

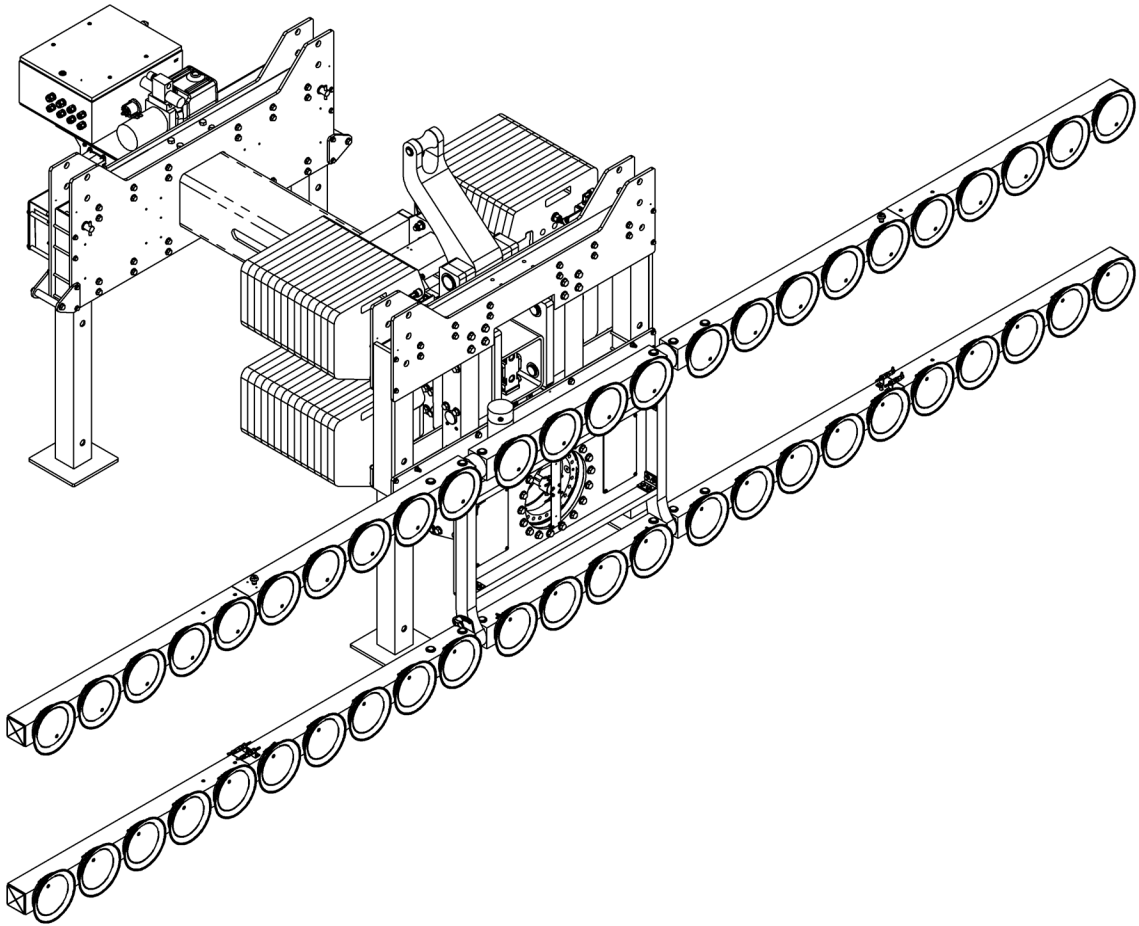
KEEP FOR FUTURE REFERENCE

OPERATING INSTRUCTIONS



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



POWER ROTATOR / TILTER 5300, DC-VOLTAGE WITH INTELLI-GRIP® TECHNOLOGY

**(Includes INTEGRATED COUNTER-BALANCER,
ADJUSTABLE PAD FRAME for CURVED LOADS)**

Model number: PRT489CDC3S

Serial number: 20220509







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SPECIFICATIONS

Product Description	Designed for use with hoisting equipment, the PRT489CDC3S lifter supports loads using vacuum and manipulates loads using powered 360° rotation and powered 90° tilt motions.
Vacuum Pads (standard rubber ¹)	Forty-eight 9" [23 cm] nominal diameter, concave (Model VPCS9)
Pad Spread² (to outer edges)	Minimum: 41¼" [105 cm] Maximum with 28 pads: 143¾" [365 cm] Maximum with 48 pads: 243¾" [618 cm]
 Maximum Load Capacity³	Per pad: 115 lbs [52 kg] With 28 pads: 3220 lbs [1460 kg] With 48 pads: 5300 lbs [2400 kg]
 Lifter Weight	~9300 lbs [4497 kg]
Power System	24 volts DC, 160 amps
Battery Capacity	100 amp-hours
Remote Control System	Radio controls – FCC, CE, ICC, RSM and ACMA compliant.
 Rotation Capability	Powered, 360°, Time = approx. 3 min., Duty cycle = continuous
 Tilt Capability	Powered, 90°, Time = approx. 30 sec., Duty cycle = 18% with a single run time of 6 min. ⁴
Product Options	<i>Includes Integrated Counter-Balancer.</i> <i>Includes Adjustable Pad Frame for Curved Glass.</i> See separate instructions about other options.
 Operating Elevation	Up to 6,000' [1,828 m]
 Operating Temperatures	32° — 100° F [0° — 38° C]
Service Life	20,000 lifting cycles, when used and maintained as intended ⁵
ASME Standard BTH-1	Design Category "B", Service Class "O"
Troubleshooting Guide⁶	TST-016_GENERIC_LEAK_TEST_rev_2014-086

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

2..... The illustrations under ["TO CHANGE THE PAD FRAME CONFIGURATION"](#) on page 12 show the Pad Spread and Maximum Load Capacity for approved PRT489CDC3S pad frame configurations.

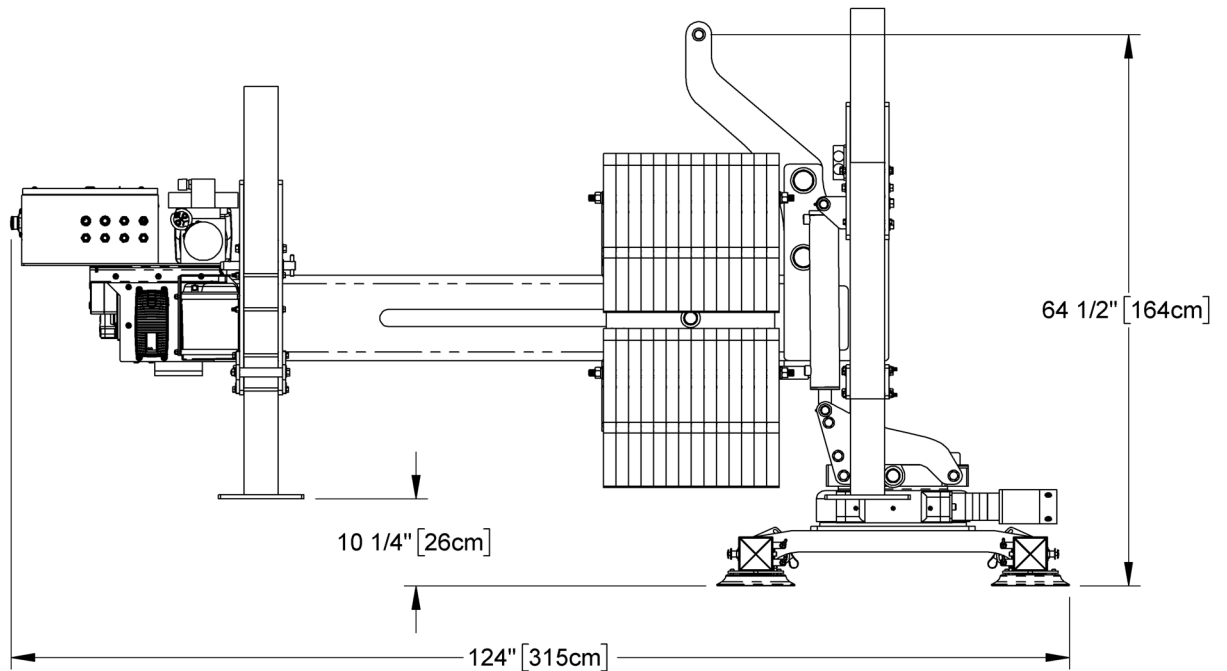
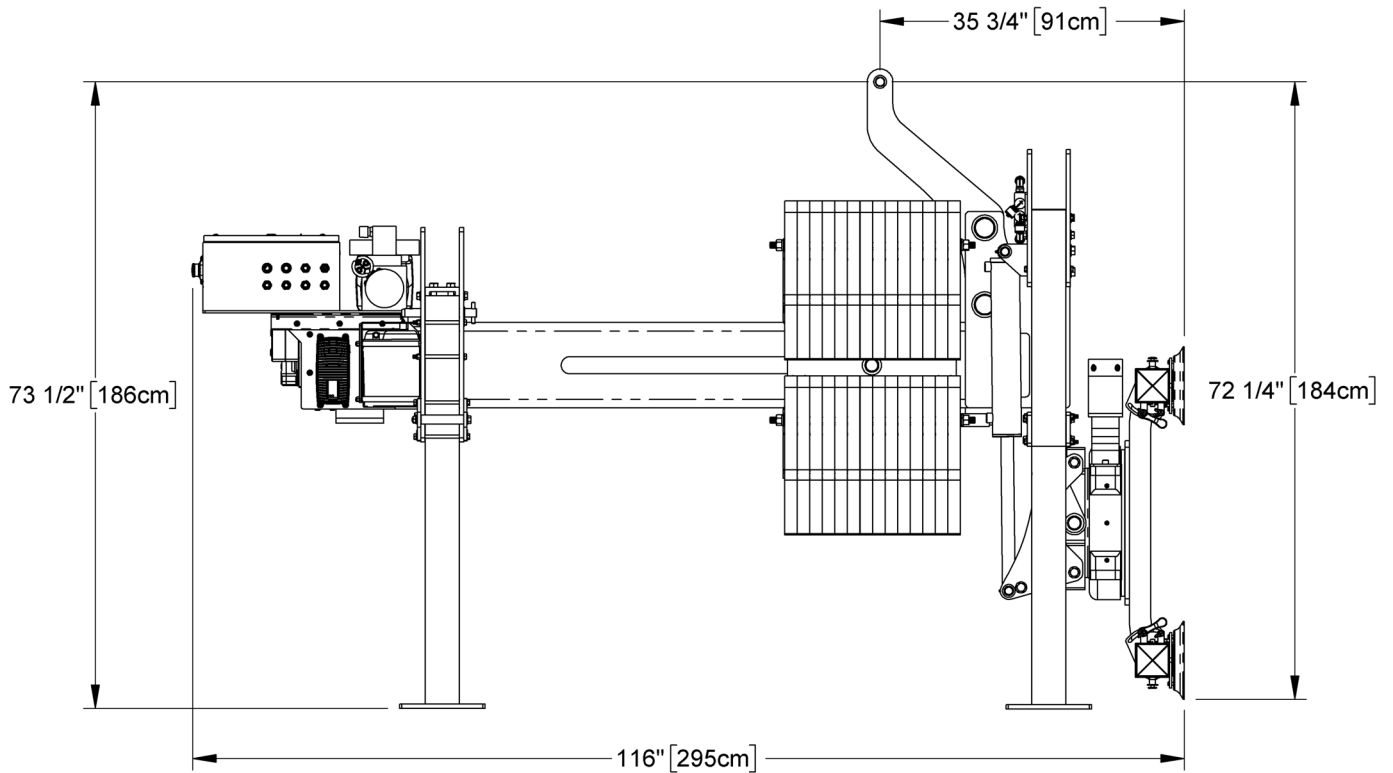
3..... The Maximum Load Capacity is rated at a vacuum of 16" Hg [-54 kPa] on clean, smooth, nonporous flat surfaces with a friction coefficient of 1. Pad compound, load rigidity, strength, surface conditions, overhang, angle, center of gravity and temperature can also affect the lifting capacity. A "qualified person" should evaluate the effective lifting capacity for each use (see definition under ["Rated Load Test"](#) on page 35).

4..... Rated under maximum actuator load; tilt duty increases as load weight decreases.

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

6..... To view this guide, search for your lifter's Model Number at www.wpg.com 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.



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



Do not remove or obscure safety labels.



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



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



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



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



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



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



Do not touch the vacuum release controls during a lift.



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



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



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



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



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



Do not position a loaded or unloaded lifter over people.



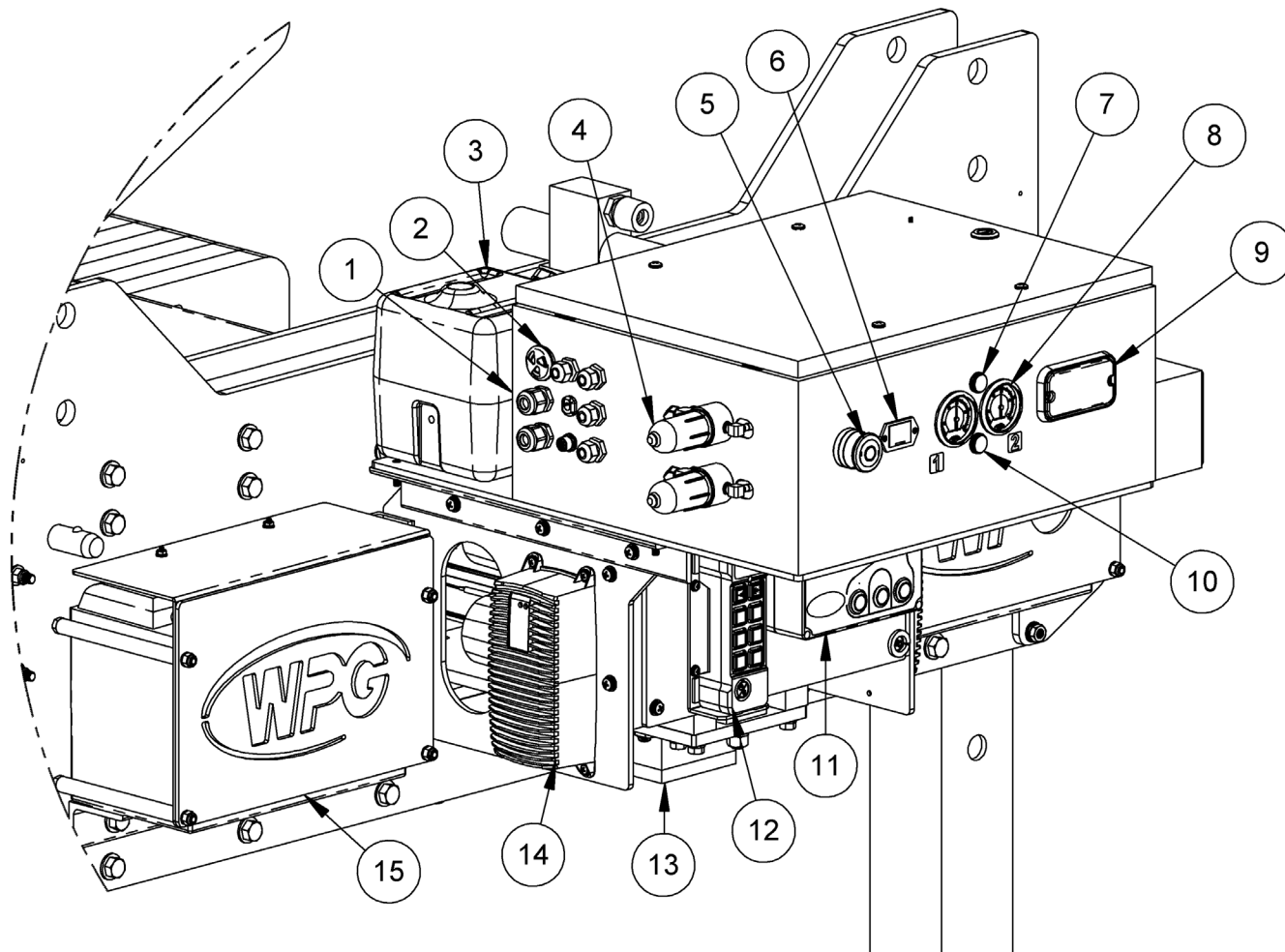
Do not use a lifter if the Maximum Load Capacity or any safety label appears to be missing or obscured.



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

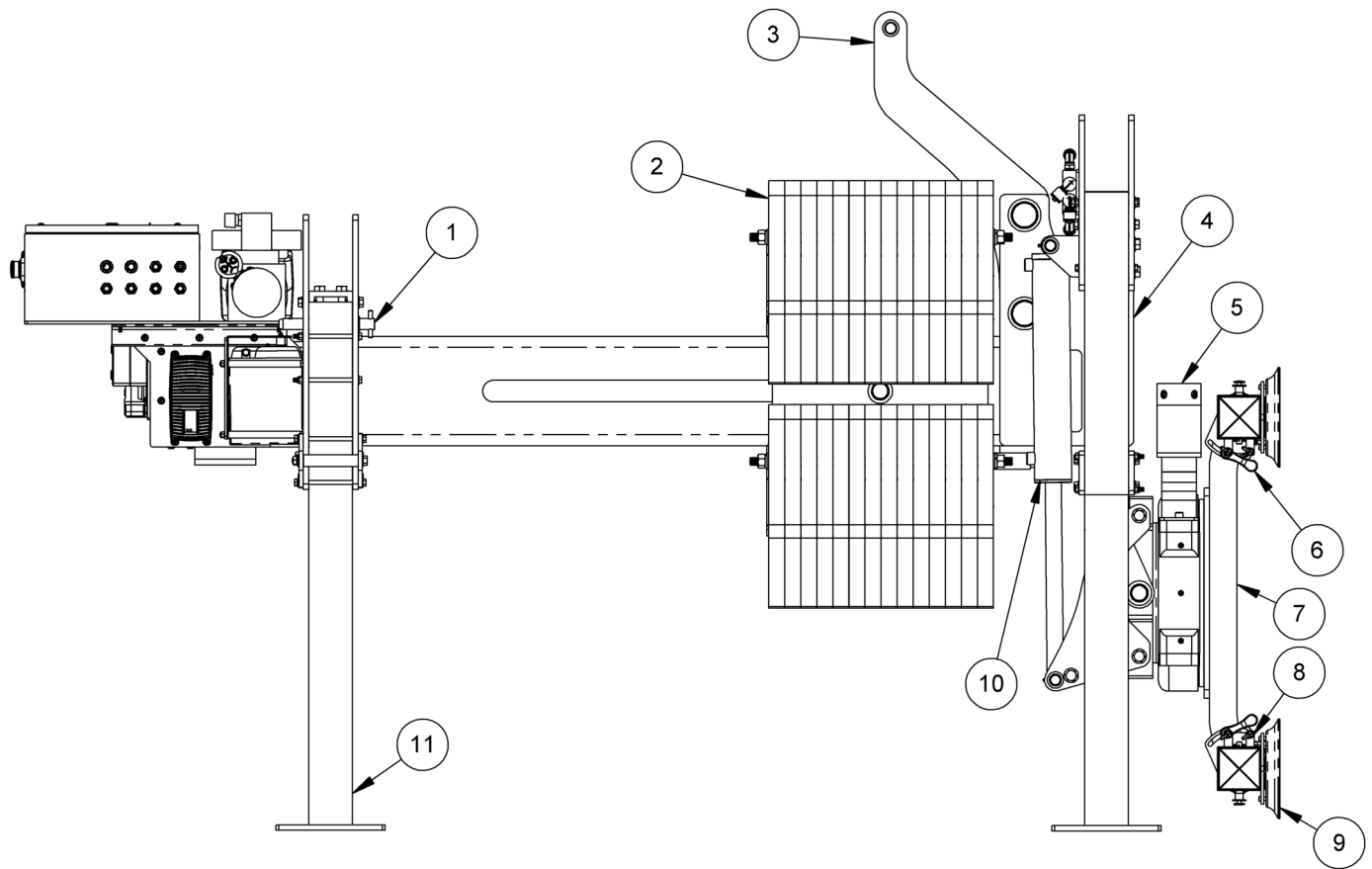
OPERATING FEATURES

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



- | | | |
|--------------------------------|------------------------------|---------------------------------|
| 1 POWER SYSTEM ENCLOSURE | 2 NOTIFICATION BUZZER | 3 HYDRAULIC FLUID RESERVE TANK |
| 4 AIR FILTERS | 5 EMERGENCY STOP BUTTON | 6 BUZZER BATTERY HOLDER |
| 7 COUNTERWEIGHT POSITION LIGHT | 8 VACUUM GAUGE | 9 STROBE LIGHT |
| 10 VACUUM LIFT LIGHT | 11 INTELLI-GRIP CONTROL UNIT | 12 RADIO TRANSMITTER and HOLDER |
| 13 RADIO RECEIVER | 14 BATTERY CHARGER | 15 BATTERY |

OPERATING FEATURES



- | | | |
|------------------------|---------------------|------------------------------|
| 1 PARKING STAND PIN | 2 COUNTERWEIGHT | 3 LIFT POINT |
| 4 LIFTER FRAME | 5 MANIPULATING HEAD | 6 PAD FRAME ADJUSTMENT LEVER |
| 7 ADJUSTABLE PAD FRAME | 8 QUICK CONNECTOR | 9 VACUUM PAD |
| 10 TILT ACTUATOR | 11 PARKING STAND | |



INTELLI-GRIP® CONTROL UNIT —DETAIL

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

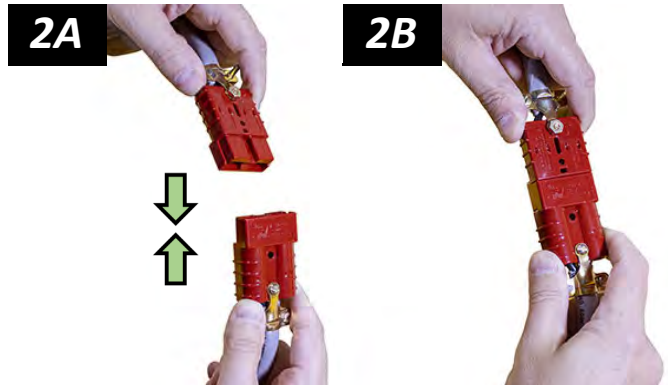
Note: Although some of the following photos do not show this specific lifter, they all illustrate how this kind of lifter functions.

For information about specific parts, see [“REPLACEMENT PARTS”](#) on page 46.

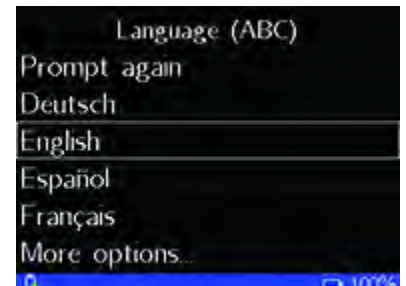
ASSEMBLY

- 1) Remove all shipping materials and save them with the original shipping container for future use.
- 2) Connect the electrical connectors (figs. 2A-B).

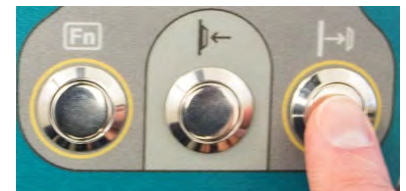
Install the 9-volt battery for the notification buzzer as directed under “[NOTIFICATION BUZZER BATTERY REPLACEMENT](#)” on page 41.



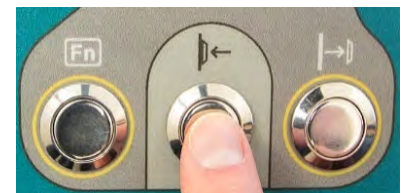
- 3) Power up the lifter and radio transmitter (see “[Preparing to Use the Remote Control System](#)” on page 19 and “[Powering up the Lifter](#)” on page 21).
- 4) Select a screen language: When the lifter is powered up for the first time, the Intelli-Grip® Control Unit prompts the operator to select a language for the LCD screen.



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

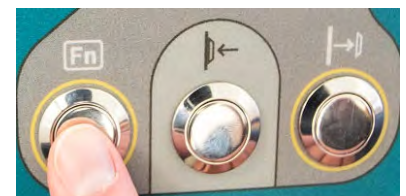


To scroll up, press the “attach” button (|←|).



To select a language, press the “function” button (Fn).¹

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



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

ASSEMBLY

- 5) Make sure the counterweight is moved to its forward-most position (fig. 5A — see “Moving the Lifter’s Counterweight” on page 22).



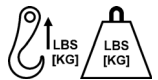
- 6) Add one or more control lines as needed to maintain control of the lifter.¹

Note: The lifter is equipped with 2 control line attachment points (fig. 6A).



- 7) Suspend the lifter from appropriate hoisting equipment:

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



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

1..... Control lines should not need high forces because their function is to maintain control of slight movements of the lifter. Counterweight should be moved to keep the lifter level rather than attempting this with the control lines.

ASSEMBLY



7.2) Attach the hoisting hook to the lift point (figs 7D-E).

Note: Use rigging (fig. 7F) as needed to make sure the hook does not interfere with the load.



Make sure hook has restraining latch (arrow in fig. 7E).



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

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

8) Remove or retract the parking stands (see [“TO REMOVE OR RETRACT PARKING STANDS”](#) on page 11).

9) Configure the pad frame for optimal load support (see [“TO CHANGE THE PAD FRAME CONFIGURATION”](#) on page 12).

10) Remove the pad covers (fig. 10A) and save them for future use.



11) Perform tests as required under [“TESTING”](#) on page 33.

TO REMOVE OR RETRACT PARKING STANDS



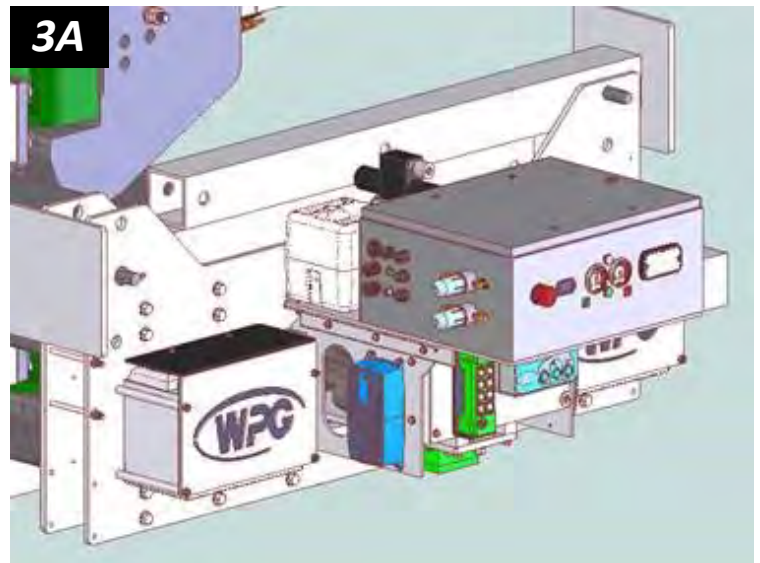
Keep hands and fingers away from pinch points.

- 1) Make sure the lifter is fully supported by the hoisting equipment.
- 2) Remove the parking stand pin that secures each parking stand (fig. 2A).



- 3) Retract or remove each parking stand:
 - To retract, move a parking stand upward until its hole for the parking stand pin aligns with the next pin hole location on the lifter frame. Then reinstall the pin, to secure. Repeat with the other 3 stands.
 - To remove, use the hoisting equipment to raise lifter until the parking stands fully detach from the lifter frame.

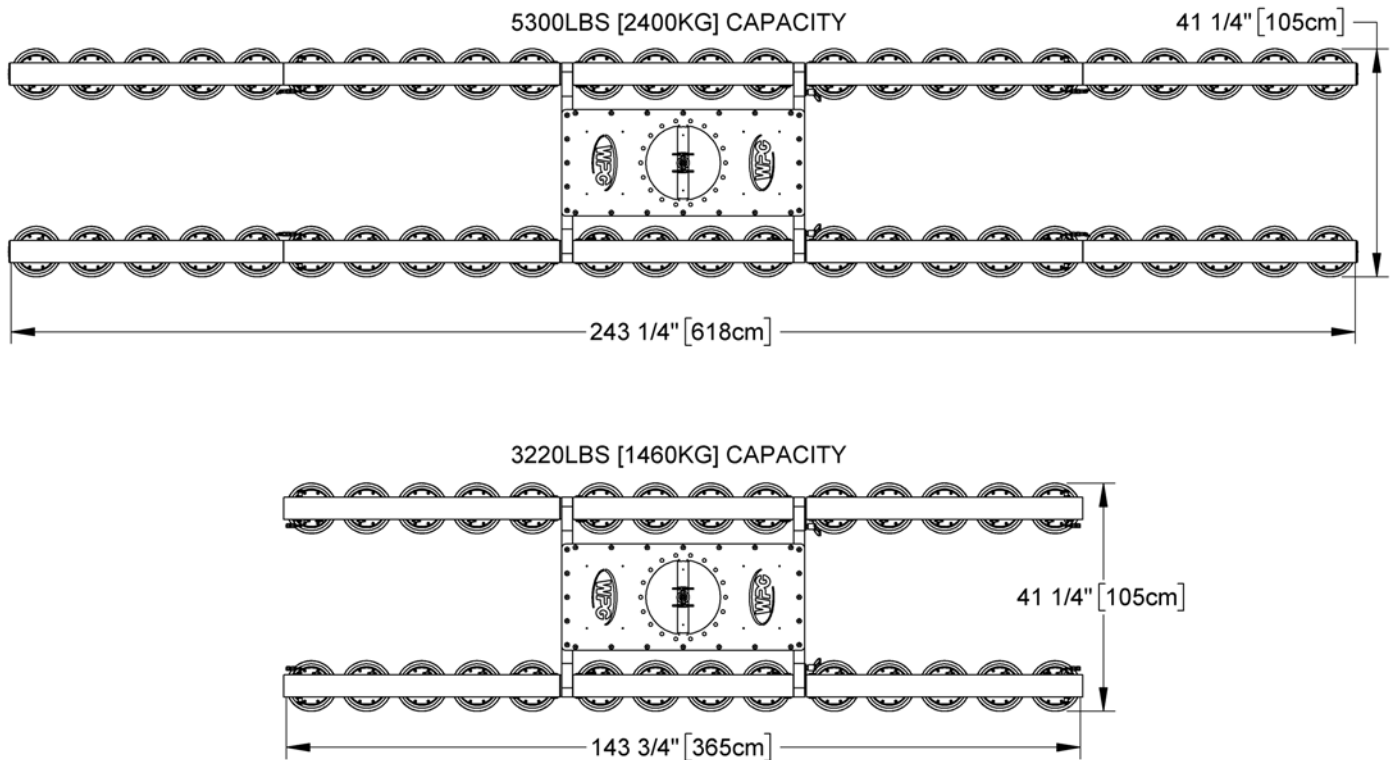
Note: Removed parking stands may be stowed on top of the lifter frame as shown in fig. 3A. Make sure to use their parking stand pins, to secure. Otherwise, store them in a clean, dry location.



ASSEMBLY

TO CHANGE THE PAD FRAME CONFIGURATION

1A



Two configurations for the lifter's adjustable pad frame enable the lifter to match different load dimensions and weights. The illustrations in fig. 1A show the approved configurations.

Caution: Connect the vacuum pads to the 2 circuits (marked "1" and "2" on lifter).

- 1) Choose the configuration that maximizes support across the load surface and minimizes load overhang (see "[LOAD CHARACTERISTICS](#)" on page 15).



Use only approved pad frame configurations.

ASSEMBLY

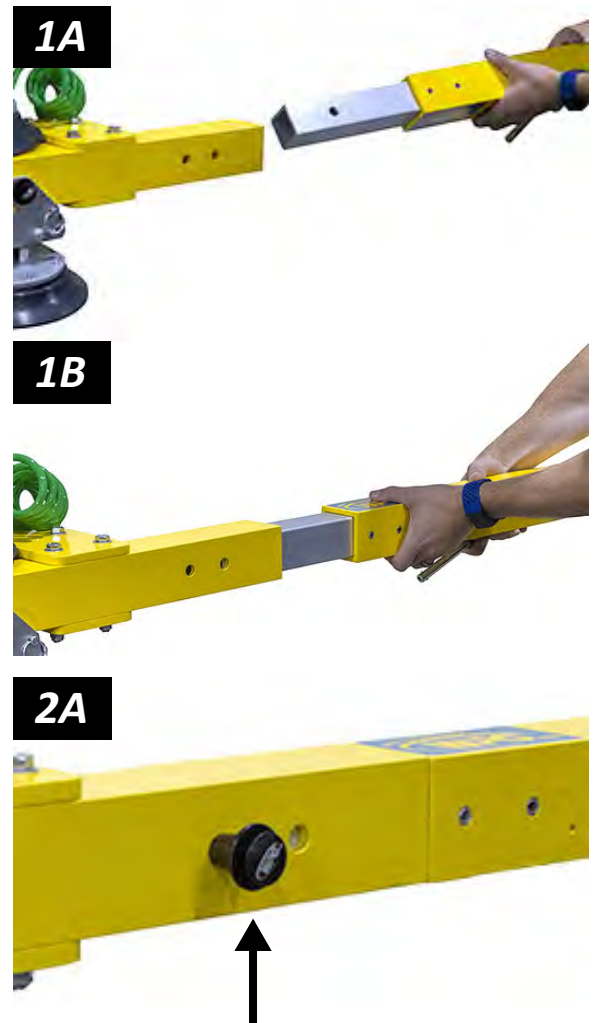
2) Install or remove the 4 extension arms as needed:

- To support the maximum load weight and larger load dimensions, you must install all extension arms (see next section below) and connect all corresponding vacuum hoses (see [“Connecting/Disconnecting Vacuum Hoses”](#) on page 14).
- To support smaller dimensions and weights, you may remove all extension arms and disconnect all corresponding vacuum hoses, ***provided the lifter still has sufficient capacity to support the load in question.***¹

Installing or Removing Extension Arms

- 1) Install a extension arms on an adjustable pad frame’s tube (figs. 1A-B).
- 2) Install a cotterless hitch pin, to secure the extension arm (arrow in fig. 2A).
- 3) Repeat steps 1-2 with the other 3 extension arms.

Notes: Reverse these steps to remove the extension arms. Store removed components in a clean, dry location.



1..... Whenever the quick connectors are disconnected, the corresponding vacuum pads do not contribute to the lifting capacity, whether or not the extension arms are installed.

ASSEMBLY



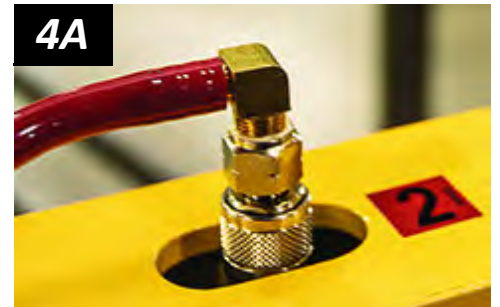
Connecting/Disconnecting Vacuum Hoses

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

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

! *Make sure quick connectors seal completely and all vacuum hoses function correctly (see “Vacuum Test” on page 34).*

Make sure all hoses are connected correctly: Green hose to circuit 1 (fig. 3A) and red hose to circuit 2 (fig. 4A).



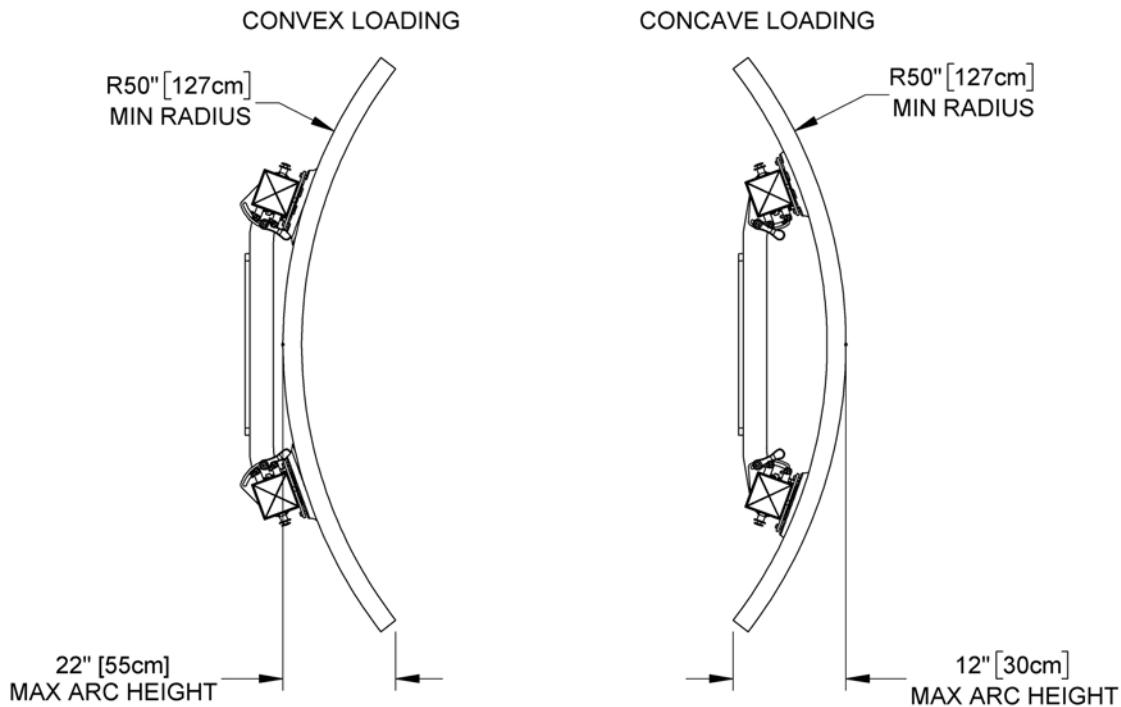
The 2 vacuum gauges are labeled to indicate the related circuits (fig. 5A).

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



LOAD CHARACTERISTICS

1A



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.
- Curved loads may be handled on the convex or concave side, but must conform to the Minimum Radius (ie, maximum curvature) and Maximum Arc Height (fig. 1A):
- 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”](#) on page 33.
- The load's contact surface must be able to obtain a friction coefficient of 1 with the lifter's vacuum pads (see [“Pad-to-Load Friction Coefficient”](#) on page 36). Otherwise, the capacity should be derated appropriately.
- The load's surface temperature must not exceed the Operating Temperatures.³



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.

INTENDED USE

- The load's *minimum* length and width are determined by the current Pad Spread (see “SPECIFICATIONS” on page 3).
- The load's *maximum* length and width are determined by its allowable overhang.¹
- 6" [15 cm] is the allowable thickness at Maximum Load Capacity.²



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.³

OPERATING ENVIRONMENT

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

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

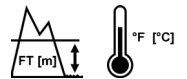


Never use lifter in dangerous environments.



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

- The work environment is limited by the Operating Elevation and Operating Temperatures.^{4, 5}
- 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” on page 3), dispose of it in compliance with all local codes and applicable regulatory standards.

Note: Special disposal regulations may apply to the batteries.

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.

1..... 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, allowable overhang must be evaluated separately for each load type. Contact WPG or an authorized dealer for more information.

2..... However, the allowable thickness increases as load weight decreases. Contact WPG for more information.

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

4..... 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.

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

BEFORE USING THE LIFTER

Determine whether the vacuum lifter is capable of each intended task (see “SPECIFICATIONS” on page 3 and “[INTENDED USE](#)” on page 15). Then complete the following preparations:

Taking Safety Precautions

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



Read all directions and safety rules before using lifter.



Always wear appropriate personal protective equipment.

Performing Inspections and Tests

- Follow the “[INSPECTION SCHEDULE](#)” on page 32 and “[TESTING](#)” on page 33.
- 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.^{1, 2}



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](#)” on page 34 provides a convenient opportunity to check this.

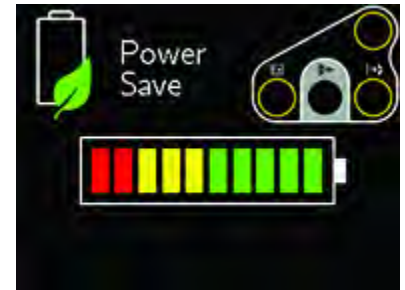
Checking the 12-Volt Battery



Always check batteries energy before every lift.

While the lifter is powered up, a battery gauge on the LCD screen (fig. 1A) displays the current energy level.^{1, 2}

1A



- If battery energy is in the red range, discontinue lifter use and charge both batteries (see “[12-VOLT BATTERY RECHARGE](#)” on page 40).
- 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](#)” on page 42). In this case, you must charge both batteries 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 chargers are connected to an AC power source, the reading on the battery gauge will not be accurate.

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:¹

- attaching and releasing vacuum pads
- rotating the load
- tilting the load
- moving the counterweight

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

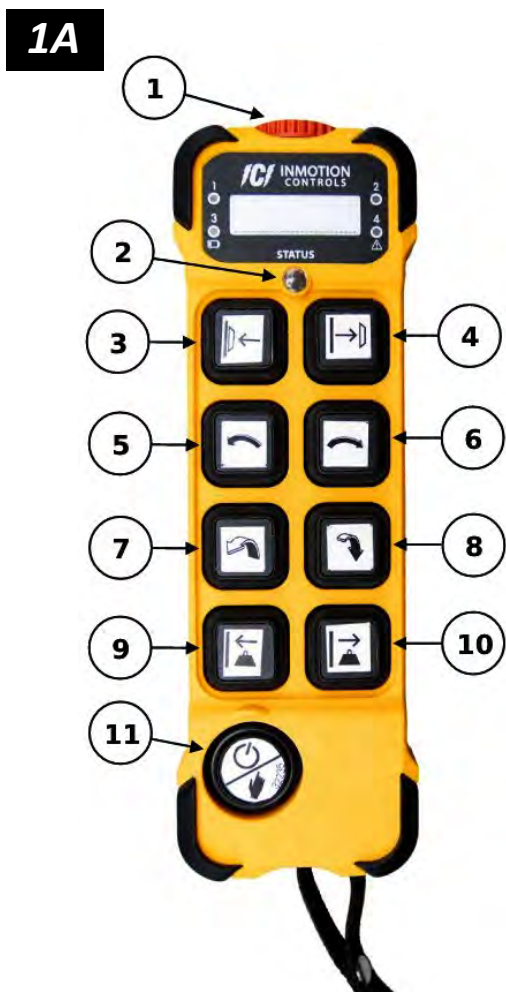
- Visually verify the status of the lifter and load before lifting.



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.²
- Make 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 ROTATE LEFT BUTTON
- 6 ROTATE RIGHT BUTTON
- 7 TILT UP BUTTON
- 8 TILT DOWN BUTTON
- 9 RETRACT COUNTERWEIGHT BUTTON
- 10 EXTEND COUNTERWEIGHT BUTTON
- 11 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

1A



To prevent unintentional transmissions, press the emergency disconnect button (fig. 1A) after the lifter completes a transmitted function.

When you are ready to use the transmitter again ..., ¹

- Twist the emergency disconnect button clockwise and allow it to spring outward to its original position.
- Press the “function” button ( — fig. 2A), to enable the transmitter.

2A



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

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](#)” on page 41).

To use the Remote Control System, hold the power button (⏻ — fig. 2A) briefly to activate the radio transmitter.¹



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

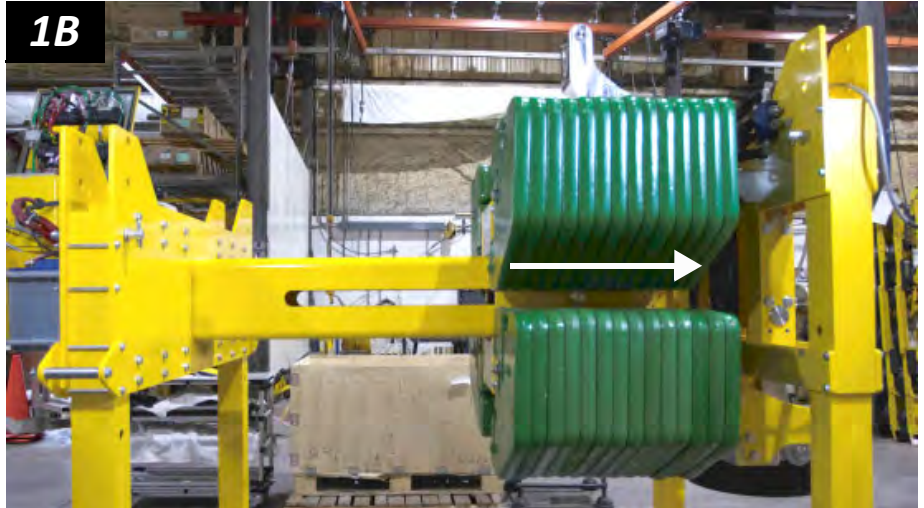
OPERATION

Moving the Lifter's Counterweight



Keep hands and fingers away from pinch points.

The lifter's integrated counter-balancer allows you to offset load weight for the intended task. Use the radio transmitter to move the counterweight as needed to obtain the optimal hang angle:



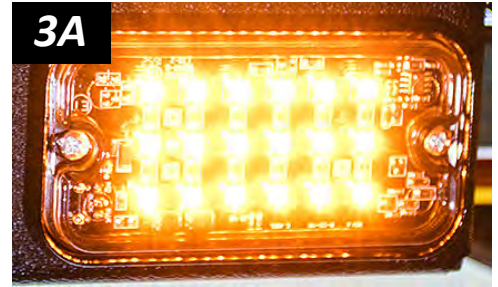
- Hold the retract counterweight button (fig. 1A) to move the counterweight away from the power system enclosure (arrow in fig. 1B).



- Hold the extend counterweight button (inset in fig. 2A) to move the counterweight toward the power system enclosure (arrow in fig. 2B).

OPERATION

The strobe light will flash while the counterweight is moving (fig. 3A).



Whenever the lifter is unloaded, counterweight should be moved to the forward-most position (ie, fully retracted). Counterweight can be moved to this position as necessary when the lifter is secured on its parking stands and vacuum pads are not attached to a load.

Once the counterweight is moved to the forward-most position, the white counterweight position light will illuminate (arrow in fig. 4A).

Note: The release function will not operate unless the counterweight position light is illuminated.



In order to make sure counterweight is positioned correctly to keep the lifter level, counterweight should be moved while suspending the lifter.

Two level sensors help limit counterweight motion and warn that the lifter is too far out of level:

- The first sensor is set to allow counterweights to move freely until the counterbalance is 7° from level. If this angle is reached, an alarm sounds and the remote control system automatically prevents any counterweight motion that would worsen the hang angle.
- The second sensor is set at 15° from level. If this angle is reached, the alarm continues to sound and the remote control system automatically prevents all counterweight motion. In this case, the lifter and load must be set down and leveled, to reposition the counterweight.

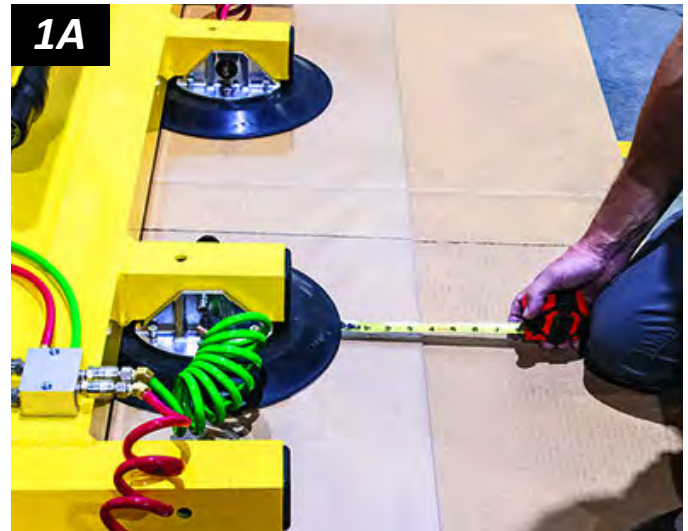
To ATTACH THE PADS TO A LOAD

Make sure the contact surfaces of the load and vacuum pads are clean (see “[Pad Cleaning](#)” on page 37).



Positioning the Lifter on the Load

- 1) Center the configured pad frame on the load (fig. 1A).¹



- 2) If applicable, adjust both pad frame rows to match the curvature of the load:

- 2.1) Turn one of the pad frame adjustment levers (fig. 2A) counterclockwise, to loosen the pad frame.

- 2.2) Move the pad frame as needed.

- 2.3) Turn the lever clockwise, to secure.

- 2.4) Repeat steps 2.1 through 2.3 with the other pad frame row.



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



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. Off-center loads may rotate or tilt unexpectedly.

OPERATION

Sealing the Pads on the Load

Press the “attach” button (↵) on the radio transmitter (fig. 1A) or the lifter (fig. 1B).



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](#)” on page 42). In this case, press the lifter firmly against the load to help the pads begin to seal (fig. 2A).^{1, 2}



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** (≥ 16 " Hg [-54 kPa]): Vacuum level is sufficient to lift the maximum load weight (fig. 1C).



- **Red range** (< 16 " Hg [-54 kPa]): Vacuum level is **not** sufficient to lift the maximum load weight (fig. 2C).³



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.⁴ If it does not, perform the “[Vacuum Test](#)” on page 34.

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 pads closest to the lifter frame 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

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 turns *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.

Monitor Vacuum Indicators

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



Make sure all vacuum indicators remain completely visible.

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](#)” on page 42).¹ 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](#)” on page 42). 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.

1..... Automatic leak detection is **not** a substitute for performing the “[Vacuum Test](#)” on page 34, as required by the “[INSPECTION SCHEDULE](#)” on page 32 and “[TESTING](#)” on page 33. Sensitivity of the leak detection can be adjusted (see INTELLI-GRIP® OPERATOR MENUS in [SERVICE MANUAL](#)).

OPERATION

- 2) Stop using the lifter until the cause of the vacuum loss is identified: Conduct the “[Pad Inspection](#)” on page 36 and perform the “[Vacuum Test](#)” on page 34.
- 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 [control lines](#), hand cups or other appropriate means 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, hydraulic system 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](#)” on page 15 and the condition of [vacuum pads](#) (see “[VACUUM PAD MAINTENANCE](#)” on page 36).

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.

TO USE THE EMERGENCY STOP BUTTON

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

- Rotating or tilting the [pad frame](#)
- Moving the [counterweight](#)

*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 button is engaged (see “[INTELLI-GRIP® DIAGNOSTIC CODES](#)” on page 42).

When you are ready to resume operating the lifter, twist the button clockwise and allow it to spring outward to its original position.



TO ROTATE OR TILT THE LOAD



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



Keep hands and fingers away from pinch points.

Note: Make sure the load has enough clearance to rotate without contacting anyone or anything.

Rotating a Load

Hold the rotate left button (fig. 1A) **or** the rotate right button (fig. 2A) on the radio transmitter, whichever corresponds with the desired rotation direction. To stop load motion in the desired position, simply let go of the button.



1A

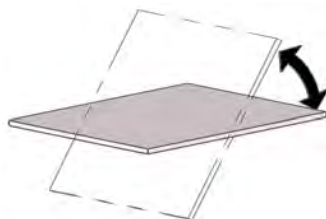


2A



Tilting a Load

Hold the tilt up button (fig. 1B) **or** the tilt down button (fig. 2B) on the radio transmitter, whichever corresponds with the desired tilt direction. To stop load motion in the desired position, simply let go of the button.



1B



2B



OPERATION

TO RELEASE THE PADS FROM THE LOAD

- 1) Make sure the load is supported independently from the lifter.



Make sure lifter is NOT supporting load in any way before releasing vacuum pads. Otherwise, load damage, lifter damage or personal injury could occur.

If you try to release a load



that is supported in any way by the lifter, 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” on page 42).

- 2) Make sure the counterweight is the forward-most position (ie, fully retracted) and the counterweight position light is illuminated.



Counterweight must be fully retracted before releasing vacuum pads. Otherwise, abrupt and unpredictable motion could occur.

If you try to release a load when the counterweight is **not** in the forward-most position, 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” on page 42).

- 3) Hold the “function” button ( in fig. 3B) 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.

Note: The strobe light flashes 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.


3B



OPERATION

- 4) 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.¹

After the load is released, the lifter activates “Power Save” mode automatically.²

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

- 5) Before you lift another load, perform the Every-Lift Inspection (see “[INSPECTION SCHEDULE](#)” on page 32).

AFTER USING THE LIFTER

- 1) Make sure the counterweight is in the forward-most position (ie, fully retracted).

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

- 2) Place the lifter on its parking stands:

- **If the parking stands are removed**, position them on a stable surface to receive the lifter. Use the hoisting equipment to carefully lower the lifter onto the stands, aligning the holes in the stands with the holes in the lifter frame. Then secure each stand with its parking stand pin.
- **If the parking stands are retracted**, use the hoisting equipment to suspend a lifter at a height that allows the stands to extend until the holes in the stands align with the holes in the lifter frame. Secure each stand with its parking stand pin. Then use hoisting equipment to carefully lower the lifter onto a stable surface.

Note: For reference, see “[TO REMOVE OR RETRACT PARKING STANDS](#)” on page 11.

- 3) Detach the hoisting hook from the lift point.
- 4) Press the emergency disconnect button (fig. 4A) and place the radio transmitter in its holder.



1..... A “Timed Release” function can be used to help separate the lifter from the load: Hold the “function” button and “release” button 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

- 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.



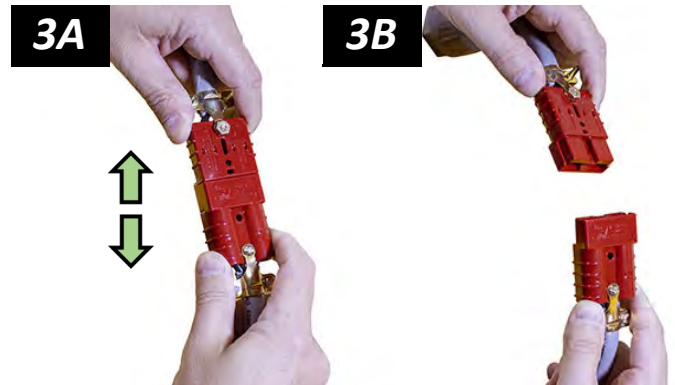
- 6) Charge the batteries after each workday as needed (see [“12-VOLT BATTERY RECHARGE”](#) on page 40).

Storing the Lifter

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



- 2) Charge the batteries completely and repeat every 6 months (see [“12-VOLT BATTERY RECHARGE”](#) on page 40).
- 3) Disconnect the electrical connectors (figs. 3A-B) to prevent battery discharge.



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

INSPECTIONS AND TESTS

INSPECTION SCHEDULE

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

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

Action	Every Lift	Frequent ¹ (Every 20-40 hrs.)	Periodic ² (Every 250-400 hrs.)
Examine <u>vacuum pads</u> for contaminants or damage (see “Pad Inspection” on page 36).	✓	✓	✓
Examine load surface for contaminants or debris.	✓	✓	✓
Examine controls and indicators for damage.	✓	✓	✓
Examine hydraulic system for leaks or damage.	✓	✓	✓
Examine lifter’s structure for damage.		✓	✓
Examine vacuum system for damage (including <u>vacuum pads</u> , fittings and hoses).		✓	✓
Examine <u>air filters</u> for conditions requiring service (see “AIR FILTER MAINTENANCE” in SERVICE MANUAL).		✓	✓
Perform “Vacuum Test” on page 34.		✓	✓
Check for unusual vibrations or noises while operating lifter.		✓	✓
 If the lifter has a Remote Control System, perform “Remote Control System Test” on page 35.		✓	✓
Examine entire lifter for evidence of: <ul style="list-style-type: none"> • looseness, excessive wear or excessive corrosion • deformation, cracks, dents to structural or functional components • cuts in vacuum 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. <i>Improper cleaning can damage parts.</i>			✓

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

2..... The Periodic Inspection is also required whenever the lifter has been out of service for 1 year or more. Keep a written record of all Periodic Inspections. If necessary, return the lifter to WPG or an authorized dealer for repair (see [“LIMITED WARRANTY”](#) on page 47).

TESTING

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

Lifter/Load Compatibility Test

- 1) Make sure the vacuum generating system is functioning correctly (see “[Vacuum Test](#)” on page 34).
- 2) Thoroughly clean the load surface and the vacuum pads (see “[Pad Cleaning](#)” on page 37).¹
- 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.**² 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..... 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.

2..... 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*” on page 32, or *whenever necessary*:


Operational Tests


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

Vacuum Test

- 1) Clean the face of each vacuum pad (see “*Pad Cleaning*” on page 37).
- 2) Use a test load with weight equal to the Maximum Load Capacity, a clean, smooth, nonporous surface and other appropriate “*LOAD CHARACTERISTICS*” on page 15.¹ 
- 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 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.²

 **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 Test¹

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

- 1) Use a test load that weighs 125% ($\pm 5\%$) of the Maximum Load Capacity and has the appropriate “LOAD CHARACTERISTICS” (see page 15).
- 2) Attach the vacuum pads to the load as previously directed.
- 3) Position the load to produce the greatest stress on the lifter consistent with “INTENDED USE” on page 15.
- 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.³ Vary the transmitter's direction and distance from the lifter, to make sure transmissions are effective.⁴

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” on page 15 to test the “attach” and “release” functions.

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

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.***¹



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

Pad Inspection

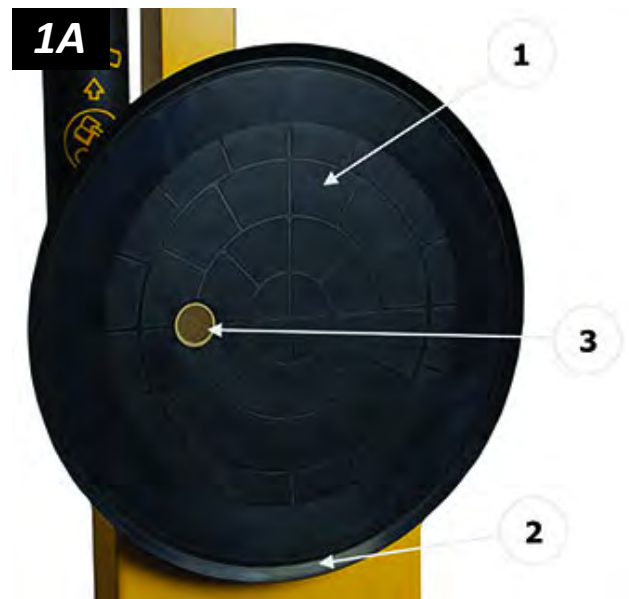
Inspect each vacuum pad (fig. 1A) according to the “**INSPECTION SCHEDULE**” on page 32 and correct the following faults before using the lifter (see “**REPLACEMENT PARTS**”, when applicable):

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



Replace any pad that has damaged sealing edges.

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



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

Pad Cleaning

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



Never use harsh chemicals on vacuum pad.

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



Never use rubber conditioners on vacuum pad.

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

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

1A



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

MANIPULATING HEAD MAINTENANCE

Lubricating the Slewing Drive



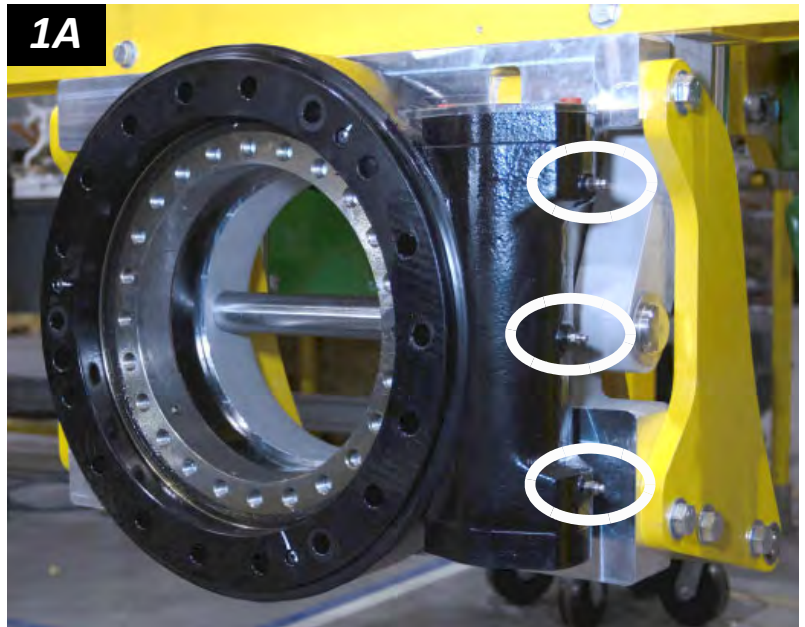
This service must be performed by qualified service personnel.



Make sure slewing drive is lubricated before operating.

To lubricate the slewing drive, inject grease into the 3 cleaned grease nipples (circled in fig. 1A) consecutively as you rotate it the drive, until a continuous collar of fresh grease forms on at least one sealing lip or at the bearing gap (fig. 1A).

Re-lubricate with 7014-1 High Temp grease every year or after 150 hours of operation.



Torquing the Slewing-Drive Bolts



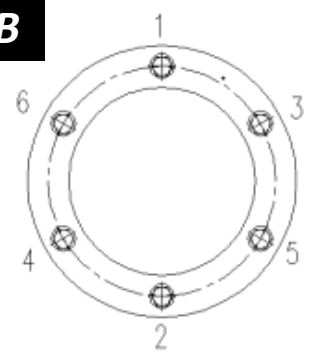
This service must be performed by qualified service personnel.

Bolts should be retightened after 100 hours of operation or annually. Bolts should be torqued to 150 ft-lb. Preload bolts crosswise (ie, the order shown in the numbered steps in fig. 1B). Follow general pattern:

- 1) Do a crosswise torquing of 30% of tightening torque.
- 2) Repeat crosswise torque to 80% of tightening torque.
- 3) Crosswise torque to 100% of tightening torque.

Note: Torque one of the rings (inner or outer) in its entirety before torquing the other ring.

1B



MAINTENANCE

HYDRAULIC SYSTEM MAINTENANCE



Service on hydraulic components must be performed by qualified service personnel.



Make sure batteries are disconnected before refilling hydraulic reserve fluid tank.



*Read and understand the **SAFETY** section of these **OPERATING INSTRUCTIONS** to understand the dangers associated with hydraulic components.*



A hydraulic system powers the linear actuators that control the lifter's tilt motion.

Located on the lifter above the manipulating head, the system's flow valves control the actuator speed. These valves can be set but should not need adjustment.

If the system's tilt actuators become sluggish or seize, the system's filter may need to be replaced according to the filter manufacturer's recommendations.

Generally, the system requires little maintenance except for the following:

Refilling the Hydraulic Fluid Reserve Tank

The lifter is shipped with the recommended hydraulic fluid (Dexron Automatic Transmission fluid). When needed, add fluid until it fills 1/2 of the hydraulic fluid reserve tank (fig. 1A).

Caution: Do not overfill tank.

Note: If no fluid is visible in the tank when the actuators' hydraulic cylinders are fully extended, the fluid level is inadequate.



12-VOLT BATTERY RECHARGE¹

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.



Never attempt to charge Li-ion battery when its temperature is below 32° F (0° C).

A charger's green light turns on when the charger is functioning (fig. 1A).

Its yellow light shows the charging status⁴:

- Slow blinking (absorption phase): Charging times vary, and the battery is not ready for use.
- Fast-blinking (bulk charging phase): The battery is about 80% charged and is ready for use.
- Solid (float phase): The battery is ready for use.



Example of estimated charge time to 100%: 4 hours + 8 hours = 12 hours.

To replace a non-functioning battery, see [“REPLACEMENT PARTS”](#) on page 46.

1..... 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..... No yellow light indicates storage phase (ie, keeping the battery at a reduced constant voltage. Additionally, slow self-discharge is prevented by an automatic weekly refresh of the battery with a short absorption charge.

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 “ <u>12-VOLT BATTERY RECHARGE</u> ” on page 40). 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 “ <u>12-VOLT BATTERY RECHARGE</u> ” on page 40).
B02	“Replace 12V battery?”	1 chirp per minute	(none)	Check condition of 12V <u>battery</u> (see “ <u>Checking the 12-Volt Battery</u> ” on page 12 and “ <u>12-VOLT BATTERY RECHARGE</u> ” on page 40). 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 “ <u>12-VOLT BATTERY RECHARGE</u> ” on page 40).
B09	“Replace 9V battery?”	1 chirp per minute	(none)	Replace 9V battery for <u>notification buzzer</u> as needed (see “ <u>NOTIFICATION BUZZER BATTERY REPLACEMENT</u> ” on page 41).
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 Intelli-Grip® <u>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 “ <u>SPECIFICATIONS</u> ” on page 3). 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.
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 "12-VOLT BATTERY RECHARGE" on page 40). 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 "12-VOLT BATTERY RECHARGE" on page 40). 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 "12-VOLT BATTERY RECHARGE" on page 40). 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.
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.

MAINTENANCE

Code	On-Screen Message	Buzzer Pattern	Strobe Light Activity	Explanations/Directions
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.
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). 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.
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.

MAINTENANCE

Code	On-Screen Message	Buzzer Pattern	Strobe Light Activity	Explanations/Directions
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 " Sealing the Pads on the Load " on page 25 and " Reading the Vacuum Gauges " on page 25). 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. <i>Keep everyone away from suspended load until it can be safely lowered to a stable support.</i> 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.
93022	Quick Connector – 1/8 FNPT – Male End – Single w/45° Barb	16
65442CA	Vacuum Hose – 0.160" ID x 1/4" OD – Red	*
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	*
65010	Pad Spring – Coil Type	48
53122	Pad Fitting – Elbow – 5/32" ID	8
53110	Hose Fitting – Barbed – 1/4" ID	40
49520TA	Vacuum Pad – Model VPCS9/ 9" [23 cm] Diameter – Concave	48
36108	Service Manual – 12 V DC – Dual Vacuum System – Powered Motion – Intelli-Grip	1
29353	Pad Cover	48
20032AM	Pliers for Removing 1/8" ID Hose	1
20032AZ	Pliers for Removing 7/32" ID or 1/4" ID Hose	1
16057	Quick Connector – 1/8 FNPT – Male End	8
15632	Pad Filter Screen – Small	48
13534	Cotterless Hitch Pin – 1/2" x 4"	4
10900	Shoulder Bolt – Socket Head – 5/16" x 1/2" x 1/4-20 Thread (for mounting pads)	288

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

See **SERVICE MANUAL #36108** 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.

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Laurel, MT 59044 USA

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POWER ROTATOR / TILTER 5300,
DC-VOLTAGE WITH INTELLI-GRIP®
TECHNOLOGY

Model number: PRT489CDC3S

TYPE: PROJECT

FILE DIRECTORY: 80688-01-01L-W01 [L-W01]

FILE [SHEET]: 20220101.00.00

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

LINE STYLES AND WIDTHS FOR WIRE UNLESS NOTED OTHERWISE.

24AWG 20AWG 16AWG 12AWG 10AWG 8AWG 1AWG CAT5

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LAUREL, MONTANA U.S.A.

POWERED ROTATOR TILTER - HIGH CAPACITY

N/A

WIRING SCHEMATIC

80688-01-01L-W01 [L-W01]

SIZE: A

SCALE: NONE

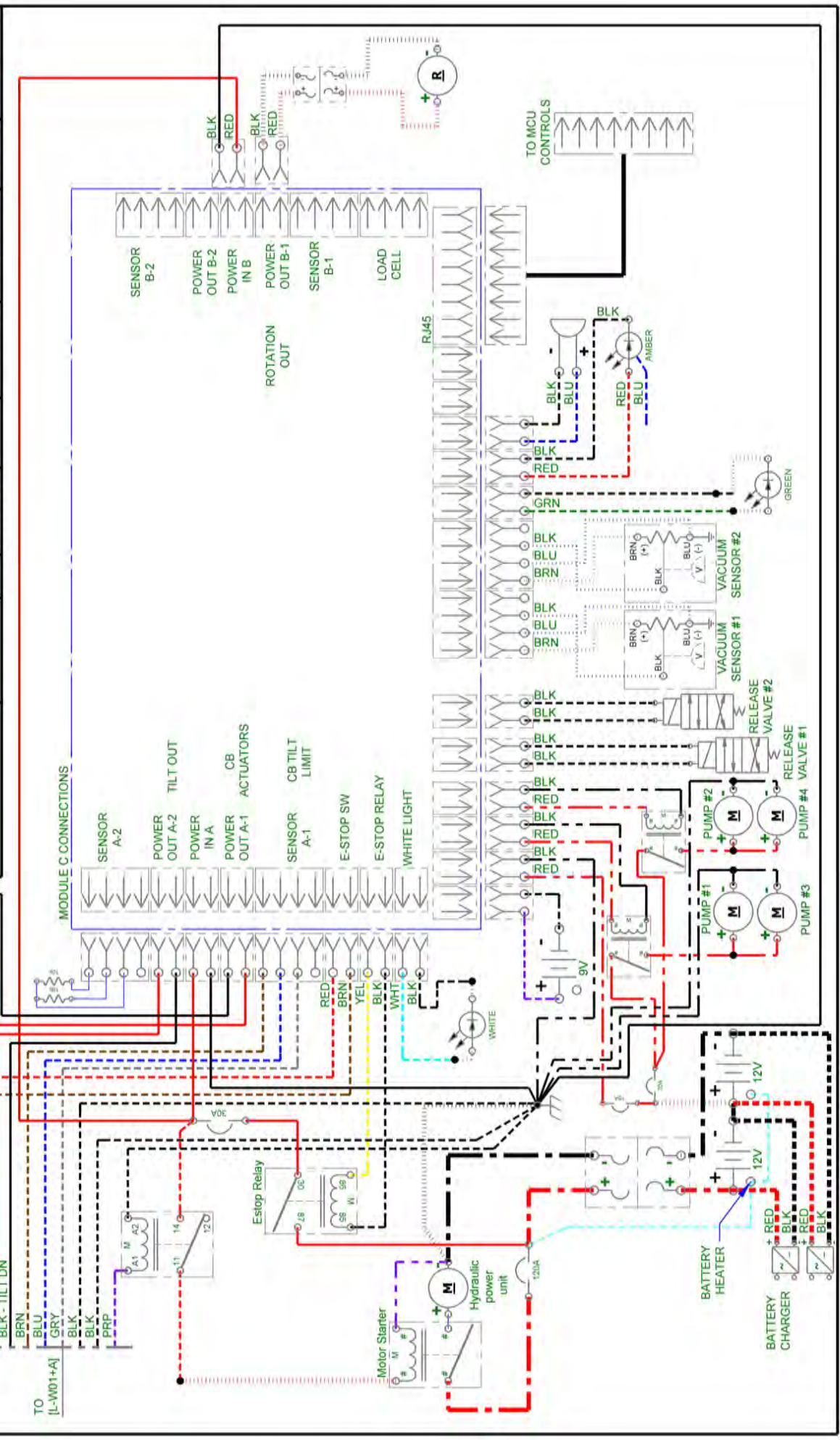
REVISION: 00.A

ECN NUMBER: VER 00.A

ECN DATE: 03/30/2022

ECN BY: MAP

EST. WEIGHT: N/A



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)

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

LINE STYLES AND WIDTHS FOR
WIRE UNLESS NOTED OTHERWISE:
N/A --- N/A --- N/A --- N/A
N/A --- N/A --- N/A --- N/A

TYPE: PROJECT

FILE DIRECTORY: 80688-01-01L-W02 [L-W02]

FILE [SHEET]:

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LAUREL,
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U.S.A.

WPG

POWERED ROTATOR TILTER - HIGH CAPACITY

N/A

PNEUMATIC HOSE SCHEMATIC

80688-01-01L-W02 [L-W02]

PRODUCT MANAGER: MARTY P.

DATE: 03/30/2022

CHECKED:

APPROVED:

SIZE: A

SCALE: NONE

REVISION: 00.A

VER 00.A

ECN DATE: 03/30/2022

ECN BY: MAP

EST. WEIGHT: N/A

The diagram illustrates the pneumatic hose schematic for a Powered Rotator Tilter. It shows two identical systems side-by-side. Each system consists of two vacuum pumps connected to a vacuum tank via green hoses. The vacuum tank is connected to a release valve, which then connects to a filter and a vacuum gauge. The filter and gauge are connected to a dual rotary union, which has two outlets labeled "TO PADS ON PAD FRAME". The left system is connected with solid green lines, while the right system is connected with dashed red lines. Labels for components include VACUUM PUMPS, VACUUM TANK, RELEASE VALVE, VACUUM GAUGE, FILTER, and DUAL ROTARY UNION.

WIRE LEGEND: CONTROLLED BY WIRING SYMBOLS DRAWING EXCEPT AS NOTED AND BELOW.		FILE DIRECTORY: FILE (SHEET):		20220101 00.00				
N/A		PROJECT		80688-01-01L-W03 [L-W03]				
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N/A								
N/A								
PRODUCT MANAGER: MARTY P.		POWERED ROTATOR TILTER - HIGH CAPACITY N/A						
DATE: 03/30/2022		HYDRAULIC SCHEMATIC 80688-01-01L-W03 [L-W03]						
CHECKED:		SIZE: A	SCALE: NONE	REVISION: 00.A	ECN NUMBER: VER 00.A	ECN DATE: 03/30/2022	ECN BY: MAP	EST. WEIGHT: N/A
APPROVED:								

