, filter elements and other wear-out items are excluded.
- 6..... To view this guide, 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.



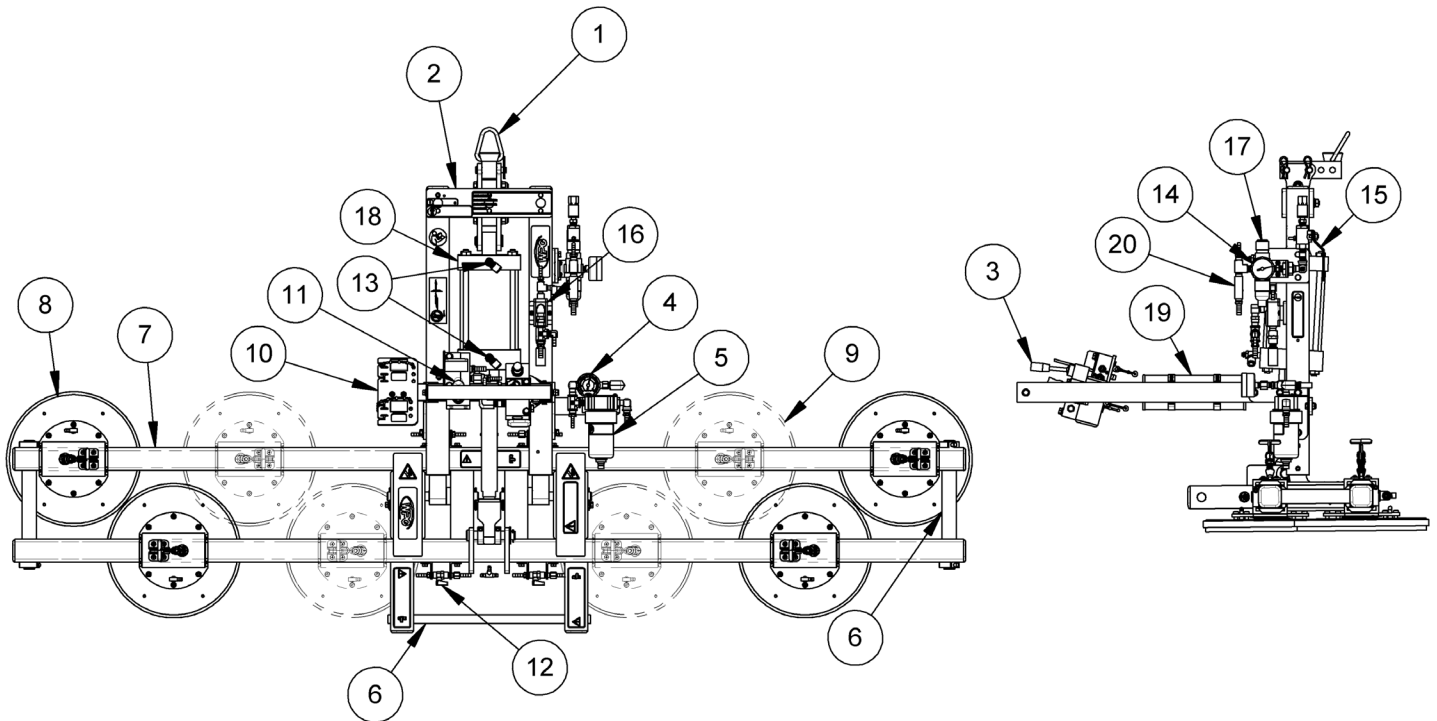
Do not position a loaded or unloaded lifter over people.



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  | LIFT BAR                                     | 3  | TILT CONTROL VALVE       |
| 4  | VACUUM GAUGE          | 5  | LARGE AIR FILTER                             | 6  | CONTROL HANDLES          |
| 7  | PAD FRAME             | 8  | VACUUM PAD with SLIDING PAD MOUNT            | 9  | ALTERNATIVE PAD LOCATION |
| 10 | PENDANT HOLDER        | 11 | VACUUM CONTROL VALVE                         | 12 | PAD SHUTOFF              |
| 13 | TILT SPEED VALVES     | 14 | PRESSURE GAUGE                               | 15 | AIR SUPPLY VALVE         |
| 16 | VACUUM PUMP (VENTURI) | 17 | AIR PRESSURE REGULATOR with SMALL AIR FILTER | 18 | TILT ACTUATOR            |
| 19 | VACUUM RESERVE TANK   | 20 | TILT MASTER VALVE                            |    |                          |

*Note: 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”](#) on page 30 and/or separate instructions for Product Options.



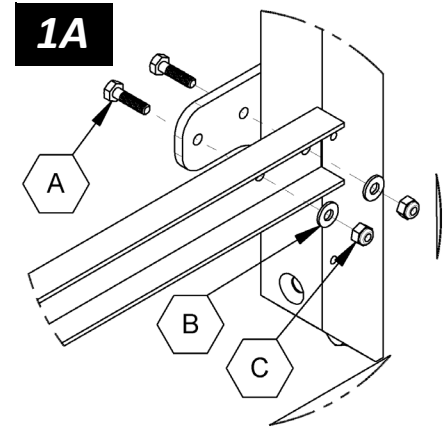
# ASSEMBLY

1) Remove all shipping materials and save them with the shipping container for future use.

Attach the control handle with the supplied parts (fig. 1A):

- ¼-20 x 1" Hex Bolt (item A in fig. 1A)
- ¼ Flat Washer (item B in fig. 1A)
- ¼-20 Nylon Lock Hex Nut (item C in fig. 1A)

*Note: Make sure to avoid tangling attached hoses.*

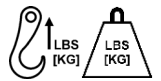


2) Adjust the lift point (fig. 2A) to optimize the lifter's hang angle:

- 2.1) Remove each hairpin (see arrow). Then remove both lift shackle pins.
- 2.2) Move the lift shackle to the appropriate position.<sup>1</sup>
- 2.3) Reinstall both lift shackle pins. Then reinsert the hairpins to secure.

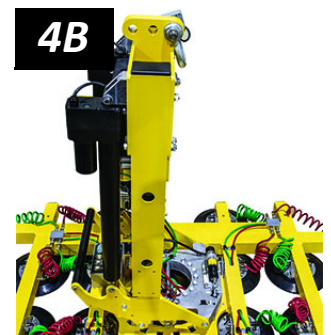
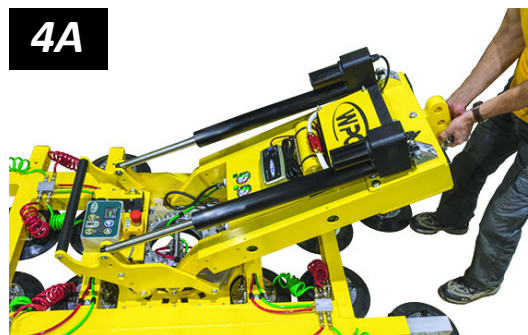


3) Select a crane and/or hoist rated for the Maximum Load Capacity plus the Lifter Weight.



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


4) Raise the lift bar to fully vertical (figs. 4A-B): Engage the tilt actuator (see "TO TILT THE LOAD" on page 19) and manually lift the bar at the same time.



1..... Moving the lift point *forward* (away from operator) helps keep the hang angle vertical while the lifter is *loaded*; moving the lift point *rearward* (towards operator) helps keep the hang angle vertical while the lifter is *unloaded*.

# ASSEMBLY

- 5) Attach the hoisting hook to the lift point (figs. 5A-B).

 **Make sure hook has restraining latch (circled).**



*Note: Use rigging as needed to make sure the hook does not interfere with the load (fig. 5C).*

 **Only use rigging rated for Maximum Load Capacity plus Lifter Weight.**

- 6) Use the hoisting equipment to remove the lifter from the shipping container. Avoid damaging the vacuum pads.
- 7) Remove the pad covers (fig. 7A) and save them for future use.



- 8) Connect the lifter to an appropriate compressed air supply (see Power Source under “SPECIFICATIONS” on page 3):

*Note: Qualified service personnel should install the female quick connector (supplied) on the compressed air line.*

 **This installation should be performed by qualified service personnel.**

**Caution:** Make sure the air line is routed so that it does not become tangled or damaged during operation.

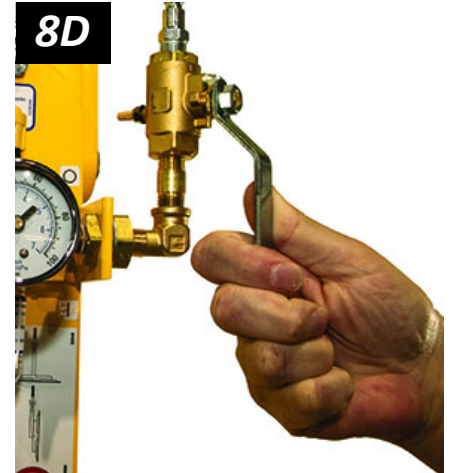
- 8.1) Connect the female quick connector to the male quick connector (figs. 8A-C) leading directly to the air supply valve.

Then adjust the air pressure regulator to supply 80 psi [550 kPa]:<sup>1</sup>



# ASSEMBLY

8.2) Place the air supply valve in the “on” position ( | — fig. 8D).



8.3) With the lifter suspended, place the lever on the vacuum control valve in the “attach” position ( |← — see “[Sealing the Pads on the Load](#)” on page 16).

8.4) Pull up the adjustment collar on top of the regulator. Turn the collar clockwise to increase pressure or counter-clockwise to decrease pressure (fig. 8E).

When the pressure gauge registers a minimum air pressure of 80 psi [550 kPa], push down the collar to lock it in place.



8.5) Place the lever on the vacuum control valve in the center position (see “[About Stand-By Mode](#)” on page 20).

*Note: Place the air supply valve in the “off” position (○ — fig. 8C) when the lifter is not in use; otherwise, the air compressor will cycle frequently.*



9) Perform tests as required under “[TESTING](#)” on page 23.

1..... Exceeding this pressure consumes more air and does not improve lifter performance.

# 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 the “[Lifter/Load Compatibility Test](#)” on page 23.
- The load's contact surface must be able to obtain a friction coefficient of 1 with the lifter's vacuum pads (see “[Pad-to-Load Friction Coefficient](#)” on page 26). Otherwise, the capacity should be derated appropriately.
- 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” on page 3).
- The load's *maximum* length and width are determined by its allowable overhang.<sup>4</sup>
- 1¼" [3 cm] is the allowable thickness at Maximum Load Capacity.<sup>5</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>6</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..... However, the allowable thickness increases as load weight decreases. Contact WPG for more information.

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

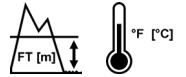
# INTENDED USE

## 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.
- 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.

 **Never use lifter in dangerous environments.**



**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” on page 3), 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” on page 3 and “[INTENDED USE](#)” on page 10). 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](#)” on page 22 and “[TESTING](#)” on page 23.
- Examine the [air filters](#) and perform service whenever their bowls contain liquid or other contaminants or their elements appear dirty (see “[AIR FILTER MAINTENANCE](#)” in [SERVICE MANUAL](#)).



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

## TO USE THE 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” on page 3) 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” on page 10).



**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 ATTACH THE PADS TO A LOAD

### Generating Airflow

Make sure the lever on the vacuum control valve is in the center position (fig. 1A). Then place the air supply valve in the “on” position ( | ) position (see “ASSEMBLY” on page 9).



**Never place air supply valve in "off" position (○) while operating lifter.**

Any interruption of airflow during lifter operation could result in an unintentional load release and personal injury.

### Positioning the Lifter on the Load

- 1) Make sure the contact surfaces of the load and vacuum pads are clean (see “Pad Cleaning” on page 27).



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



1..... The lifter is designed to handle the maximum load weight when its center of gravity is positioned within 2" [5 cm] of the pad frame's center point. Off-center loads can damage the lifter.



# OPERATION

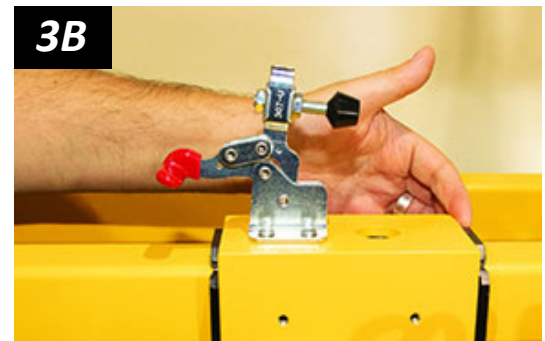
- 3) Arrange the sliding adjustable pad mounts, to optimize load support and minimize load overhang while lifting (see “LOAD CHARACTERISTICS” on page 10):

**For each clamp ...**

- 3.1) Pull outward on clamp handle, to release the clamp (fig. 3A).




- 3.2) Slide the pad mount to the desired location along the pad frame (fig. 3B).



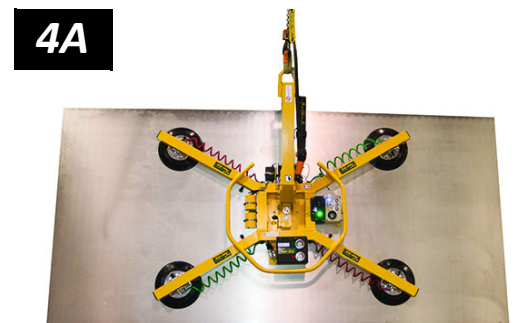
- 3.3) Push inward firmly on clamp handle, to re-engage the clamp (fig. 3C).<sup>1</sup>



- 4) Make sure all vacuum pads will fit on the load and will be loaded evenly (fig. 4A).

 Consult the Per-Pad Load Capacity.

- 5) Place the vacuum pads in contact with the load surface.



1..... If a clamp does not hold the pad mount securely, inspect and adjust the clamp as needed (see “SLIDING ADJUSTABLE PAD MOUNT MAINTENANCE” on page 29).

# OPERATION

## Sealing the Pads on the Load

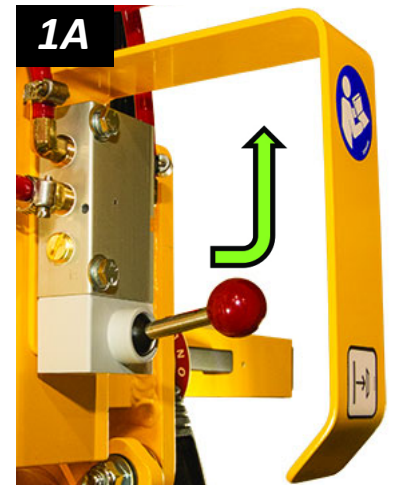
- 1) Place the lever on the vacuum control valve in the “attach” position ( ← — fig. 1A).<sup>1</sup>



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

Any interruption of airflow during lifter operation could result in an unintentional 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](#)” on page 24.

1..... Do not place the valve lever in the “attach” position until the vacuum 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.

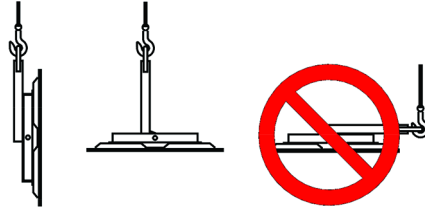
3..... If the lifter is used above the maximum Operating Elevation (see “SPECIFICATIONS” on page 3), it may not be able to maintain sufficient vacuum for lifting. Contact WPG for more information.

# OPERATION

## To Lift and Move the Load



***Lift bar must be vertical to lift load.***



## Interpreting the Vacuum Gauge



Vacuum is sufficient to lift the Maximum Load Capacity whenever the vacuum gauge registers in the green range.



***Never lift load unless vacuum gauge registers in the green range, because premature lifting could result in load release and personal injury.***

## Monitoring the Vacuum Gauge

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



***Make sure the vacuum gauge remains completely visible.***

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

However, if 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.



***Stay clear of any suspended load while gauge warns of low vacuum.***

- 2) Stop using the lifter until the cause of the vacuum loss can be identified: Conduct the “[Pad Inspection](#)” on page 26 and perform the “[Vacuum Test](#)” on page 24.
- 3) Correct any faults before resuming normal operation of the lifter.



# 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

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”** on page 10 and the condition of the vacuum pads (see **“VACUUM PAD MAINTENANCE”** on page 26).

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.



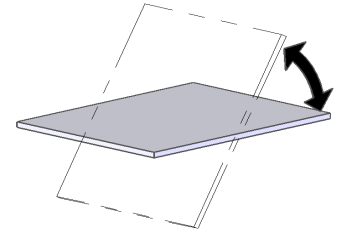
***Stay clear of any suspended load during power failure.***

# OPERATION

## TO TILT THE LOAD



**Make sure load is positioned correctly on lifter (as previously directed).**

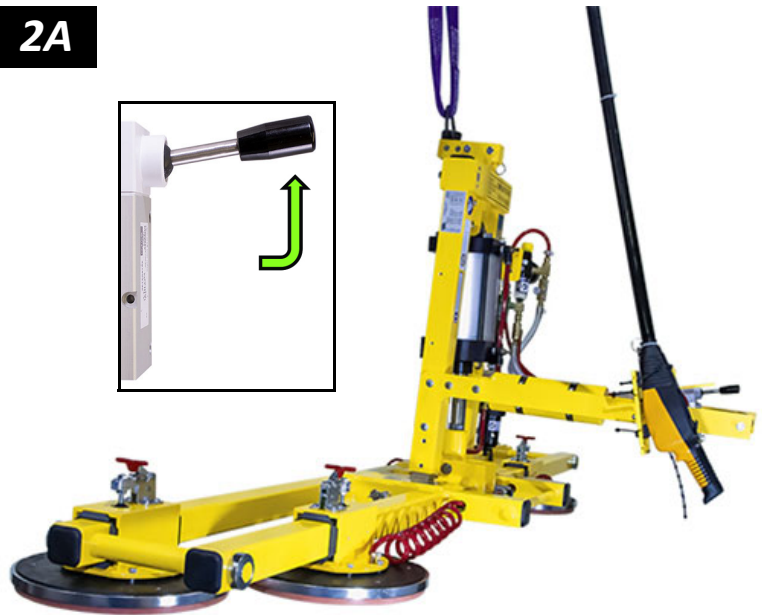


**Caution:** Unbalanced loads can interfere with the lifter's tilt capability.

- 1) Make sure the load has enough clearance to tilt without contacting anyone or anything.
- 2) Use the tilt control valve to tilt the load as required:

- To move the load towards the *flat* position (fig. 2A), push the valve lever *upward* (fig. 2A inset).

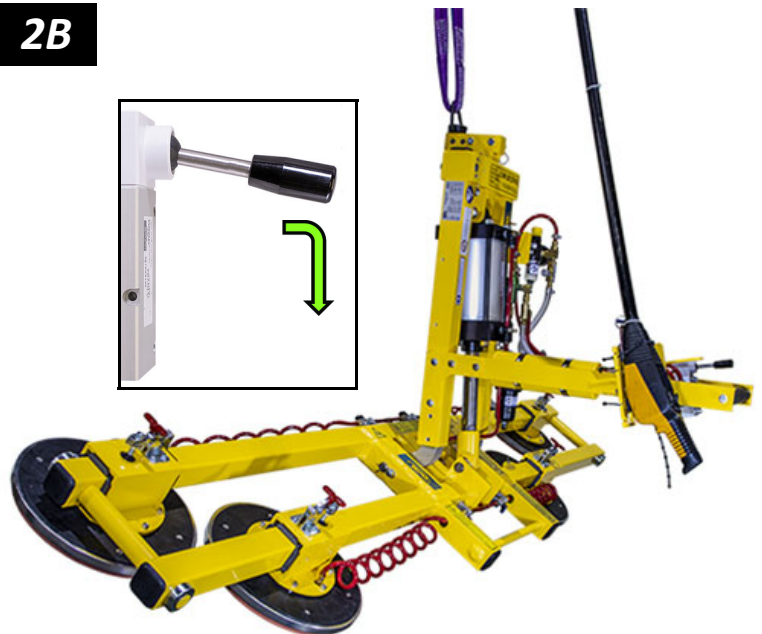
**2A**



*Note: Release the lever to stop the load in the current position.*

- To move the load towards the *upright* position (fig. 2B), push the valve lever *downward* (fig. 2B inset).

**2B**



*Note: Release the lever to stop the load in the current position.*

*Note: See "LOAD CHARACTERISTICS" on page 10 for information about allowable overhang.*

# OPERATION

## TO RELEASE THE PADS FROM THE LOAD



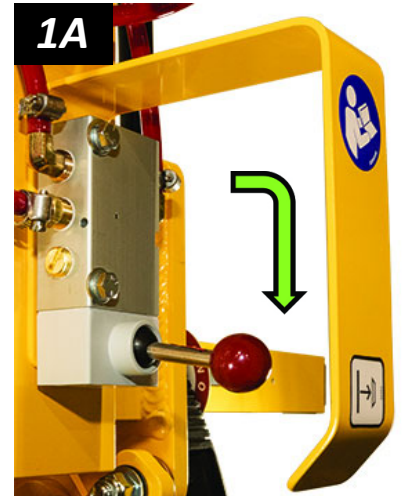
***Make sure load is at rest and fully supported before releasing vacuum pads.***

- 1) Place the lever on the vacuum control valve in the “release” position (|→) to break the vacuum seal (fig. 1A).



***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) Place the lifter in stand-by mode (see below).
- 4) Before you lift another load, perform the Every-Lift Inspection (see “[INSPECTION SCHEDULE](#)” on page 22).



## About Stand-By Mode

Move the lever on the vacuum control valve to the center position (fig. 1B).



***Never move valve lever to center position while lifting load, because this could result in load release and personal injury.***

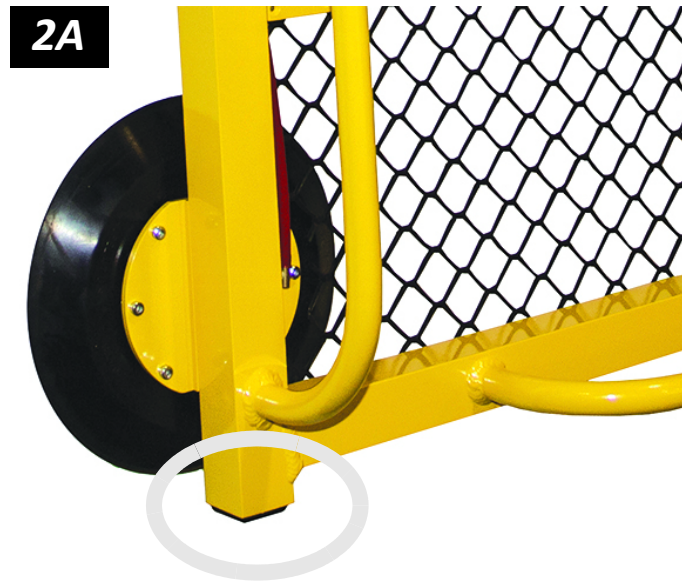


## AFTER USING THE LIFTER

- 1) Place the air supply valve in the “off” position (○).
- 2) Use the hoisting equipment to lower the vacuum lifter gently onto a stable support. Then detach the hoisting hook from the lift point.

**Caution:** Do not set lifter on surfaces that could soil or damage vacuum pads. Protect their sealing rings by making sure each pad rests on spacers.<sup>1</sup>

*Note: Parking feet (circled in fig. 2A) on the pad frame can be used to support an unloaded lifter when not suspended. Make sure the lifter leans securely against an appropriate support that does not contact the vacuum pads.*



## Storing the Lifter

- 1) Disconnect the compressed air supply (see “ASSEMBLY” on page 8).
- 2) Use the covers supplied to keep the vacuum pads clean (fig. 1A).

**CE/UKCA** — To prevent the lifter from tipping over on relatively horizontal surfaces, place the vacuum pads facedown on a clean, smooth, flat surface.



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

## Transporting the Lifter

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

1..... Cardboard spacers are integrated into the original shipping container. Similarly shaped spacers should be used when setting the lifter on other surfaces.

# 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 contaminants or damage (see “ <a href="#">Pad Inspection</a> ” on page 26).	✓	✓	✓
Examine load surface for contaminants 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 filters</u> for conditions requiring service (see “AIR FILTER MAINTENANCE” in <a href="#">SERVICE MANUAL</a> ).		✓	✓
Perform “ <a href="#">Vacuum Test</a> ” on page 24.		✓	✓
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>			✓

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](#)” on page 31).



## TESTING

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

### Lifter/Load Compatibility Test<sup>1</sup>

- 1) Make sure the vacuum generating system is functioning correctly (see “[Vacuum Test](#)” on page 24).
- 2) Thoroughly clean the load surface and the vacuum pads (see “[Pad Cleaning](#)” on page 27).
- 3) Place the load in the 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 air supply valve 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>2</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..... The “[Pad-to-Load Friction Coefficient](#)” (see page 26) can affect the outcome of this test.

2..... 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*” on page 22, 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*” on page 27).
- 2) Use a test load with weight equal to the Maximum Load Capacity, a clean, smooth, nonporous surface and other appropriate “*LOAD CHARACTERISTICS*” (see page 10).<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 air supply valve 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” on page 10. 
- 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” on page 10.
- 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 #36112](#) when applicable.

## VACUUM PAD MAINTENANCE

### Pad-to-Load Friction Coefficient

The friction coefficient represents the lifter's ability to resist load slippage. The Maximum Load Capacity is based on a friction coefficient of 1, as 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 and sealing rings (if applicable) every 2 years or more often when necessary.

### Pad Inspection

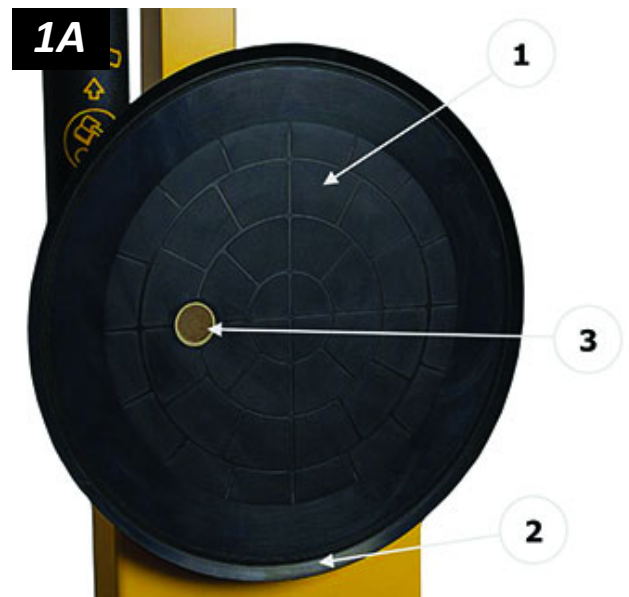
Inspect each vacuum pad (fig. 1A) according to the “[INSPECTION SCHEDULE](#)” on page 22 and correct the following faults before using the lifter (see “[REPLACEMENT PARTS](#)”, when applicable):

- 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.



<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.

# MAINTENANCE

## TO REPLACE SEALING RING IN VPFS10T PADS

If the lifter has VPFS10T vacuum pads, replace sealing rings (#49724RT or #49724TT) as follows:

- 1) Remove the old sealing ring (fig. 1A).

*Note: Make sure the entire vacuum pad is clean, including the mounting groove.*

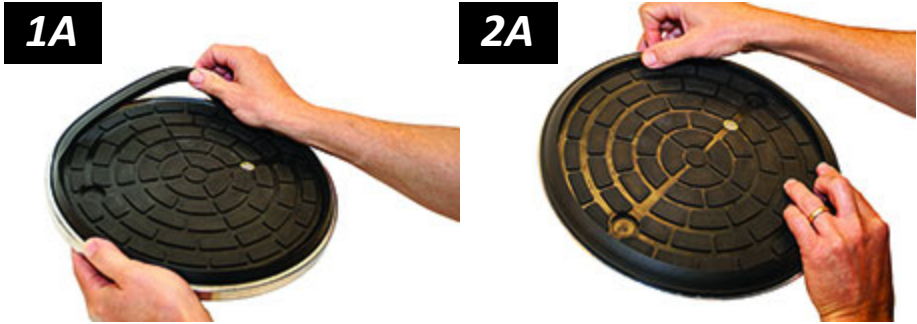
- 2) Place the inside edge of a new sealing ring against the inside edge of the mounting groove (fig. 2A).

- 3) Push the sealing ring into the mounting groove, beginning in 4 locations as shown circled in fig. 3A.

- 4) Push gently and firmly on the outside edge of the sealing ring until the flat side fits flush against the bottom of the mounting groove (fig. 4A). A pad ring installation tool (circled in fig. 4A) makes this step easier (see [“REPLACEMENT PARTS”](#) on page 30).

- 5) Make sure the sealing ring seats securely in the mounting groove, all the way around the vacuum pad (fig. 5A).

*Note: If any part of the sealing ring comes out of the mounting groove, inspect the sealing ring for damage and reinstall an undamaged sealing ring.*



## SLIDING ADJUSTABLE PAD MOUNT MAINTENANCE

### Clamp Inspection

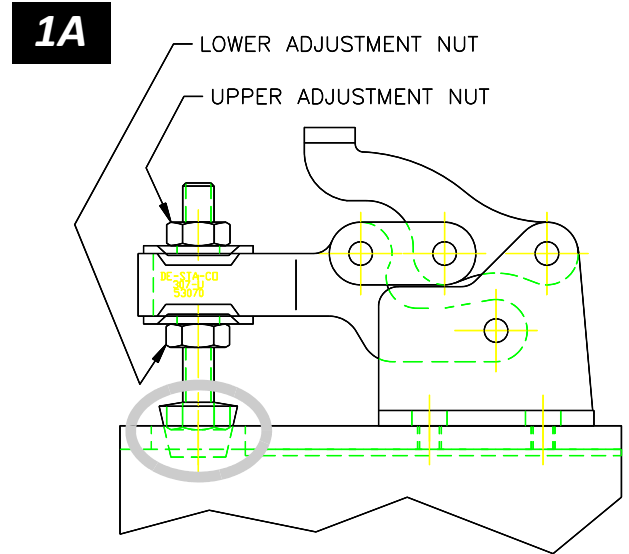
For each sliding adjustable pad mount on the lifter, inspect its clamp (fig. 1A) for damage and worn parts. Make sure that the clamp's contact pad (circled) is not so worn that metal is exposed. Engage each clamp to make sure that the pad mount is held securely in place. Correct any deficiency before using the lifter.

### Clamp Adjustment

Adjust the clamp as follows<sup>1</sup>:

- To *increase* the clamping force, release the clamp, loosen the upper adjustment nut and tighten the lower adjustment nut.
- To *decrease* the clamping force, release the clamp, loosen the lower adjustment nut and tighten the upper adjustment nut.

After making an adjustment, slowly engage the clamp, making sure the contact pad fits freely through the hole in the pad mount tube. Once the clamp is engaged, make sure the clamp securely holds the sliding adjustable pad mount in place. Be sure to verify the clamp adjustments before resuming lifter operation.



1..... WPG recommends that adjustments are made in increments of 1 nut revolution.

# REPLACEMENT PARTS

Stock No.	Description	Qty.
93012	Pad Shutoff Valve	4
65443	Vacuum Hose – 3/8" ID x 5/8" OD – Clear	*
65440	Vacuum Hose – 0.245" ID x 3/8" OD – Red	*
65436	Pressure Hose – 1/4" ID	*
65301	Foam – Handle Grip	*
65010	Pad Spring – Coil Type	4
53122	Pad Fitting – Elbow – 5/32" ID	4
49724TT	Sealing Ring for VPSFS10T Vacuum Pad – Closed Cell Foam	4
49724RT	Sealing Ring for VPSFS10T Vacuum Pad – Heat-Resistant Rubber	4
49672FT	Vacuum Pad – Model VPSFS10T – 10" [25 cm] Diameter – w/Replaceable Sealing Ring	4
49122	End Plug – 2" x 2" x 1/4" Tubing Size	8
48003	Clamp (for pad mounts)	4
36112	Service Manual – Compressed Air Power System	1
29353	Pad Cover	4
20050	Pad Ring Installation Tool	1
15749	Cable Tie Strap – Elastic Rubber (for pendant mount)	2
15632	Pad Filter Screen – Small	4
10900	Shoulder Bolt – Socket Head – 5/16" x 1/2" x 1/4-20 Thread (for mounting pads)	24

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

See **SERVICE MANUAL #36112** 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)

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**POWER TILTER,  
AIR-POWERED**

Model number: PT410TAIR

TYPE: PROJECT	FILE DIRECTORY: SO275977-W01 [W01]
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 - - - N/A - - - N/A - - - PRODUCT MANAGER: KELLY K. DATE: 09/14/2016 CHECKED: APPROVED:	
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SIZE: A NONE SCALE: NONE REVISION: 00.A ECN NUMBER: 09/14/2016 VER 00.A ECN DATE: 09/14/2016 ECN BY: KMK EST. WEIGHT: N/A	

