

INTENDED FOR USE BY PROFESSIONAL EQUIPMENT OPERATORS

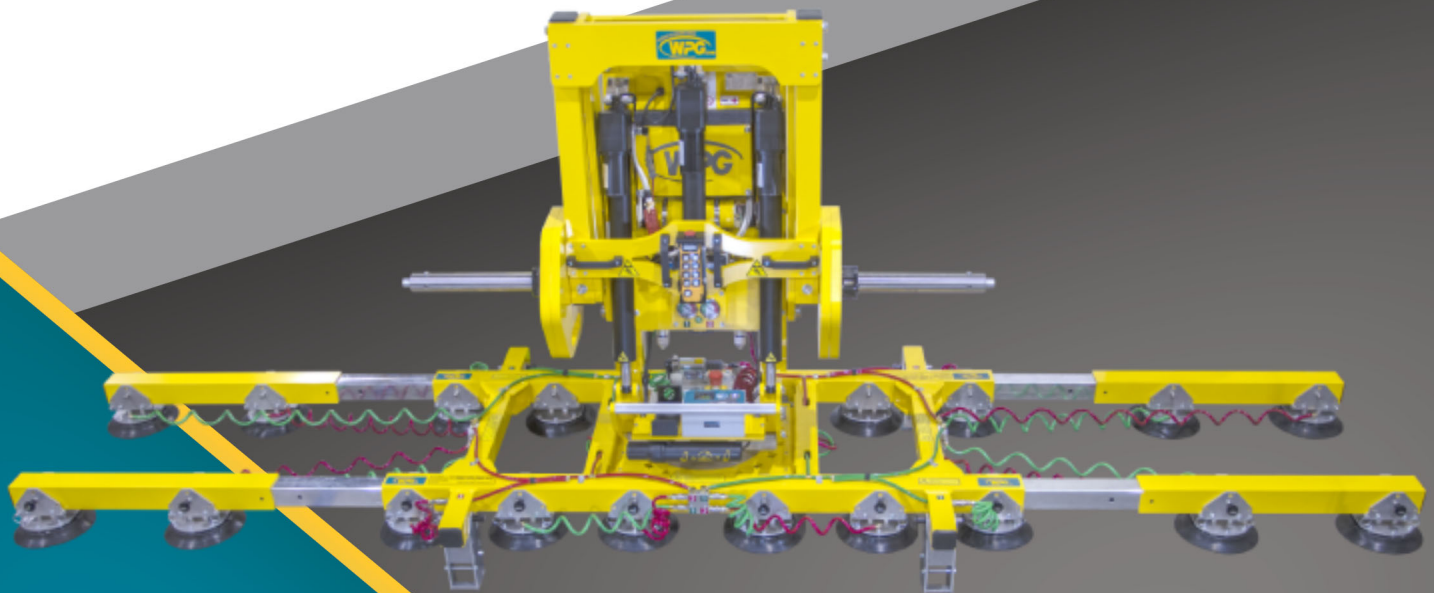
# OPERATING INSTRUCTIONS



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**!** READ AND UNDERSTAND BEFORE  
OPERATING THIS EQUIPMENT

APPLICABLE TO SERIAL NUMBERS 20210001  
AND LATER. FOR EARLIER NUMBERS,  
SEARCH WPG'S [ARCHIVE](#).



**MANUAL ROTATOR /  
POWER TILTER 2000,  
DC-VOLTAGE WITH  
INTELLI-GRIP® TECHNOLOGY**  
(Available with INTEGRATED COUNTER-BALANCER)

Model number: MRPT209CDC3

Original Instructions © Wood's Powr-Grip Co., Inc.









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# SPECIFICATIONS

<b>Product Description</b>	Designed for use with hoisting equipment, the MRPT209CDC3 lifter supports loads using vacuum and manipulates loads using manual 360° rotation and powered 90° tilt motions.	
<b>Vacuum Pads</b> (standard rubber <sup>1</sup> )	Twenty 9" [23 cm] nominal diameter, concave (Model VPCS9)	
<b>Pad Spread<sup>2</sup></b>	(to outer edges)	
<b>Length — Maximum</b>	159¼" [404 cm]	
<b>Length — Minimum</b>	73¼" [186 cm]	
<b>Width</b>	33¼" [84 cm]	
 <b>Maximum Load Capacity<sup>3</sup></b>	Per pad: 100 lbs [45 kg]	<i>Note: Center-of-gravity offset affects capacity (see "LOAD CHARACTERISTICS"). Additionally, see "TO ASSEMBLE THE INTEGRATED COUNTER-BALANCER" for information on load weight when using the optional counter-balancer.</i>
<b>With 12 Pads</b>	1200 lbs [545 kg]	
<b>With 16 Pads</b>	1600 lbs [725 kg]	
<b>With 20 Pads</b>	2000 lbs [905 kg]	
 <b>Lifter Weight</b>	575 lbs [260 kg] 1,425 lbs [646 kg] with optional Integrated Counter-Balancer and all counterweight	
<b>Power System</b>	12 volts DC, up to 50 amps with powered motion	
<b>Battery Capacity</b>	80 amp-hours	
<b>Remote Control System</b>	Radio controls – FCC, CE, IC, RSM and ACMA compliant <sup>4</sup>	
 <b>Rotation Capability</b>	Manual, 360°, with automatic locking at each 18° (as required)	
 <b>Tilt Capability</b>	Powered, 90°; Time = approx. 45 seconds; Duty cycle = 10% <sup>5</sup>	
<b>Product Options</b>	<i>Available with Integrated Counter-Balancer.</i> See separate instructions about other options.	
 <b>Operating Elevation</b>	Up to 7,500' [2,286 m]	
 <b>Operating Temperatures</b>	32° — 100° F [0° — 38° C]	
<b>Service Life</b>	20,000 lifting cycles, when used and maintained as intended <sup>6</sup>	
<b>Software Version</b>	Intelli-Grip <sup>®</sup> 7.6	
<b>ASME Standard BTH-1</b>	Design Category "B", Service Class "O"	
<b>Troubleshooting Guide</b>	<a href="#">TST-016_GENERIC_LEAK_TEST_rev_2014-086</a>	

- 1..... Available with other rubber compounds for special purposes (see [www.wpg.com](http://www.wpg.com)).
- 2..... The illustrations under "TO CHANGE THE PAD FRAME CONFIGURATION" show the Pad Spread and Maximum Load Capacity for approved pad frame configurations.
- 3..... 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").
- 4..... "RSM and ACMA compliant" means that the remote control system is eligible for the Regulatory Compliance Mark (RCM).
- 5..... Rated under maximum actuator load; tilt duty increases as load weight decreases.
- 6..... Vacuum pads, filter elements and other wear-out items are excluded.

# 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”).



Make sure to consider all possible effects of “INDIRECT LOADING” on lifting capacity (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”).



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.



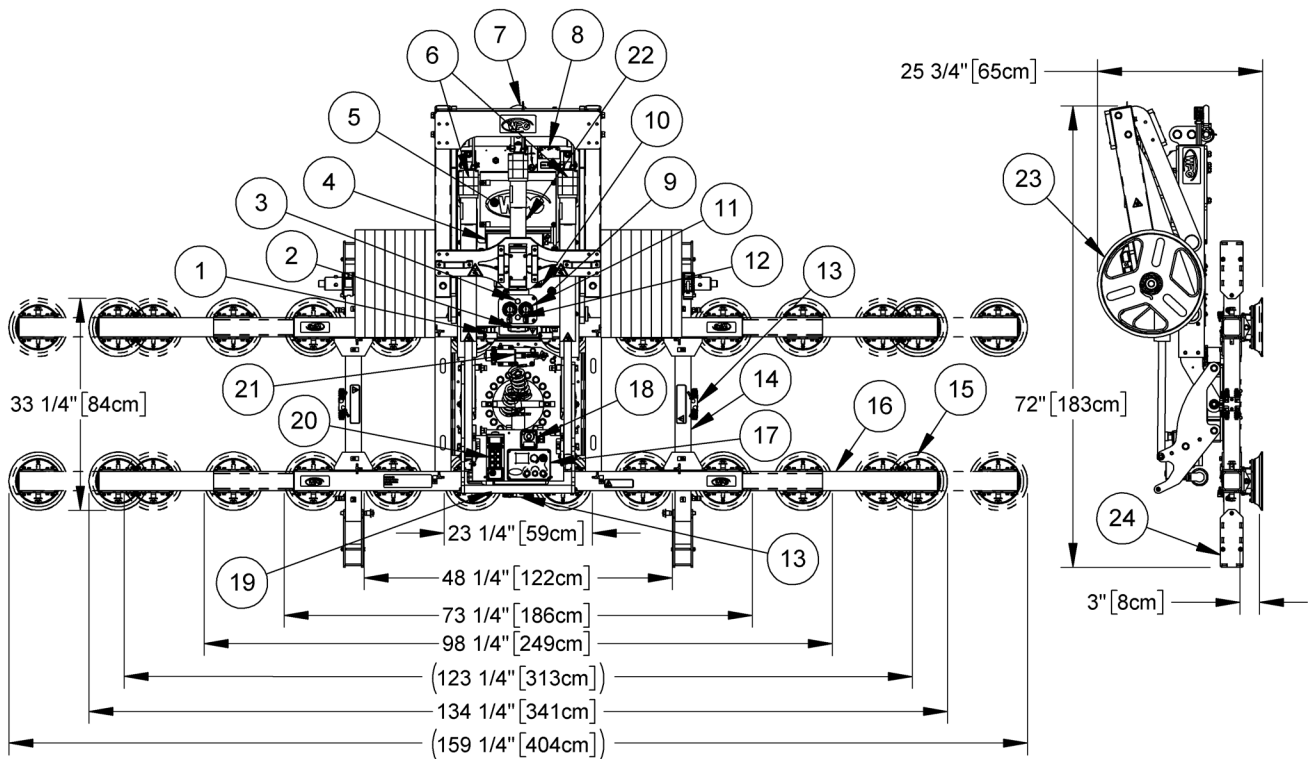
Do not position a loaded or unloaded lifter over people.



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.



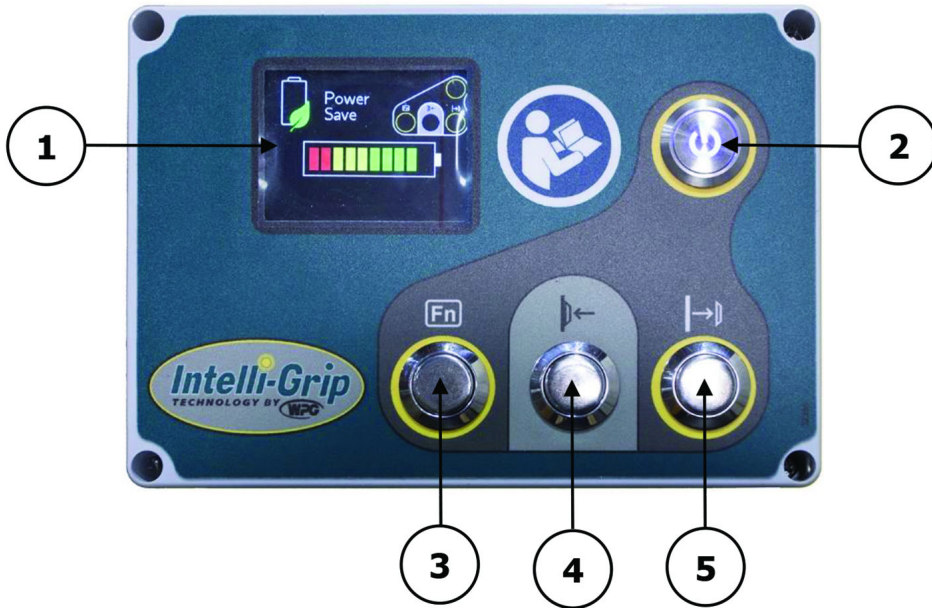
- |  |   |  |
|--|---|--|
| 1 AIR FILTERS                            | 2 STROBE LIGHT, NOTIFICATION BUZZER and 9V BATTERY HOLDER | 3 LOAD SUPPORT / ICB POSITION LIGHT                            |
| 4 VACUUM RESERVE TANKS                   | 5 BATTERY   | 6 TILT ACTUATORS   |
| 7 ADJUSTABLE LIFT SHACKLE w/ LOAD SENSOR | 8 LIFT BAR  | 9 ENCLOSURE w/ VACUUM PUMPS, CIRCUIT BOARDS and VACUUM SENSORS |
| 10 BATTERY CHARGER                       | 11 VACUUM GAUGES  | 12 VACUUM LIFT LIGHT   |
| 13 QUICK CONNECTORS                      | 14 PAD FRAME  | 15 VACUUM PAD w/ PIVOTING PAD MOUNT / SPACER                   |
| 16 TELESCOPING PAD ARM                   | 17 INTELLI-GRIP® CONTROL UNIT                             | 18 EMERGENCY STOP BUTTON                                       |
| 19 CONTROL HANDLE                        | 20 RADIO TRANSMITTER w/ HOLDER                            | 21 ROTATION LATCH  |
| 22 COUNTER-BALANCER ACTUATOR             | 23 COUNTERWEIGHT PLATE                                    | 24 PARKING STAND   |

*Note: A standard MRPT209CDC3 is shown. Although some of the following photos do not show this specific lifter, they all illustrate how this kind of lifter functions.*

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

# OPERATING FEATURES

## INTELLI-GRIP<sup>®</sup> CONTROL UNIT FEATURES



- 1 LCD SCREEN w/ BATTERY GAUGE
- 2 POWER BUTTON
- 3 "FUNCTION" BUTTON
- 4 "ATTACH" BUTTON
- 5 "RELEASE" BUTTON

## RADIO TRANSMITTER FEATURES



- 1 EMERGENCY DISCONNECT BUTTON
- 2 TRANSMISSION INDICATOR LIGHT
- 3 "ATTACH" BUTTON
- 4 "RELEASE" BUTTON
- 5 ROTATION LATCH RELEASE BUTTONS
- 6 TILT UP BUTTON
- 7 TILT DOWN BUTTON
- 8 RETRACT COUNTERWEIGHT BUTTON
- 9 EXTEND COUNTERWEIGHT BUTTON
- 10 POWER / "FUNCTION" BUTTON

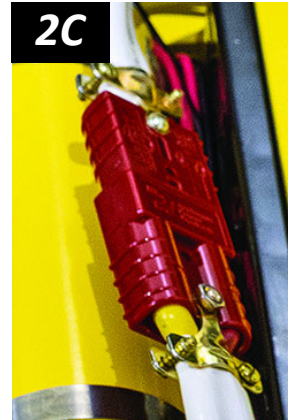
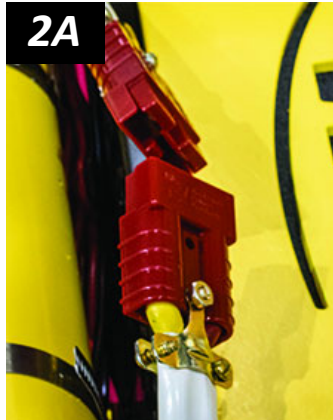


# ASSEMBLY

1) Remove all vacuum lifter restraints and save them with the shipping container for future use.

2) Connect the electrical connectors (figs. 2A-C).

Install the 9-volt battery for the notification buzzer as directed under “[NOTIFICATION BUZZER BATTERY REPLACEMENT](#)”.

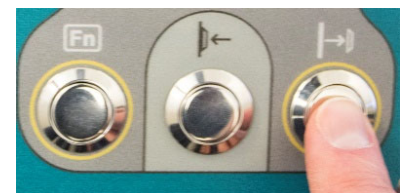


3) Power up the lifter and radio transmitter (see “[TO PREPARE FOR LIFTING](#)”).

4) Select a screen language: When the lifter is powered up for the first time, the Intelli-Grip® Control Unit prompts the operator to select a language for the LCD screen.



To scroll down, press the “release” button (|→).

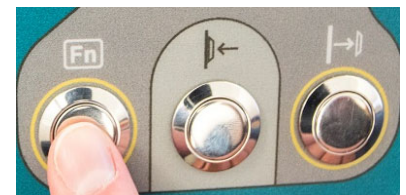


To scroll up, press the “attach” button (|←).



To select a language, press the “function” button (Fn).<sup>1,2</sup>

*Note: A similar process is used to navigate all menus.*



1..... To change the language again, refer to the INTELLI-GRIP® OPERATOR MENU section of the [SERVICE MANUAL](#).

2..... Afterwards, the Intelli-Grip® Control Unit will prompt the operator to set the lifter weight. This will be accomplished later (see “[Setting the Lifter Weight](#)”).

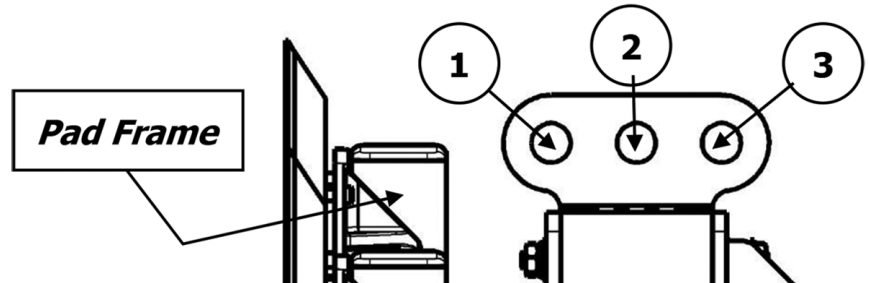
# ASSEMBLY



5) Engage the tilt actuator to raise the lift bar (figs. 5A-B); see [“Preparing to Use the Remote Control System”](#) and [“TO TILT THE LOAD”](#).

6) Choose a position for the adjustable lift shackle as needed for the lifter's expected use:

- **Position 1:** If the lifter does not have the optional Integrated Counter-Balancer (ICB), this position provides the best hang angle, whether the lifter is loaded or unloaded.
- **Position 2:** If the lifter is equipped with an ICB, this position provides the best hang angle in most cases, whether the lifter is loaded or unloaded.
- **Position 3:** If the lifter is equipped with an ICB, this position provides the best hang angle while the lifter is unloaded and the pad frame is oriented horizontally.



# ASSEMBLY

7) Position the adjustable lift shackle:

7.1) Remove the cotter pin and retainer nut.

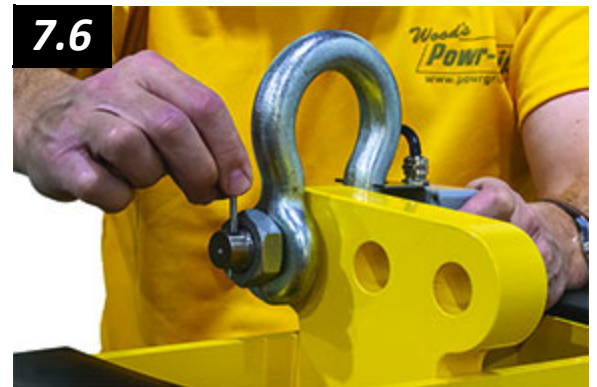
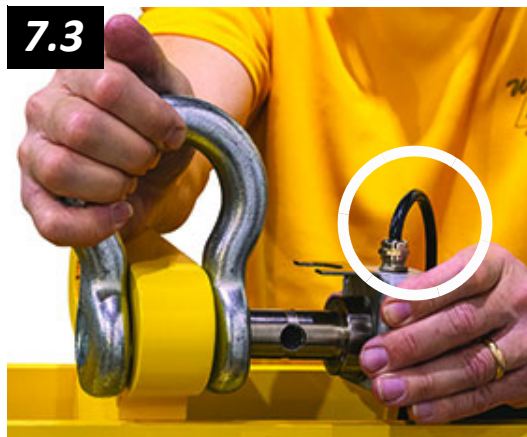
7.2) While holding the lift shackle, remove the lift shackle pin.

7.3) Position the shackle in the required location.

7.4) Reinsert the lift shackle pin.

7.5) Reinstall the retainer nut and hand-tighten it against the shackle. Do not overtighten.

7.6) Insert the cotter pin to secure the nut.

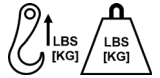


*Note: Route the shackle's load sensor wire (circled in fig. 7.3) as needed to prevent any damage to it.*

# ASSEMBLY

8) Suspend the lifter from appropriate hoisting equipment:

8.1) Select a crane and/or hoist rated for the Maximum Load Capacity plus the Lifter Weight, including the Integrated Counter-Balancer and added counterweight, when so equipped.



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

8.2) Attach the hoisting hook to the shackle.



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

Use rigging (fig. 8A) as needed to make sure the hook does not interfere with the load.



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

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



9) Arrange the pad frame for optimal load support (see following sections). Remove the pad covers (fig. 9A) and save them for future use.

10) If the lifter has the Integrated Counter-Balancer, complete its assembly as directed (see [“TO ASSEMBLE THE INTEGRATED COUNTER-BALANCER”](#)).

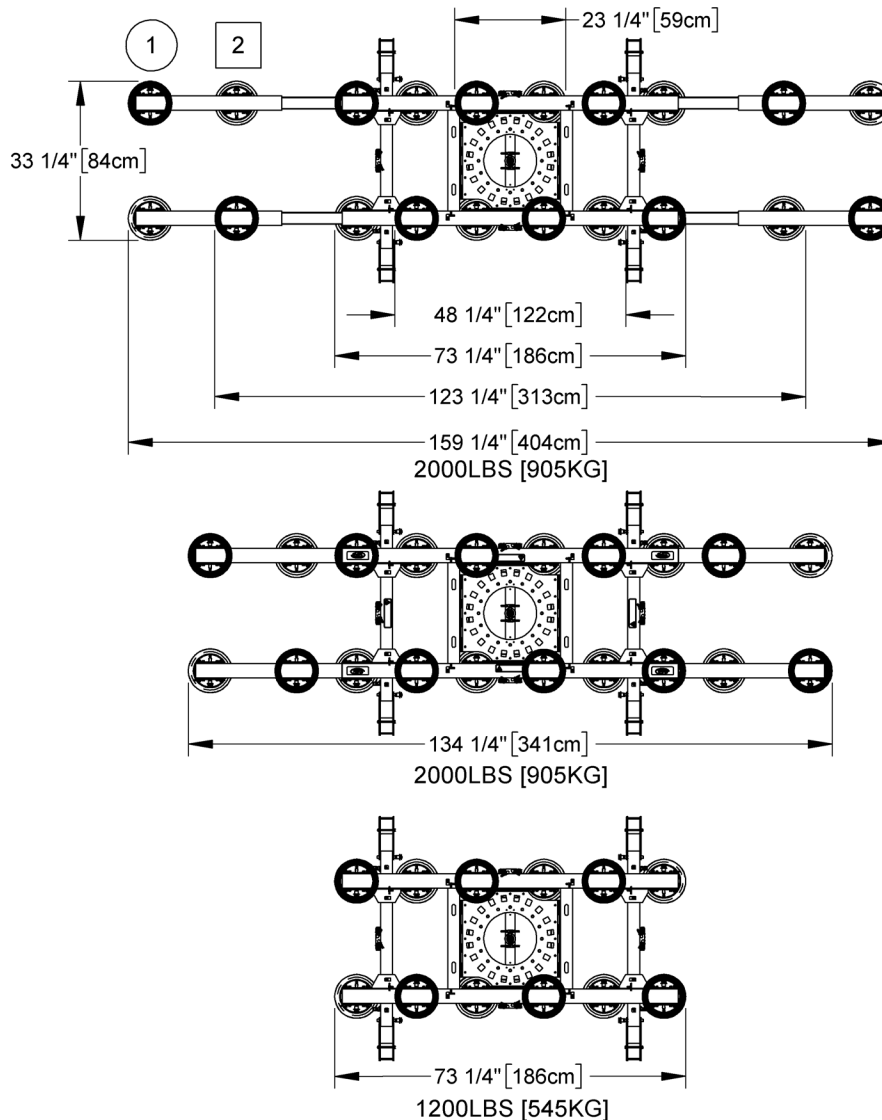
11) Perform tests as required under [“TESTING”](#).

9A



# ASSEMBLY

## TO CHANGE THE PAD FRAME CONFIGURATION



Various pad frame configurations enable the lifter to match different load dimensions and weights. The illustrations above show all approved configurations.

**Caution:** Connect the vacuum pads to the 2 circuits (marked "1" and "2" on lifter). Pads belonging to each circuit are shown either shaded or unshaded in the preceding illustrations.


- 1) Choose an approved configuration to maximize support across the load surface and to minimize load overhang (see "LOAD CHARACTERISTICS").
- 2) Reposition telescoping pad arms and reposition or remove movable pad mounts as needed (see following sections):



**Use only approved pad frame configurations.**

# ASSEMBLY

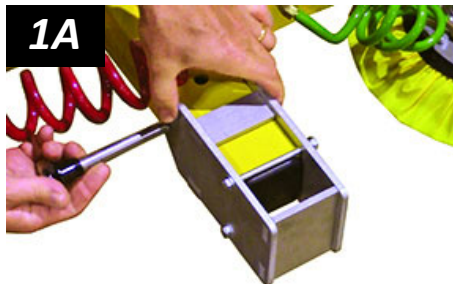
- To support the maximum load weight, you must install all vacuum pads on the pad frame and connect all vacuum hoses to the pads (see “[Connecting/Disconnecting Vacuum Hoses](#)”).
- To support larger load dimensions, you must extend telescoping pad arms on the pad frame.
- To support smaller dimensions and weights, you may retract telescoping pad arms or remove some vacuum pads and disconnect the corresponding vacuum hoses, ***provided the lifter still has sufficient capacity to support the load in question.***<sup>1</sup>

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

## Removing the Parking Stands

Parking stands must be removed to accommodate certain pad frame configurations:

- 1) Remove the cotterless hitch pin (fig. 1A).
- 2) Slide the parking stand off the pad frame (fig. 2A).
- 3) Repeat steps 1-2 to remove the other parking stands.



## Extending/Retracting the Telescoping Pad Arms

*Note: Repositioning or removing a pad arm requires removing one or more vacuum pads beforehand (see next section).*

- 1) Remove the cotterless hitch pin and slide a telescoping pad arm into or out of the pad frame until the hitch pin holes align at the desired position (fig. 1B).<sup>2</sup>
- 2) Reinsert the pin to secure the telescoping pad arm (fig. 2B).
- 3) Repeat steps 1-2 to reposition other telescoping pad arms, as needed.



1..... Whenever a quick connector is disconnected, the corresponding vacuum pad does not contribute to the lifting capacity, whether or not the pad is mounted on the pad frame.

2..... Pad arms should not be removed during normal operation of the lifter.

# ASSEMBLY

## Moving (or Removing) a Pivoting Pad Mount

Pivoting pad mounts enable the lifter to handle ...

- loads with curved surfaces, by tilting to match the curvature (see “[Adjusting the Pivoting Pad Mounts](#)”).
- windows with mullions and similar loads with surface obstructions, by increasing the distance between the pad frame and the contact surface of the load (see “[Changing the Offset of Pivoting Pad Mounts](#)”).

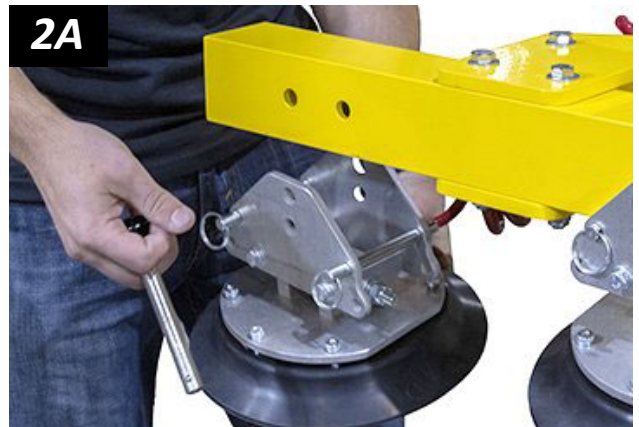
To move or remove a pivoting pad mount:

- 1) Remove the push-button cotterless hitch pin that secures the pad mount on the pad frame. Move the pad mount until the hole for the push-button hitch pin aligns in the desired position on the pad frame tube or telescoping pad arm (see arrows in fig. 1A). Then reinsert the push-button hitch pin, to secure.



***Removing or disconnecting any vacuum pad reduces lifting capacity.***

Alternatively, remove the pad mount from the lifter (fig. 2A) and disconnect the corresponding vacuum hose. Store any removed components in a clean, dry location.



- 2) Repeat the step above with the other pad mounts within a configuration.



***Vacuum pads must be arranged symmetrically, to keep the load balanced.***

# ASSEMBLY

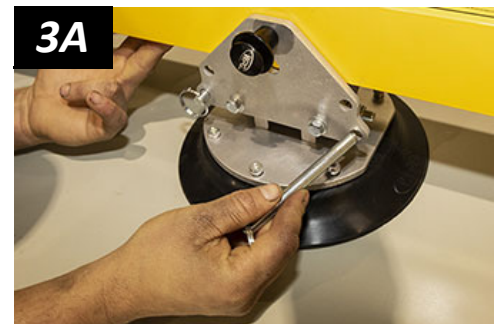
## Changing the Offset of Pivoting Pad Mounts

The pivoting pad mounts have 2 offset positions: retracted and extended. Depending on the curvature of the load, the extended position may be required for convex loading (see ). Before attaching the vacuum pads to such loads, change the offset as follows:

- 1) Starting with a pad mount in the *retracted* position (fig. 1A), remove the push-button cotterless hitch pin that secures the pad mount on the pad frame (fig. 1B).



- 2) Position the pad mount to align the holes for the *extended* position and secure with the hitch pin (fig. 2A).



- 3) Remove the remaining cotterless hitch pins from the pad mount and insert them in the holes closer to the pad frame (figs. 3A and 3B).



- 4) Now the pad mount is in the *extended* position (fig. 4A). Repeat steps 1-3 for all remaining pad mounts.

**Caution:** All pads mounts must share the same offset position to work correctly.

Reverse steps 1-4 to change the pad mounts from the extended position to the retracted position.

Note: You can also [view a demonstration](http://wpg.com) of these steps at [wpg.com](http://wpg.com).



# ASSEMBLY

## Connecting/Disconnecting Vacuum Hoses

- To *connect* a vacuum hose, push the male and female ends of the quick connector together until they lock (figs. 1A-B).



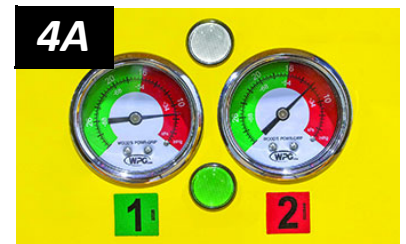
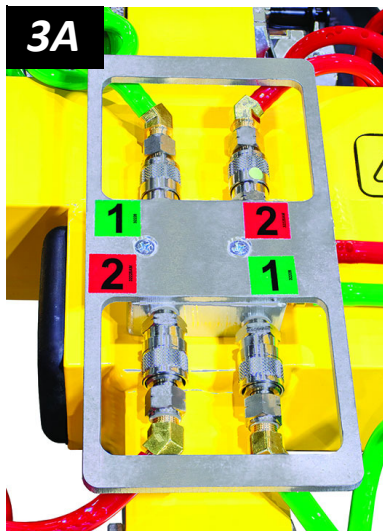
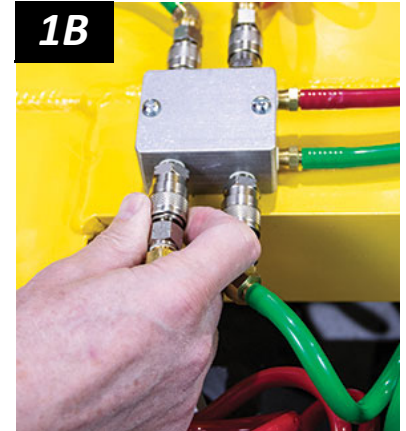
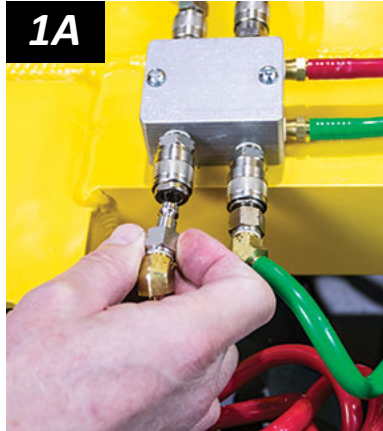
**Make sure quick connectors seal completely and all vacuum hoses function correctly (see "Vacuum Test").**

- To *disconnect* a hose, move the release ring on the female end until the quick connector separates (figs. 2A-B).

Make sure the hoses are connected correctly: green to circuit "1" and red to circuit "2" (fig. 3A).

The 2 vacuum gauges are labeled to indicate the related circuits (fig. 4A).

*Note: The gauge face colors do not correspond with the circuit colors.*

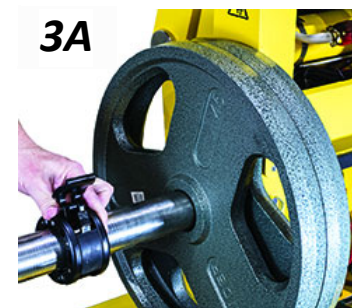


# ASSEMBLY

## To ASSEMBLE THE INTEGRATED COUNTER-BALANCER

If the lifter is equipped with an optional Integrated Counter-Balancer (ICB), complete the assembly as follows:

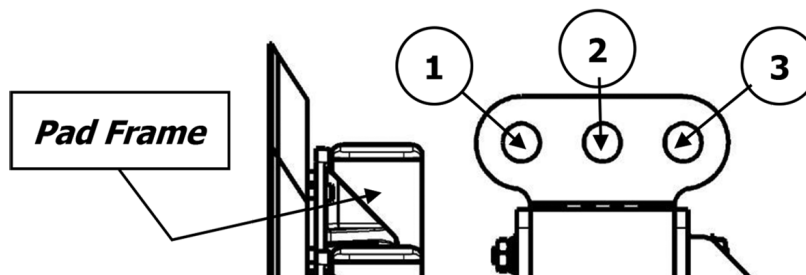
- 1) Make sure the ICB is in the fully retracted position (fig. 1A).
- 2) Add counterweight to the support arms as needed (figs. 2A-B), one plate at a time per side; see charts below to determine the minimum number of plates to use.
- 3) Secure the mounted counterweight plates with weight clamps (fig. 3A).



		Load Weight with Thickness ≤ 1" [2.5 cm]		
		Lift Shackle Position 1	Lift Shackle Position 2	Lift Shackle Position 3
Minimum Number of Counterweights 45 lbs [20.4 kg] each	4	800 lbs [363 kg]	610 lbs [277 kg]	480 lbs [218 kg]
	6	1200 lbs [544 kg]	910 lbs [413 kg]	720 lbs [327 kg]
	8	1600 lbs [726 kg]	1220 lbs [553 kg]	960 lbs [435 kg]
	10	2000 lbs [907 kg]	1520 lbs [690 kg]	1200 lbs [544 kg]
	12	2000 lbs [907 kg]	1820 lbs [826 kg]	1440 lbs [653 kg]
	14	2000 lbs [907 kg]	2000 lbs [907 kg]	1680 lbs [762 kg]
	16	2000 lbs [907 kg]	2000 lbs [907 kg]	1920 lbs [871 kg]

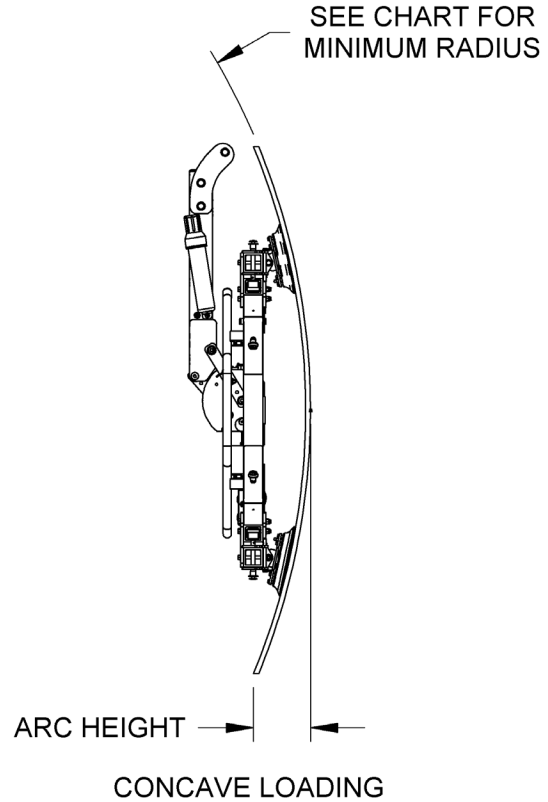
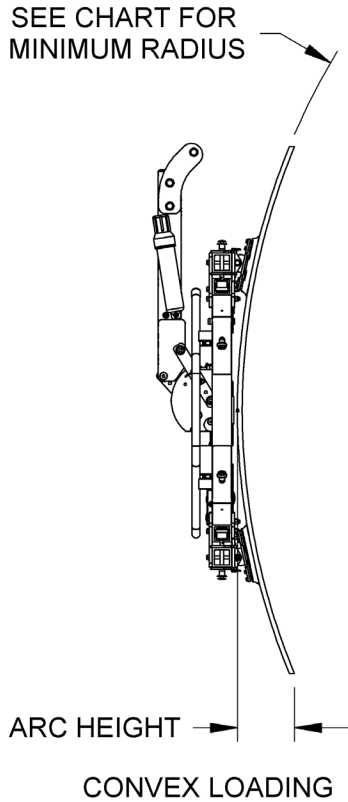
		Load Weight with Center of Gravity 8" [20.3 cm] from Pad Face <sup>1</sup>		
		Lift Shackle Position 1	Lift Shackle Position 2	Lift Shackle Position 3
Minimum Number of Counterweights 45 lbs [20.4 kg] each	4	460 lbs [209 kg]	380 lbs [172 kg]	320 lbs [145 kg]
	6	680 lbs [308 kg]	570 lbs [259 kg]	480 lbs [218 kg]
	8	910 lbs [413 kg]	760 lbs [345 kg]	640 lbs [290 kg]
	10	1140 lbs [517 kg]	950 lbs [431 kg]	800 lbs [363 kg]
	12	1370 lbs [621 kg]	1140 lbs [517 kg]	950 lbs [431 kg]
	14	1400 lbs [635 kg]	1320 lbs [599 kg]	1110 lbs [503 kg]
	16	1400 lbs [635 kg]	1400 lbs [635 kg]	1270 lbs [576 kg]

1..... This table provides general guidelines for the number of counterweights needed when lifting curved materials and curtain wall sections where the center of gravity is offset from the pad face approximately 8" [20.3 cm]. The required number of counterweights for other offset distances can be approximated from these charts. For most curved materials, the offset distance is approximately 30%-40% of the Arc Height (see "LOAD CHARACTERISTICS"). Contact WPG for more information.



# ← INTENDED USE →

## LOAD CHARACTERISTICS



CG Offset*	Pad Mount Offset	
	Retracted	Extended
	Adjusted Capacity	
1" [2.5cm]	2000 lbs [910 kg]	2000 lbs [910 kg]
2" [5.1cm]	2000 lbs [910 kg]	2000 lbs [910 kg]
3" [7.6cm]	2000 lbs [910 kg]	1870 lbs [850 kg]
4" [10.2cm]	1870 lbs [850 kg]	1720 lbs [780 kg]
5" [12.7cm]	1720 lbs [780 kg]	1600 lbs [730 kg]
6" [15.2cm]	1600 lbs [730 kg]	1490 lbs [680 kg]
7" [17.8cm]	1490 lbs [680 kg]	1400 lbs [640 kg]
8" [20.3cm]	1400 lbs [640 kg]	1320 lbs [600 kg]
9" [22.9cm]	1320 lbs [600 kg]	1240 lbs [560 kg]
10" [25.4cm]	1240 lbs [560 kg]	1160 lbs [530 kg]

\* For most curved material, CG Offset is approximately 30%-40% of the Arc Height.

Minimum Radius	
for Convex loads	30" [76 cm] in retracted position
	22" [56 cm] in extended position
for Concave loads	60" [152 cm] in retracted position
	42" [107 cm] in extended position

Maximum Arc Height	
for Concave load	7" [18 cm]

Although the lifter is designed to accommodate many curved loads, changes in the load's center of gravity can reduce the lifting capacity. Consult the illustrations and tables above.

# INTENDED USE

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 **adjusted** capacity; see the bottom-left table on the previous page.

*Note: Center-of-gravity (CG) offset affects capacity; see table footnote on the previous page.*

- Curved loads may be handled from the convex or concave side, but must conform to the Minimum Radius (ie, maximum curvature; see top-right table on the previous page) and Maximum Arc Height (see bottom-right table on the previous page).
- The load must be a single piece of relatively nonporous material with relatively smooth contact surface.<sup>1</sup> 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.<sup>2</sup>
- The load's *minimum* length and width are determined by the current Pad Spread (see “SPECIFICATIONS”).
- The load's *maximum* length and width are determined by its allowable overhang.<sup>3</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>4</sup>

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

2..... 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.

3..... 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.

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

# INTENDED USE

## INDIRECT LOADING

Make sure to account for dynamic loading or other inadvertent loading that can negatively affect lifting capacity, such as:

- Weight amplification that results when a loaded vacuum lifter abruptly starts/stops moving, changes direction or bounces up and down (eg, when a telehandler transports a loaded lifter across rough terrain).
- External force that effectively increases the weight of a lifter's attached load (eg, when a load of sheet material reacts to wind gusts).



**Indirect loading can reduce lifting capacity.**

## OPERATING ENVIRONMENT

Make sure the vacuum lifter is suitable for each work environment, given the following restrictions:

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

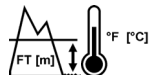


**Never use lifter in dangerous environments.**



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

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



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

## 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 battery.*

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 gauges. 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](#)”). 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 2 [air filters](#) whenever a bowl contains liquid or other contaminants, or an element appears dirty (see “[AIR FILTER MAINTENANCE](#)” in [SERVICE MANUAL](#)).
- Make sure the [notification buzzer](#) is clearly audible at the maximum distance between the operator and the lifter, despite any barriers or obstacles.<sup>1, 2</sup>



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



***Make sure notification buzzer can be heard over noise at operator position.***

1..... Maximum buzzer volume is 95 dBA at 2' [60 cm]. If CE or UKCA Standards apply, consult EN 7731 to make sure the buzzer is compliant.

2..... The “[Vacuum Test](#)” provides a convenient opportunity to check this.

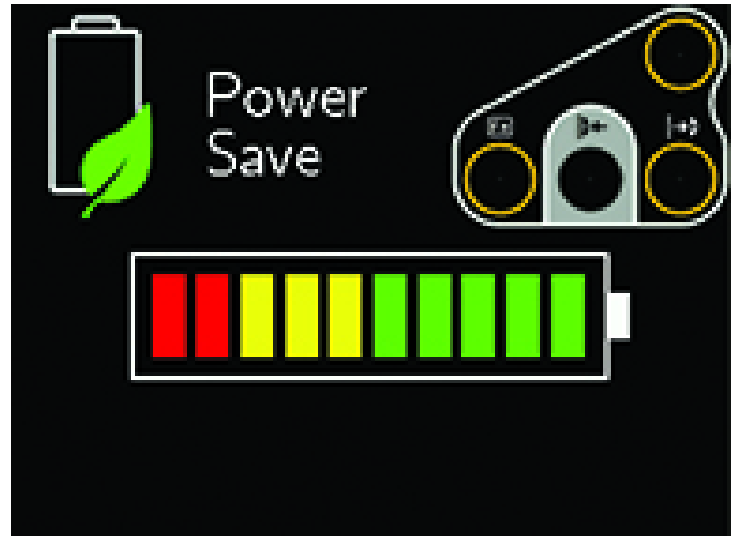
## Checking the 12-Volt Battery



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

While the lifter is powered up, a battery gauge on the LCD screen displays the current energy level.<sup>1, 2</sup>

- If battery energy is in the red range, discontinue lifter use and charge the battery (see “[12-VOLT BATTERY RECHARGE](#)”).
- If battery energy continues to decrease and you try to attach the lifter to a load, the notification buzzer will sound continuously and the LCD screen will display “Lockout (low 12V battery)”, along with a diagnostic code (see “[INTELLI-GRIP® DIAGNOSTIC CODES](#)”). In this case, you must charge the battery in order to continue using the lifter.



1..... If the lifter remains in “Power Save” mode for a long time, the pump will run periodically to test the battery.

2..... If the battery charger is connected to an AC power source, the reading on the battery gauge will not be accurate and “Replace 12V battery” may appear on the LCD screen, because the system cannot accurately evaluate the battery.



# OPERATION

## Preparing to Use the Remote Control System

The radio transmitter (fig. 1A) enables you to activate powered functions at distances up to 250' [76 m], provided you have a clear and direct view of the lifter and its indicators. These functions include:<sup>1</sup>

- attaching and releasing vacuum pads
- releasing the rotation latch
- tilting the load
- extending and retracting counterweight (if the lifter has the Integrated Counter-Balancer)

When you are operating the lifter remotely, follow these safety rules:

- Visually verify the status of the lifter and load before lifting.



***Make sure nearby personnel are aware of intended remote control actions.***

- Monitor the lifter at all times to make sure it is functioning as intended.<sup>2</sup>
- Be sure the load is landed and supported correctly before releasing it (see following sections).

When you hold any button on the transmitter, the transmission indicator light flashes green if the transmitter is activated.



- 1 EMERGENCY DISCONNECT BUTTON
- 2 TRANSMISSION INDICATOR LIGHT
- 3 "ATTACH" BUTTON
- 4 "RELEASE" BUTTON
- 5 ROTATION LATCH RELEASE BUTTONS
- 6 TILT UP BUTTON
- 7 TILT DOWN BUTTON
- 8 RETRACT COUNTERWEIGHT BUTTON
- 9 EXTEND COUNTERWEIGHTBUTTON
- 10 POWER / "FUNCTION" BUTTON

1..... If the radio transmitter does not work, these functions can be controlled using the Intelli-Grip® Control Unit (see INTELLI-GRIP® OPERATOR MENUS in the [SERVICE MANUAL](#)).

2..... The Remote Control System is designed to prevent multiple lifters from responding. Nevertheless, radio controlled lifters should be tested to make sure each transmitter controls only one lifter.

# OPERATION



To prevent unintentional transmissions, press the emergency disconnect button (figs. 1A-B and inset) after the lifter completes a transmitted function. Reset it when you are ready to use the transmitter again.<sup>1</sup>

1..... To reset the emergency disconnect button, twist it clockwise and allow it to spring outward to its original position.

# OPERATION

## TO PREPARE FOR LIFTING

### Powering up the Lifter

Press the lifter's power button (☰ — fig. 1A). The vacuum pumps will run for a few seconds, as a normal function of the Intelli-Grip® self-diagnostics.

*Note: The lifter automatically tests the 9-volt battery for the notification buzzer each time the lifter is powered up. When this battery runs down, the LCD screen displays “Replace 9V battery?” and the buzzer chirps once per minute. Replace the battery as needed (see “[NOTIFICATION BUZZER BATTERY REPLACEMENT](#)”).*



To use the Remote Control System, hold the power button (☰ — fig. 1B) briefly to activate the radio transmitter.<sup>1</sup>

### Setting the Lifter Weight

After you power up the lifter, the LCD screen automatically displays the “Total Weight” suspended from the adjustable lift shackle and any previously “Set Lifter Weight”.

Load Scale	
Total Weight	550 lbs
Zero Weight	
Set Lifter Weight	550 lbs
Calibrate	
Units	Standard
Exit Menu	
100%	



**Lifter weight must be set accurately for correct lifter operation.**

The current settings may be accepted if they are known to be accurate. If the lifter weight is not set accurately, the release function may not work correctly (see “[Releasing the Pads from the Load](#)”). Set or update the lifter weight as follows:

- 1) Use the hoisting equipment to raise the unloaded lifter, allowing it to hang freely. The LCD screen will display the total weight of the lifter and Integrated Counter-Balancer (ICB), when so equipped.<sup>2</sup>

1..... The radio transmitter turns off automatically, after a period of inactivity.

2..... To override the load sensor for troubleshooting, refer to INTELLI-GRIP® OPERATOR MENUS in the [SERVICE MANUAL](#).

# OPERATION

- 2) Select “Set Lifter Weight” to update the lifter weight to the currently measured total weight.

*Note: Whenever you make any change to the pad frame configuration or the number of counterweight plates mounted on the ICB, you must reset the lifter weight.*

- 3) When you are finished, select “Exit Menu” and press the “function” button (Fn) to proceed.

*Note: To access a complete list of lifter settings or other Intelli-Grip® menus, refer to the INTELLI-GRIP® OPERATOR MENUS section of the [SERVICE MANUAL](#).*

# OPERATION

## TO ATTACH THE PADS TO A LOAD

### Adjusting the Pivoting Pad Mounts



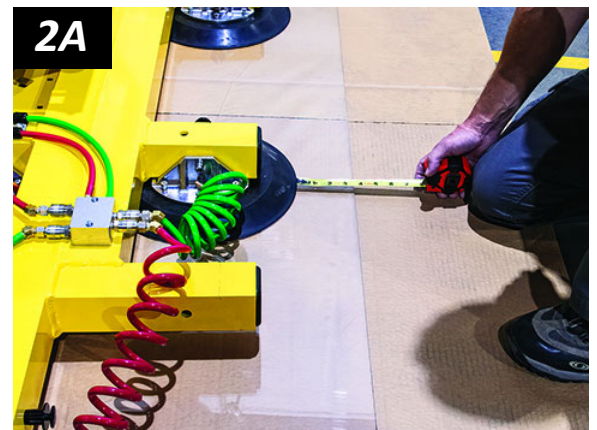
Press on the edge of a pivoting pad mount until its vacuum pad aligns with the load surface, taking care to avoid pinching the vacuum hose. Repeat with the other pad mounts.

### Positioning the Lifter on the Load

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



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



- 3) If applicable, tilt the pad frame to match the angle of the load (see “[TO TILT THE LOAD](#)”).
- 4) Make sure all vacuum pads will fit on the load and will be loaded evenly. Consult the Per-Pad Load Capacity.
- 5) Place the vacuum pads in contact with the load surface.




1..... The lifter is designed to handle the maximum load weight when the load’s center of gravity is positioned within 2” [5 cm] of the lifter’s rotation axis. Uncentered loads may rotate unexpectedly or interfere with the lifter’s tilt capability.

# OPERATION

## Sealing the Pads on the Load

Press the “attach” button (⏏ ← — fig. 1A) on the radio transmitter or the lifter.

 **Keep “attach” function activated throughout lift.**



The vacuum pumps will run until the vacuum pads seal completely. If the lifter takes too long to attach, the notification buzzer chirps and the LCD screen displays

“Vacuum not increasing normally”, along with a diagnostic code (see “[INTELLI-GRIP® DIAGNOSTIC CODES](#)”). In this case, press the lifter firmly against the load to help the pads begin to seal (fig. 2A).<sup>1, 2</sup>

## Reading the Vacuum Gauges

The 2 vacuum gauges of the dual vacuum system show 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. 2B).<sup>3</sup>



If it takes more than 5 seconds for the vacuum level to reach 5" Hg [-17 kPa] on either vacuum gauge, 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>4</sup> If it does not, perform the “[Vacuum Test](#)”.

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

2..... If the lifter does not attach easily, make sure the inside 8 pads attach first. Then press on the outer pads.

3..... The gauge face colors do not correspond with the circuit colors.

4..... 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.

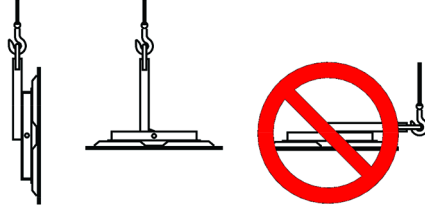


# OPERATION

## To Lift and Move the Load



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



## Interpreting the Lift Light

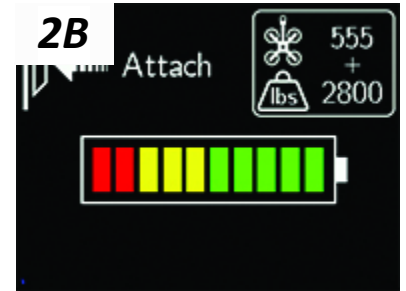
When the lifter attains the vacuum level required for lifting, the green vacuum lift light (fig. 1A) turns *on* automatically and the vacuum pumps turn *off* temporarily, to conserve battery energy.



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

## Interpreting the Load Sensor

As the lifter begins lifting, the load sensor (circled in fig. 1B) measures the weight suspended from the adjustable lift shackle. The LCD screen displays the previously set lifter weight (⚙️ in fig. 2B) and the load weight (⚖️ in fig. 2B).



*Note: The load weight will only be accurate when the lifter weight has been set accurately (see "Setting the Lifter Weight").*

## Watching Vacuum Indicators

Watch the vacuum lift light and both vacuum gauges throughout the entire lift (fig. 1C).



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





# OPERATION

The vacuum pumps turn on and off to overcome any leakage. However, if the leak rate is greater than normal, the notification buzzer chirps and the LCD screen displays “Vacuum decrease on circuit #”, along with a diagnostic code (see “[INTELLI-GRIP® DIAGNOSTIC CODES](#)”).<sup>1</sup> Such leaks can cause the battery to be discharged more quickly.

**If vacuum pumps are unable to overcome leakage**, the notification buzzer sounds continuously, the lift light turns off, and the LCD screen displays “INSUFFICIENT VACUUM!”, along with a diagnostic code (see “[INTELLI-GRIP® DIAGNOSTIC CODES](#)”). If this happens:

- 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 is 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 (fig. 1A) to keep the lifter and load in the required position.

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



## In Case of a Power Failure

In the event of battery failure or electrical system failure, the notification buzzer sounds continuously.

Although the vacuum reserve tanks are 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 vacuum pads (see “[VACUUM PAD MAINTENANCE](#)”).

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



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

1..... Automatic leak detection is **not** a substitute for performing the “[Vacuum Test](#)”, as required by the “[INSPECTION SCHEDULE](#)” and “[TESTING](#)”. Sensitivity of the leak detection can be adjusted (see INTELLI-GRIP® OPERATOR MENU in [SERVICE MANUAL](#)).

# OPERATION

## TO USE THE EMERGENCY STOP BUTTON

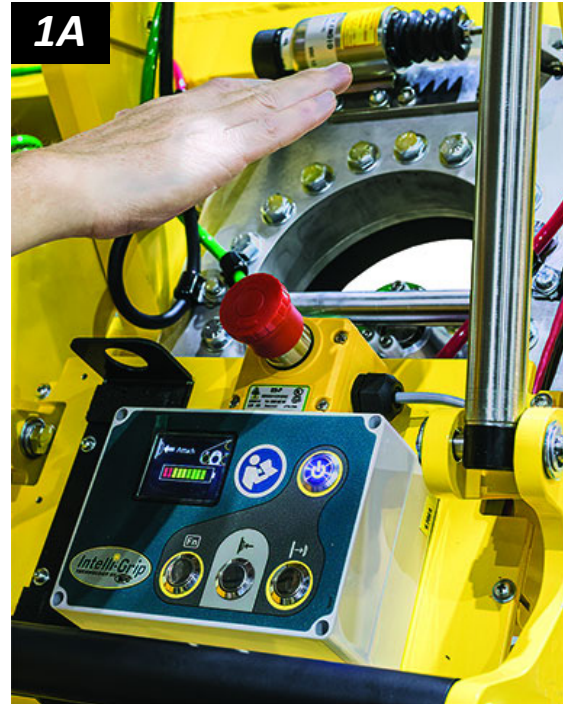
If necessary, press the emergency stop button (fig. 1A-B) on the lifter to immediately stop the following functions:

- Disengaging the rotation latch
- Tilting the pad frame
- Extending or retracting counterweight (if the lifter has the Integrated Counter-Balancer)

*Note: Pushing the emergency stop button will **not** stop the vacuum generating system from functioning.*

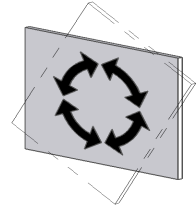
Once the button is pressed, any attempt to use the motion controls will be prevented and the LCD screen will display a message indicating the stop button is engaged.

To reset the stop button, twist the button clockwise and allow it to spring outward to its original position.



# OPERATION

## To ROTATE THE LOAD



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

- 1) Make sure the load has enough clearance to rotate without contacting anyone or anything.



**Keep hands and fingers away from pinch points between pad frame and lift bar.**

- 2) Keep the load under control at all times, using control lines, hand cups or other appropriate means.



**Unbalanced loads may rotate unexpectedly when latch is disengaged.**

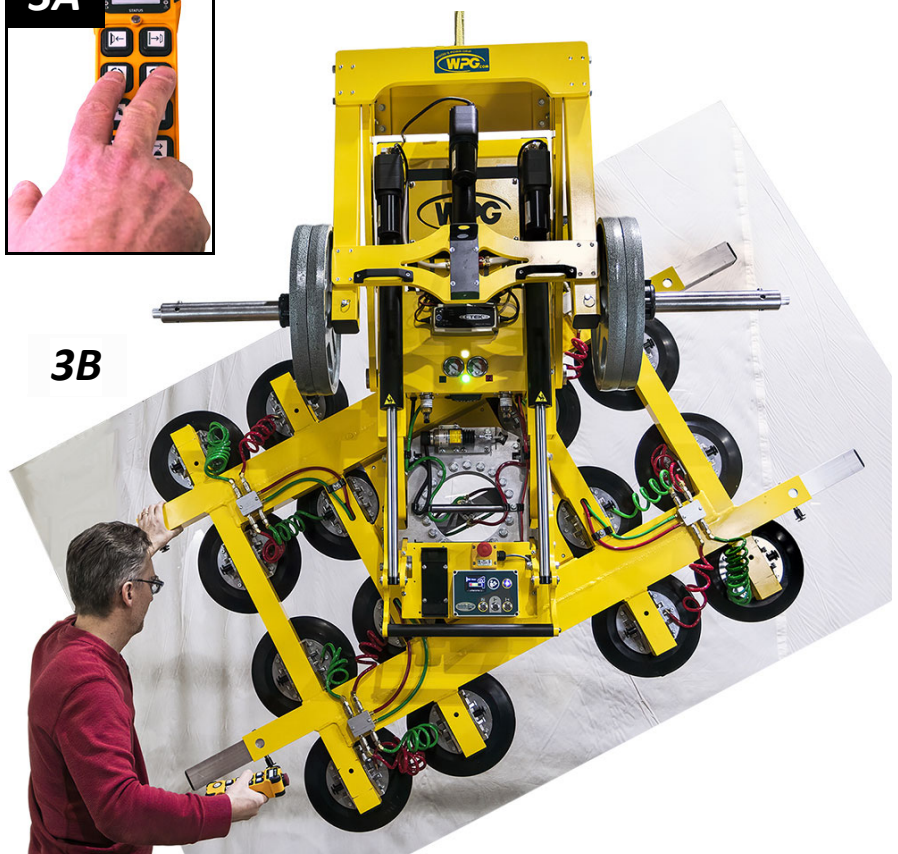
- 3) Hold BOTH rotation latch release buttons on the radio transmitter (fig. 3A) to disengage the rotation latch, and rotate the load as required (fig. 3B).



*Note: An unbalanced load may prevent the rotation latch from disengaging. In this case, relieve pressure on the latch by applying force to the pad frame as needed.*

- 4) To stop load motion, let go of the rotation latch release buttons and guide the load to the next appropriate stop.

*Note: Whenever rotation is not required, keep the rotation latch engaged, to prevent load damage or personal injury.*

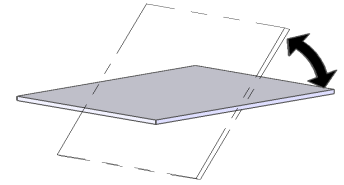


# OPERATION

## To TILT THE LOAD



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

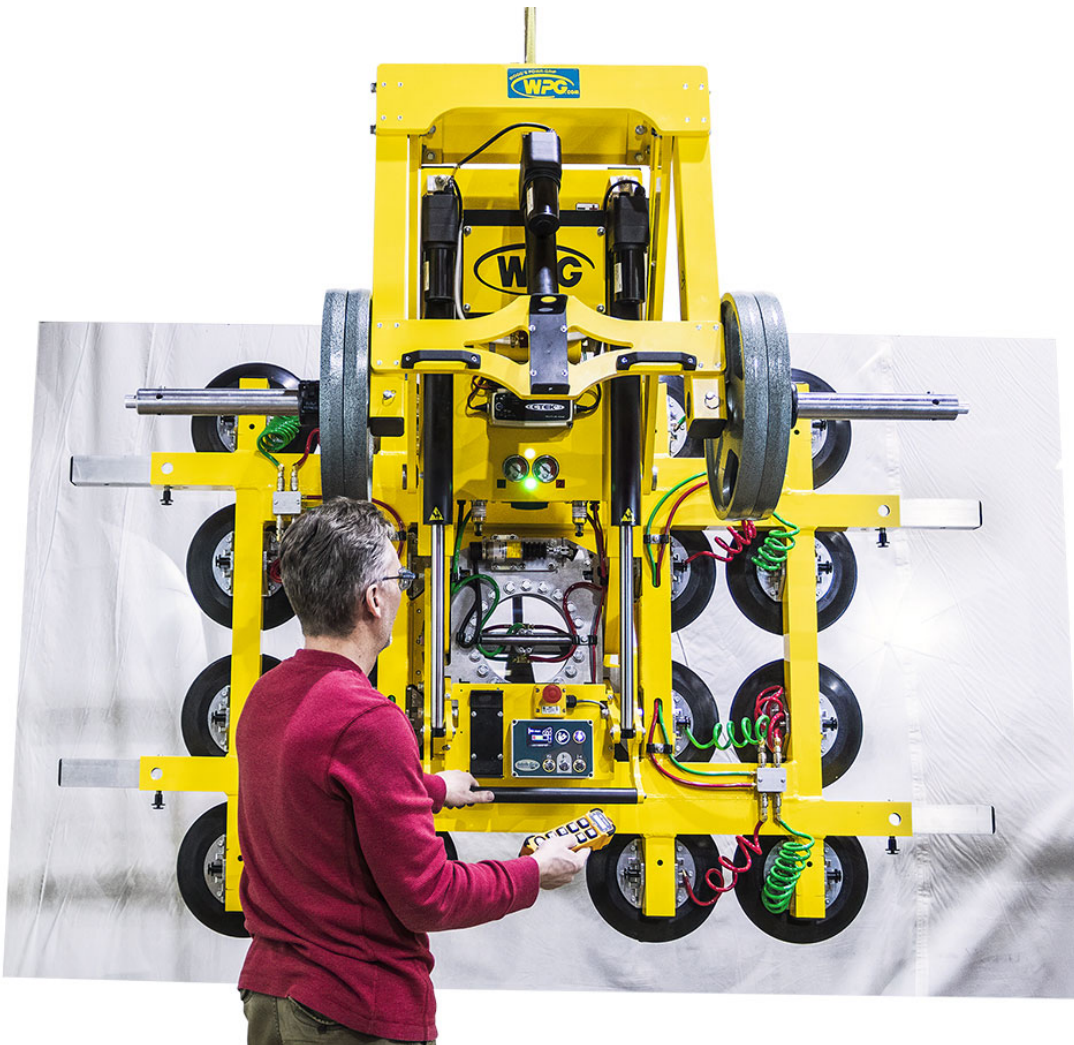


- 1) Make sure the load has enough clearance to tilt without contacting anyone or anything.
- 2) Hold the tilt up button (fig. 2A) or the tilt down button (fig. 2B) on the radio transmitter, whichever corresponds with the desired tilt direction.
- 3) To stop load motion in the desired position, simply let go of the tilt button.

2A



2B




Note: See *“LOAD CHARACTERISTICS”* about allowable load overhang.


# OPERATION

## TO USE THE INTEGRATED COUNTER-BALANCER

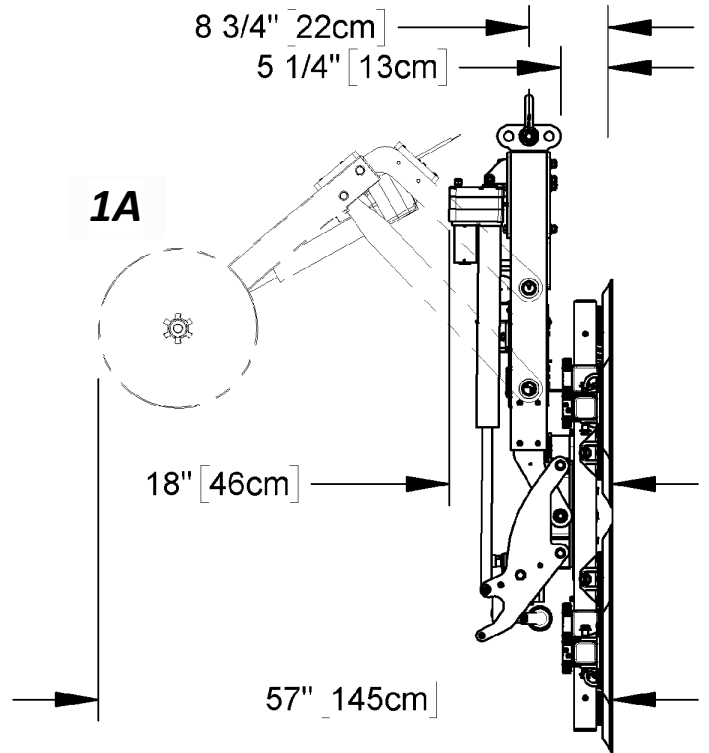
If the lifter is equipped with the optional Integrated Counter-Balancer, use counterweight to offset load weight for the intended task:

- 1) Make sure there is enough clearance to move the counterweight as needed (note dimensions shown in fig. 1A).

 **Keep hands and fingers away from pinch points on counter-balancer..**

 **Do not allow people to be positioned under counter-balancer or within its range of motion.**

- 2) Once the load is lifted, hold the extend counterweight button (fig. 2A) on the radio transmitter to move the counterweight outward, or hold the retract counterweight button (fig. 2B) to move the counterweight inward, as needed to obtain the optimal hang angle.



# OPERATION

## To Set Down the Load

### About the Load Sensor and the Load Support Light

The load sensor measures the weight supported by the hoisting equipment and detects whether the load has been set down.<sup>1</sup>

The load support/ICB position light (fig. 1A) will illuminate when the load is supported independently from the hoisting equipment and the counterweight is fully retracted (if the lifter has the Integrated Counter-Balancer).

If you try to release a load that is **not** supported independently, the notification buzzer sounds continuously, the strobe light flashes and the LCD screen displays “Load not supported”, along with a diagnostic code (see “[INTELLI-GRIP® DIAGNOSTIC CODES](#)”).

If you try to release a load when the counterweight is **not** fully retracted, the notification buzzer sounds continuously, the strobe light flashes and the LCD screen displays “Counterweight not retracted”, along with a diagnostic code (see “[INTELLI-GRIP® DIAGNOSTIC CODES](#)”).

However, you may override these safeguards in appropriate circumstances (see next section).





### Releasing the Pads from the Load



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



***If applicable, make sure counterweight is fully retracted before releasing vacuum pads. Otherwise, abrupt and unpredictable motion could occur.***

- 1) Hold the “function” button (  in fig. 1B) and the “release” button (  in fig. 1B). If the vacuum seal does not break, follow the directions on the lifter’s LCD screen. *Note: The corresponding buttons on the lifter’s control unit may be used to complete this action.*

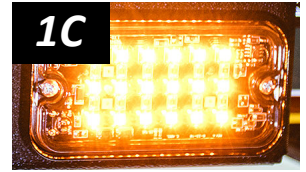
1B



1..... The lifter weight must be set correctly for the load sensor to function accurately (see “[Setting the Lifter Weight](#)”).

# OPERATION

Note: The strobe light flashes (fig. 1C) while the “function” button or “release” button is held, to show the operator that signals are being transmitted and to warn others that the operator may be releasing the load.



- 2) Continue to hold the “function” and “release” buttons until the vacuum pads release the load completely. Otherwise, the lifter will automatically revert to “attach” mode.<sup>1</sup>



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

After the load is successfully released, the lifter activates the “Power Save” mode automatically.<sup>2</sup>

- 3) Before you lift another load, perform the Every-Lift Inspection (see “[INSPECTION SCHEDULE](#)”).

Note: If the load is not supported independently or the counterweight is not fully retracted, the load support/ICB position light will not illuminate. However, **if you are certain that the**



**Make sure there is not risk before overriding load support safeguards.**

**release will not pose any risk to person or property, release the load as follows:**

- 1) Hold the “function” and “release” buttons. The buzzer and strobe light will turn on to notify that the release function is being initiated even though the recommended conditions for release are not satisfied.
- 2) Continue to hold the “function” and “release” buttons. The buzzer and strobe will continue for 30 seconds and then the lifter will start releasing the load.
- 3) Continue to hold both buttons until the vacuum pads release completely.

1..... A “Timed Release” function can be used to help separate the lifter from the load: Hold the “function” and “release” buttons until a yellow arrow appears on the LCD screen. Then tap the “function” button 2 or more times. This prolongs the release mode for 5 seconds per each additional tap.

2..... In the event a load is not separated completely after a release attempt, the lifter will still activate the “Power Save” mode — if it does not detect vacuum in the system.

# OPERATION

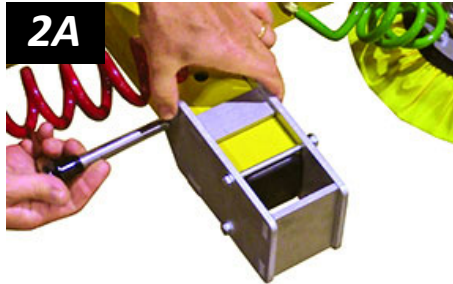
## AFTER USING THE LIFTER

- 1) If the lifter has an Integrated Counter-Balancer, make sure the counterweight is fully retracted.

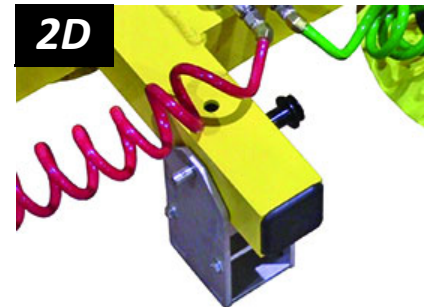
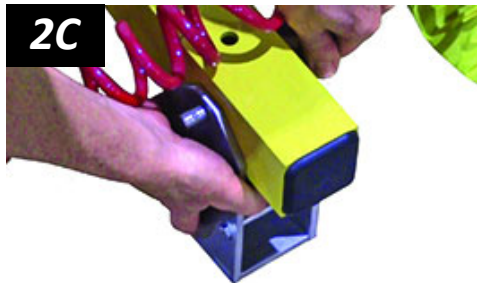
**Caution:** Do not set lifter on surfaces that could soil or damage vacuum pads.

- 2) Move the parking stands to support the lifter:

- 2.1) Remove the cotterless hitch pin and slide a parking stand off the pad frame (figs. 2A-B).



- 2.2) Rotate the parking stand 90° to its functional position, and slide it back onto the pad frame. Then align the hitch pin holes and reinsert the cotterless hitch pin to secure the stand (figs. 2C-D).



- 2.3) Repeat steps 2.1 and 2.2 to move the other 3 parking stands as described.

- 3) Use the hoisting equipment to gently lower the lifter onto a stable surface.<sup>1</sup> Then detach the hoisting hook from the adjustable lift shackle.

- 4) Press the emergency disconnect button and place the radio transmitter in its holder.

- 5) Press the “function” button ( **Fn** in fig. 5A) and the power button ( **⏻** in fig. 6A) on the Intelli-Grip® Control Unit to power down the lifter.



- 6) Charge the battery after each workday as needed (see [“12-VOLT BATTERY RECHARGE”](#)).

1..... The total weight being supported by the hoisting equipment is the sum of the lifter weight and the load weight. Consequently, if the lifter is set down and fully supported, the load weight should display a negative value equal to the lifter weight.



# OPERATION

## Storing the Lifter

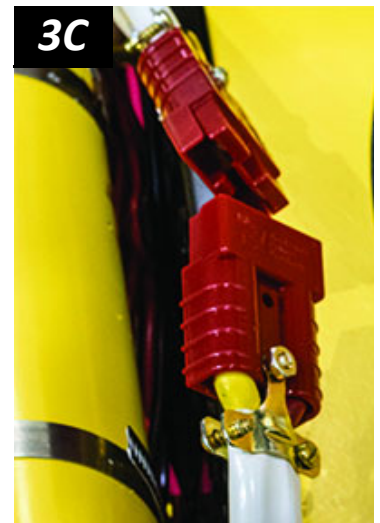
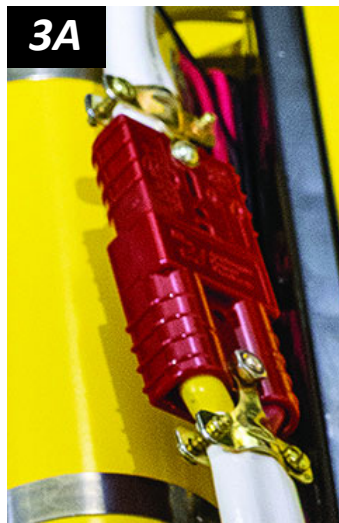
- 1) Use the covers supplied (fig. 1A) to keep the vacuum pads clean.



**CE/UKCA** —To prevent the lifter from tipping over on relatively horizontal surfaces, use the parking stands as previously described.

- 2) Charge the battery completely and repeat every 6 months (see “[12-VOLT 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

- 1) Reverse the “ASSEMBLY” steps to disassemble the lifter (and the Intergrated Counter-Balancer, if the lifter has one).
- 2) Secure the lifter in the original shipping container with the original restraints or equivalent.


**Caution:** Make sure lift bar is supported as needed to prevent damage.

# 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> ”).	✓	✓	✓
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> ”.		✓	✓
Check for unusual vibrations or noises while operating lifter.		✓	✓
 If the lifter has a Remote Control System, perform “ <a href="#">Remote Control System Test</a> ”.		✓	✓
Examine entire lifter for evidence of: <ul style="list-style-type: none"> <li>• looseness, excessive wear or excessive corrosion</li> <li>• deformation, cracks, dents to structural or functional components</li> <li>• cuts in vacuum pads or hoses</li> <li>• any other hazardous conditions</li> </ul>			✓
Inspect entire electrical system for damage, wear or contamination that could be hazardous, in compliance with all local codes and regulatory standards. <b>Caution:</b> Use appropriate cleaning methods for each electrical part, as specified by codes and standards. Improper cleaning can damage parts.			✓

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

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

## 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](#)”).
- 2) Thoroughly clean the load surface and the vacuum pads (see “[Pad Cleaning](#)”).<sup>2</sup>
- 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, hold the “function” button (Fn) and the “power” button (⏻) for at least 5 seconds to power down the vacuum lifter.

*Note: During this time the LCD screen displays “WARNING! Is load attached?”, the notification buzzer chirps rapidly and the strobe light flashes.*

- 6) Raise the load a minimal distance, to make sure it is supported by the lifter.
- 7) Watch each 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>3</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](#)” can affect the outcome of this test.

2..... Contaminated loads can also 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" Hg [-27 kPa]**.


# INSPECTIONS AND TESTS


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


## Operational Tests


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

## Vacuum Test

- 1) Clean the face of each vacuum pad (see “*Pad Cleaning*”).
- 2) Use a test load with weight equal to the Maximum Load Capacity, a clean, smooth, nonporous surface and other appropriate “*LOAD CHARACTERISTICS*”.<sup>1</sup> 
- 3) Attach the lifter to the test load as previously directed. After the vacuum pump stops running, the vacuum level should appear in the green range on each of the vacuum gauges.
- 4) Raise the load a minimal distance. Then hold the “function” button (Fn) and the “power” button (⏻) for at least 5 seconds to power down the lifter.<sup>2</sup>

 **Take precautions in case load should fall during test.**
- 5) Watch the vacuum gauges: *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.

2..... During this time, the LCD screen displays “WARNING: Is load attached?”, the notification buzzer chirps and the strobe light flashes.

# INSPECTIONS AND TESTS

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

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

- 1) Use a test load that weighs 125% ( $\pm 5\%$ ) of the Maximum Load Capacity and has the appropriate “LOAD CHARACTERISTICS”. 
- 2) Attach the vacuum pads to the load as previously directed.
- 3) Position the load to produce the greatest stress on the lifter consistent with “INTENDED USE”.
- 4) Raise the load a minimal distance and leave it suspended for 2 minutes.
- 5) Once the test is completed, lower and release the load 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.**

## Remote Control System Test

 If the lifter has a Remote Control System, test it where the lifter is normally used. Use the radio transmitter to activate each of the remote functions.<sup>3</sup> Vary the transmitter's direction and distance from the lifter, to make sure transmissions are effective.<sup>4</sup>

If the Remote Control System is not functioning correctly, ...

- the battery for the radio transmitter may need to be replaced, or;
- metal or other electrically conductive surfaces may be causing radio interference. Reposition the transmitter to transmit signals effectively.

If the problem persists, vary the test conditions, to determine whether there is transmission interference in the work environment or the Remote Control System is not functioning. Correct any fault before using the Remote Control System.

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.

3..... Use a test material with appropriate “LOAD CHARACTERISTICS” to test the “attach” and “release” functions.

4..... This may require assistance from someone near the lifter, to verify functions are working as intended.

# MAINTENANCE

Note: Refer to **SERVICE MANUAL #36108** 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 every 2 years or more often when necessary.

### Pad Inspection

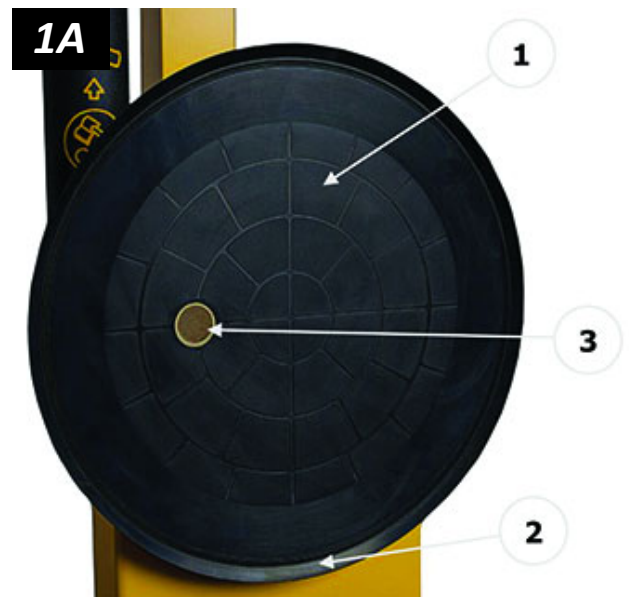
Inspect each vacuum pad (fig. 1A) according to the “INSPECTION SCHEDULE” and correct the following faults before using the lifter (see “REPLACEMENT PARTS”, when applicable):

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



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

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



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

## Pad Cleaning

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



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

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



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

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

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

1A



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

# MAINTENANCE

## 12-VOLT BATTERY RECHARGE<sup>1</sup>

Charge the battery whenever the battery gauge shows reduced energy.<sup>2</sup> **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.<sup>3</sup>

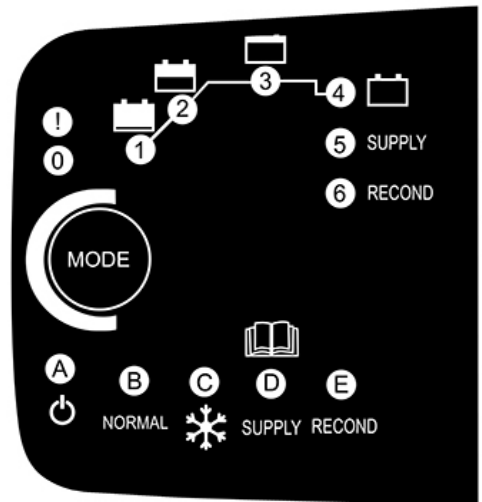


**Make sure power source has ground fault circuit interrupter.**

Press the “MODE” button to select “NORMAL” mode. Lights 1-4 indicate the charging level attained.<sup>4</sup> 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.<sup>5</sup> 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.



# MAINTENANCE

## NOTIFICATION BUZZER BATTERY REPLACEMENT

- 1) Power down the lifter.
- 2) Release the buzzer battery holder by pressing inward and sideward in the direction marked on the holder.
- 3) Slide the battery tray out (fig. 3A).
- 4) Install a new 9-volt battery according to the polarity markings.
- 5) Slide the battery tray back into position.
- 6) Power up the lifter again, to test the new battery.



# MAINTENANCE

## INTELLI-GRIP® DIAGNOSTIC CODES

Refer to the following table when a diagnostic code appears on the LCD screen. Codes are listed in alphanumeric order. If the Explanations/Directions do not resolve the issue, contact qualified service personnel. All relevant parts are listed in “REPLACEMENT PARTS”.

Key:   = buzzer sounds      = buzzer sounds continuously      = strobe light flashes

Code	On-Screen Message	Buzzer Pattern	Strobe Light Activity	Explanations/Directions
B00	“Low 12V Battery (#)”	1 chirp every 2 seconds	(none)	Charge 12V <u>battery</u> or, if necessary, replace it (see “ <a href="#">12-VOLT BATTERY RECHARGE</a> ”). Cold battery may need to be warmed and/or charged more often.
B01	“Lockout (low 12V battery) (#)”	continuous	(none)	Once “Power Save” mode is activated, “attach” and “release” functions are prevented because 12V <u>battery</u> energy is insufficient. Charge battery before next lift (see “ <a href="#">12-VOLT BATTERY RECHARGE</a> ”).
B02	“Replace 12V battery?”	1 chirp per minute	(none)	Check condition of 12V <u>battery</u> (see “ <a href="#">Checking the 12-Volt Battery</a> ” and “ <a href="#">12-VOLT BATTERY RECHARGE</a> ”). Since cold battery may prematurely activate this notification, warm battery and retest when appropriate. Replace battery as needed. Note: This notification can be activated in error if <u>battery charger</u> is plugged into power source while lifter is powered up. If so, power down lifter, disconnect charger from power source, and power up again. If code persists, check battery condition as directed above.
B03	“Charge 12V battery soon”	1 chirp per minute	(none)	Charge 12-volt <u>battery</u> (see “ <a href="#">12-VOLT BATTERY RECHARGE</a> ”).
B09	“Replace 9V battery?”	1 chirp per minute	(none)	Replace 9V battery for <u>notification buzzer</u> as needed (see “ <a href="#">NOTIFICATION BUZZER BATTERY REPLACEMENT</a> ”).
C00	“Fail-safe on module”	continuous	on	Modular <u>circuit board</u> has activated fail-safe mode, to prevent potential injury. Service is required.
C011	“Communication failure, module 1”	fast chirp	(none)	Fault is detected in connection between modular <u>circuit board</u> and <u>Intelli-Grip® control unit</u> . If code does not clear automatically, service is required.
C021	“Internal error, module 1”	continuous	(none)	Fault is detected in modular <u>circuit board</u> . If code does not clear automatically, service is required.
C03	“Firmware updater detected (#)”	(none)	(none)	Service tool is connected. Remove it before resuming lifter use and contact WPG.
C04	“Module revision not compatible”	1 chirp every 2 seconds	(none)	Make sure lifter is used within Operating Temperatures (see “ <a href="#">SPECIFICATIONS</a> ”). Then power lifter down and up again. If code persists, the modular <u>circuit board</u> is incompatible or it has failed. Service is required.
C05	“Module revision lockout”	continuous (while button is held)	(none)	Once “Power Save” mode is activated, “attach” and “release” functions are prevented in connection with Code C04. Service is required.

# ← MAINTENANCE →

Code	On-Screen Message	Buzzer Pattern	Strobe Light Activity	Explanations/Directions
C06	"Control head revision not compatible"	1 chirp every 2 seconds	(none)	Incompatible version of software was installed or <u>Intelli-Grip® control unit</u> has failed. Service is required.
C07	"Control head revision lockout"	continuous (while button is held)	(none)	Once "Power Save" mode is activated, "attach" and "release" functions are prevented in connection with Code C06. Service is required.
E00 E01 E02 E03 E04	"EEPROM error, cell #"	occasional chirp	(none)	Memory error detected. Service is required.
I000	"I2C error (#)"	single chirp	(none)	Fault(s) detected in cable connecting to modular <u>circuit board</u> . If code does not clear automatically, service is required.
L00	"Load sensor error"	(none)	(none)	Load sensor malfunction. Service is required.
M01	"Motion limit reached"	single chirp	(none)	Motion has reached the limits set. No corrective action is necessary.
M02	"Motion setting saved"	single chirp	(none)	Motion setting has been saved to memory and will be used to control the motion from this point forward. No corrective action is necessary.
N00	"Automatic attach"	(none)	(none)	System activated "attach" mode as precaution because significant vacuum was detected, even though no one initiated "attach" function. No corrective action is necessary. When appropriate, qualified service personnel can adjust sensitivity to vacuum detection.
N01	"Automatic attach"	(none)	(none)	System activated "attach" mode as precaution because load did not release completely. No corrective action is necessary. When appropriate, qualified service personnel can adjust sensitivity to vacuum detection.
N02	"Automatic attach"	(none)	(none)	System activated "attach" mode as precaution when lifter was powered up because power was previously lost while load was attached. No corrective action is necessary.
N03	"Unable to turn module power off"	1 chirp every 2 seconds	(none)	Modular <u>circuit board</u> failed to power down. Remove 9V battery. Disconnect connector between 12V <u>battery</u> and vacuum generating system. Charge battery completely (see " <a href="#">12-VOLT BATTERY RECHARGE</a> "). Then reconnect battery and try to power down again. If code persists, disconnect connector. Service is required.
N04	"Failed to turn controls power off"	1 chirp every 2 seconds	(none)	<u>Intelli-Grip® control unit</u> failed to power down. Remove 9V battery. Disconnect connector between 12V <u>battery</u> and vacuum generating system. Charge battery completely (see " <a href="#">12-VOLT BATTERY RECHARGE</a> "). Then reconnect battery and try to power down again. If code persists, disconnect connector. Service is required.
N05	"Unable to turn module power on"	1 chirp every 2 seconds	(none)	Modular <u>circuit board</u> failed to power up. Charge 12V <u>battery</u> (see " <a href="#">12-VOLT BATTERY RECHARGE</a> "). Then power lifter up again. If code persists, service is required.
N06	"Power-down reminder"	2 chirps	on briefly	Power down to prevent 12V <u>battery</u> discharge when lifter is not in use.
N07	"Auto power-down disabled"	(none)	(none)	Automatic power-down is prevented. Power lifter down and up again. If code persists, service is required.

# ← MAINTENANCE →

Code	On-Screen Message	Buzzer Pattern	Strobe Light Activity	Explanations/Directions
N08	"powering down in # seconds"	1 chirp per minute	(none)	Lifter will automatically power down in number of seconds shown. Press any button to cancel action.
N10	"App-support hardware fault"	(none)	(none)	Fault is detected in hardware that enables communication with mobile app. Power lifter down and up again. If code persists, service is required.
N11	"Load scale not calibrated"	(none)	(none)	The load scale is not calibrated, making it unable to function as intended. A prompt to calibrate it as required will appear next time lifter is powered up.
U00	"WARNING! Is load attached?"	fast chirp	on	Attempt was made to power down lifter while load was still detected. Lower load onto stable support and release load <i>before</i> powering down lifter.
U01	"Also hold [Fn] to power down"	(none)	(none)	Hold " <u>function</u> " button and " <u>power</u> " button at same time to power down lifter.
U02	"Turn off? Let go of buttons"	(none)	(possible)	Use only " <u>function</u> " button and " <u>power</u> " button to power down lifter. Lifter cannot be powered down while any other button is pressed.
U03	"Timed release: # seconds"	1 chirp per button press	on	Timed release function is activated for number of seconds shown (see " <a href="#">Releasing the Pads from the Load</a> "). Press " <u>function</u> " button to cancel action or press " <u>attach</u> " button to override. No corrective action is necessary.
U04	"Also hold [Fn] to release"	(none)	(none)	Hold " <u>function</u> " button and " <u>release</u> " button at same time to release load.
U06	"Let go of [Fn] and Release"	(none)	on	Use only " <u>attach</u> " button to attach load. While " <u>attach</u> " button is pressed, lifter does not respond to pressing any other button. Release all buttons and press button(s) again to activate different function.
U08	"Menu not available in Attach"	(none)	(none)	Operator Menus cannot be accessed while lifter is attached to load.
U09	"Counterweight not retracted"	continuous	on	"Release" function is prevented because counterweight is not positioned correctly. Reposition counterweight as directed (see Counter-Balancer <i>OPERATING INSTRUCTIONS</i> , if necessary).
U10	"Use POWER button for Live Stats"	(none)	(none)	"Power" button (not " <u>function</u> " button) is now used to access Live Stats. No corrective action is necessary.
U11	"Testing battery - wait to attach"	(none)	(none)	"Attach" function is prevented because <u>battery</u> test is in progress. Wait until <u>vacuum pump</u> stops running and try again.
U12	E-Stop is pressed	(none)	(none)	Make sure all personnel are safe and reset <u>emergency stop button</u> by twisting it clockwise.
U13	E-Stop blocking powered motion	single chirp	(none)	Make sure all personnel are safe and reset <u>emergency stop button</u> by twisting it clockwise.
U14	"Load not supported"	continuous	on	"Release" function is restricted because load is still primarily supported by lifter. Make sure there is adequate load support and lower lifter.
U15	"Insufficient vacuum for lift!"	continuous	on	<u>Load sensor</u> has detected that load is being lifted with inadequate vacuum. Immediately lower load onto stable support until adequate vacuum can be obtained.

# MAINTENANCE

Code	On-Screen Message	Buzzer Pattern	Strobe Light Activity	Explanations/Directions
V000	"INSUFFICIENT VACUUM!"	continuous	on	Immediately lower load onto stable support until adequate vacuum can be obtained. Check load and <u>vacuum pads</u> for damage. Consult relevant topics in "ASSEMBLY", "OPERATION", "INSPECTIONS AND TESTS", and "MAINTENANCE".
V001 V002 V003 V004	"INSUFFICIENT VACUUM #!" (# indicates relevant vacuum circuit)	continuous	on	Immediately lower load onto stable support until adequate vacuum can be obtained in vacuum circuit indicated. Check load and <u>vacuum pads</u> for damage. Consult relevant topics in "ASSEMBLY", "OPERATION", "INSPECTIONS AND TESTS", and "MAINTENANCE". This code can be activated in connection with Code N00.
V011 V012 V013 V014 V015	"Vacuum decrease on circuit #" (# indicates relevant vacuum circuit)	3 chirps	(none)	Vacuum decreased at greater rate than expected in circuit(s) indicated. Possible causes include bouncing or landing load, as well as use on rough or porous loads and other sources of vacuum leaks. Consult relevant topics in "ASSEMBLY", "OPERATION", "INSPECTIONS AND TESTS", and "MAINTENANCE" to eliminate leaks when possible. When appropriate, qualified service personnel can adjust sensitivity to vacuum level reductions.
V020	"Vacuum not increasing normally"	1 chirp every 2 seconds	on	Although lifter began to attach, vacuum level did not increase at normal rate. Make sure all <u>vacuum pads</u> seal securely (see " <a href="#">Sealing the Pads on the Load</a> " and " <a href="#">Reading the Vacuum Gauges</a> "). This Code can be activated by use at high elevation. If so, contact WPG for directions.
V03A V03B	"Pump running excessively"	1 chirp every 2 seconds	(none)	<u>Vacuum pump</u> is running more often than normal. Likely causes include significant vacuum leak or difficulty achieving minimum vacuum level due to high elevation. In case of suspected leak, check for fault(s) in vacuum system. See relevant topics in "ASSEMBLY", "OPERATION", "INSPECTIONS AND TESTS", and "MAINTENANCE". In case of high elevation, contact WPG for directions.
V040	"Lockout (vacuum sensor error)"	continuous	(none)	Once "Power Save" mode is activated, "attach" and "release" functions are prevented due to a <u>vacuum sensor</u> malfunction. Make sure sensor connectors are correctly plugged into <u>circuit board</u> .
V050	"DANGER! INSUFFICIENT VACUUM!"	continuous	on	Vacuum levels in BOTH circuits are insufficient for lifting. <b>Keep everyone away from suspended load until it can be safely lowered to a stable support.</b> Service is required.
V081 V082 V083 V084	"Sensor # error (low)" (# indicates relevant vacuum circuit)	continuous in "attach" mode; 1 chirp every minute in "power save" mode	(none)	<u>Vacuum sensor</u> malfunction in vacuum circuit indicated. Make sure sensor connector is correctly plugged into <u>circuit board</u> .
V091 V092 V093 V094	"Sensor # error (high)" (# indicates relevant vacuum circuit)	continuous in "attach" mode; 1 chirp every minute in "power save" mode	(none)	<u>Vacuum sensor</u> malfunction in vacuum circuit indicated. Make sure sensor connector is correctly plugged into <u>circuit board</u> .

# REPLACEMENT PARTS

Stock No.	Description	Qty.
98815	Integrated Counter-Balancer (option)	(1)
93022	Quick Connector – 1/8 FNPT – Male End – Single w/45° Barb	20
65442CA	Vacuum Hose – 0.160" ID x 1/4" OD – Red	*
65442AM	Vacuum Hose – 0.245" ID x 3/8" OD x 48" Length – Coiled – Green	4
65441	Vacuum Hose – 0.245" ID x 3/8" OD x 48" Length – Coiled – Red	4
65440	Vacuum Hose – 0.245" ID x 3/8" OD – Red	*
65439BM	Vacuum Hose – 3/32" ID x 5/32" OD – Green	*
65439AM	Vacuum Hose – 3/32" ID x 5/32" OD – Red	*
65437	Vacuum Hose – 0.245" ID x 3/8" OD – Green	*
65429BM	Vacuum Hose – 0.160" ID x 1/4" OD – Green	*
65380	Counterweight Plate (option)	(16)
65380WC	Weight Clamp (option)	(2)
65010	Pad Spring – Coil Type	20
64713	Battery Charger – 7 Amp – 240 V AC – Australian Type	1
64712	Battery Charger – 7 Amp – 240 V AC	1
64711	Battery Charger – 7 Amp – 100 / 120 V AC	1
64669	Battery – 12 V DC – 80 Amp-Hours	1
60024	Felt Pad Filter (alternative for screen #15632)	20
53132	Hose Fitting – Tee – High Flow – 1/4" Barb	8
53122	Pad Fitting – Elbow – 5/32" ID	20
49520TA	Vacuum Pad – Model VPCS9/ 9" [23 cm] Diameter – Concave	20
49150	End Plug – 2-1/2" x 2-1/2" x 1/4" Tubing Size	8
36108	Service Manual – 12 V DC – Dual Vacuum System – Powered Motion – Intelli-Grip®	1
29353	Pad Cover	20
16057	Quick Connector – 1/8 FNPT – Male End	20
15632	Pad Filter Screen – Small	20
13534	Cotterless Hitch Pin – 1/2" x 4"	20
13532	Cotterless Hitch Pin – 1/2" x 3-3/8" (for parking stands)	4
10900	Shoulder Bolt – Socket Head – 5/16" x 1/2" x 1/4-20 Thread (for mounting pads)	120
93128AM	Pivoting Pad Mounts	20
Call WPG	Quick Connect Manifold Assembly	4

\* – Length as required; sold by the inch (approx 2.5 cm).

See **SERVICE MANUAL #36108** for additional parts.

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

# REGISTRATION AND LIMITED WARRANTY

## TO REGISTER THIS WPG PRODUCT

Go to the [PRODUCT REGISTRATION](#) page at [wpg.com](#) and complete the form. Registration keeps you advised of important updates and notifications, and simplifies inquiries to WPG regarding your product. Registration is **not** required to activate your Limited Warranty (see next section).

## ABOUT THE LIMITED WARRANTY



*Note: Read the [WARRANTY RETURN FORM](#) at [wpg.com](#) for important details about the Limited Warranty.*

Wood's Powr-Grip® (WPG) products are warranted to be free from defects in manufacturing and materials for 1 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 product has a defect, WPG will repair or replace the product without charge.



## Obtaining Warranty Service or Repair Service

**For customers in the U.S. and Canada:** Go to the [EXCHANGES, REPAIRS, & WARRANTIES](#) page at [wpg.com](#) and click the applicable link. Alternatively, you may contact the WPG Technical Service Department (see contact information at right).

**For customers in all other localities:** Contact the WPG Technical Service Department (see contact information at right) or your dealer for assistance.

**Address:**

Wood's Powr-Grip Co., Inc.  
908 West Main St.  
Laurel, MT 59044 USA

**Email:**

[contactus@wpg.com](mailto:contactus@wpg.com)

**Phone:**

800-548-7341 or 406-628-8231

KEEP FOR FUTURE REFERENCE

# ENGINEERING DRAWINGS

 INTENDED FOR USE BY QUALIFIED SERVICE  
PERSONNEL • READ AND UNDERSTAND BEFORE  
ROUTING, WIRING AND/OR ASSEMBLING

MANUL ROTATOR /  
POWER TILTER 2000,  
DC-VOLTAGE  
WITH INTELLI-GRIP®  
TECHNOLOGY,

Model number: MRPT209CDC3



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



FILE DIRECTORY: 20170901.00.00  
 FILE (SHEET): **PROJECT** **NPRD0062L-W01 [L-W01]**

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**WPG**

2800# MANUAL ROTATE/POWER TILT  
 LIFT BAR  
 MODULE C WIRING SCHEMATIC  
 NPRD0062L-W01 [L-W01]

TYPE: <b>A</b>	SCALE: <b>NONE</b>	REVISION: <b>00.A</b>	ECN NUMBER: <b>VER00.A</b>	ECN DATE: <b>07/16/2018</b>	ECN BY: <b>MAP</b>	EST. WEIGHT: <b>N/A</b>
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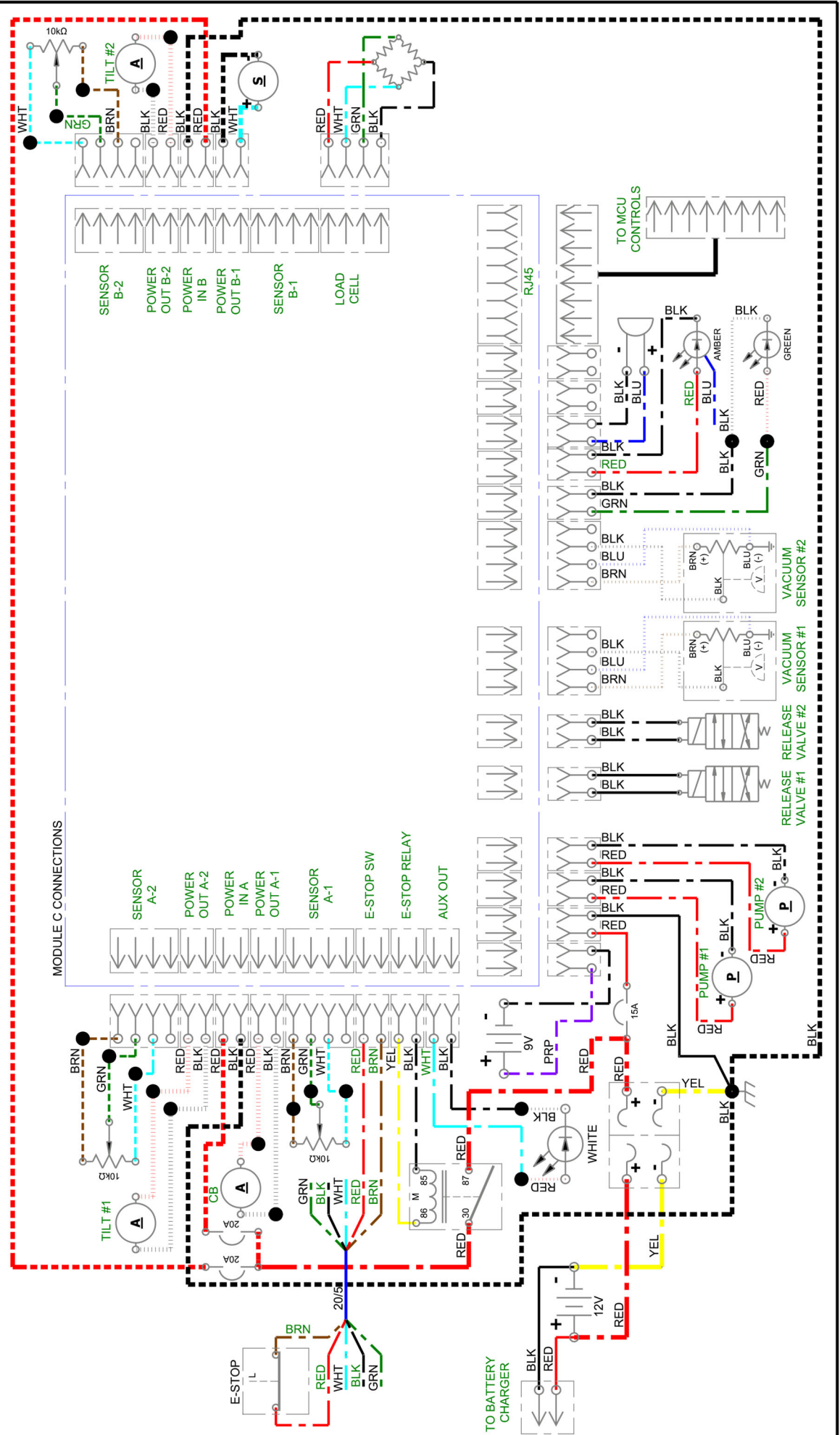
WIRE LEGEND: CONTROLLED BY WIRING SYMBOLS DRAWING EXCEPT AS NOTED AND BELOW.

LINE STYLES AND WIDTHS FOR WIRE UNLESS NOTED OTHERWISE:

24AWG	22AWG	20AWG	16AWG	CAT5
14AWG	12AWG	6AWG		

PRODUCT MANAGER: **DANIEL M.** DATE: **07/10/2018**

CHECKED: **MAP** APPROVED: **MAP**



FILE DIRECTORY: 20170901.00.00  
 FILE (SHEET): **PROJECT** NPRD0062L-W02 [L-W02]

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 WOOD'S POWR-GRIP CO., INC.  
 1 LAUREL MONTANA U.S.A.

**WPG**

2800# MANUAL ROTATE/POWER TILT  
 LIFT BAR  
 PNEUMATIC HOSE SCHEMATIC  
 NPRD0062L-W02 [L-W02]

REVISION: 00.A VER00.A ECN DATE: 07/16/2018 ECN BY: MAP  
 SIZE: SCALE: A NONE

EST. WEIGHT: N/A

TOLERANCES: CONTROLLED BY STANDARD DN05C001 EXCEPT AS NOTED AND LISTED BELOW.

DECIMAL	FRACTIONAL
X.XX ± N/A	X/XX ± N/A
X ° ± N/A	
Ø 1" ± N/A	Ø 1" ± N/A
Ø X.XXX ± N/A	Ø 1" > Ø X/XX ± N/A
Ø X.XXX ± N/A	Ø 1" > Ø X/XX ± N/A

UNITS: INCHES (MILLIMETERS), DO NOT SCALE.

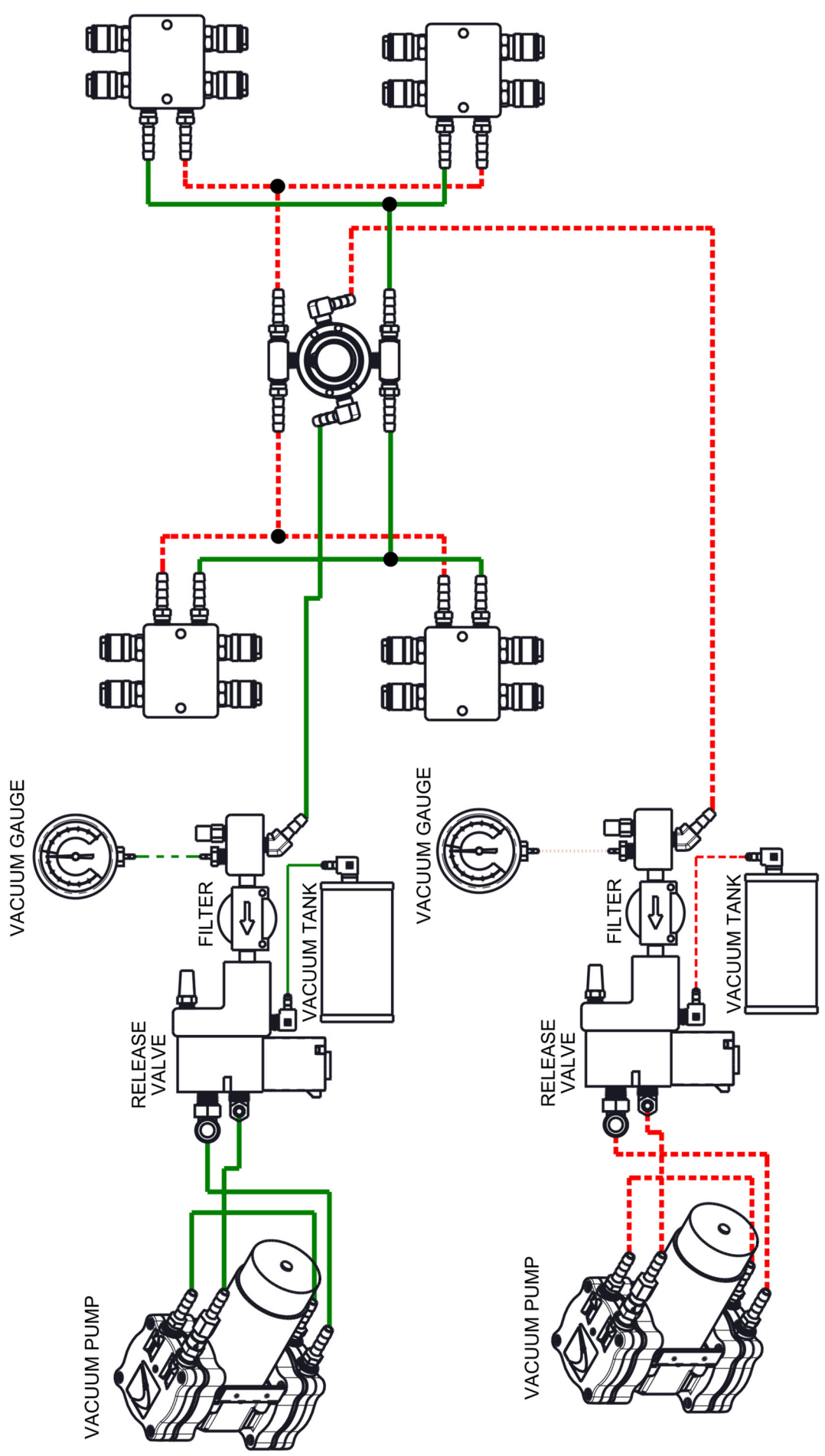
PRODUCT MANAGER: DANIEL M.  
 DATE: 07/10/2018

CHECKED: MAP  
 DATE: 03/15/2019

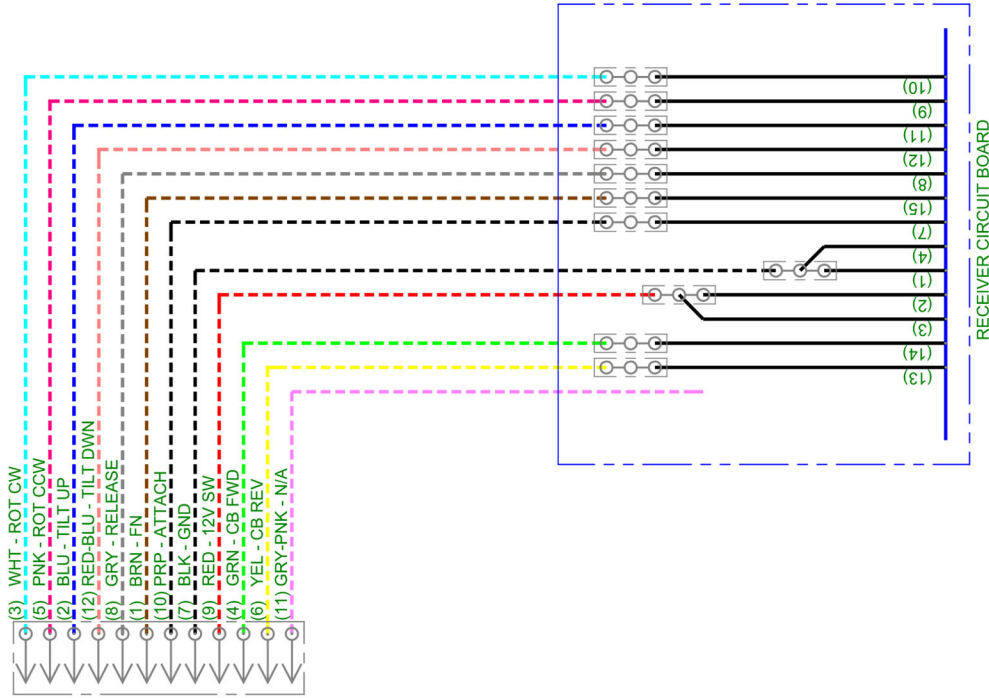
APPROVED:

HOSE SIZES AND COLORS

5/32" OD (GREEN)	---
5/32" OD (RED)	----
1/4" OD (GREEN)	—
1/4" OD (RED)	- - -
3/8" OD (GREEN)	—
3/8" OD (RED)	- - -



FILE DIRECTORY: 20170901.00.00	PROJECT	NPRD0062L-W03 [L-W03]
FILE [SHEET]:	WOOD'S POWR-GRIP CO., INC. 1 LAUREL MONTANA U.S.A.	
TYPE:	2800# MANUAL ROTATE/POWER TILT LIFT BAR	
WIRE LEGEND: CONTROLLED BY WIRING SYMBOLS DRAWING EXCEPT AS NOTED AND BELOW. LINE STYLES AND WIDTHS FOR WIRE UNLESS NOTED OTHERWISE: N/A - 26 AWG - N/A - 18 AWG - N/A ..... - N/A - N/A - N/A	RADIO RECEIVER WIRING SCHEMATIC NPRD0062L-W03 [L-W03]	
PRODUCT MANAGER: DANIEL M.	DATE: 07/17/2018	EST. WEIGHT: N/A
CHECKED: MAP	REVISION: 00.A	ECN BY: BKS
APPROVED:	VER 00.A	ECN DATE: 07/17/2018
	SIZE: A	SCALE: NONE



RECEIVER CIRCUIT BOARD