KEEP FOR FUTURE REFERENCE

OPERATING INSTRUCTIONS

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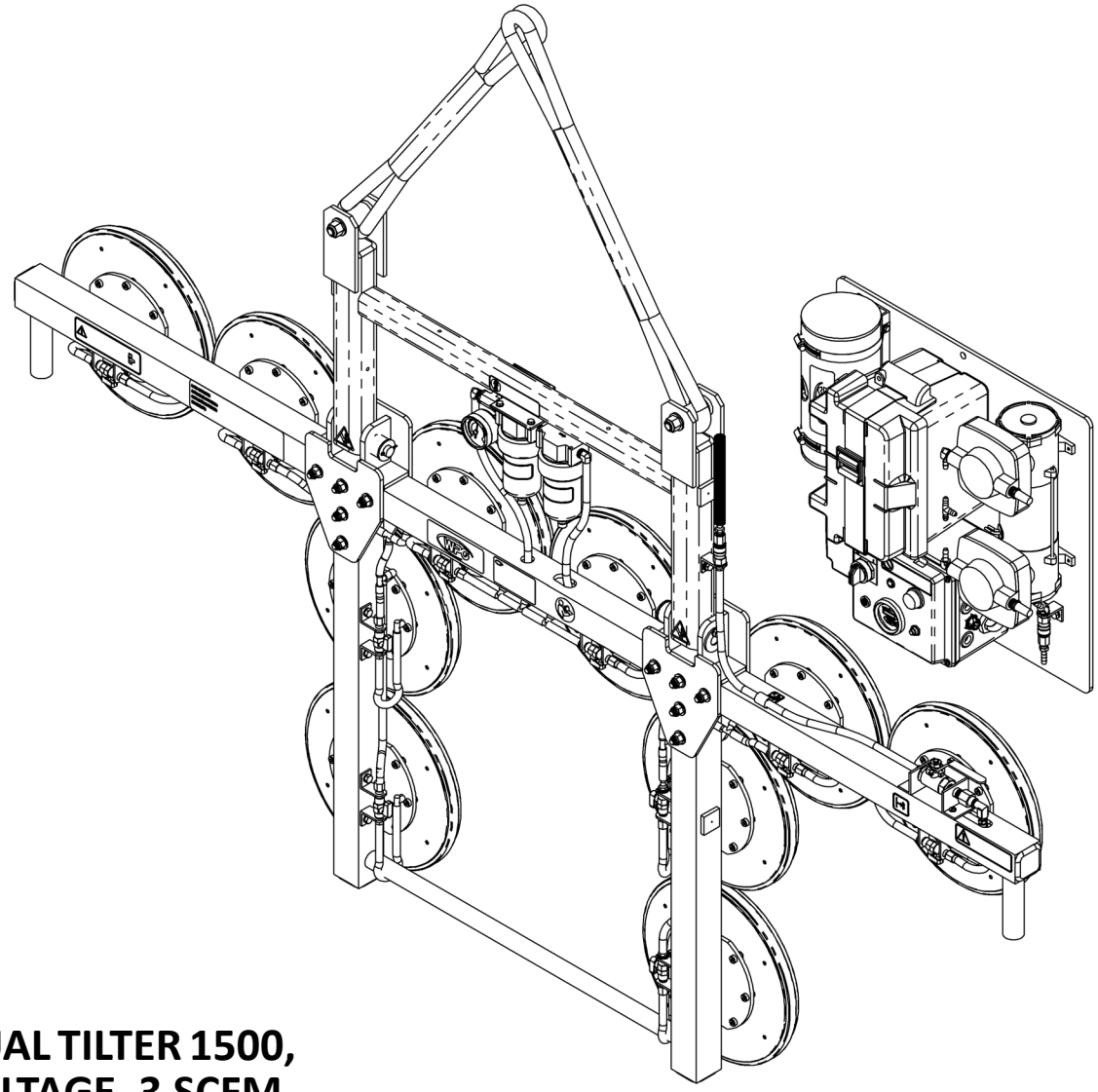
INTENDED FOR USE BY SKILLED PROFESSIONALS • READ AND UNDERSTAND BEFORE OPERATING



MANUAL TILTER 1500, DC-VOLTAGE, 3 SCFM

Model number: MT1010TDC

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

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SPECIFICATIONS

Product Description	Designed for use with hoisting equipment, MT1010TDC lifters support loads using vacuum and manipulate loads using manual 90° tilt motions.
Model Number	MT1010TDC
Vacuum Pads (standard rubber[1])	Ten 10" [25 cm] nominal diameter with replaceable sealing rings for rough or textured surfaces (Model VPFS10T).
Pad Spread (to outer edges)	33¼" x 77¾" [85 cm x 197 cm]
Maximum Load Capacity[2]	Per pad: 150 lbs [68 kg] Total: 1500 lbs [680 kg]
Lifter Weight	130 lbs [59 kg]
Vacuum Package Weight	65 lbs [30 kg]
Power Source	12 volts DC, 26 amps
Battery Capacity	28 amp-hours
Tilt Capability	Manual, 90°
Product Options	*Available* with Center Spool Lift Bar. See separate instructions about other 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"
Troubleshooting Guide[4]	TST-016_GENERIC_LEAK_TEST_rev_2014-086.pdf

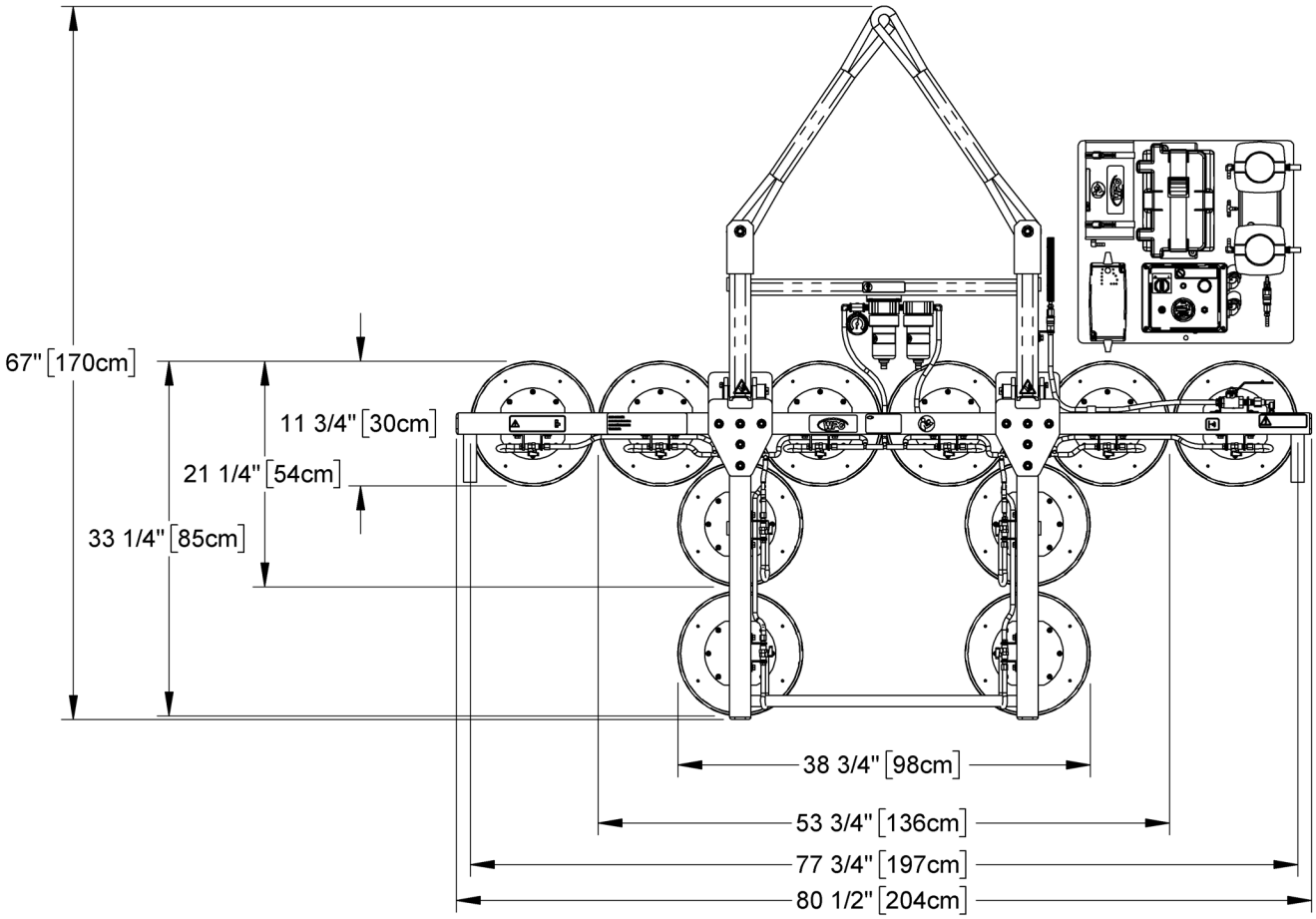
1..... Available with other rubber compounds for special purposes (see www.wpg.com).

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").

3..... Vacuum pads, filter elements and other wear-out items are excluded.

4..... To view this guide, click the link at right. Additionally, you can search for your lifter's Model Number at 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.

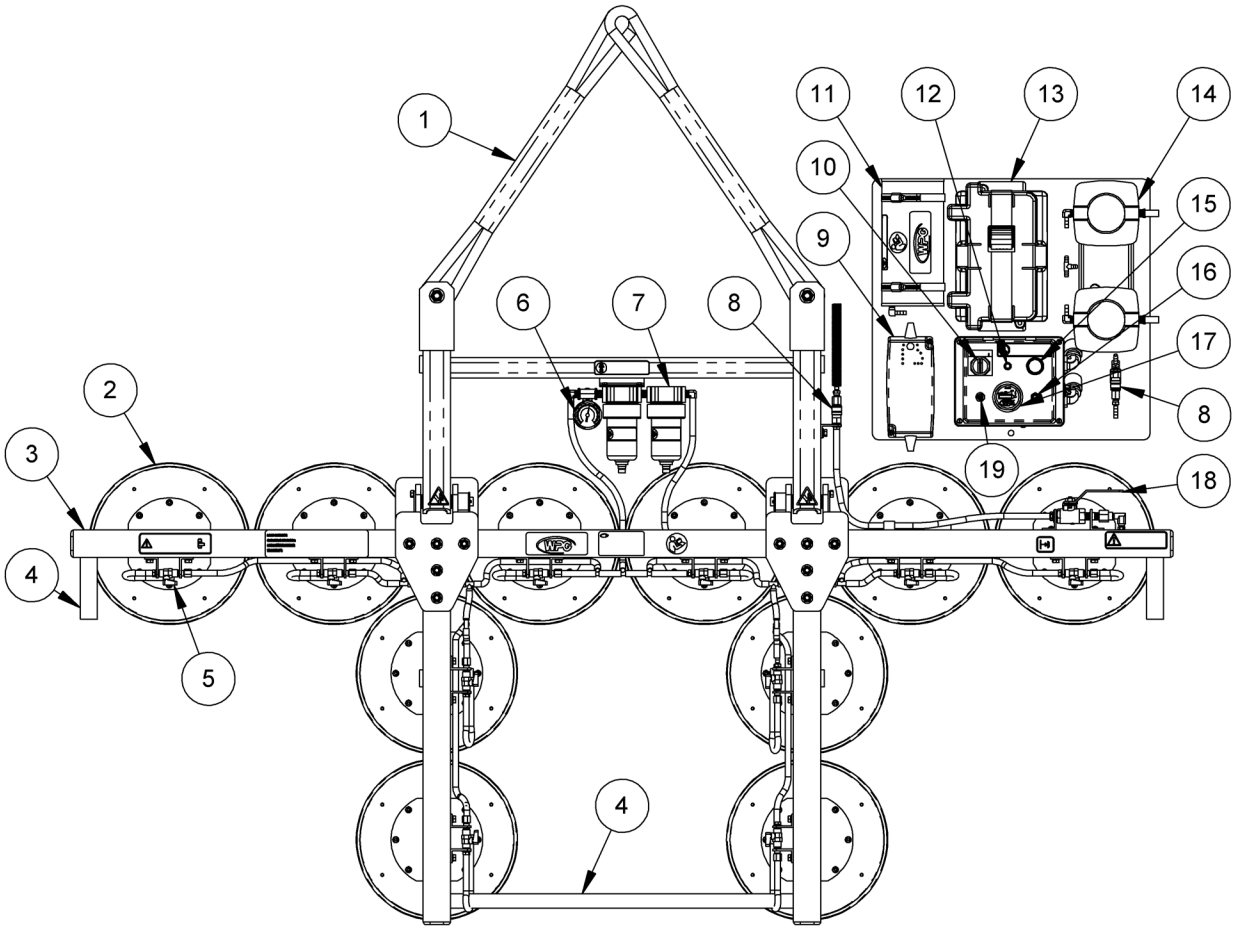
Do not lift a load higher than necessary or leave suspended loads unattended.

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 SLING	2	VACUUM PAD	3	PAD FRAME
4	CONTROL HANDLES	5	PAD SHUTOFF	6	VACUUM GAUGE
7	AIR FILTERS	8	QUICK CONNECTORS	9	BATTERY CHARGER
10	POWER SWITCH	11	VACUUM RESERVE TANK	12	POWER LIGHT (blue)
13	BATTERY BOX	14	VACUUM PUMP	15	LOW VACUUM WARNING LIGHT (red)
16	BATTERY TEST BUTTON	17	BATTERY GAUGE	18	VACUUM CONTROL VALVE
19	CIRCUIT BREAKER				

Note: Although some of the following photos do not show this specific lifter, they all illustrate how this kind of lifter functions.

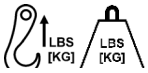
For information about specific parts, see "REPLACEMENT PARTS" and/or any separate instructions for Product Options.

ASSEMBLY

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

2) Suspend the lifter from a forklift or other appropriate hoisting equipment:

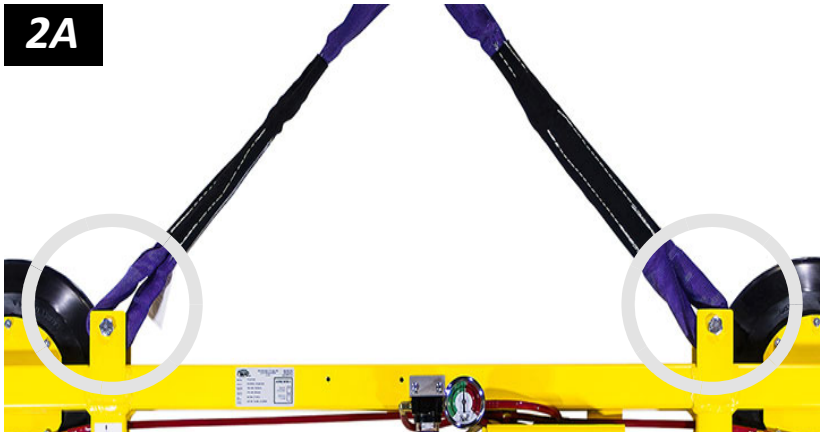
2.1) Select hoisting equipment rated for the Maximum Load Capacity plus the Lifter Weight.



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

2.2) Make sure the lift slings are securely attached to the lifter (circled in fig. 2A).

2A



2.3) Attach the free eye of each lift sling to the hoisting equipment hook (fig. 2B).[1]

2B

2C

> ***Make sure hook has restraining latch (circled in fig. 2C).***

Note: A large clevis makes it easier to connect or disconnect the lift slings.

> ***Only use clevis and clevis pin rated for Maximum Load Capacity plus Lifter Weight.***

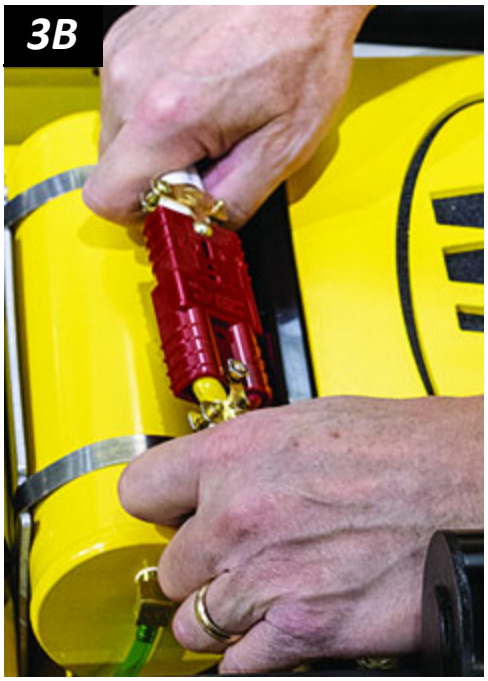
2.4) Use the hoisting equipment to remove the lifter from the shipping container. Avoid damaging the vacuum pads. Remove the pad covers (fig. 2D) and save them for future use.

2D

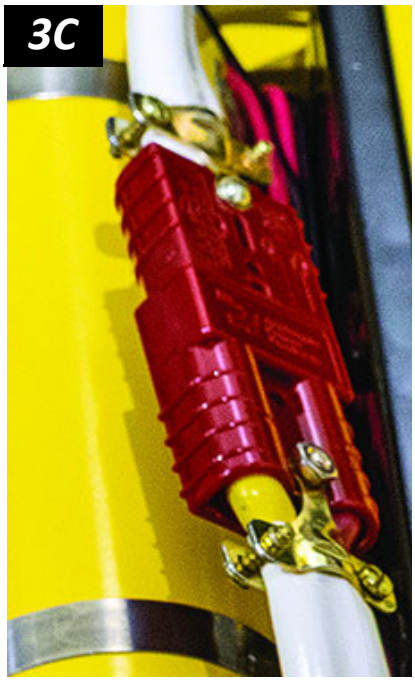
1..... If the lifter has a Center Spool Lift Bar, disregard the directions about lift slings. Instead, attach the hoisting equipment hook directly to the lift spool. All other directions and warnings still apply.

3A

3B



3C

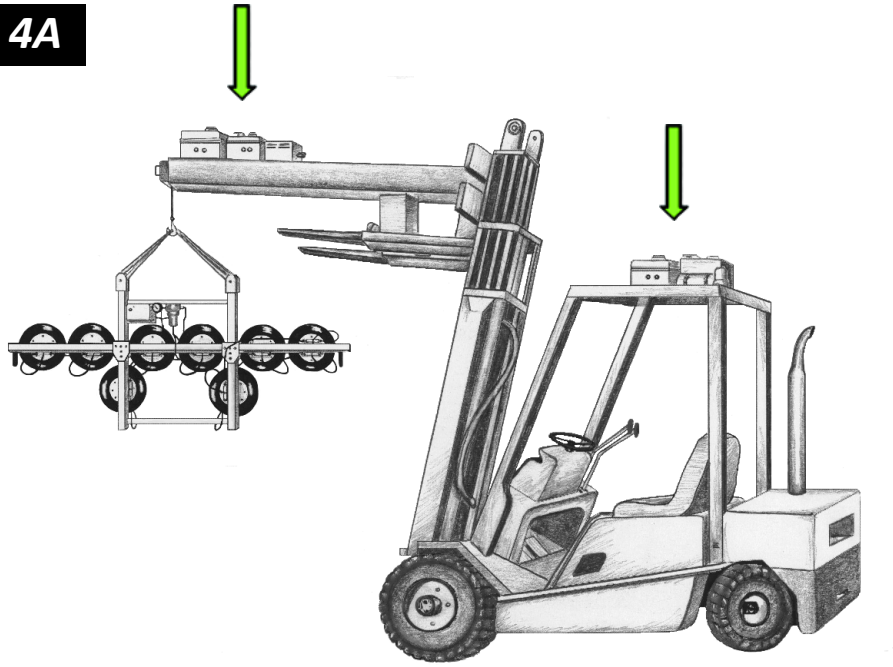


3) Connect the electrical connectors on the vacuum package (fig. 3A-C).

4) Attach the vacuum package securely to the forklift or other hoisting equipment in a protected location where the vacuum package will move with the lifter and will ***not*** interfere with hoisting equipment (see arrows in fig. 4A for two potential mounting locations).[1]

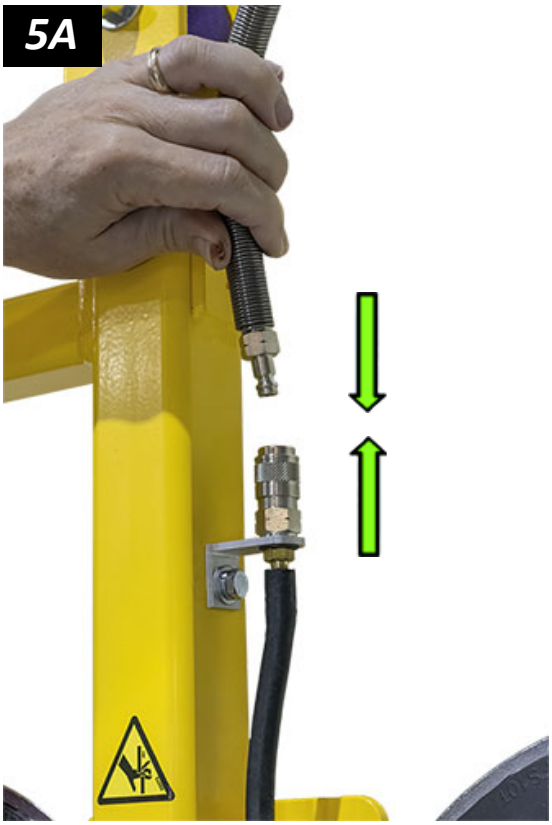
   Caution: *The low vacuum warning light must remain visible at all times (see "MONITORING VACUUM INDICATORS").*

4A



1..... Consult the hoisting equipment manufacturer to determine how to mount the vacuum package in a safe location that will not interfere with hoisting equipment operation.

5) Route the vacuum line from the vacuum package to the lifter, ***making sure the line will not become tangled during operation***. Then connect the line using quick connectors (figs. 5A-B).



6) Perform tests as required under "TESTING".

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 the "Lifter/Load Compatibility Test".
- 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"). Otherwise, the capacity should be derated appropriately.
- 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").
- The load's *maximum* length and width are determined by its allowable overhang.[4]
- Although load thickness is not restricted, it may affect the lifter's hang angle and the amount of operator effort required for handling loads.

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 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

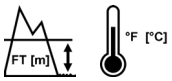
Make sure the vacuum lifter is intended for use in each work environment, given the following restrictions:

- 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 <u>vacuum pump</u> failure.***

- 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.

> ***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.

Note: Special disposal regulations may apply to the <u>battery</u>.

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".
- Service the air filters whenever their bowls contain liquid or other contaminates, or their elements appear dirty (see "AIR FILTER MAINTENANCE" in *SERVICE MANUAL*).

Examine air filters regularly and service when needed.

Checking the Battery

> ***Always check battery energy before every lift.***

Use the battery gauge to determine whether the battery needs to be charged (see "BATTERY RECHARGE").[1] Never use the lifter unless battery energy appears in the green range.

- While the power switch is in the "on" position (|), the battery gauge automatically shows battery energy.[2]
- While the power switch is in the "off" position (◯), use the battery test button (circled) to check the battery energy.[3]

1..... If the vacuum pump is running or the battery charger is connected to an AC power source, the battery gauge will shown an inaccurate energy level.

2..... After the pump stops running, the battery gauge requires a few moments to stabilize before it shows an accurate energy level.

3..... If the lifter has not been used since the battery was charged, the battery gauge may falsely show a high energy level. This "surface charge" dissipates after the pump runs for about 1 minute, allowing the gauge to show accurate energy.

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”) 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).

1A

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.

To Attach the Pads to a Load

Make sure the contact surfaces of the load and vacuum pads are clean (see "Pad Cleaning").

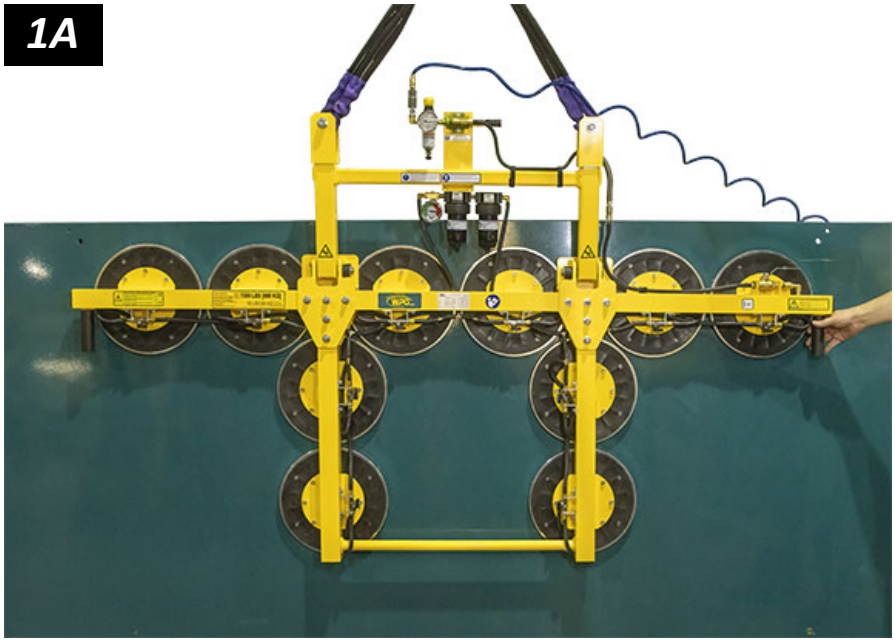
Positioning the Lifter on the Load

1) Determine which will be the top edge of the load while lifting, and position the long row of vacuum pads near that edge (fig. 1A).

   Make sure all activated pads will fit on the load and will be loaded evenly.

   Consult the Per-Pad Load Capacity.

1A



2) Center the pad frame from left to right on the load (fig. 2A).

2A

Sealing the Pads on the Load

1) Place the power switch in the "on" position (| — fig. 1A).[1]

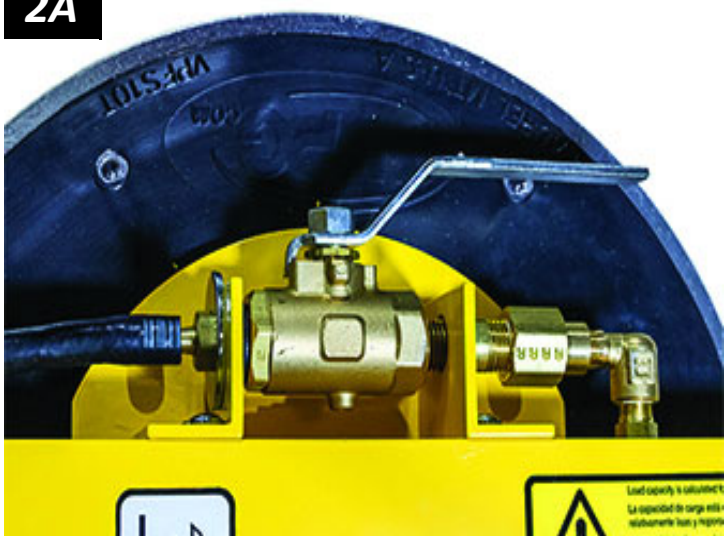
1A

> ***Keep power switch in "on" position*** (|) ***throughout lift.***

The vacuum pump will turn on, the low vacuum warning light will remain lit until the vacuum pads seal. This is normal.

2) Place the pads in contact with the load surface. Then place the vacuum control valve lever *parallel* with the vacuum line (ie, in the "attach" position — ⊫←, fig. 2A).[2]

2A



> ***Keep control valve in "attach" position*** (⊫←) ***throughout lift.***

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

3) Press the lifter firmly against the load to help the activated pads begin to seal.[3]

1..... If any powered component fails to function while the power switch is in the "on" position, examine the circuit breaker to determine whether it has interrupted the electrical circuit to the component. Although you can reset the circuit breaker, the power interruption may indicate an electrical problem that requires attention. Any fault must be corrected before resuming normal operation of the lifter.

2..... Do not place the vacuum control valve in the "attach" position unless the vacuum pads are contacting the load.

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

Reading the Vacuum Gauge

A 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).

1B

1C

If it takes more than 5 seconds for the vacuum level to reach 5" Hg [-17 kPa], press on any activated 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.[1] If it does not:

- Make sure the vacuum switch is adjusted correctly (see *SERVICE MANUAL*).
- When necessary, perform the "Vacuum Test".

1..... 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.

To Lift and Move the Load

Interpreting the Warning Light

When vacuum is sufficient to lift the Maximum Load Capacity, the vacuum pump and the low vacuum warning light turn off temporarily, to conserve battery energy.

> ***Never lift load unless warning devices turn off, because this could result in load release and personal injury.***

When air leaks into the vacuum system, the vacuum pump turns on and off (along with the warning light) as necessary to maintain sufficient vacuum for lifting.

Monitoring Vacuum Indicators

Monitor the low vacuum warning light and the vacuum gauge (fig. 1A) throughout the entire lift.


1A

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

If the warning light turns on 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.

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

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.

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 battery failure or electrical system 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.

To Tilt the Load

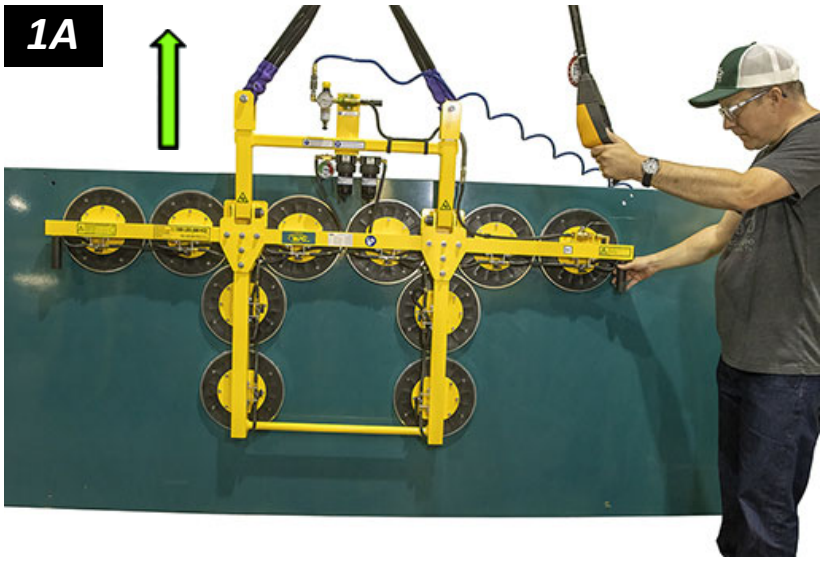
1) Make sure the load has enough clearance to tilt without contacting anyone or anything.
2) Tilt the load to the position needed:
    - Tilting the load to the *upright* position (fig. 1A) happens automatically when it is lifted.
    - Tilting the load to the *flat* position is accomplished during the landing (see section below).

To Land the Load

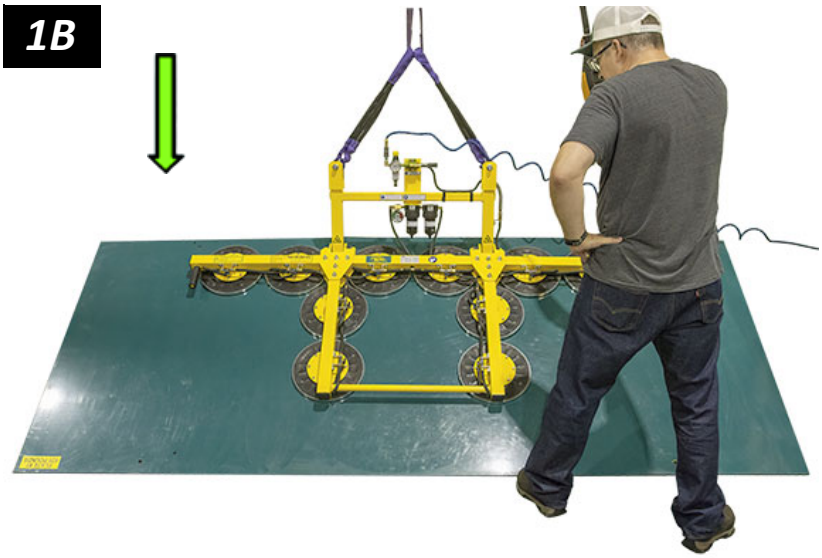
- For a landing in the *upright* position, simply lower the load onto an appropriate support.
- For a landing in the *flat* position, lower the lifter until the bottom edge of the load is supported (fig. 1B).

  Then carefully move the lifter forward, allowing the load to tilt while continuing to lower it (fig. 1C).

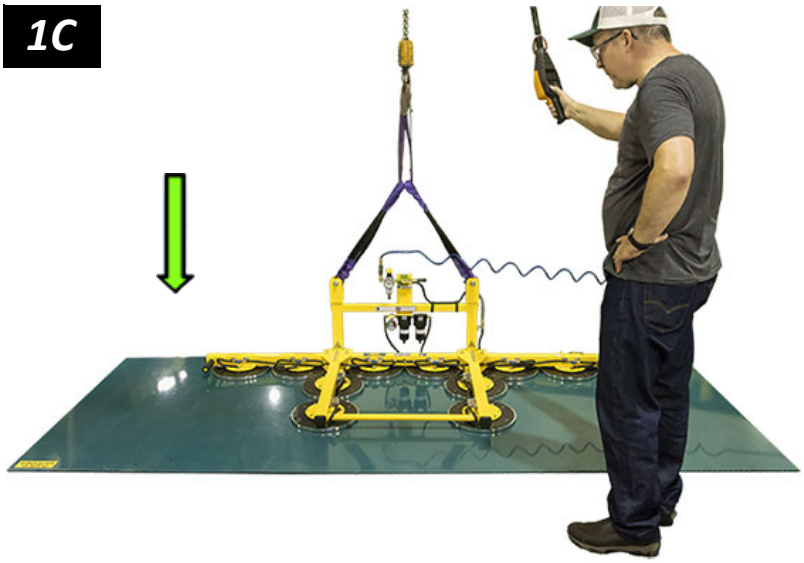
1A



1B



1C



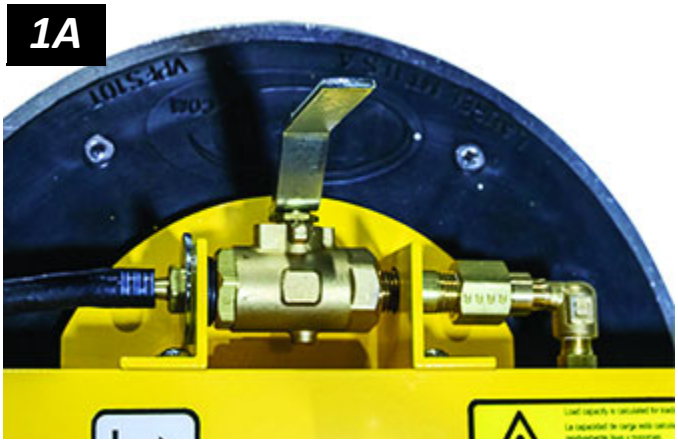
TO RELEASE THE PADS FROM THE LOAD

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

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

1) Place the vacuum control valve lever *perpendicular* to the vacuum line (ie, in the "release" position — |→⥮, fig. 1A). After the vacuum pads release completely, the lifter can be attached immediately to another load.[1]

1A



Note: Although the low vacuum warning light and the vacuum pump may turn off when the control valve in the "release" position (|→⥮), this does ***not*** *mean the lifter is ready to lift a load.*

Do not attempt to lift load while control valve is in "release" position (|→⥮).

2) 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), and leave the vacuum control valve lever in the "release" position — |→⥮).

1B

2) Disconnect the vacuum line leading from the vacuum package (see "ASSEMBLY").

3) Charge the battery after each workday as needed (see "BATTERY RECHARGE").[2]

1..... If the next lift is not imminent, turn off the vacuum package until ready to lift another load (see "AFTER USING THE LIFTER").

2..... To maximize battery life, charge it promptly after each use.

4) Use the hoisting equipment to lower the vacuum lifter gently onto a stable support. Then detach the hoisting hook from the lift slings.

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

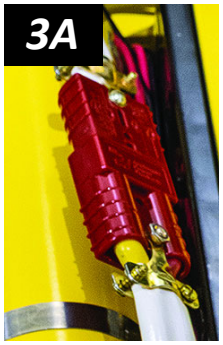
Storing the Lifter

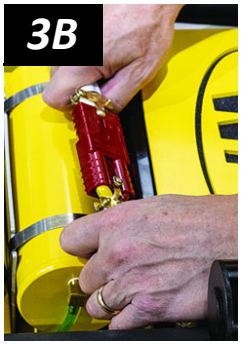
1) Use the pad covers supplied (fig. 1B) to keep the vacuum pads clean.

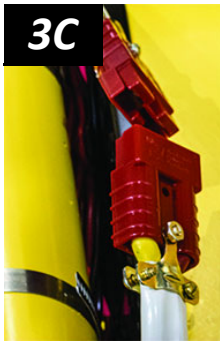
!!–CE–!! *To prevent the lifter from tipping over on relatively horizontal surfaces, place the vacuum pads facedown on a clean, smooth, flat surface. Then lower the lift bar and place a support under it.*

2) Charge the battery completely and repeat every 6 months (see "BATTERY RECHARGE").

3) Disconnect the electrical connectors (figs. 3A-C) to prevent battery discharge.







4) Store the lifter in a clean, dry location. Store the battery between 32° and 70° F [0-21° C]. Avoid storage above 100° F [38° C].

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.

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 vacuum pads for contaminates or damage (see "Pad Inspection").	✓	✓	✓
Examine load surface for contaminates or debris.	✓	✓	✓
Examine controls and indicators for damage.	✓	✓	✓
Check battery for adequate charge (see "Checking the Battery").	✓	✓	✓
Examine lifter's structure for damage.		✓	✓
Examine vacuum system for damage (including vacuum pads, fittings and hoses).		✓	✓
Examine air filter for conditions requiring service (see "AIR FILTER MAINTENANCE" in *SERVICE MANUAL*).		✓	✓
Perform "Vacuum Test".		✓	✓
Check for unusual vibrations or noises while operating lifter.		✓	✓
Examine entire lifter for evidence of: • looseness, excessive wear or excessive corrosion • deformation, cracks, dents to structural or functional components • cuts in vacuum pads or hoses • any other hazardous conditions			✓
Inspect entire electrical system for damage, wear or contamination that could be hazardous, in compliance with all local codes and regulatory standards. *Caution: 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]

1) Make sure the vacuum generating system is functioning correctly (see "Vacuum Test").
2) Clean the load surface and the vacuum pads (see "Pad Cleaning").[2]
3) Place the load in the upright position on a stable support.
4) Attach the vacuum pads to the load as previously directed.
5) After the vacuum pump stops running, place the power switch in the "off" position (◯) — (see "AFTER USING THE LIFTER").
6) Raise the load a minimal distance, to make sure it is supported by the lifter.

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

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.***[3] 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].

1..... The "Pad-to-Load Friction Coefficient" can affect the outcome of this test.

2..... Contaminated loads can cause the vacuum pump to run frequently or continuously. Since excessive pumping quickly reduces battery energy, clean the load whenever possible.

3..... 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".[1]

3) Attach the lifter to the test load as previously directed. After the vacuum pump stops running, the vacuum level should appear in the green range on the vacuum gauge (if not, see "VACUUM SWITCH ADJUSTMENT" in *SERVICE MANUAL*).
4) Raise the load a minimal distance and place the power switch in the "off" position (◯) — (see "AFTER USING THE LIFTER"page 21).

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.

Rated Load Test[1]

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

1) Use a test load that weighs 125% (± 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 and release the load as previously directed.

Take precautions in case load should fall during test.

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.

*Note: Refer to **SERVICE MANUAL #36114** when applicable.*

VACUUM PAD MAINTENANCE

Pad-to-Load Friction Coefficient

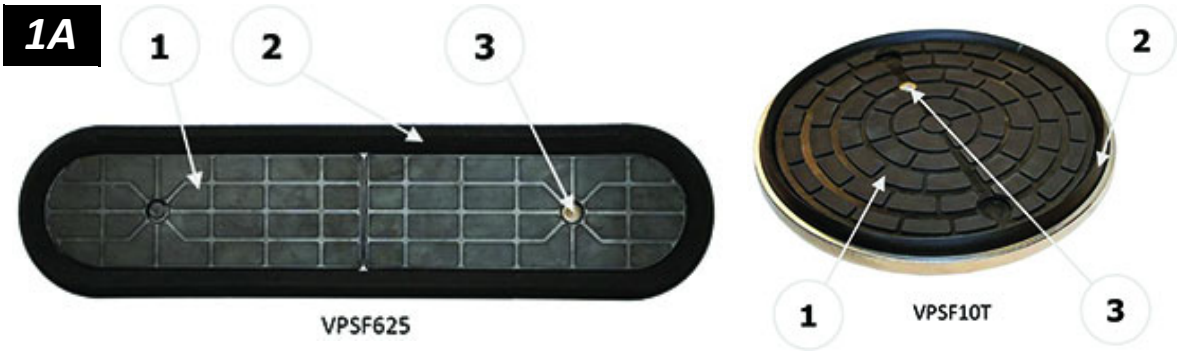
The friction coefficient represents the lifter's ability to resist load slippage. The Maximum Load Capacity assumes a friction coefficient of 1, based on testing of clean, new, standard rubber vacuum pads on clean, dry, regular glass. ***If the lifter is used under other conditions, a qualified person must first determine the effective lifting capacity.***[1]

Long-term exposure to heat, chemicals or UV light can reduce the friction coefficient of vacuum pads. Replace pads and sealing rings or replaceable inserts 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):

1A



- 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.
- Nicks, cuts, deformation or abrasions in sealing edges.

Replace any sealing ring or pad insert that has damaged sealing edges (see "TO REPLACE SEALING RING IN VPFS10T PADS" or "TO REPLACE PAD INSERTS IN VPFS625 PADS", where applicable).

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.

1A

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 contaminates.

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

   Never use harsh chemicals on vacuum pad.

   Many rubber conditioners can leave a hazardous film on pads.

   Never use rubber conditioners on vacuum pad.

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 contaminates clinging to sealing edges. If these cleaning methods are not successful, contact WPG or an authorized dealer for assistance.

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.

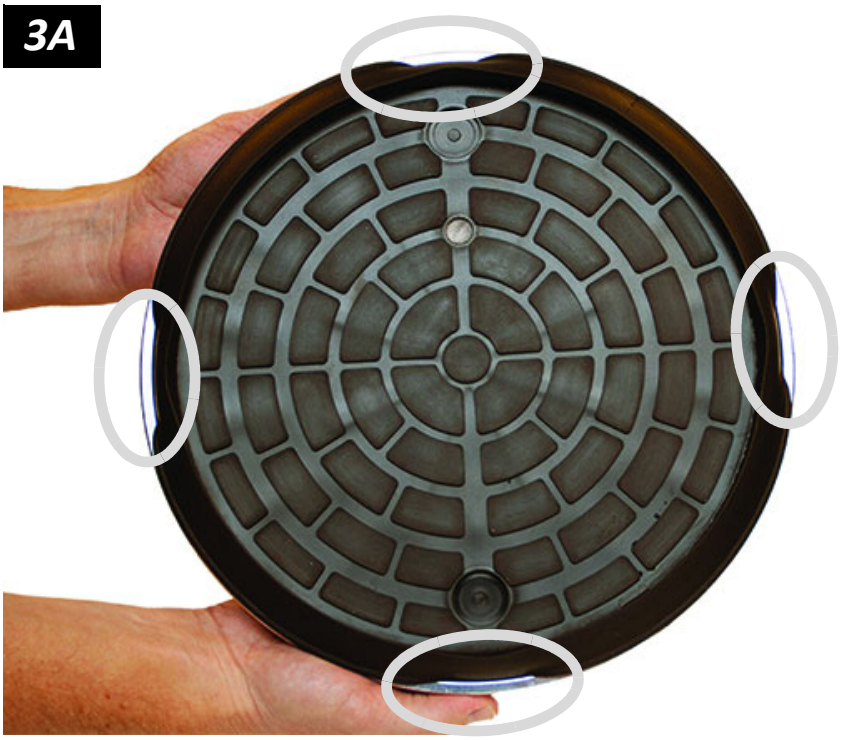
4) Push gently and firmly on the outside edge of the sealing ring until the flat side fits flush against the bottom of the mounting groove (fig. 4A). A pad ring installation tool (circled in fig. 4A) makes this step easier (see "REPLACEMENT PARTS").

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

1A

2A

3A



4A

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.

BATTERY RECHARGE[1]

Charge the battery whenever the battery gauge shows reduced energy.[2] ***Caution:*** *Make sure the lifter is powered down.*

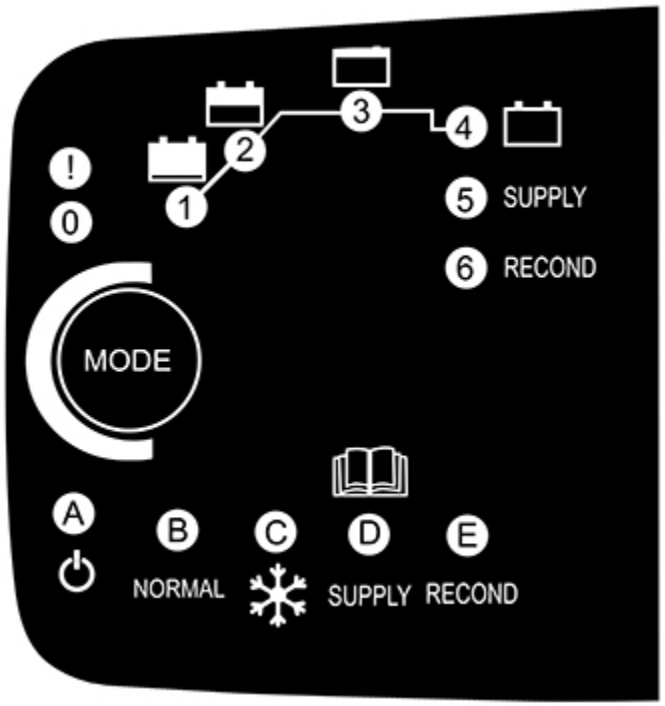
Identify the input voltage marked on the battery charger and plug it in to an appropriate power source.[3]

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

Press the "MODE" button to select "NORMAL" mode. Lights 1-4 indicate the charging level attained.[4] When the battery is fully charged, light 4 (green) turns on and the charger switches to maintenance mode.

The battery should take no more than 8 hours to charge completely.[5] After reaching level 3, the charger analyzes the battery condition. If the battery needs to be replaced, the charger's red error light (!) turns on (see "REPLACEMENT PARTS").

Before you return the lifter to service, recheck the battery as previously directed.



1..... You may use a battery charger other than the one supplied, provided it is designed for 12-volt DC, AGM type, lead-acid batteries. Disconnect the battery from the vacuum generating system before charging.

2..... To maximize the battery's lifespan, charge it promptly after each use.

3..... Any external power supply must conform to all applicable local codes. The lifter is not intended for use while the charger is connected to AC power.

4..... If none of the charging level lights turns on, the battery connection or the battery itself may be faulty. If the red error light (!) turns on immediately, the battery leads may be reversed or the charger terminals may be short-circuited; once the problem has been corrected, the charger should function normally. The red error light can indicate other problems, depending on the mode selected and level of charging; if necessary, contact WPG for assistance.

5..... The charger automatically reduces the charging rate when the battery is fully charged.

REPLACEMENT PARTS

Stock No.	Description	Qty.
93012	Pad Shutoff Valve	10
65438	Vacuum Hose – 1/8" ID x 1/4" OD — White	**
65430	Vacuum Hose – 7/32" ID x 0.43" OD — Black	**
65320	Lift Sling – 2' Length	2
65301	Handle Grip Foam	*
65010	Pad Spring – Coil Type (for VPFS10T pads)	10
64713AU	Battery Charger – 7 Amp – 220 / 240 V AC – Australian Type	1
64712US	Battery Charger – 7 Amp – 100 / 115 V AC	1
64711EU	Battery Charger – 7 Amp – 220 / 240 V AC	1
64667	Battery – 12 V DC – 28 Amp-Hours	1
64283	Bulb – 13 V – Bayonet (for low vacuum warning light)	1
54214	Foam Washer	2
53132	Hose Fitting – Tee – 5/32" ID	9
53122	Pad Fitting – Elbow – 5/32" ID	10
49724TT	Sealing Ring for VPFS10T Pad – Closed Cell Foam	10
49724RT	Sealing Ring for VPFS10T Pad – Heat-Resistant Rubber	10
49672FT	Vacuum Pad – Model VPFS10T / 10" [25 cm] Diameter – w/Replaceable Sealing Ring	10
49122	End Plug – 2" x 2" x 1/4" Tubing Size	6
36114	Service Manual — DC — 2 SCFM or 3 SCFM	1
29353	Pad Cover	10
20050	Pad Ring Installation Tool	1
16057	Quick Connector – 1/8 FNPS – Male End	2
16056	Quick Connector – 1/8 FNPS – Female End	2
15632	Pad Filter Screen – Small (for VPFS10T pads)	10
10900	Shoulder Bolt – Socket Head – 5/16" x 1/2" x 1/4-20 Thread (for mounting pads)	60

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

*See **SERVICE MANUAL #36114** 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.	406-628-8231 (phone)
908 West Main St.	800-548-7341 (phone)
Laurel, MT 59044 USA	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

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

MANUAL TILTER 1500, DC-VOLTAGE, 3 SCFM

Model number: MT1010TDCO

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

LINE STYLES AND WIDTHS FOR WIRE UNLESS NOTED OTHERWISE.

18 AWG / 16 AWG

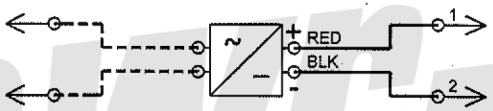
N/A / N/A

PRODUCT MANAGER:	DATE:
NATHAN G.	10/21/2009
CHECKED: CR	01-19-15
APPROVED:	2-11-15

TYPE:	FILE DIRECTORY: 714
STANDARD	FILE [SHEET]: 714-W01 [W01]

3 SCFM DC POWER UNIT
N/A
BATTERY CHARGER WIRING DIAGRAM
D714-W01 [W01]

SIZE:	SCALE:	REVISION:	ECN NUMBER:	ECN DATE:	ECN BY:	EST. WEIGHT:
A	NONE	01.A	3623	01/07/2015	LER	0 LBS



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

LINE STYLES AND WIDTHS FOR WIRE UNLESS NOTED OTHERWISE.

N/A	20AWG	N/A	16AWG
N/A	14AWG	N/A	10AWG

PRODUCT MANAGER: DANIEL M.	DATE: 01/22/2003
CHECKED:	07-06-17
APPROVED:	7-6-17

TYPE: STANDARD

FILE DIRECTORY: 714

FILE [SHEET]: 714E-W01 [E-W01]

3 SCFM DC VACUUM SYSTEM
LOW COST REMOTE
VACUUM PACKAGE WIRING SCHEMATIC
D714E-W01 [E-W01]

SIZE:	SCALE:	REVISION:	ECN NUMBER:	ECN DATE:	ECN BY:	EST. WEIGHT:
A	NONE	02.A	4361	06/23/2017	JAC	N/A