

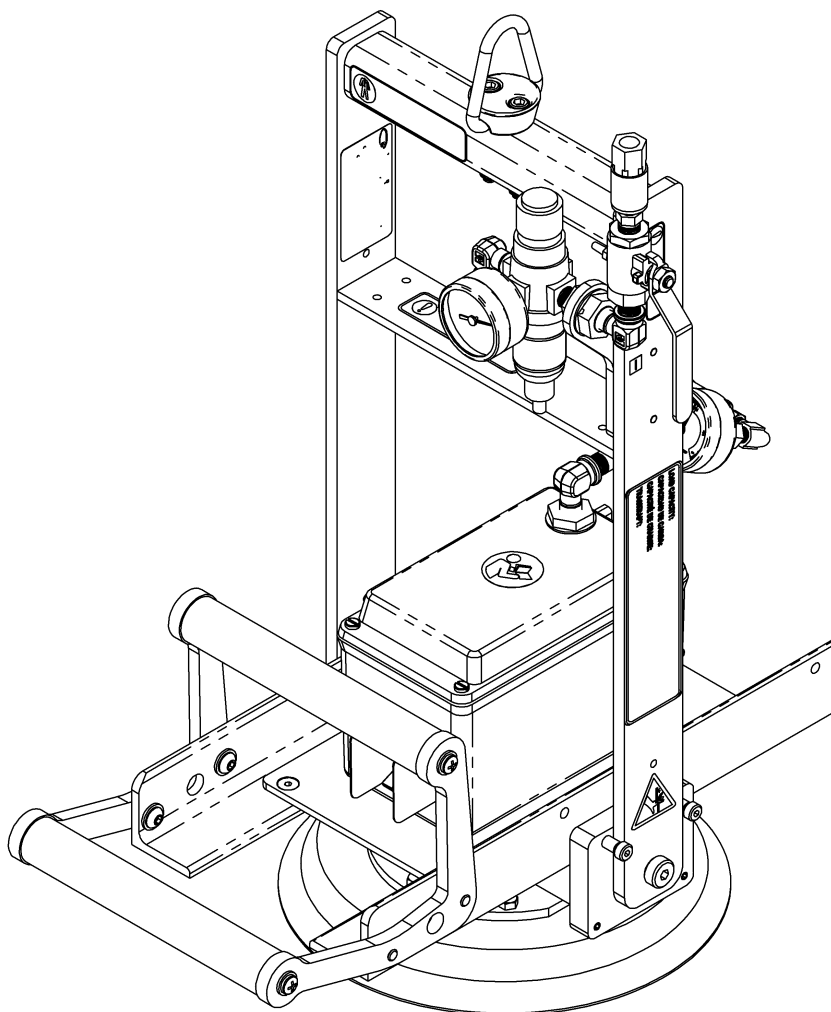
KEEP FOR FUTURE REFERENCE

OPERATING INSTRUCTIONS



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



FLAT LIFTER 300, AIR-POWERED

Model number: FL1HV11AIR

(record serial number in blank space above;
to locate number, see serial label on product)






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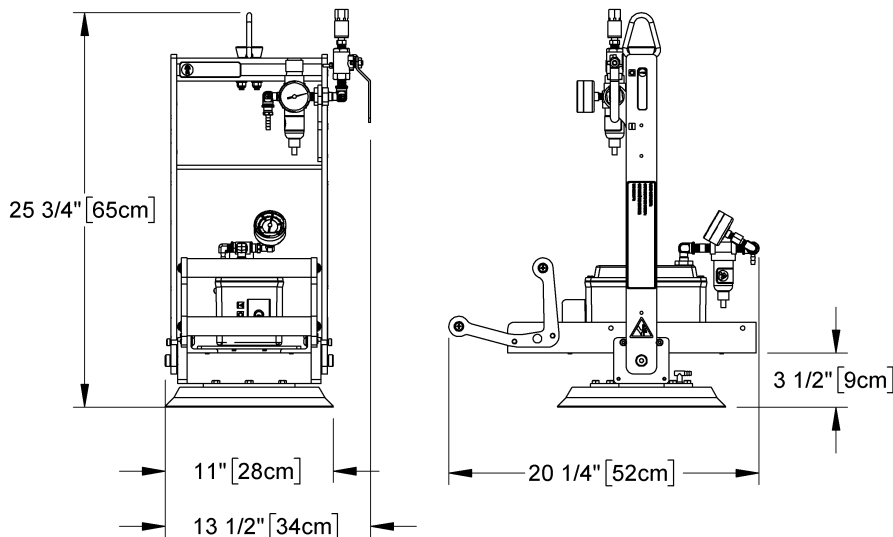
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SPECIFICATIONS

Product Description	Designed for use with hoisting equipment, the FL1HV11AIR lifter supports loads using vacuum for lifting in the flat orientation.
Model Number	FL1HV11AIR
Vacuum Pad¹ (standard rubber)	10" [25 cm] nominal diameter, lipped (Model HV11)
Pad Spread (to outer edges)	11" x 11" [28 cm x 28 cm]
 Maximum Load Capacity²	300 lbs [135 kg]
 Lifter Weight	35 lbs [16 kg]
Power Source	Compressed air, 80-150 psi [550-1035 kPa] line pressure, 2 SCFM [57 liters/minute] @ 80 psi [550 kPa]
 Product Options	See separate instructions about options.
 Operating Elevation	Up to 6,000' [1,828 m]
 Operating Temperatures	32° — 104° F [0° — 40° C]
Service Life	20,000 lifting cycles, when used and maintained as intended. ³
ASME Standard BTH-1	Design Category "B", Service Class "0" (see www.wpg.com for more information)
Troubleshooting Guide⁴	TST-016_GENERIC_LEAK_TEST_rev_2014-086.pdf

- 1..... Available with other rubber compounds for special purposes (see www.wpg.com).
- 2..... 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" on page 19).
- 3..... Vacuum pads, filter elements and other wear-out items are excluded.
- 4..... To view this guide, search for your lifter's Model Number at www.wpg.com and select the "Troubleshooting" link on the product page.

!!-CE-!! This symbol appears only when a CE Standard is different from other applicable standards. CE requirements are mandatory in the European Union, but may be optional elsewhere.



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 pad are clean before attaching the lifter (see "MAINTENANCE").



Position the vacuum pad 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.



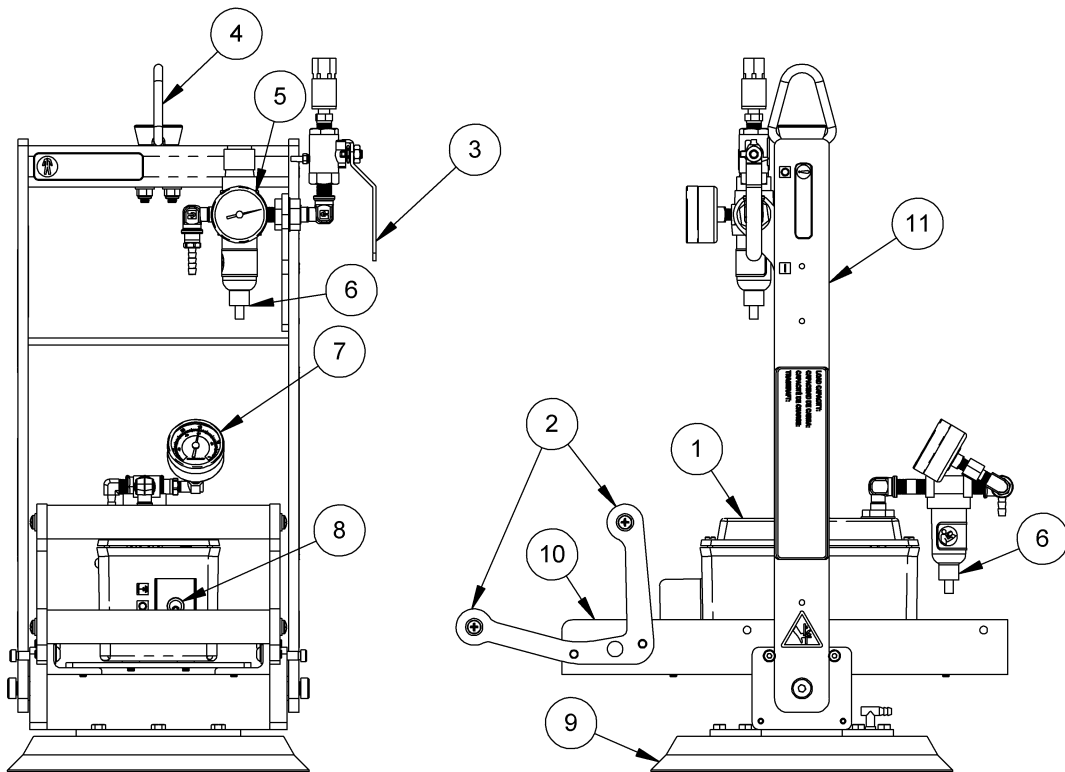
Do not position a loaded or unloaded lifter over people.



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.



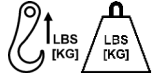
- | | | | |
|----|---|----|------------------------------|
| 1 | Enclosure with <u>VACUUM PUMP</u> (venturi) | 2 | <u>CONTROL HANDLES</u> |
| 3 | <u>AIR SUPPLY VALVE</u> | 4 | <u>LIFT POINT</u> |
| 5 | <u>AIR PRESSURE REGULATOR/GAUGE</u> | 6 | <u>AIR FILTERS</u> |
| 7 | <u>VACUUM GAUGE</u> | 8 | <u>ATTACH/RELEASE SWITCH</u> |
| 9 | <u>VACUUM PAD</u> | 10 | <u>PAD FRAME</u> |
| 11 | <u>LIFT BAR</u> | | |

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 22 and/or any separate instructions for Product Options.

ASSEMBLY

- 1) Remove all lifter restraints and save them with the shipping container for future use.
- 2) 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) Attach the hoisting hook to the lift point (fig. 3A).

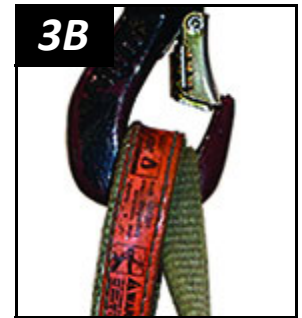


Make sure hook has restraining latch (circled).

Note: Use rigging as needed to make sure the hook does not interfere with the load (fig. 3B).



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



- 4) Use the hoisting equipment to remove the lifter from the shipping container. Avoid damaging the vacuum pad.
- 5) Remove the pad cover (fig. 5A) and save it for future use.



ASSEMBLY

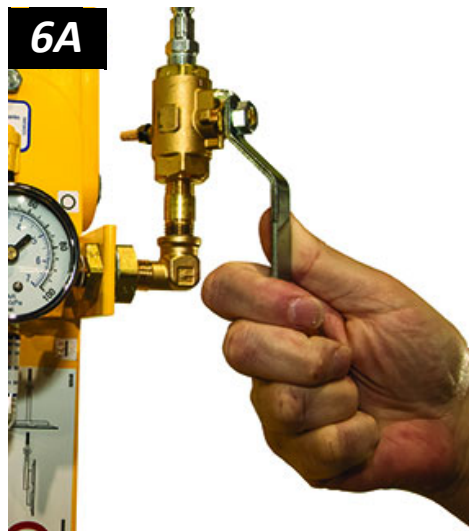
- 6) Connect the lifter to an appropriate compressed air supply (see Power Source under “SPECIFICATIONS” on page 3):

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

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

- 6.1) Connect the female quick connector to the male quick connector leading directly to the air supply valve. Then adjust the air pressure regulator to supply 80 psi [550 kPa].¹

- 6.2) Place the air supply valve in the “on” position (| — fig. 6A), to engage the compressed air supply.



- 6.3) Pull up the adjustment collar on top of the regulator. Turn the collar



clockwise to increase pressure or counter-clockwise to reduce pressure (fig. 6B).

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

Note: Place the air supply valve in the “off” position (○ — fig. 6C) when the lifter is not in use; otherwise, the air compressor will cycle frequently.



- 7) Perform tests as required under “TESTING” on page 17.

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.^{1, 2} To determine whether the load is too porous or rough, perform a “[Lifter/Load Compatibility Test](#)” on page 17.
- The load's surface temperature must not exceed the Operating Temperatures.³
- 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.⁴



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.⁵

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 pad 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.

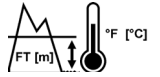
INTENDED USE

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.^{1, 2}
- 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-!! 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 8). 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 16 and “[TESTING](#)” on page 17.
- 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.

OPERATION

TO ATTACH THE PAD TO A LOAD

Generating Airflow

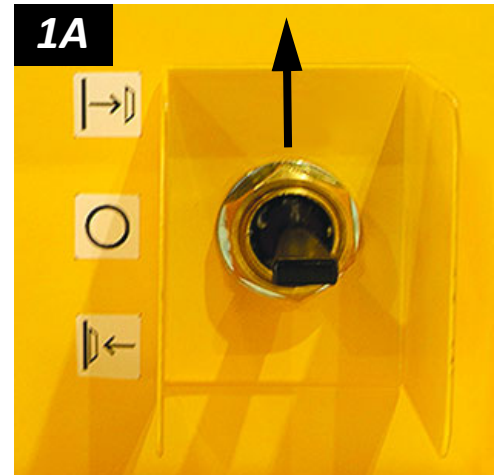
- 1) Make sure the attach/release switch is in the “release” position (|→) — arrow in fig. 1A).



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

- 2) Place the air supply valve in the “on” position (| — see “ASSEMBLY” on page 7).

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 pad is clean (fig. 1B — see “Pad Cleaning” on page 21).¹

1B



- 2) Center the pad frame on the load (fig. 2B), to avoid unexpected load movement or release.

2B



Always center pad on load.

Off-center loading could result in personal injury, as well as damage to the lifter or load.²

- 3) Make sure the pad will fit on the load.
- 4) Place the pad in contact with the load surface.

1..... Since oil damages the rubber in standard pads, the load surface must be free of oil unless the lifter is equipped with optional oil-resistant pads (see “REPLACEMENT PARTS” on page 22).

2..... The lifter is designed to handle the maximum load weight when the load’s center of gravity is positioned within 3" [7.5 cm] of the pad frame’s center point.

OPERATION

Sealing the Pad against the Load

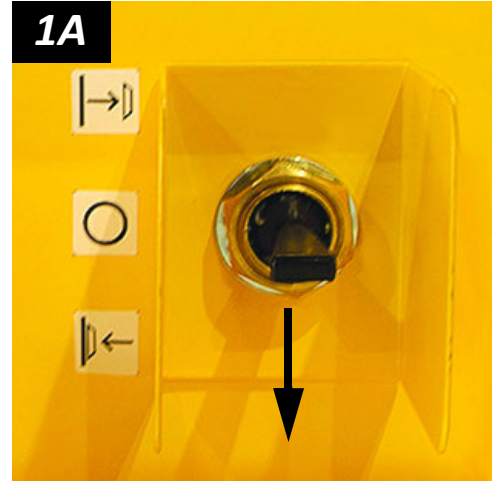
- 1) Place the attach/release switch in the “attach” position (↵ ← — arrow in fig. 1A).¹



Keep switch 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 pad seals completely against the load.²



Reading the Vacuum Gauge

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

- Green range (≥ 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 the vacuum pad until it has sealed.

Once the pad has sealed, the lifter should be able to maintain sufficient vacuum for lifting, except when used above the maximum Operating Elevation.³ If it does not, perform the “[Vacuum Test](#)” on page 18.

1..... Do not place the attach/release switch in the “attach” position until the vacuum pad is contacting the load.

2..... Although the 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

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 20 and perform the “[Vacuum Test](#)” on page 18.
- 3) Correct any faults before resuming normal operation of the lifter.

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.

1B



1A



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 8 and the condition of the vacuum pads (see “[VACUUM PAD MAINTENANCE](#)” on page 20).

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 PAD FROM THE LOAD



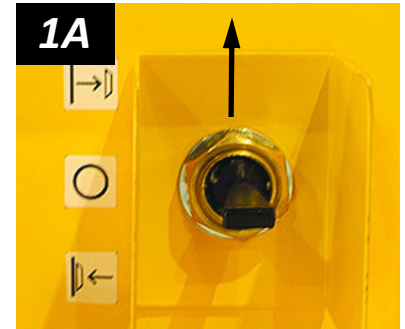
Make sure load is at rest and fully supported before releasing vacuum pad.

- 1) Place the attach/release switch in the “release” position (|→| — arrow in fig. 1A), to break the vacuum seal.



Do not move lifter until pad releases completely, because such movement could result in load damage or personal injury.

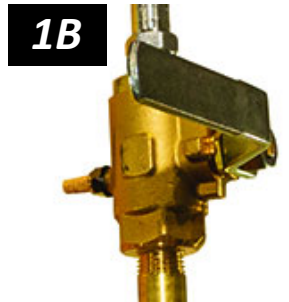
- 2) After the load is successfully released, move the lifter away.
- 3) Please the attach/release switch in the “off” position (○ — fig. 1A).
- 4) Before you lift another load, perform the Every-Lift Inspection (see “[INSPECTION SCHEDULE](#)” on page 16).



AFTER USING THE LIFTER

- 1) Place the air supply valve lever in the “off” position (○ — fig. 1B).
- 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 the vacuum pad.



Storing the Lifter

- 1) Disconnect the compressed air supply (see “[ASSEMBLY](#)” on page 7).
- 2) Use the cover supplied to keep the vacuum pad clean (fig. 2C).

!!–CE–!! To prevent the lifter from tipping over on relatively horizontal surfaces, place the vacuum pad 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.

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 ¹ (every 20-40 hrs)	Periodic ² (every 250-400 hrs)
Examine <u>vacuum pad</u> for contaminants or damage (see “ Pad Inspection ” on page 20).	✓	✓	✓
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 SERVICE MANUAL).		✓	✓
Perform “ Vacuum Test ” on page 18.		✓	✓
Check for unusual vibrations or noises while operating lifter.		✓	✓
Examine entire lifter for evidence of: <ul style="list-style-type: none"> • looseness, excessive wear or excessive corrosion • deformation, cracks, dents to structural or functional components • cuts in vacuum pad or hoses • any other hazardous conditions 			✓

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 23).

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](#)” on page 18).
- 2) Thoroughly clean the load surface and the vacuum pad (see “[Pad Cleaning](#)” on page 21).
- 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 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.***¹ 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 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 16, 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 21).
- 2) Use a test load with weight equal to the Maximum Load Capacity, a clean, smooth, nonporous surface and other appropriate “*LOAD CHARACTERISTICS*” on page 8.¹ 
- 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.²

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

2..... For more information, search for your lifter’s Model Number at www.wpg.com and select the “Troubleshooting” link on the product page.

INSPECTIONS AND TESTS

Rated Load Test¹

The following steps must be performed or supervised by a qualified person:²

1) Use a test load that weighs 125% ($\pm 5\%$) of the Maximum Load Capacity and has the appropriate “LOAD CHARACTERISTICS” on page 8.



2) Attach the vacuum pad to the load as previously directed.

3) Position the load to produce the greatest stress on the lifter consistent with “INTENDED USE” on page 8.

4) Raise the load a minimal distance and leave it suspended for 2 minutes.



Take precautions in case load should fall during test.

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.



Never use lifter that has failed test.

7) Prepare a written report of the test and keep it on file.

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

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.***¹



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

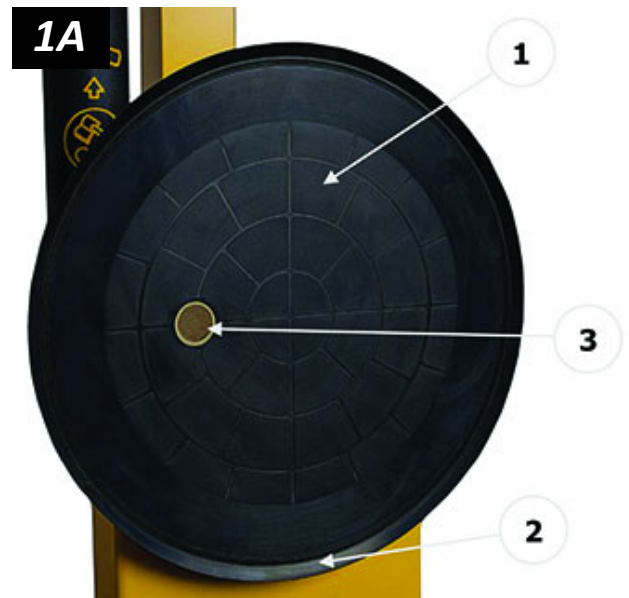
Inspect the vacuum pad (fig. 1A) according to the “**INSPECTION SCHEDULE**” on page 16 and correct the following faults before using the lifter (see “**REPLACEMENT PARTS**”, when applicable):

- 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 the 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 the pad face clean, using a clean sponge or lint-free cloth to apply the cleanser.¹
- 4) Allow the pad to dry completely before using the lifter.



¹..... 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.
65440	Vacuum Hose – 0.245" ID x 3/8" OD – Red	*
65438	Vacuum Hose – 1/8" ID x 1/4" OD – White	*
65430	Vacuum Hose - 7/32" ID x 7/16" OD – Black	*
65301	Handle Grip Foam	*
53122	Pad Fitting - Elbow - 5/32" ID	1
49606T	Vacuum Pad – Model HV11 / 10" [25 cm] Diameter – Lipped – Chemical-Resistant (optional)	1
49605T	Vacuum Pad - Model HV11 / 10" [25 cm] Diameter	1
29353	Pad Cover	1
15630	Pad Filter Screen - Large	1
10704	Bolt – Hex Head – 5/8" x 1/4-20 Thread (for mounting pad)	6

*Length as required; vacuum hose 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 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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PROFESSIONALS • READ AND UNDERSTAND
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Laurel, MT USA 59044
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406-628-8354 (fax) • www.WPG.com

**FLAT LIFTER 150,
AIR-POWERED**

Model number: FL1HV11AIRS

WORKING LINE
 PILOT CONTROL LINE
 OUTLINE OF ENCLOSURE
 PLUG

TOLERANCES: CONTROLLED BY STANDARD DN05C001 EXCEPT AS NOTED AND LISTED BELOW.
 DECIMAL ANGULAR FRACTIONAL
 X.XX ± N/A X° ± N/A X/XX ± N/A
 X.XXX ± N/A X' ± N/A X/XXX ± N/A
 Ø X.XXX ± N/A Ø 1" ± N/A Ø X/XXX ± N/A
 UNITS: INCHES [MILLIMETERS], DO NOT SCALE.
 DRAWN: L. RENNER DATE: 01/10/2005
 CHECKED: *cl*
 APPROVED: *Dean* 02-08-12
 7-13-12

TYPE: STANDARD
 DIRECTORY: H:\Working\STDY71-AIR\PIECN 2787
 FILE (SHEET): 711-W01 [W01]
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