AutoBoom™ Installation Manual

CaseIH 3150/3185, Pre-2002 Tyler Patriot
Open Center
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Important Safety Information

Read this manual and the operation and safety instructions included with your implement and/or controller carefully before installing the AutoBoom™ system.

- Follow all safety information presented within this manual.
- If you require assistance with any portion of the installation or service of your Raven equipment, contact your local Raven dealer for support.
- Follow all safety labels affixed to the AutoBoom system components. Be sure to keep safety labels in good condition and replace any missing or damaged labels. To obtain replacements for missing or damaged safety labels, contact your local Raven dealer.

When operating the machine after installing AutoBoom, observe the following safety measures:

- Be alert and aware of surroundings.
- Do not operate AutoBoom or any agricultural equipment while under the influence of alcohol or an illegal substance.
- Remain in the operator’s position in the machine at all times when AutoBoom is engaged.
- Disable AutoBoom when exiting from the operator’s seat and machine.
- Do not drive the machine with AutoBoom enabled on any public road.
- Determine and remain a safe working distance from other individuals. The operator is responsible for disabling AutoBoom when the safe working distance has been diminished.
- Ensure AutoBoom is disabled prior to starting any maintenance work on AutoBoom or the machine.
Chapter 1

**WARNING**

- When starting the machine for the first time after installing AutoBoom, be sure that all persons stand clear, in case a hose has not been properly tightened.
- The machine must remain stationary and switched off, with the booms unfolded and supported while installation or maintenance is conducted.

**CAUTION**

**Hydraulic Safety**

- Raven Industries recommends that appropriate protective equipment be worn at all times when working on the hydraulic system.
- Never attempt to open or work on a hydraulic system with the equipment running. Care should always be taken when opening a system that has been previously pressurized.
- When disconnecting the hydraulic hoses or purging is required, be aware that the hydraulic fluid may be extremely hot and under high pressure. Caution must be exercised.
- Any work performed on the hydraulic system must be done in accordance with the machine manufacturer’s approved maintenance instructions.
- When installing AutoBoom hydraulics or performing diagnostics, maintenance, or routine service, ensure that precautions are taken to prevent any foreign material or contaminants from being introduced into the machine’s hydraulic system. Objects or materials that are able to bypass the machine’s hydraulic filtration system will adversely reduce performance and possibly damage the AutoBoom hydraulic valves.

**Electrical Safety**

- Always verify that the power leads are connect to the correct polarity as marked. Reversing the power leads could cause severe damage to the equipment.
- Ensure that the power cable is the last cable to be connected.
Introduction

Congratulations on your purchase of the Raven AutoBoom system! This system is designed to provide automated boom height adjustment for agricultural spraying equipment.

This manual applies to the following machines. For future reference, write your serial number in the space below.

MAKE: CaseIH, Patriot
MODEL: CaseIH 3150/3185, Pre-2002 Patriot
YEAR:
SERIAL NUMBER:

Note: This manual contains the installation instructions for the PowerGlide Plus and UltraGlide systems. Be sure to identify which system you have and follow only the instructions for that system.
**Recommendations**

Raven Industries recommends the following best practices when installing the AutoBoom system:

- Use part numbers to identify the parts.
- Do not remove the plastic wrap from a part until it is necessary for installation.
- Do not remove plastic caps from a part until it is necessary for installation.

**Tools Needed**

The following tools are recommended for installation of the AutoBoom system:

- SAE standard-sized wrenches
- Cable ties
- Set of tools

**Preparing for Installation**

Before installing AutoBoom, park the machine where the ground is level, clean, and dry. Leave the machine turned off for the duration of the installation process.

During the installation process, follow good safety practices. Be sure to carefully read the instructions in this manual as you complete the installation process.

**Point of Reference**

The instructions in this manual assume that you are standing behind the machine, looking toward the cab.

**Hydraulic Fittings**

This manual may reference the following types of hydraulic fittings:

- SAE O-ring fittings
- ORFS (O-Ring Face Seal) fittings
- JIC fittings

![SAE O-ring fitting](image1)
![ORFS fitting](image2)
![JIC fitting (M)](image3)
**PowerGlide Plus Kit Contents**

This section contains a list of the components that are included in the PowerGlide Plus AutoBoom kit. Before beginning the AutoBoom installation, compare the items in the AutoBoom kit with the components list. If you have questions about the kit, contact your Raven dealer.

**TABLE 1. PowerGlide Plus Installation Kit (P/N 117-0231-005)**

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Not Pictured" /></td>
<td>Manual - CaseIH 3150/3185, Pre-2002 Patriot AutoBoom Installation</td>
<td>016-0230-005</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Valve" /></td>
<td>Valve - PowerGlide Plus AutoBoom</td>
<td>063-0131-117</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Plate" /></td>
<td>Plate - Hydraulic Block Mounting</td>
<td>107-0171-619</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Cable" /></td>
<td>Cable - Case Adapter</td>
<td>115-0171-558</td>
<td>4</td>
</tr>
<tr>
<td><img src="image" alt="Fitting" /></td>
<td>Fitting - 3/4&quot; SAE O-Ring (M) to 9/16&quot; JIC (M) .031 Orifice Straight Adapter</td>
<td>333-0012-230</td>
<td>2</td>
</tr>
<tr>
<td><img src="image" alt="U-Bolt" /></td>
<td>U-Bolt - 2-1/16&quot; W x 3&quot; L x 3/8&quot; Thread</td>
<td>107-0171-609</td>
<td>2</td>
</tr>
</tbody>
</table>
### TABLE 1. PowerGlide Plus Installation Kit (P/N 117-0231-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
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<tbody>
<tr>
<td><img src="image1" alt="Bolt" /></td>
<td>Bolt - 5/16”-24 x 1” Grade 8 Hex</td>
<td>311-0049-235</td>
<td>4</td>
</tr>
<tr>
<td><img src="image2" alt="Nut" /></td>
<td>Nut - 3/8”-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>4</td>
</tr>
<tr>
<td><img src="image3" alt="Washer" /></td>
<td>Washer - 5/16” Zinc Plated Lock</td>
<td>313-1000-019</td>
<td>4</td>
</tr>
</tbody>
</table>

### TABLE 2. Hydraulic Kit (P/N 117-0134-005)

<table>
<thead>
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<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
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<tbody>
<tr>
<td><img src="image4" alt="Fitting" /></td>
<td>Fitting - 3/4” JIC M/M/F Swivel Run Tee</td>
<td>333-0012-039</td>
<td>1</td>
</tr>
<tr>
<td><img src="image5" alt="Fitting" /></td>
<td>Fitting - 7/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-044</td>
<td>2</td>
</tr>
<tr>
<td><img src="image6" alt="Fitting" /></td>
<td>Fitting - 9/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-045</td>
<td>2</td>
</tr>
<tr>
<td><img src="image7" alt="Fitting" /></td>
<td>Fitting - 3/4” SAE O-Ring (M) to 3/4” JIC (M) Straight Adapter</td>
<td>333-0012-093</td>
<td>3</td>
</tr>
<tr>
<td><img src="image8" alt="Fitting" /></td>
<td>Fitting - 1-1/16” JIC M/F 90° Swivel Elbow</td>
<td>333-0012-099</td>
<td>1</td>
</tr>
<tr>
<td><img src="image9" alt="Fitting" /></td>
<td>Fitting - 1-1/16” JIC M/M/F Swivel Run Tee</td>
<td>333-0012-109</td>
<td>1</td>
</tr>
<tr>
<td><img src="image10" alt="Fitting" /></td>
<td>Fitting - 3/8” NPT (M) to 9/16” JIC (M) Straight Adapter</td>
<td>333-0012-123</td>
<td>2</td>
</tr>
</tbody>
</table>
### TABLE 2. Hydraulic Kit (P/N 117-0134-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Fitting" /></td>
<td>Fitting - 9/16&quot; JIC (F) to 7/16&quot; JIC (M) Straight Adapter</td>
<td>333-0012-159</td>
<td>2</td>
</tr>
<tr>
<td><img src="image2" alt="Fitting" /></td>
<td>Fitting - 3/8&quot; NPT Breather</td>
<td>333-0012-196</td>
<td>2</td>
</tr>
<tr>
<td><img src="image3" alt="Fitting" /></td>
<td>Fitting - 9/16&quot; SAE O-Ring to 3/8&quot; NPT (F) Straight Adapter</td>
<td>333-0012-197</td>
<td>2</td>
</tr>
<tr>
<td><img src="image4" alt="Hose" /></td>
<td>Hydraulic Hose - 3/4&quot; JIC 90° (F) to 3/4&quot; JIC (F) - 72&quot;</td>
<td>214-1000-302</td>
<td>2</td>
</tr>
<tr>
<td><img src="image5" alt="Hose" /></td>
<td>Hydraulic Hose - 9/16&quot; JIC 90° (F) to 9/16&quot; JIC (F) - 192&quot;</td>
<td>214-1000-303</td>
<td>2</td>
</tr>
<tr>
<td><img src="image6" alt="Hose" /></td>
<td>Hydraulic Hose - 3/4&quot; JIC 90° (F) to 1-1/16&quot; JIC (F) - 180&quot;</td>
<td>214-1000-304</td>
<td>1</td>
</tr>
</tbody>
</table>

### TABLE 3. PowerGlide Plus Wheel Kit (P/N 117-0133-005)

<table>
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<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7" alt="Axle Assembly" /></td>
<td>Axle Assembly - Right Offset Cushioned</td>
<td>063-0131-589</td>
<td>1</td>
</tr>
<tr>
<td><img src="image8" alt="Axle Assembly" /></td>
<td>Axle Assembly - Left Offset Cushioned</td>
<td>063-0131-590</td>
<td>1</td>
</tr>
<tr>
<td><img src="image9" alt="Bracket" /></td>
<td>Bracket - Left Weldment</td>
<td>116-0159-625</td>
<td>1</td>
</tr>
<tr>
<td><img src="image10" alt="Bracket" /></td>
<td>Bracket - Right Weldment</td>
<td>116-0159-626</td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE 3. PowerGlide Plus Wheel Kit (P/N 117-0133-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Wheel" /></td>
<td>Wheel</td>
<td>322-0131-008</td>
<td>2</td>
</tr>
<tr>
<td><img src="image" alt="U-Bolt" /></td>
<td>U-Bolt - 2-1/16&quot; W x 3&quot; L x 3/8&quot; Thread</td>
<td>107-0171-609</td>
<td>6</td>
</tr>
<tr>
<td><img src="image" alt="Bolt" /></td>
<td>Bolt - 1/2&quot;-13 x 1-1/2&quot; SS Hex</td>
<td>311-0058-186</td>
<td>4</td>
</tr>
<tr>
<td><img src="image" alt="Nut" /></td>
<td>Nut - 1/2&quot;-13 Zinc Hex</td>
<td>312-1001-043</td>
<td>4</td>
</tr>
<tr>
<td><img src="image" alt="Nut" /></td>
<td>Nut - 3/8&quot;-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>12</td>
</tr>
</tbody>
</table>

### TABLE 4. PowerGlide Plus Wiring Kit (P/N 117-0137-023)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Not Pictured" /></td>
<td>CAN AutoBoom Calibration &amp; Operation Manual</td>
<td>016-0130-062</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="AutoBoom Node" /></td>
<td>AutoBoom PowerGlide Plus CAN Node</td>
<td>063-0130-010</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Cable" /></td>
<td>Cable - Harness</td>
<td>115-0230-045</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Cable" /></td>
<td>Cable - Power/CAN</td>
<td>115-0230-007</td>
<td>1</td>
</tr>
</tbody>
</table>
Install the PowerGlide Plus Hydraulic System

Install Fittings on the AutoBoom Valve

Before mounting the AutoBoom valve on the machine, install the proper fittings on the valve. This prepares the valve for installation and simplifies the hose connection process later in the procedure.

![WARNING]

The machine must remain stationary and switched off, with the booms unfolded and supported, during installation or maintenance.

Refer to the following table to install the fittings in the appropriate ports on the AutoBoom Valve.

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Part Number</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitting - 7/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter Fitting</td>
<td>333-0012-044</td>
<td>LV, RV</td>
</tr>
<tr>
<td>Fitting - 9/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-045</td>
<td>LC, RC</td>
</tr>
<tr>
<td>Fitting - 3/4” SAE O-Ring (M) to 9/16” JIC (M) .031 Orifice Straight Adapter</td>
<td>333-0012-230</td>
<td>RT CYL RTN, LF CYL RTN</td>
</tr>
<tr>
<td>Fitting - 9/16” JIC (F) to 7/16” JIC (M) Straight Adapter</td>
<td>333-0012-159</td>
<td>RT CYL RTN, LF CYL RTN</td>
</tr>
<tr>
<td>Fitting - 3/4” SAE O-Ring (M) to 3/4” JIC (M) Straight Adapter</td>
<td>333-0012-093</td>
<td>P, T, Bypass</td>
</tr>
</tbody>
</table>

Mount the AutoBoom Valve

1. Secure the PowerGlide Plus AutoBoom valve (P/N 063-0131-117) to the mounting plate (P/N 107-0171-619) using four 5/16” hex bolts (P/N 311-0049-235) and four 5/16” lock washers (P/N 313-1000-019).

![FIGURE 1. AutoBoom Valve Mounted on the Valve Mounting Plate]
2. Secure the mounting plate to the cross rail behind the sprayer’s tank using two 2-1/16” W x 3” L x 3/8” thread U-bolts (P/N 107-0171-609) and four 3/8” zinc flanged lock nuts (P/N 312-1001-164).

FIGURE 2. AutoBoom Valve Mounted on the Sprayer

Install the Pressure Hoses

**WARNING**

Hydraulics are under pressure. Care should always be taken with a system that has been pressurized. When disconnecting or purging hydraulic hoses, be aware that the hydraulic fluid within the machine’s system may be extremely hot and under high pressure.

**CAUTION**

When installing AutoBoom hydraulics or performing diagnostics, maintenance, or routine service, ensure precautions are taken to prevent any foreign material or contaminants from being introduced into the machine’s hydraulic system.

Objects or materials that are able to bypass the machine’s hydraulic filtration system will reduce performance and possibly damage the AutoBoom hydraulic valves.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Machine</th>
<th>AutoBoom Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hose End</td>
<td>Location</td>
</tr>
<tr>
<td>214-1000-302</td>
<td>3/4” JIC (F)</td>
<td>Steel Pressure Line</td>
</tr>
<tr>
<td>214-1000-304</td>
<td>1-1/16” JIC (F)</td>
<td>Return Bank</td>
</tr>
</tbody>
</table>
1. Locate the pressure line on the machine’s hydraulic valve (Port P).
2. Trace the pressure line back to the point it joins the steel hydraulic line.
3. Disconnect the pressure line from the steel line.
4. Connect the end of the pressure line to the Bypass Port on the AutoBoom valve.
5. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-302) to the machine’s steel line.
6. Connect the 90° end of the installed hose to Port P on the AutoBoom valve.

**Install the Tank Hoses - CaseIH and Patriot 1997 & Newer Only**

7. Disconnect the return hose from the machine’s hydraulic tank.
8. Install the 1-1/16” JIC M/M/F swivel run tee (P/N 333-0012-109) on the machine’s hydraulic tank.
9. Connect the return hose to the opposite end of the installed tee fitting.
10. Install the 1-1/16” JIC M/F 90° swivel elbow fitting (P/N 333-0012-099) on the 90° end of the installed tee fitting.
11. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-304) to the installed 90° elbow fitting.
12. Connect the 90° end of the hydraulic hose to Port T on the AutoBoom valve.
1. Locate the tank line on the machine’s hydraulic valve (Port T).
2. Trace the tank line back to the point it joins the steel hydraulic line.
3. Disconnect the tank line from the steel line.
4. Install the 3/4" JIC M/M/F swivel run tee (P/N 333-0012-039) on the machine’s steel hydraulic line.
5. Connect the tank line to the opposite end of the installed tee fitting.
6. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-302) to the 90° end of the installed tee fitting.
7. Connect the 90° end of the hydraulic hose to Port T on the AutoBoom valve.
Install Left and Right Cylinder Hoses

1. Disconnect the cylinder hoses from the rod-end of the machine’s tilt cylinders.
2. Route the right cylinder hose back to the AutoBoom valve and connect it to Port RV.
3. Route the left cylinder hose back to the AutoBoom valve and connect it to Port LV on the AutoBoom valve.

**FIGURE 6. Raise Hoses Installed on the Tilt Cylinder**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Machine Hose End</th>
<th>AutoBoom Valve Hose End</th>
<th>Location</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>214-1000-303</td>
<td>9/16” JIC (F)</td>
<td>3/4” JIC (F) 90°</td>
<td>Left Tilt Cylinder</td>
<td>LC</td>
</tr>
<tr>
<td>214-1000-303</td>
<td>9/16” JIC (F)</td>
<td>3/4” JIC (F) 90°</td>
<td>Right Tilt Cylinder</td>
<td>RC</td>
</tr>
</tbody>
</table>

4. Remove the fittings from the rod-end of the tilt cylinders.
5. Install the 3/8” NPT (M) to 9/16” JIC (M) straight adapter fittings (P/N 333-0012-123) into the rod-end tilt cylinder ports.
6. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-303) in the installed fitting in the rod-end of the machine’s right tilt cylinder.
7. Connect the 90° end of the hydraulic hose to Port RC on the AutoBoom valve.
8. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-303) in the installed fitting in the rod-end of the machine’s left tilt cylinder.
9. Connect the 90° end of the hydraulic hose to Port LC on the AutoBoom valve.
Install the Down Hoses

FIGURE 7. Installed Down Hoses

1. Disconnect the hose from the base-end of the machine’s left tilt cylinder.
2. Route the hose to the AutoBoom valve and connect it to the installed fitting in the RT CYL RTN Port.
3. Disconnect the hose from the base-end of the machine’s right tilt cylinder.
4. Route the hose to the AutoBoom valve and connect it to the installed fitting in the LF CYL RTN Port.

FIGURE 8. Installed Breathers

5. Remove the cylinder down fittings from the base-end of the tilt cylinders.
6. Install two 9/16” SAE O-ring (M) to 3/8” NPT (F) straight adapter fittings (P/N 333-0012-197) in the base-end of the tilt cylinders.
7. Install the 3/8” NPT breather fittings (P/N 333-0012-196) into the installed adapters.
PowerGlide Plus

PowerGlide Plus Hydraulic Schematic
Chapter 3

Install the Gauge Wheels

Mount the Gauge Wheels

Note: Wheel mounting locations may be influenced by the boom configuration. Verify that the wheels will not interfere with or be damaged by folding or unfolding the booms.

Determine an appropriate location for mounting a wheel on the boom. The wheel should be mounted outside of the boom fold, but inside the boom breakaway.

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>The machine must remain stationary and switched off, with the booms unfolded and supported, while installation or maintenance is conducted.</td>
</tr>
</tbody>
</table>

1. Remove the nuts from the right wheel axle (P/N 063-0131-589).
2. Place the wheel (P/N 322-0131-008) on the right wheel axle.
3. Reinstall the lug nuts on the wheel axle to secure the wheel.
4. Attach the right wheel mounting bracket (P/N 116-0159-626) to the front of the right boom by installing three 2-1/16” W x 3” L x 3/8” thread U-bolts (P/N 107-0171-609) through the back of the mounting bracket and securing them with six 3/8” zinc flanged lock nuts (P/N 312-1001-164).
5. Insert the right wheel axle into the right wheel mounting bracket, positioning it so that the bottom of the wheel touches the ground (or nearly so).
6. Secure the gauge wheel assembly in the wheel mounting bracket by installing two 1/2”-13 x 1-1/2” SS hex bolts (P/N 311-0058-186) and two 1/2” zinc hex nuts (P/N 312-1001-043).
7. Repeat the steps above to install the left wheel.
Install the PowerGlide Plus Wiring

Wiring Connections

Note: For wiring connections made outside the cab, apply dielectric silicone grease (P/N 222-0000-006) generously on both the male and female ends of the connectors. Application of the grease will prevent corrosion to the pins and wires.

Install the AutoBoom Node

1. Mount the AutoBoom node (P/N 063-0130-010) to the cross beam of the machine’s center rack within a close proximity (3 feet/1 meter) to the AutoBoom valve.

Note: Position the node so that the cable connectors face down.

2. Insert the large, rectangular node connector on the harness cable (P/N 115-0230-045) into the left port of the AutoBoom node.

3. Tighten the bolt on the node connector to secure.
Connect the Harness to the Boom Function Controls

Complete the following steps to connect the harness to the machine’s boom function coils.

1. On the harness cable (P/N 115-0230-045), locate the Left Solenoid connector and connect it to Port 4A on the AutoBoom valve.
2. Connect the Right Solenoid connector to Port 4B on the AutoBoom valve.
3. Connect the Left Prop connector to Port 5A on the AutoBoom valve.

![Machine’s Left and Right Tilt Boom Function Coils](image)

4. Locate the machine boom function coils near the machine’s boom stack valve.
5. Disconnect the connector from the machine’s Left Tilt Up coil.
6. Install a boom sense adapter cable (P/N 115-0171-558) between the coil and the machine’s coil connector.
7. Connect boom sense adapter cables between the Left Tilt Down, Right Tilt Up, and Right Tilt Down coils and the coil connectors.
8. On the harness cable, locate the Left Solenoid Sense connectors. Isolate the connector labeled Up and connect it to the Left Tilt Up coil via the installed boom sense adapter cable.
9. Connect the Down Left Solenoid Sense connector to the Left Tilt Down coil via the installed boom sense adapter cable.
10. Connect the Right Solenoid Sense connectors to the machine’s Right Tilt Up and Right Tilt Down coils via the installed boom sense adapter cables.

Connect the Harness Cable

1. Route the harness cable (P/N 115-0230-045) toward the machine’s cab.
2. Connect the harness cable to the controller cable (P/N 115-0230-007).
3. Tighten the connector screw cap to secure the connection.

*Note:* Be sure to allow enough slack in the harness cable to allow for boom racking.
**Connect the Controller (If Applicable)**

1. Route the controller cable (P/N 115-0230-007) into the right side of the machine’s cab.
2. Locate the two controller connectors. Connect these connectors to the AutoBoom controller (P/N 063-0130-011).

*Note:* The AutoBoom controller should be mounted in the machine’s cab so that the machine operator has easy access to it.

**Connect the Computer (If Applicable)**

Refer to the Installation & Operation Manual and the appropriate wiring schematic beginning on page 20 for installation and wiring instructions for your specific field computer.

**Connect the Power Leads**

1. Locate the power cable that has the red and white power leads at one end.
2. Disconnect the machine’s connectors from the battery terminals.
3. Install the red power lead on the positive battery terminal and reinstall the machine’s battery connector.
4. Install the white power lead on the negative battery terminal and reinstall the machine’s battery connector.
Chapter 3

PowerGlide Plus Wiring Schematics

AutoBoom Controller
Envizio Plus
Viper Pro & Envizio Pro
UltraGlide Kit Contents

This section contains a list of the components that are included in the UltraGlide AutoBoom kit. Before beginning the AutoBoom installation, compare the items in the AutoBoom kit with the components on this list. If you have questions about the kit, contact your Raven dealer.

TABLE 1. UltraGlide Installation Kit (P/N 117-0232-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manual - CaseIH 3150/3185, Pre-2002 Patriot AutoBoom Installation</td>
<td>016-0230-005</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Valve" /></td>
<td>Valve - UltraGlide AutoBoom</td>
<td>063-0131-116</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Plate" /></td>
<td>Plate - Hydraulic Block Mounting</td>
<td>107-0171-619</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Sensor" /></td>
<td>Sensor - Right Ultrasonic</td>
<td>063-0130-012</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Sensor" /></td>
<td>Sensor - Left Ultrasonic</td>
<td>063-0130-014</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Sensor" /></td>
<td>Sensor - Center Ultrasonic</td>
<td>063-0130-018</td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE 1. UltraGlide Installation Kit (P/N 117-0232-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>Cable - Case Boom Sense Adapter</td>
<td>115-0171-558</td>
<td>5</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>Cable - Center Rack Control Weatherpack Boom Sense Adapter</td>
<td>115-0230-037</td>
<td>2</td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td>Fitting - 3/4” SAE O-Ring (M) to 9/16” JIC (M) .031 Orifice Straight Adapter</td>
<td>333-0012-230</td>
<td>2</td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td>U-Bolt - 2-1/16” W x 3” L x 3/8” Thread</td>
<td>107-0171-609</td>
<td>8</td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td>Bolt - 5/16”-24 x 1” Grade 8 Hex</td>
<td>311-0049-235</td>
<td>4</td>
</tr>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td>Nut - 3/8”-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>20 (4 extra)</td>
</tr>
<tr>
<td><img src="image7.png" alt="Image" /></td>
<td>Washer - 5/16” Zinc Plated Lock</td>
<td>313-1000-019</td>
<td>4</td>
</tr>
</tbody>
</table>

### TABLE 2. Hydraulic Kit (P/N 117-0137-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image8.png" alt="Image" /></td>
<td>Fitting - 3/4” JIC M/M/F Swivel Run Tee</td>
<td>333-0012-039</td>
<td>1</td>
</tr>
<tr>
<td><img src="image9.png" alt="Image" /></td>
<td>Fitting - 7/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-044</td>
<td>2</td>
</tr>
<tr>
<td><img src="image10.png" alt="Image" /></td>
<td>Fitting - 9/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-045</td>
<td>2</td>
</tr>
</tbody>
</table>
## TABLE 2. Hydraulic Kit (P/N 117-0137-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Picture" /></td>
<td>Fitting - 3/4&quot; SAE O-Ring (M) to 3/4&quot; JIC (M) Straight Adapter</td>
<td>333-0012-093</td>
<td>3</td>
</tr>
<tr>
<td><img src="image2.png" alt="Picture" /></td>
<td>Fitting - 1-1/16&quot; JIC M/F 90° Swivel Elbow</td>
<td>333-0012-099</td>
<td>1</td>
</tr>
<tr>
<td><img src="image3.png" alt="Picture" /></td>
<td>Fitting - 1-1/16&quot; JIC M/M/F Swivel Run Tee</td>
<td>333-0012-109</td>
<td>1</td>
</tr>
<tr>
<td><img src="image4.png" alt="Picture" /></td>
<td>Fitting - 3/8&quot; NPT (M) to 9/16&quot; JIC (M) Straight Adapter</td>
<td>333-0012-123</td>
<td>2</td>
</tr>
<tr>
<td><img src="image5.png" alt="Picture" /></td>
<td>Fitting - 9/16&quot; JIC (F) to 7/16&quot; JIC (M) Straight Adapter</td>
<td>333-0012-159</td>
<td>2</td>
</tr>
<tr>
<td><img src="image6.png" alt="Picture" /></td>
<td>Fitting - 3/8&quot; NPT Breather</td>
<td>333-0012-196</td>
<td>2</td>
</tr>
<tr>
<td><img src="image7.png" alt="Picture" /></td>
<td>Fitting - 9/16&quot; SAE O-Ring to 3/8&quot; NPT (F) Straight Adapter</td>
<td>333-0012-197</td>
<td>2</td>
</tr>
<tr>
<td><img src="image8.png" alt="Picture" /></td>
<td>Hydraulic Hose - 3/4&quot; JIC 90° (F) to 3/4&quot; JIC (F) - 72”</td>
<td>214-1000-302</td>
<td>2</td>
</tr>
<tr>
<td><img src="image9.png" alt="Picture" /></td>
<td>Hydraulic Hose - 9/16&quot; JIC 90° (F) to 9/16&quot; JIC (F) - 192”</td>
<td>214-1000-303</td>
<td>2</td>
</tr>
<tr>
<td><img src="image10.png" alt="Picture" /></td>
<td>Hydraulic Hose - 3/4&quot; JIC 90° (F) to 1-1/16&quot; JIC (F) - 180”</td>
<td>214-1000-304</td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE 3. Optional Wheel Kit (P/N 117-0133-005)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Axle Assembly - Right Offset Cushioned" /></td>
<td>Axle Assembly - Right Offset Cushioned</td>
<td>063-0131-589</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Axle Assembly - Left Offset Cushioned" /></td>
<td>Axle Assembly - Left Offset Cushioned</td>
<td>063-0131-590</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket - Left Weldment" /></td>
<td>Bracket - Left Weldment</td>
<td>116-0159-625</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket - Right Weldment" /></td>
<td>Bracket - Right Weldment</td>
<td>116-0159-626</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Wheel" /></td>
<td>Wheel</td>
<td>322-0131-008</td>
<td>2</td>
</tr>
<tr>
<td><img src="image" alt="U-Bolt - 2-1/16&quot; W x 3&quot; L x 3/8&quot; Thread" /></td>
<td>U-Bolt - 2-1/16&quot; W x 3&quot; L x 3/8&quot; Thread</td>
<td>107-0171-609</td>
<td>6</td>
</tr>
<tr>
<td><img src="image" alt="Bolt - 1/2&quot;-13 x 1-1/2&quot; SS Hex" /></td>
<td>Bolt - 1/2&quot;-13 x 1-1/2&quot; SS Hex</td>
<td>311-0058-186</td>
<td>4</td>
</tr>
<tr>
<td><img src="image" alt="Nut - 1/2&quot;-13 Zinc Hex" /></td>
<td>Nut - 1/2&quot;-13 Zinc Hex</td>
<td>312-1001-043</td>
<td>4</td>
</tr>
<tr>
<td><img src="image" alt="Nut - 3/8&quot;-16 Zinc Flanged Lock" /></td>
<td>Nut - 3/8&quot;-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>12</td>
</tr>
</tbody>
</table>
Install the UltraGlide Hydraulic System

Install Fittings on the AutoBoom Valve

Before mounting the AutoBoom valve on the machine, install the proper fittings on the valve. This prepares the valve for installation and simplifies the hose connection process later in the procedure.

WARNING

The machine must remain stationary and switched off, with the booms unfolded and supported, during installation or maintenance.
Refer to the following table to install the fittings in the appropriate ports on the AutoBoom Valve.

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Part Number</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitting - 7/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-044</td>
<td>LV, RV</td>
</tr>
<tr>
<td>Fitting - 9/16” JIC (M) to 9/16” SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-045</td>
<td>LC, RC</td>
</tr>
<tr>
<td>Fitting - 3/4” SAE O-Ring (M) to 9/16” JIC (M) .031 Orifice Straight Adapter</td>
<td>333-0012-230</td>
<td>RT CYL RTN, LF CYL RTN</td>
</tr>
<tr>
<td>Fitting - 9/16” JIC (F) to 7/16” JIC (M) Straight Adapter</td>
<td>333-0012-159</td>
<td>RT CYL RTN, LF CYL RTN</td>
</tr>
<tr>
<td>Fitting - 3/4” SAE O-Ring (M) to 3/4” JIC (M) Straight Adapter</td>
<td>333-0012-093</td>
<td>P, T, Bypass</td>
</tr>
</tbody>
</table>

**Mount the AutoBoom Valve**

1. Secure the PowerGlide Plus AutoBoom valve (P/N 063-0131-116) to the mounting plate (P/N 107-0171-619) using four 5/16” hex bolts (P/N 311-0049-235) and four 5/16” lock washers (P/N 313-1000-019).

   ![AutoBoom Valve Mounted on the Valve Mounting Plate](image1)

2. Secure the mounting plate to the cross rail behind the sprayer’s tank using two 2-1/16” W x 3” L x 3/8” thread U-bolts (P/N 107-0171-609) and four 3/8” zinc flanged lock nuts (P/N 312-1001-164).

   ![AutoBoom Valve Mounted on the Sprayer](image2)
Install the Pressure Hoses

**WARNING**
Hydraulics are under pressure. Care should always be taken with a system that has been pressurized. When disconnecting or purging hydraulic hoses, be aware that the hydraulic fluid within the machine’s system may be extremely hot and under high pressure.

**CAUTION**
When installing AutoBoom hydraulics or performing diagnostics, maintenance, or routine service, ensure precautions are taken to prevent any foreign material or contaminants from being introduced into the machine’s hydraulic system.

Objects or materials that are able to bypass the machine’s hydraulic filtration system will reduce performance and possible damage the AutoBoom hydraulic valves.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Machine</th>
<th>AutoBoom Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hose End</td>
<td>Location</td>
<td>Hose End</td>
</tr>
<tr>
<td>214-1000-302</td>
<td>3/4&quot; JIC (F)</td>
<td>3/4&quot; JIC (F) 90°</td>
</tr>
<tr>
<td>214-1000-304</td>
<td>1-1/16&quot; JIC (F)</td>
<td>3/4&quot; JIC (F) 90°</td>
</tr>
</tbody>
</table>

**FIGURE 3. Pressure Hose Installed**

1. Locate the pressure line on the machine’s hydraulic valve (Port P).
2. Trace the pressure line back to the point it joins the steel hydraulic line.
3. Disconnect the pressure line from the steel line.
4. Connect the end of the pressure line to the Bypass Port on the AutoBoom valve.
5. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-302) to the machine’s steel line.
6. Connect the 90° end of the installed hose to Port P on the AutoBoom valve.

**Install the Tank Hoses - CaseIH and Patriot 1997 & Newer Only**

1. Disconnect the return hose from the machine’s hydraulic tank.
2. Install the 1-1/16” JIC M/M/F swivel run tee (P/N 333-0012-109) on the machine’s hydraulic tank.
3. Connect the return hose to the opposite end of the installed tee fitting.
4. Install the 1-1/16” JIC M/F 90° swivel elbow fitting (P/N 333-0012-099) on the 90° end of the installed tee fitting.
5. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-304) to the installed 90° elbow fitting.
6. Connect the 90° end of the hydraulic hose to Port T on the AutoBoom valve.

**Install the Tank Hoses - Tyler Patriot 1996 & Older Only**

1. Locate the tank line on the machine’s hydraulic valve (Port T).
2. Trace the tank line back to the point it joins the steel hydraulic line.
3. Disconnect the tank line from the steel line.
4. Install the 3/4" JIC M/M/F swivel run tee (P/N 333-0012-039) on the machine’s steel hydraulic line.
5. Connect the tank line to the opposite end of the installed tee fitting.
6. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-302) to the 90° end of the installed tee fitting.
7. Connect the 90° end of the hydraulic hose to Port T on the AutoBoom valve.

**Install Left and Right Cylinder Hoses**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Machine</th>
<th>AutoBoom Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>214-1000-303</td>
<td>9/16&quot; JIC (F) Left Tilt Cylinder</td>
<td>3/4&quot; JIC (F) 90° LC</td>
</tr>
<tr>
<td>214-1000-303</td>
<td>9/16&quot; JIC (F) Right Tilt Cylinder</td>
<td>3/4&quot; JIC (F) 90° RC</td>
</tr>
</tbody>
</table>

1. Disconnect the cylinder hoses from the rod-end of the machine’s tilt cylinders.
2. Route the right cylinder hose back to the AutoBoom valve and connect it to Port RV.
3. Route the left cylinder hose back to the AutoBoom valve and connect it to Port LV on the AutoBoom valve.

**FIGURE 6. Raise Hoses Installed on the Tilt Cylinder**

4. Remove the fittings from the rod-end of the tilt cylinders.
5. Install the 3/8" NPT (M) to 9/16" JIC (M) straight adapter fittings (P/N 333-0012-123) into the rod-end tilt cylinder ports.
6. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-303) in the installed fitting in the rod-end of the machine’s right tilt cylinder.
7. Connect the 90° end of the hydraulic hose to Port RC on the AutoBoom valve.
8. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-303) in the installed fitting in the rod-end of the machine’s left tilt cylinder.
9. Connect the 90° end of the hydraulic hose to Port LC on the AutoBoom valve.
Install the Down Hoses

1. Disconnect the hose from the base-end of the machine’s left tilt cylinder.
2. Route the hose to the AutoBoom valve and connect it to the installed fitting in the RT CYL RTN Port.
3. Disconnect the hose from the base-end of the machine’s right tilt cylinder.
4. Route the hose to the AutoBoom valve and connect it to the installed fitting in the LF CYL RTN Port.

5. Remove the cylinder down fittings from the base-end of the tilt cylinders.
6. Install two 9/16” SAE O-ring (M) to 3/8” NPT (F) straight adapter fittings (P/N 333-0012-197) in the base-end of the tilt cylinders.
7. Install the 3/8” NPT breather fittings (P/N 333-0012-196) into the installed adapters.
UltraGlide Hydraulic Schematic

Original Hose

Autoboom Hose
**Chapter 4**

**Install the UltraGlide Sensors**

**Mount the UltraGlide Sensors**

Sensor mounting locations may be influenced by the boom configuration. Determine the appropriate location for mounting sensors on the boom, ensuring the sensors will not interfere with or be damaged by folding or unfolding the booms. The sensor should be mounted outside of the boom fold, but inside of the boom breakaway.

*Note:* When mounting two sensors per boom, the inside sensor must be turned sideways to prevent the sensors from interfering when folding the booms.

**FIGURE 9. Boom Sensor Mounting Locations**

1. Place two 2-1/16” W x 3” L x 3/8” thread U-bolts (P/N 107-0171-609) on the outer-end of the center rail of the left boom.
2. Mount the left sensor (P/N 063-0130-014) on the installed U-bolts.
3. Secure the sensor to the boom by installing four 3/8” zinc flanged lock nuts (P/N 312-1001-164) to the ends of the U-bolts.
4. Tighten the nuts to ensure the sensor is mounted securely.
5. Repeat the steps above to mount the remaining boom sensor(s).
6. Mount the center sensor (P/N 063-0130-018) to the machine’s center rack using two 2-1/16" W x 3" L x 3/8" thread U-bolts (P/N 107-0171-609) and four 3/8" zinc flanged lock nuts (P/N 312-1001-164).

**Connect the Sensor Cables**

1. Connect the left sensor cable (P/N 115-0171-527) to the connector on the left sensor.
2. Route the left sensor cable to the AutoBoom valve.
3. Loop and tie-off any excess cable, while allowing enough cable for boom folding and extension.
4. Repeat the steps above to connect the remaining boom sensor cables.

*Note:* The sensor cables will be connected to the AutoBoom system in the wiring phase of installation.
Install the Gauge Wheels - Optional

Mount the Gauge Wheels

Note: Wheel mounting locations may be influenced by the boom configuration. Verify that the wheels will not interfere with or be damaged by folding or unfolding the booms.

Determine an appropriate location for mounting a wheel on the boom. The wheel should be mounted outside of the boom fold, but inside the boom breakaway.

WARNING

The machine must remain stationary and switched off, with the booms unfolded and supported, while installation or maintenance is conducted.

1. Remove the nuts from the right wheel axle (P/N 063-0131-589).
2. Place the wheel (P/N 322-0131-008) on the right wheel axle.
3. Reinstall the lug nuts on the wheel axle to secure the wheel.
4. Attach the right wheel mounting bracket (P/N 116-0159-626) to the front of the right boom by installing three 2-1/16” W x 3” L x 3/8” thread U-bolts (P/N 107-0171-609) through the back of the mounting bracket and securing them with six 3/8” zinc flanged lock nuts (P/N 312-1001-164).
5. Insert the right wheel axle into the right wheel mounting bracket, positioning it so that the bottom of the wheel touches the ground (or nearly so).
6. Secure the gauge wheel assembly in the wheel mounting bracket by installing two 1/2”-13 x 1-1/2” SS hex bolts (P/N 311-0058-186) and two 1/2” zinc hex nuts (P/N 312-1001-043).
7. Repeat the steps above to install the left wheel.
Install the **UltraGlide Wiring**

**Wiring Connections**

**CAUTION**

Always connect the power cable as the last step in the wiring process and verify that the power leads are connected with the correct polarity. Reversing power leads can cause severe damage to the equipment.

*Note:* For wiring connections made outside the cab, apply dielectric silicone grease (P/N 222-0000-006) generously on both the male and female ends of the connectors. Application of the grease will prevent corrosion to the pins and wires.

Install the **AutoBoom Node**

1. Mount the AutoBoom node (P/N 063-0130-013) to the cross beam of the machine’s center rack within a close proximity (3 feet/1 meter) to the AutoBoom valve.

*Note:* Position the node so that the cable connectors face down.

2. Insert the large, rectangular node connector on the harness cable (P/N 115-0230-045) into the left port of the AutoBoom node.

3. Tighten the bolt on the node connector to secure.
Connect the Harness to the Boom Function Controls

Complete the following steps to connect the harness to the machine’s boom function coils.

1. On the harness cable (P/N 115-0230-045), locate the Left Solenoid connector and connect it to Port 4A on the AutoBoom valve.
2. Connect the Right Solenoid connector to Port 4B on the AutoBoom valve.
3. Connect the Left Prop connector to Port 5A on the AutoBoom valve.
4. Connect the Right Prop connector to Port 13A on the AutoBoom valve.

5. Locate the machine boom function coils near the machine’s boom stack valve.
6. Disconnect the connector from the machine’s Left Tilt Up coil.
7. Install a boom sense adapter cable (P/N 115-0171-558) between the coil and the machine’s coil connector.
8. Connect boom sense adapter cables between the Left Tilt Down, Right Tilt Up, and Right Tilt Down coils and the coil connectors.
9. On the harness cable, locate the Left Solenoid Sense connectors. Isolate the connector labeled Up and connect it to the Left Tilt Up coil via the installed boom sense adapter cable.
10. Connect the Down Left Solenoid Sense connector to the Left Tilt Down coil via the installed boom sense adapter cable.
11. Connect the Right Solenoid Sense connectors to the machine’s Right Tilt Up and Right Tilt Down coils via the installed boom sense adapter cables.
Install the Center Rack Control

1. Locate the Center Up coil on the machine’s stack valve.
2. Unplug the coil connector from the Center Up coil.
3. Install a center rack control boom sense adapter cable (P/N 115-0230-037) to the machine’s Up coil.
4. Connect the coil connector to the installed boom sense adapter cable.
5. Plug the single connectors on the installed boom sense adapter cable to the Center Up harness connectors on the AutoBoom valve harness (P/N 115-0230-045).
6. Locate the Center Down coil on the machine’s stack valve.
7. Unplug the coil connector from the Center Down coil.
8. Install a center rack control boom sense adapter cable (P/N 115-0230-037) to the machine’s Down coil.
9. Connect the coil connector to the installed boom sense adapter cable.
10. Plug the single connectors on the installed boom sense adapter cable in the Center Down harness connectors on the AutoBoom valve harness (P/N 115-0230-045).

Note: The appearance of the connectors may vary from machine to machine.

11. Locate the Unloader coil on the machine’s stack valve.

12. Unplug the Unloader coil and connect it to the female end of the AutoBoom weatherpack boom sense adapter cable (P/N 115-0171-558).
13. Connect the double-ended male end of the weatherpack boom sense adapter cable to the Unloader coil.
14. Connect the single-ended male end of the weatherpack boom sense adapter cable to the female “open center” connector on the AutoBoom valve harness.
Connect the Harness Cable

1. Route the harness cable (P/N 115-0230-045) toward the machine’s cab.
2. Connect the harness cable to the controller cable (P/N 115-0230-007).
3. Tighten the connector screw cap to secure the connection.

Note: Be sure to allow enough slack in the harness cable to allow for boom racking.

Connect the Controller (If Applicable)

1. Route the controller cable (P/N 115-0230-007) into the right side of the machine’s cab.
2. Locate the two controller connectors. Connect these connectors to the AutoBoom controller (P/N 063-0130-011).

Note: The AutoBoom controller should be mounted in the machine’s cab so that the machine operator has easy access to it.

Connect the Computer (If Applicable)

Refer to the Installation & Operation Manual and the appropriate wiring schematic beginning on page 43 for installation and wiring instructions for your specific field computer.

Connect the Power Leads

1. Locate the power cable that has the red and white power leads at one end.
2. Disconnect the machine’s connectors from the battery terminals.
3. Install the red power lead on the positive battery terminal and reinstall the machine’s battery connector.
4. Install the white power lead on the negative battery terminal and reinstall the machine’s battery connector.
Envizio Plus
Viper Pro & Envizio Pro
This section contains replacement part diagrams and listings for PowerGlide Plus, and UltraGlide systems. Please refer to these diagrams when calling to request replacement parts.

**Valve Blocks**

**PowerGlide Plus Valve Block Replacement Parts**
UltraGlide Valve Block Replacement Parts
Wheel and Assembly Brackets

Machine-Specific Wheels and Brackets

Cushioned Axle
Sensors and Brackets

Molded Sensor Replacement Parts

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RAVEN INDUSTRIES

Limited Warranty

What Does this Warranty Cover?
This warranty covers all defects in workmanship or materials in your Raven Applied Technology Product under normal use, maintenance, and service.

How Long is the Coverage Period?
Raven Applied Technology Products are covered by this warranty for 12 months after the date of purchase. This warranty coverage applies only to the original owner and is nontransferable.

How Can I Get Service?
Bring the defective part and proof of purchase to your Raven Dealer. If your Dealer agrees with the warranty claim, the Dealer will send the part and proof of purchase to their distributor or to Raven Industries for final approval.

What Will Raven Industries Do?
Upon confirmation of the warranty claim, Raven Industries will, at our discretion, repair or replace the defective part and pay for return freight.

What is not Covered by this Warranty?
Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit or other special damages. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.