Disclaimer

While every effort has been made to ensure the accuracy of this document, Raven Industries assumes no responsibility for omissions and errors. Nor is any liability assumed for damages resulting from the use of information contained herein.

Raven Industries shall not be responsible or liable for incidental or consequential damages or a loss of anticipated benefits or profits, work stoppage or loss, or impairment of data arising out of the use, or inability to use, this system or any of its components. Raven Industries shall not be held responsible for any modifications or repairs made outside our facilities, nor damages resulting from inadequate maintenance of this system.

As with all wireless and satellite signals, several factors may affect the availability and accuracy of wireless and satellite navigation and correction services (e.g. GPS, GNSS, SBAS, etc.). Therefore, Raven Industries cannot guarantee the accuracy, integrity, continuity, or availability of these services and cannot guarantee the ability to use Raven systems, or products used as components of systems, which rely upon the reception of these signals or availability of these services. Raven Industries accepts no responsibility for the use of any of these signals or services for other than the stated purpose.
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CHAPTER 1

IMPORTANT SAFETY INFORMATION

NOTICE

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.

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
INSTRUCTIONS FOR WIRE ROUTING

The word “harness” is used to mean all electrical leads and cables, bundled and unbundled. When installing harness, secure it at least every 30 cm (12in) to the frame. Follow existing harness as much as possible and use these guidelines:

Harness should not contact or be attached to:

- Lines and hoses with high vibration forces or pressure spikes
- Lines and hoses carrying hot fluids beyond harness component specifications

Avoid contact with any sharp edge or abrading surfaces such as, but not limited to:

- Sheared or flame cut edges
- Edges of machined surfaces
- Fastener threads or cap screw heads
- Ends of adjustable hose clamps
- Wire exiting conduit without protection, either ends or side of conduit
- Hose and tube fittings

Routing should not allow harnesses to:

- Hang below the unit
- Have the potential to become damaged due to exposure to the exterior environment. (i.e. tree limbs, debris, attachments)
- Be placed in areas of or in contact with machine components which develop temperatures higher than the temperature rating of harness components
- Wiring should be protected or shielded if it needs to route near hot temperatures beyond harness component specifications

Harnessing should not have sharp bends

Allow sufficient clearance from machine component operational zones such as:

- Drive shafts, universal joints and hitches (i.e. 3-point hitch)
- Pulleys, gears, sprockets
- Deflection and backlash of belts and chains
- Adjustment zones of adjustable brackets
- Changes of position in steering and suspension systems
- Moving linkages, cylinders, articulation joints, attachments
- Ground engaging components

For harness sections that move during machine operation:

- Allow sufficient length for free movement without interference to prevent: pulling, pinching, catching or rubbing, especially in articulation and pivot points
- Clamp harnesses securely to force controlled movement to occur in the desired harness section
- Avoid sharp twisting or flexing of harnesses in short distances
- Connectors and splices should not be located in harness sections that move
IMPORTANT SAFETY INFORMATION

Protect harnesses from:
• Foreign objects such as rocks that may fall or be thrown by the unit
• Buildup of dirt, mud, snow, ice, submersion in water and oil
• Tree limbs, brush and debris
• Damage where service personnel or operators might step or use as a grab bar
• Damage when passing through metal structures

IMPORTANT: Avoid directly spraying electrical components and connections with high pressure water. High pressure water sprays can penetrate seals and cause electrical components to corrode or otherwise become damaged. When performing maintenance:
• Inspect all electrical components and connections for damage or corrosion. Repair or replace components, connections, or cable as necessary.
• Ensure connections are clean, dry, and not damaged. Repair or replace components, connections, or cable as necessary.
• Clean components or connections using low pressure water, pressurized air, or an aerosol electrical component cleaning agent.
• Remove visible surface water from components, connections, or seals using pressurized air or an aerosol electrical component cleaning agent. Allow components to dry completely before reconnecting cables.

INSTRUCTIONS FOR HOSE ROUTING

The word “hose” is used to mean all flexible fluid carrying components. Follow existing hoses as much as possible and use these guidelines:

Hoses should not contact or be attached to:
• Components with high vibration forces
• Components carrying hot fluids beyond component specifications

Avoid contact with any sharp edge or abrading surfaces such as, but not limited to:
• Sheared or flame cut edges
• Edges of machined surfaces
• Fastener threads or cap screw heads
• Ends of adjustable hose clamps

Routing should not allow hoses to:
• Hang below the unit
• Have the potential to become damaged due to exposure to the exterior environment. (i.e. tree limbs, debris, attachments)
• Be placed in areas of or in contact with machine components which develop temperatures higher than the temperature rating of hose components
• Hoses should be protected or shielded if it needs to route near hot temperatures beyond hose component specifications

Hoses should not have sharp bends

Allow sufficient clearance from machine component operational zones such as:
• Drive shafts, universal joints and hitches (i.e. 3-point hitch)
• Pulleys, gears, sprockets
• Deflection and backlash of belts and chains
• Adjustment zones of adjustable brackets
• Changes of position in steering and suspension systems
• Moving linkages, cylinders, articulation joints, attachments
• Ground engaging components

For hose sections that move during machine operation:
• Allow sufficient length for free movement without interference to prevent: pulling, pinching, catching or rubbing, especially in articulation and pivot points
• Clamp hoses securely to force controlled movement to occur in the desired hose section
• Avoid sharp twisting or flexing of hoses in short distances

Protect hoses from:
• Foreign objects such as rocks that may fall or be thrown by the unit
• Buildup of dirt, mud, snow, ice, submersion in water and oil
• Tree limbs, brush and debris
• Damage where service personnel or operators might step or use as a grab bar
• Damage when passing through metal structures
• High pressure wash
Congratulations on your purchase of the Raven AutoBoom system! This system is designed to provide automated boom height adjustment for agricultural equipment.

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

MAKE: John Deere
MODEL: R4030, R4038, and R4045

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.

RECOMMENDATIONS

Raven Industries recommends the following best practices before installing or operating the AutoBoom system for the first time, at the start of the season, or when moving the AutoBoom system to another machine:

- Ensure the machine’s hydraulic filters have been recently changed and there are no issues with the machine’s hydraulic system (e.g., pump issues, faulty hydraulic motors, fine metal deposits in the hydraulic hoses, etc.).
• Operate each of the machine’s boom hydraulic functions (i.e., tilt, fold, center rack, tongue extension, or other hydraulic valve functions) three times to ensure the machine’s hydraulic valve is using fresh oil and debris is flushed from the hydraulic hoses, valves, and filters.

• Upon installation of the AutoBoom system, operate the boom and center rack raise/lower functions through the machine’s manual control functions first before operating them via the AutoBoom controller/field computer to ensure the hydraulic system has been installed correctly and air is released from the system.

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 and metric wrenches
• Cable ties
• Set of tools

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

UPDATES

Software and manual updates are available on the Raven Applied Technology website:

http://www.ravenhelp.com
At Raven Industries, we strive to make your experience with our products as rewarding as possible. One way to improve this experience is to provide us with feedback on this manual.

Your feedback will help shape the future of our product documentation and the overall service we provide. We appreciate the opportunity to see ourselves as our customers see us and are eager to gather ideas on how we have been helping or how we can do better.

To serve you best, please send an email with the following information to techwriting@ravenind.com

- John Deere R4030, R4038, and R4045 Series AutoBoom Installation Manual
- P/N 016-0230-120 Rev. D
- Any comments or feedback (include chapter or page numbers if applicable).
- Let us know how long have you been using this or other Raven products.

We will not share your email or any information you provide with anyone else. Your feedback is valued and extremely important to us.

Thank you for your time.
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 system 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. PowerGlide Plus Installation Kit (P/N 117-0231-114 or 117-0231-120)**

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Pictured</td>
<td>Manual - John Deere R4030, R4038, and R4045 AutoBoom Installation</td>
<td>016-0230-120</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Valve - AutoBoom Hydraulic" /></td>
<td>Valve - AutoBoom Hydraulic</td>
<td>063-0131-125</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket - Hydraulic Valve Mounting" /></td>
<td>Bracket - Hydraulic Valve Mounting</td>
<td>107-0171-619</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket - Proximity Sensor Mounting" /></td>
<td>Bracket - Proximity Sensor Mounting</td>
<td>107-0172-499</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Plate - Proximity Sensor Mounting" /></td>
<td>Plate - Proximity Sensor Mounting</td>
<td>107-0172-500</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Node - AutoBoom" /></td>
<td>Node - AutoBoom</td>
<td>063-0130-016</td>
<td>1</td>
</tr>
</tbody>
</table>
TABLE 1. PowerGlide Plus Installation Kit (P/N 117-0231-114 or 117-0231-120)

<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="Cable - Boom Sense Serial Inverter Interface" /></td>
<td>Cable - Boom Sense Serial Inverter Interface</td>
<td>063-0173-757</td>
<td>1</td>
</tr>
<tr>
<td><img src="image2" alt="Cable - ISO CAN AutoBoom Harness" /></td>
<td>Cable - ISO CAN AutoBoom Harness</td>
<td>115-0230-140</td>
<td>1</td>
</tr>
<tr>
<td><img src="image3" alt="Cable - ISO CAN AutoBoom Power" /></td>
<td>Cable - ISO CAN AutoBoom Power</td>
<td>115-0230-141</td>
<td>1</td>
</tr>
<tr>
<td><img src="image4" alt="Sensor - 15 mm Range Inductive Proximity" /></td>
<td>Sensor - 15 mm Range Inductive Proximity</td>
<td>412-6000-007</td>
<td>1</td>
</tr>
<tr>
<td><img src="image5" alt="U-Bolt - 3-1/16&quot; W x 5&quot; L x 3/8&quot; Thread" /></td>
<td>U-Bolt - 3-1/16&quot; W x 5&quot; L x 3/8&quot; Thread</td>
<td>107-0171-607</td>
<td>2</td>
</tr>
<tr>
<td><img src="image6" alt="U-Bolt - 2-9/16&quot; W x 3-1/2&quot; L x 3/8&quot; Thread" /></td>
<td>U-Bolt - 2-9/16&quot; W x 3-1/2&quot; L x 3/8&quot; Thread</td>
<td>107-0171-616</td>
<td>1</td>
</tr>
<tr>
<td><img src="image7" alt="Bolt - 5/16&quot;-18 x 7/8&quot; Hex" /></td>
<td>Bolt - 5/16&quot;-18 x 7/8&quot; Hex</td>
<td>311-0052-104</td>
<td>4</td>
</tr>
<tr>
<td><img src="image8" alt="Bolt - 3/8&quot;-16 UNC x 1-1/4&quot; Hex" /></td>
<td>Bolt - 3/8&quot;-16 UNC x 1-1/4&quot; Hex</td>
<td>311-0054-106</td>
<td>3</td>
</tr>
<tr>
<td><img src="image9" 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>9</td>
</tr>
<tr>
<td><img src="image10" alt="Washer - 5/16&quot; Split Lock" /></td>
<td>Washer - 5/16&quot; Split Lock</td>
<td>313-1000-019</td>
<td>4</td>
</tr>
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</table>
TABLE 2. Hydraulic Kit (P/N 117-0134-120)

<table>
<thead>
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<th>Picture</th>
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<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>Fitting - -12 ORFS M/M/F Swivel Run Tee Adapter</td>
<td>333-0012-029</td>
<td>2</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>Fitting - -12 ORFS (F) to -8 ORFS (M) Reducer</td>
<td>333-0012-030</td>
<td>2</td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td>Fitting - -6 ORFS M/F 90° Swivel Elbow</td>
<td>333-0012-065</td>
<td>3</td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td>Fitting - -8 ORFS M/F 90° Swivel Elbow</td>
<td>333-0012-067</td>
<td>2</td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td>Fitting - -6 ORFS M/M/F Swivel Run Tee</td>
<td>333-0012-069</td>
<td>5</td>
</tr>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td>Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-084</td>
<td>3</td>
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<tr>
<td><img src="image7.png" alt="Image" /></td>
<td>Fitting - -8 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-168</td>
<td>2</td>
</tr>
<tr>
<td><img src="image8.png" alt="Image" /></td>
<td>Fitting - -6 SAE O-Ring (M) Plug</td>
<td>333-0012-194</td>
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<tr>
<td><img src="image9.png" alt="Image" /></td>
<td>Fitting - -6 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-199</td>
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<tr>
<td><img src="image10.png" alt="Image" /></td>
<td>Hydraulic Hose - -8 ORFS (F) to -8 ORFS (F) 90° - 142”</td>
<td>214-1001-059</td>
<td>2</td>
</tr>
<tr>
<td><img src="image11.png" alt="Image" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 96”</td>
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### TABLE 2. Hydraulic Kit (P/N 117-0134-120)

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<thead>
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<tr>
<td><img src="image1.png" alt="Picture" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 120”</td>
<td>214-1001-061</td>
<td>1</td>
</tr>
<tr>
<td><img src="image2.png" alt="Picture" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 142”</td>
<td>214-1001-062</td>
<td>1</td>
</tr>
<tr>
<td><img src="image3.png" alt="Picture" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 72”</td>
<td>214-1001-063</td>
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</table>

### TABLE 3. PowerGlide Plus Wheel Kit - 90’ - 100’ Booms (P/N 117-0133-114)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.png" alt="Picture" /></td>
<td>Axle Assembly - Right Cushioned AutoBoom</td>
<td>063-0131-585</td>
<td>1</td>
</tr>
<tr>
<td><img src="image5.png" alt="Picture" /></td>
<td>Axle Assembly - Left Cushioned AutoBoom</td>
<td>063-0131-590</td>
<td>1</td>
</tr>
<tr>
<td><img src="image6.png" alt="Picture" /></td>
<td>Bracket - Weldment Receiver</td>
<td>116-0159-779</td>
<td>2</td>
</tr>
<tr>
<td><img src="image7.png" alt="Picture" /></td>
<td>Bracket - Hub Retainer</td>
<td>107-0171-617</td>
<td>2</td>
</tr>
<tr>
<td><img src="image8.png" alt="Picture" /></td>
<td>Wheel</td>
<td>322-0131-008</td>
<td>2</td>
</tr>
<tr>
<td><img src="image9.png" alt="Picture" /></td>
<td>U-Bolt - 2-9/16” W x 3-1/2” L x 3/8” Thread</td>
<td>107-0171-609</td>
<td>8</td>
</tr>
<tr>
<td><img src="image10.png" alt="Picture" /></td>
<td>Bolt - 1/2”-13 x 1-1/2” SS Hex</td>
<td>311-0058-186</td>
<td>4</td>
</tr>
</tbody>
</table>
### TABLE 3. PowerGlide Plus Wheel Kit - 90’ - 100’ Booms (P/N 117-0133-114)

<table>
<thead>
<tr>
<th>Picture</th>
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<th>Part Number</th>
<th>Qty.</th>
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<tbody>
<tr>
<td><img src="image" alt="Nut" /></td>
<td>Nut - 1/2&quot;-13 Hex</td>
<td>312-1001-043</td>
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<tr>
<td><img src="image" alt="Nut" /></td>
<td>Nut - 3/8&quot;-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>16</td>
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### TABLE 4. PowerGlide Plus Wheel Kit - 120’ Booms (P/N 117-0133-120)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="Axle Assembly" /></td>
<td>Axle Assembly - Right Cushioned AutoBoom</td>
<td>063-0131-585</td>
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</tr>
<tr>
<td><img src="image" alt="Axle Assembly" /></td>
<td>Axle Assembly - Left Cushioned AutoBoom</td>
<td>063-0131-590</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket" /></td>
<td>Bracket - Right Weldment Receiver</td>
<td>116-0159-756</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket" /></td>
<td>Bracket - Left Weldment Receiver</td>
<td>116-0159-757</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket" /></td>
<td>Bracket - Hub Retainer</td>
<td>107-0171-617</td>
<td>2</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" /></td>
<td>U-Bolt - 2-9/16&quot; W x 3-1/2&quot; L x 3/8&quot; Thread</td>
<td>107-0171-616</td>
<td>8</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>
</tbody>
</table>
TABLE 4. PowerGlide Plus Wheel Kit - 120’ Booms (P/N 117-0133-120)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nut - 1/2”-13 Hex</td>
<td>312-1001-043</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Nut - 3/8”-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>16</td>
</tr>
</tbody>
</table>

**INSTALL THE POWERGLIDE PLUS HYDRAULIC SYSTEM**

**WARNING**

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

**CAUTION**

When installing AutoBoom hydraulics or performing diagnostics, maintenance, or routine service, ensure precautions are taken to prevent any foreign material 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 cause damage to the AutoBoom hydraulic valve.

**NOTICE**

The appearance of the AutoBoom hydraulic valve may vary slightly from the images contained in this manual. However, the fittings, hose connections, and cable connections remain the same.
REMOVE THE ORIFICE FITTINGS

Before populating the hydraulic fittings on the AutoBoom valve, it is necessary to remove orifice fittings from the valve in the PowerGlide Plus system. Failure to remove these fittings from the valve will restrict the down speed of the booms when the system is enabled.

**FIGURE 1. Port 3A and 3B Location**

1. Locate Ports 3A and 3B on the AutoBoom valve.

**FIGURE 2. Coil Removed from the AutoBoom Valve**

2. Remove the coils from the solenoids near Ports 3A and 3B to gain easy access to those ports.
3. Use an Allen wrench to remove the plugs from Ports 3A and 3B.

**FIGURE 3. Port Plugs Removed from the AutoBoom Valve**

4. Remove the orifice fittings from Ports 3A and 3B.

**FIGURE 4. Orifice Fitting Removed from the AutoBoom Valve**

**IMPORTANT:** Tip the AutoBoom valve on its side and use the Allen wrench to remove the orifice from the cavity, taking care not to let the fitting fall into the valve.

**FIGURE 5. Port Plug Reinstalled on the AutoBoom Valve**
5. Use the Allen wrench to reinstall the port plugs on Ports 3A and 3B of the AutoBoom valve.

**FIGURE 6. Coil Reinstalled on the AutoBoom Valve**

6. Reinstall the coils on the solenoids of the AutoBoom valve.

**INSTALL FITTINGS IN THE AUTOBOOM VALVE**

Before mounting the AutoBoom valve on the machine, install the proper fittings in the valve. This prepares the valve for installation and simplifies the hose connection process later in the procedure. Refer to the following table to install the fittings in the appropriate ports of the AutoBoom valve.

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Part Number</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitting -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-084</td>
<td>LC, RC, LSP</td>
</tr>
<tr>
<td>Fitting -6 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-199</td>
<td>LF CYL RTN, RT CYL RTN</td>
</tr>
<tr>
<td>Fitting -6 ORFS M/F 90° Swivel Elbow</td>
<td>333-0012-065</td>
<td>LF CYL RTN, RT CYL RTN</td>
</tr>
<tr>
<td>Fitting -8 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-168</td>
<td>Left T, P</td>
</tr>
<tr>
<td>Fitting -8 ORFS M/F 90° Swivel Elbow</td>
<td>333-0012-067</td>
<td>Left T, P</td>
</tr>
<tr>
<td>Fitting -6 SAE O-Ring (M) Plug</td>
<td>333-0012-194</td>
<td>LV, RV</td>
</tr>
</tbody>
</table>
CHAPTER 3

MOUNT THE AUTOBOOM VALVE

FIGURE 7. AutoBoom Valve Secured to the Mounting Bracket

1. Secure the AutoBoom valve (P/N 063-0131-125) to the mounting bracket (P/N 107-0171-619) using four 5/16”-18 x 7/8” hex bolts (P/N 311-0052-104) and four 5/16” lock washers (P/N 313-1000-019).

FIGURE 8. AutoBoom Valve Mounted to the Machine’s Center Rack

2. Secure the valve mounting bracket to the machine’s center rack tube (to the left of the center of the machine) using two 3-1/16” W x 5” L x 3/8” thread U-bolts (P/N 107-0171-607) and four 3/8”-16 zinc flanged lock nuts (P/N 312-1001-164).
INSTALL THE PRESSURE AND TANK HOSES

1. Locate the proportional valve behind the spray tank on the main frame at the rear of the machine.

2. Disconnect the hose installed in port BM of the proportional valve.
3. Install a -12 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-029) in the open port of the proportional valve.

4. Connect the machine’s pressure hose to the opposite end of the installed tee fitting.

5. Install a -12 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-030) on the 90° end of the installed tee fitting.

6. Install a -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on the installed reducer fitting.

7. Install the straight end of the supplied hydraulic hose (P/N 214-1001-059) on the installed elbow fitting.

8. Connect the 90° end of the installed hydraulic hose on the fitting installed in Port P of the AutoBoom valve (P/N 063-0131-125).

9. Disconnect the hose installed in port BMT of the proportional valve.
10. Install a -12 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-029) in the open port of the proportional valve.

11. Connect the machine’s tank hose to the opposite end of the installed tee fitting.

12. Install a -12 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-030) on the 90° end of the installed tee fitting.

13. Install a -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on the installed reducer fitting.


15. Connect the 90° end of the installed hydraulic hose to the fitting installed in Port T of the AutoBoom valve.
INSTALL THE LEFT AND RIGHT CYLINDER HOSES

FIGURE 16. Machine’s Existing Cylinder Hoses

1. Locate and disconnect the machine’s raise hose from the rod-end of the left tilt cylinder.

FIGURE 17. Raise Hose Installed on Left Tilt Cylinder

2. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the rod-end of the tilt cylinder.

3. Install the machine’s left raise hose on the opposite end of the installed tee fitting.

4. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-060) on the 90° end of the installed tee fitting.
5. Connect the straight end of the installed hydraulic hose to the fitting installed in Port LC of the AutoBoom valve (P/N 063-0131-125).

FIGURE 18. Left Raise Hose Installed on AutoBoom Valve

6. Locate and disconnect the machine’s raise hose from the rod-end of the right tilt cylinder.

FIGURE 19. Machine’s Existing Cylinder Hoses

FIGURE 20. Raise Hose Installed on Right Tilt Cylinder
7. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the rod-end of the tilt cylinder.
8. Install the machine's right raise hose on the opposite end of the installed tee fitting.
9. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-061) on the 90° end of the installed tee fitting.

**FIGURE 21. Right Raise Hose Installed on AutoBoom Valve**

10. Connect the straight end of the installed hydraulic hose to the fitting installed in Port RC of the AutoBoom valve.

**INSTALL THE LEFT AND RIGHT DOWN HOSES**

**FIGURE 22. Machine's Existing Cylinder Hoses**

1. Locate and disconnect the machine's down hose from the base-end of the left tilt cylinder.
2. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the base-end of the tilt cylinder.

3. Install the machine's left down hose on the opposite end of the installed tee fitting.

4. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-063) on the 90° end of the installed tee fitting.

5. Connect the straight end of the installed hydraulic hose to the fitting installed in Port LF CYL RTN of the AutoBoom valve (P/N 063-0131-125).
6. Locate and disconnect the machine’s down hose from the base-end of the right tilt cylinder.

7. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the base-end of the tilt cylinder.

8. Install the machine’s right down hose on the opposite end of the installed tee fitting.

9. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-060) on the 90° end of the installed tee fitting.
10. Connect the straight end of the installed hydraulic hose to the fitting installed in Port RT CYL RTN of the AutoBoom valve.

INSTALL THE LOAD SENSE HOSE

FIGURE 28. AL Hose Connection

1. Disconnect the hose installed in port AL of the machine’s proportional valve.
2. Install a -6 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-069) in the open port of the machine’s proportional valve.

3. Install the machine’s load sense hose on the opposite end of the installed tee fitting.

4. Install a -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) on the 90° end of the installed tee fitting.

5. Install the straight end of the supplied hydraulic hose (P/N 214-1001-062) on the installed elbow fitting.

6. Connect the 90° end of the installed hydraulic hose to the fitting installed in Port LSP of the AutoBoom valve (P/N 063-0131-125).
HYDRAULIC DIAGRAM

Machine’s Proportional Valve

214-1001-059

BMT

BM

AL

214-1001-062

214-1001-063

Left Boom Tilt Cylinder

214-1001-060

AutoBoom Valve

214-1001-061

Right Boom Tilt Cylinder

Original Hose

AutoBoom Hose
CHAPTER 3

INSTALL THE PROXIMITY SENSOR

FIGURE 31. Proximity Sensor Installed on Mounting Bracket

1. Install the proximity sensor (P/N 412-6000-007) on the proximity sensor mounting bracket (P/N 107-0172-499) using the jam nuts and lock washers provided with the proximity sensor.

FIGURE 32. Proximity Sensor Installed

2. Install the proximity sensor mounting plate (P/N 107-0172-500) on the top left corner of the machine’s center rack using the existing M12 bolt and nut as shown in Figure 32 above.

NOTE: Do not fully tighten the nut.

3. Install the proximity sensor mounting bracket above the sensor mounting plate on the vertical left boom tube using a 2-9/16” W x 3-1/2” L x 3/8” thread U-bolt (P/N 107-0171-616) and two 3/8” flanged lock nuts (P/N 312-1001-164).

NOTE: Do not fully tighten the nuts.
4. Align the proximity sensor with the edge of the sensor mounting plate as shown in Figure 33 above.

5. Adjust the proximity sensor mounting plate and bracket so that the proximity sensor is positioned less than 5/8" (15 mm) from the face of the sensor mounting plate.

6. Tighten the M12 and 3/8" flanged lock nuts so that the brackets are mounted securely.
INSTALL THE GAUGE WHEELS

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

GAUGE WHEEL MOUNTING LOCATIONS
Wheel mounting locations may be influenced by the boom configuration. Determine the appropriate location for mounting the wheels on the boom, ensuring the wheels will not interfere with or be damaged while folding or unfolding the booms. The wheels should be mounted near the end of the first main section of the boom.

MOUNT THE GAUGE WHEELS

90' - 100 BOOMS

NOTE: The appearance of the wheel axles may vary.

FIGURE 35. Gauge Wheel Installed

1. Remove the lug nuts from the left wheel axle (P/N 116-0159-779).
2. Place the wheel (P/N 322-0131-008) on the left wheel axle.
3. Align and place the hub retainer bracket (P/N 107-0171-617) over the wheel.
4. Reinstall the lug nuts on the wheel axle to secure the wheel and hub retainer bracket.
5. Secure the wheel mounting bracket (P/N 116-0159-779) to the front of the left boom using four 2-1/16" W x 3-1/2" L x 3/8" thread U-bolts (P/N 107-0171-609) and eight 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).
6. Insert the left wheel axle into the wheel mounting bracket, positioning it so that the bottom of the wheel touches the ground (or nearly so) and the wheel faces away from the machine.
7. 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).
8. Repeat the steps above to install the right wheel.
120' BOOMS

NOTE: The appearance of the wheel axles may vary.

FIGURE 36. Gauge Wheel Installed

1. Remove the lug nuts from the left wheel axle (P/N 063-0131-590).
2. Place the wheel (P/N 322-0131-008) on the left wheel axle.
3. Align and place the hub retainer bracket (P/N 107-0171-617) over the wheel.
4. Reinstall the lug nuts on the wheel axle to secure the wheel and hub retainer bracket.
5. Secure the left wheel mounting bracket (P/N 116-0159-757) to the front of the left boom using four 2-9/16" W x 3-1/2" L x 3/8" thread U-bolts (P/N 107-0171-616) and eight 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).
6. Insert the left wheel axle into the left wheel mounting bracket, positioning it so that the bottom of the wheel touches the ground (or nearly so) and the wheel faces away from the machine.
7. 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).
8. Repeat the steps above to install the right wheel.

INSTALL THE POWERGLIDE PLUS Wiring

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.

WIRING CONNECTIONS

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. Identify the AutoBoom node (P/N 063-0130-016) mounting location on the existing mounting bracket to the left of the center of the machine.

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

2. Insert the large, rectangular node connectors on the AutoBoom harness cable (115-0230-140) into the correct ports of the AutoBoom node.

3. Tighten the bolts on the node connectors to secure the connections.

CONNECT THE HARNESS TO THE BOOM FUNCTION CONTROLS

1. Locate the LEFT PRESS and RIGHT PRESS connectors on the AutoBoom harness cable (P/N 115-0230-140).
2. Route the connectors to the AutoBoom valve (P/N 063-0131-125).
3. Connect the LEFT PRESS connector to Port G1 of the AutoBoom valve.
4. Connect the RIGHT PRESS connector to Port G4 of the AutoBoom valve.
5. Locate the LEFT SOLENOID and RIGHT SOLENOID connectors on the harness cable.
6. Connect the LEFT SOLENOID connector to Port 4A of the AutoBoom valve.
7. Connect the RIGHT SOLENOID connector to Port 4B of the AutoBoom valve.
8. Locate the LEFT PROP and RIGHT PROP connectors on the harness cable.
9. Connect the LEFT PROP connector to Port 5A of the AutoBoom valve.
10. Connect the RIGHT PROP connector to Port 13A of the AutoBoom valve.
11. Connect the PROX SWITCH connector to the installed proximity sensor (P/N 412-6000-007).

**FIGURE 39. Serial Inverter Installed on AutoBoom Harness**

12. Locate the 4-pin LEFT/RIGHT SENSE connector on the AutoBoom harness cable.
13. Install the boom sense serial inverter interface cable (P/N 063-0173-757) on the 4-pin harness cable connection.

**FIGURE 40. Machine’s Boom Function Controls**

14. Locate the machine’s boom function controls on the hydraulic valve at the rear of the machine.
15. Locate the left tilt up coil labeled S16 on the machine’s hydraulic valve.
16. Disconnect the connector from the left tilt up coil.
17. Install the LEFT UP connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.
18. Locate the left down coil labeled S15 on the machine’s hydraulic valve.
19. Disconnect the connector from the left tilt down coil.
20. Install the LEFT DOWN connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.

FIGURE 42. Right Up and Down Boom Function Coils

21. Locate the right tilt up coil labeled S17 on the machine’s hydraulic valve.
22. Disconnect the connector from the right tilt up coil.
23. Install the RIGHT UP connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.
24. Locate the right tilt down coil labeled S18 on the machine’s hydraulic valve.
25. Disconnect the connector from the right tilt down coil.
26. Install the RIGHT DOWN connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.
CONNECT THE HARNESS CABLE TO THE POWER/CAN CABLE

1. Route the CAN PWR connectors of the AutoBoom harness (P/N 115-0230-140) along the machine’s harness on the left side of the machine, toward the machine’s cab.
2. Connect the CAN PWR connector to the mating connector on the power/CAN cable (P/N 115-0230-141).

**FIGURE 43. Air Conditioner Line Cover Shield**

3. Remove the air conditioning line cover shield from the front-left corner of the cab.

**FIGURE 44. Bracket and Clamps to be Removed**

4. Remove the shield bracket and air conditioning clamps.
5. Remove the headlight above the shield bracket location.

6. Locate and remove the terminator from the machine’s harness behind the headlight.

7. Route the power/CAN cable (P/N 115-0230-141) into the cab roof along the steel air conditioning lines.
8. Connect the CAN BUS connector on the power/CAN cable to the machine’s harness.

**FIGURE 48. Bracket and Clamps to be Removed**

9. Route the power/CAN cable down between the two rods of the air conditioner shield bars.
10. Reinstall the air conditioning clamps and shield bracket.

**FIGURE 49. Air Conditioner Line Cover Shield Reinstalled**

11. Reinstall the air conditioner line cover shield.
12. Reinstall the machine’s headlight.

13. Install the terminator that was removed from the machine’s harness on the remaining CAN BUS connection on the AutoBoom harness located at the rear of the machine.

FIGURE 51. Switched Power Routing

14. Route the +12 volt switched signal connector on the power/CAN cable through the opening in the rear cab window and toward the machine’s bus bar.

15. Connect the +12V switched signal connector to the switched power terminal.

16. Locate the power and ground leads on the power/CAN cable.
FIGURE 52. Battery Compartment

17. Disconnect the machine's connectors from the battery terminals.
18. Install the power lead on the positive battery terminal and reinstall the machine's battery connector.
19. Install the ground lead on the negative battery terminal and reinstall the machine's battery connector.
ULTRAGLIDE KIT CONTENTS

This section contains a list of the components that are included in the PowerGlide Plus AutoBoom kit. Before beginning the AutoBoom system 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 117-0232-120)**

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Pictured</td>
<td>Manual - John Deere R4030, R4038, and R4045 AutoBoom Installation</td>
<td>016-0230-120</td>
<td>1</td>
</tr>
<tr>
<td><img src="image1.png" alt="Valve" /></td>
<td>Valve - AutoBoom Hydraulic</td>
<td>063-0131-125</td>
<td>1</td>
</tr>
<tr>
<td><img src="image2.png" alt="Bracket" /></td>
<td>Bracket - Hydraulic Valve Mounting</td>
<td>107-0171-619</td>
<td>1</td>
</tr>
<tr>
<td><img src="image3.png" alt="Bracket" /></td>
<td>Bracket - Center Sensor Mounting</td>
<td>107-0172-443</td>
<td>1</td>
</tr>
<tr>
<td><img src="image4.png" alt="Bracket" /></td>
<td>Bracket - Proximity Sensor Mounting</td>
<td>107-0172-499</td>
<td>1</td>
</tr>
<tr>
<td><img src="image5.png" alt="Plate" /></td>
<td>Plate - Proximity Sensor Mounting</td>
<td>107-0172-500</td>
<td>1</td>
</tr>
</tbody>
</table>
TABLE 1. UltraGlide Installation Kit (P/N 117-0232-120)

<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="Node - AutoBoom" /></td>
<td>Node - AutoBoom</td>
<td>063-0130-016</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Sensor - Center Ultrasonic" /></td>
<td>Sensor - Center Ultrasonic</td>
<td>063-0130-014</td>
<td>1</td>
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<tr>
<td><img src="image" alt="Sensor - Ultrasonic" /></td>
<td>Sensor - Ultrasonic</td>
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<tr>
<td><img src="image" alt="Sensor - 15 mm Range Inductive Proximity" /></td>
<td>Sensor - 15 mm Range Inductive Proximity</td>
<td>412-6000-007</td>
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<td><img src="image" alt="Cable - Boom Sense Serial Inverter Interface" /></td>
<td>Cable - Boom Sense Serial Inverter Interface</td>
<td>063-0173-757</td>
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<tr>
<td><img src="image" alt="Cable - 60' Ultrasonic Sensor" /></td>
<td>Cable - 60' Ultrasonic Sensor</td>
<td>115-0171-527</td>
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</tr>
<tr>
<td><img src="image" alt="Cable - John Deere Load Sense Extension" /></td>
<td>Cable - John Deere Load Sense Extension</td>
<td>115-0230-078</td>
<td>1</td>
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<tr>
<td><img src="image" alt="Cable - ISO CAN AutoBoom Harness" /></td>
<td>Cable - ISO CAN AutoBoom Harness</td>
<td>115-0230-140</td>
<td>1</td>
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<tr>
<td><img src="image" alt="Cable - ISO CAN AutoBoom Power" /></td>
<td>Cable - ISO CAN AutoBoom Power</td>
<td>115-0230-141</td>
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<tr>
<td><img src="image" alt="Cable - Pin 1 Signal Load Sense Valve" /></td>
<td>Cable - Pin 1 Signal Load Sense Valve</td>
<td>115-0230-142</td>
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<tr>
<td><img src="image" alt="Cable - Pin 1 Signal Center Rack Control Adapter" /></td>
<td>Cable - Pin 1 Signal Center Rack Control Adapter</td>
<td>115-0230-143</td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE 1. UltraGlide Installation Kit (P/N 117-0232-120)

<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="Cable" /></td>
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<td>U-Bolt - 3-1/16&quot; W x 5&quot; L x 3/8&quot; Thread</td>
<td>107-0171-607</td>
<td>2</td>
</tr>
<tr>
<td><img src="image3.png" alt="U-Bolt" /></td>
<td>U-Bolt - 3-1/16&quot; W x 5&quot; L x 3/8&quot; Thread</td>
<td>107-0171-609</td>
<td>4</td>
</tr>
<tr>
<td><img src="image4.png" alt="U-Bolt" /></td>
<td>U-Bolt - 2-9/16&quot; W x 3-1/2&quot; L x 3/8&quot; Thread</td>
<td>107-0171-616</td>
<td>1</td>
</tr>
<tr>
<td><img src="image5.png" alt="Bolt" /></td>
<td>Bolt - 5/16&quot;-18 x 7/8&quot; Hex</td>
<td>311-0052-104</td>
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</tr>
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<td><img src="image6.png" alt="Bolt" /></td>
<td>Bolt - 3/8&quot;-16 UNC x 1-1/4&quot; Hex</td>
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<td>7</td>
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<tr>
<td><img src="image7.png" alt="Nut" /></td>
<td>Nut - 3/8&quot;-16 Zinc Flanged Lock</td>
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<td>21</td>
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<td><img src="image8.png" alt="Washer" /></td>
<td>Washer - 5/16&quot; Split Lock</td>
<td>313-1000-019</td>
<td>4</td>
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</table>

### TABLE 2. Hydraulic Kit (P/N 117-0134-120)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
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</thead>
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<tr>
<td><img src="image9.png" alt="Fitting" /></td>
<td>Fitting - -12 ORFS M/M/F Swivel Run Tee Adapter</td>
<td>333-0012-029</td>
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<tr>
<td><img src="image10.png" alt="Fitting" /></td>
<td>Fitting - -12 ORFS (F) to -8 ORFS (M) Reducer</td>
<td>333-0012-030</td>
<td>2</td>
</tr>
<tr>
<td>Picture</td>
<td>Item Description</td>
<td>Part Number</td>
<td>Qty.</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td><img src="image1" alt="Picture" /></td>
<td>Fitting - -6 ORFS M/F 90° Swivel Elbow</td>
<td>333-0012-065</td>
<td>3</td>
</tr>
<tr>
<td><img src="image2" alt="Picture" /></td>
<td>Fitting - -8 ORFS M/F 90° Swivel Elbow</td>
<td>333-0012-067</td>
<td>2</td>
</tr>
<tr>
<td><img src="image3" alt="Picture" /></td>
<td>Fitting - -6 ORFS M/M/F Swivel Run Tee</td>
<td>333-0012-069</td>
<td>5</td>
</tr>
<tr>
<td><img src="image4" alt="Picture" /></td>
<td>Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-084</td>
<td>3</td>
</tr>
<tr>
<td><img src="image5" alt="Picture" /></td>
<td>Fitting - -8 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-168</td>
<td>2</td>
</tr>
<tr>
<td><img src="image6" alt="Picture" /></td>
<td>Fitting - -6 SAE O-Ring (M) Plug</td>
<td>333-0012-194</td>
<td>2</td>
</tr>
<tr>
<td><img src="image7" alt="Picture" /></td>
<td>Fitting - -6 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-199</td>
<td>2</td>
</tr>
<tr>
<td><img src="image8" alt="Picture" /></td>
<td>Hydraulic Hose - -8 ORFS (F) to -8 ORFS (F) 90° - 142”</td>
<td>214-1001-059</td>
<td>2</td>
</tr>
<tr>
<td><img src="image9" alt="Picture" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 96”</td>
<td>214-1001-060</td>
<td>2</td>
</tr>
<tr>
<td><img src="image10" alt="Picture" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 120”</td>
<td>214-1001-061</td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE 2. Hydraulic Kit (P/N 117-0134-120)

<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="Hydraulic hose" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 142&quot;</td>
<td>214-1001-062</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Hydraulic hose" /></td>
<td>Hydraulic Hose - -6 ORFS (F) to ORFS (F) 90° - 72&quot;</td>
<td>214-1001-063</td>
<td>1</td>
</tr>
</tbody>
</table>

### TABLE 3. Ultrasonic Sensor Bracket Installation Kit (P/N 117-0131-082)

<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="Installation sheet" /></td>
<td>Installation Sheet - AutoBoom Sensor Extension</td>
<td>016-0130-070</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket" /></td>
<td>Bracket - 12&quot; S-Type AutoBoom Sensor</td>
<td>063-0131-592</td>
<td>2</td>
</tr>
<tr>
<td><img src="image" alt="Nut" /></td>
<td>Nut - 1/4&quot;-20 Nylon Insert Lock</td>
<td>312-4000-057</td>
<td>4</td>
</tr>
<tr>
<td><img src="image" alt="Washer" /></td>
<td>Washer - 1/4&quot; Steel Flat</td>
<td>313-2300-016</td>
<td>4</td>
</tr>
</tbody>
</table>

### TABLE 4. Optional Wheel Kit - 90' -100' Booms (P/N 117-0133-114)

<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" /></td>
<td>Axle Assembly - Right Cushioned AutoBoom</td>
<td>063-0131-585</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Axle assembly" /></td>
<td>Axle Assembly - Left Cushioned AutoBoom</td>
<td>063-0131-590</td>
<td>1</td>
</tr>
<tr>
<td><img src="image" alt="Bracket" /></td>
<td>Bracket - Weldment Receiver</td>
<td>116-0159-779</td>
<td>2</td>
</tr>
</tbody>
</table>
### CHAPTER 4

**John Deere R4030, R4038, and R4045 Series AutoBoom Installation Manual**

#### TABLE 4. Optional Wheel Kit - 90'-100' Booms (P/N 117-0133-114)

<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="Bracket.png" /></td>
<td>Bracket - Hub Retainer</td>
<td>107-0171-617</td>
<td>2</td>
</tr>
<tr>
<td><img src="image2.png" alt="Wheel.png" /></td>
<td>Wheel</td>
<td>322-0131-008</td>
<td>2</td>
</tr>
<tr>
<td><img src="image3.png" alt="U-Bolt.png" /></td>
<td>U-Bolt - 2-9/16&quot; W x 3-1/2&quot; L x 3/8&quot; Thread</td>
<td>107-0171-609</td>
<td>8</td>
</tr>
<tr>
<td><img src="image4.png" alt="Bolt.png" /></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="image5.png" alt="Nut.png" /></td>
<td>Nut - 1/2&quot;-13 Hex</td>
<td>312-1001-043</td>
<td>4</td>
</tr>
<tr>
<td><img src="image6.png" alt="Nut.png" /></td>
<td>Nut - 3/8&quot;-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>16</td>
</tr>
</tbody>
</table>

#### TABLE 5. Optional Wheel Kit - 120' Booms (P/N 117-0133-120)

<table>
<thead>
<tr>
<th>Picture</th>
<th>Item Description</th>
<th>Part Number</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.png" alt="Axle Assembly.png" /></td>
<td>Axle Assembly - Right Cushioned AutoBoom</td>
<td>063-0131-585</td>
<td>1</td>
</tr>
<tr>
<td><img src="image8.png" alt="Axle Assembly.png" /></td>
<td>Axle Assembly - Left Cushioned AutoBoom</td>
<td>063-0131-590</td>
<td>1</td>
</tr>
<tr>
<td><img src="image9.png" alt="Bracket.png" /></td>
<td>Bracket - Right Weldment Receiver</td>
<td>116-0159-756</td>
<td>1</td>
</tr>
<tr>
<td><img src="image10.png" alt="Bracket.png" /></td>
<td>Bracket - Left Weldment Receiver</td>
<td>116-0159-757</td>
<td>1</td>
</tr>
<tr>
<td>Picture</td>
<td>Item Description</td>
<td>Part Number</td>
<td>Qty.</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------</td>
<td>----------------</td>
<td>------</td>
</tr>
<tr>
<td><img src="image1.jpg" alt="Bracket" /></td>
<td>Bracket - Hub Retainer</td>
<td>107-0171-617</td>
<td>2</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Wheel" /></td>
<td>Wheel</td>
<td>322-0131-008</td>
<td>2</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="U-Bolt" /></td>
<td>U-Bolt - 2-9/16&quot; W x 3-1/2&quot; L x 3/8&quot; Thread</td>
<td>107-0171-616</td>
<td>8</td>
</tr>
<tr>
<td><img src="image4.jpg" 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="image5.jpg" alt="Nut" /></td>
<td>Nut - 1/2&quot;-13 Hex</td>
<td>312-1001-043</td>
<td>4</td>
</tr>
<tr>
<td><img src="image6.jpg" alt="Nut" /></td>
<td>Nut - 3/8&quot;-16 Zinc Flanged Lock</td>
<td>312-1001-164</td>
<td>16</td>
</tr>
</tbody>
</table>
INSTALL THE ULTRAGLIDE HYDRAULIC SYSTEM

WARNING

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

CAUTION

When installing AutoBoom hydraulics or performing diagnostics, maintenance, or routine service, ensure precautions are taken to prevent any foreign material 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 cause damage to the AutoBoom hydraulic valve.

NOTICE

The appearance of the AutoBoom hydraulic valve may vary slightly from the images contained in this manual. However, the fittings, hose connections, and cable connections remain the same.

INSTALL FITTINGS IN THE AUTOBOOM VALVE

Before mounting the AutoBoom valve on the machine, install the proper fittings in the valve. This prepares the valve for installation and simplifies the hose connection process later in the procedure. Refer to the following table to install the fittings in the appropriate ports of the AutoBoom valve.

<table>
<thead>
<tr>
<th>Fitting</th>
<th>Part Number</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-084</td>
<td>LC, RC, LSP</td>
</tr>
<tr>
<td>Fitting - -6 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter</td>
<td>333-0012-199</td>
<td>LF CYL RTN, RT CYL RTN</td>
</tr>
<tr>
<td>Fitting - -6 ORFS M/F 90° Swivel Elbow</td>
<td>333-0012-065</td>
<td>LF CYL RTN, RT CYL RTN</td>
</tr>
</tbody>
</table>
1. Secure the AutoBoom valve (P/N 063-0131-125) to the mounting bracket (P/N 107-0171-619) using four 5/16"-18 x 7/8" hex bolts (P/N 311-0052-104) and four 5/16" lock washers (P/N 313-1000-019).
2. Secure the valve mounting bracket to the machine’s center rack tube (to the left of the center of the machine) using two 3-1/16” W x 5” L x 3/8” thread U-bolts (P/N 107-0171-607) and four 3/8”-16 zinc flanged lock nuts (P/N 312-1001-164).

INSTALL THE PRESSURE AND TANK HOSES

FIGURE 3. Proportional Valve Location

1. Locate the proportional valve behind the spray tank on the main frame at the rear of the machine.

FIGURE 4. BM Hose Connection

2. Disconnect the hose installed in port BM of the proportional valve.
3. Install a -12 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-029) in the open port of the proportional valve.

4. Connect the machine’s pressure hose to the opposite end of the installed tee fitting.

5. Install a -12 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-030) on the 90° end of the installed tee fitting.

6. Install a -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on the installed reducer fitting.

7. Install the straight end of the supplied hydraulic hose (P/N 214-1001-059) on the installed elbow fitting.

8. Connect the 90° end of the installed hydraulic hose on the fitting installed in Port P of the AutoBoom valve (P/N 063-0131-125).
9. Disconnect the hose installed in port BMT of the proportional valve.

10. Install a -12 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-029) in the open port of the proportional valve.

11. Connect the machine’s tank hose to the opposite end of the installed tee fitting.

12. Install a -12 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-030) on the 90° end of the installed tee fitting.

13. Install a -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on the installed reducer fitting.

15. Connect the 90° end of the installed hydraulic hose to the fitting installed in Port T of the AutoBoom valve.

INSTALL THE LEFT AND RIGHT CYLINDER HOSES

1. Locate and disconnect the machine’s raise hose from the rod-end of the left tilt cylinder.
2. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the rod-end of the tilt cylinder.

3. Install the machine’s left raise hose on the opposite end of the installed tee fitting.

4. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-060) on the 90° end of the installed tee fitting.

5. Connect the straight end of the installed hydraulic hose to the fitting installed in Port LC of the AutoBoom valve (P/N 063-0131-125).

6. Locate and disconnect the machine’s raise hose from the rod-end of the right tilt cylinder.
7. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the rod-end of the tilt cylinder.

8. Install the machine's right raise hose on the opposite end of the installed tee fitting.

9. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-061) on the 90° end of the installed tee fitting.

10. Connect the straight end of the installed hydraulic hose to the fitting installed in Port RC of the AutoBoom valve.
INSTALL THE LEFT AND RIGHT DOWN HOSES

FIGURE 16. Machine’s Existing Cylinder Hoses

1. Locate and disconnect the machine’s down hose from the base-end of the left tilt cylinder.

FIGURE 17. Down Hose Installed on Left Tilt Cylinder

2. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the base-end of the tilt cylinder.

3. Install the machine’s left down hose on the opposite end of the installed tee fitting.

4. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-063) on the 90° end of the installed tee fitting.
5. Connect the straight end of the installed hydraulic hose to the fitting installed in Port LF CYL RTN of the AutoBoom valve (P/N 063-0131-125).

FIGURE 19. Machine's Existing Cylinder Hoses

6. Locate and disconnect the machine's down hose from the base-end of the right tilt cylinder.

FIGURE 20. Down Hose Installed on Right Tilt Cylinder
7. Install a -6 ORFS M/M/F swivel run tee fitting (P/N 333-0012-069) in the open port on the base-end of the tilt cylinder.

8. Install the machine’s right down hose on the opposite end of the installed tee fitting.

9. Install the 90° end of the supplied hydraulic hose (P/N 214-1001-060) on the 90° end of the installed tee fitting.

10. Connect the straight end of the installed hydraulic hose to the fitting installed in Port RT CYL RTN of the AutoBoom valve.

**INSTALL THE LOAD SENSE HOSE**

1. Disconnect the hose installed in port AL of the machine’s proportional valve.
2. Install a -6 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-069) in the open port of the machine’s proportional valve.

3. Install the machine’s load sense hose on the opposite end of the installed tee fitting.

4. Install a -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) on the 90° end of the installed tee fitting.

5. Install the straight end of the supplied hydraulic hose (P/N 214-1001-062) on the installed elbow fitting.

6. Connect the 90° end of the installed hydraulic hose to the fitting installed in Port LSP of the AutoBoom valve (P/N 063-0131-125).
INSTALL THE PROXIMITY SENSOR

FIGURE 25. Proximity Sensor Installed on Mounting Bracket

1. Install the proximity sensor (P/N 412-6000-007) on the proximity sensor mounting bracket (P/N 107-0172-499) using the jam nuts and lock washers provided with the proximity sensor.

FIGURE 26. Proximity Sensor Installed

2. Install the proximity sensor mounting plate (P/N 107-0172-500) on the top left corner of the machine’s center rack using the existing M12 bolt and nut as shown in Figure 32 above.

NOTE: Do not fully tighten the nut.

3. Install the proximity sensor mounting bracket above the sensor mounting plate on the vertical left boom tube using a 2-9/16" W x 3-1/2" L x 3/8" thread U-bolt (P/N 107-0171-616) and two 3/8" flanged lock nuts (P/N 312-1001-164).

NOTE: Do not fully tighten the nuts.
4. Align the proximity sensor with the edge of the sensor mounting plate as shown in Figure 33 above.

5. Adjust the proximity sensor mounting plate and bracket so that the proximity sensor is positioned less than 5/8" (15 mm) from the face of the sensor mounting plate.

6. Tighten the M12 and 3/8" flanged lock nuts so that the brackets are mounted securely.
INSTALL THE ULTRAGLIDE BOOM SENSORS

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

BOOM SENSOR MOUNTING LOCATIONS

Sensor mounting locations may be influenced by the boom configuration. If an object enters the sensor’s blind range unexpectedly, a false echo return to the sensor could occur, causing the boom to drop and the sensor or boom to be damaged. To ensure optimal operation of the AutoBoom system and to protect the sprayer boom, the sensor should be mounted on the front side of the boom, 8 - 10” above the lowest hanging part of the boom.

**FIGURE 29. Illustration of Sensor’s Blind Range**

MOUNT THE BOOM SENSORS

**FIGURE 30. Mounted Boom Sensor**

1. Locate the ultrasonic sensors (P/N 063-0130-026) in the AutoBoom installation kit.
2. Install the sensors on the 12” S-type sensor arms (P/N 063-0131-592) using the supplied 1/4”-20 nylon insert lock nuts (P/N 312-4000-057) and 1/4” flat washers (P/N 313-2300-010).
3. Mount the sensors to the front of the booms using two 2-1/16" W x 3" L x 3/8" thread U-bolts (P/N 107-0171-609) and four 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).

4. Tighten the nuts to ensure the sensors are mounted securely.

**FIGURE 31. Optional Inner Boom Sensor Installation Location**

5. Repeat the steps above to mount optional inner boom sensors, if applicable.

**MOUNT THE CENTER RACK SENSOR**

**FIGURE 32. Center Rack Sensor Installation Location**

1. Install the center ultrasonic sensor (P/N 063-0130-014) on the center sensor mounting bracket (P/N 107-0172-443) using four 3/8"-16 x 1-1/4" hex bolts (P/N 311-0054-106) and four 3/8"-16 flanged lock nuts (P/N 312-1001-164).

2. Mount the center sensor to the front-right side of the machine's center rack using the machine's existing center rack nut and bolt.

**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 toward the AutoBoom valve.

3. Loop and tie-off any excess cable, allowing enough cable for boom folding and extension.
4. Repeat the steps above to connect the remaining sensor cables.

**NOTE:** The sensor cables will be connected to the AutoBoom system in the wiring phase of installation.

### INSTALL THE GAUGE WHEELS - OPTIONAL

**WARNING**

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

**GAUGE WHEEL MOUNTING LOCATIONS**

Wheel mounting locations may be influenced by the boom configuration. Determine the appropriate location for mounting the wheels on the boom, ensuring the wheels will not interfere with or be damaged while folding or unfolding the booms. The wheels should be mounted near the end of the first main section of the boom.

### MOUNT THE GAUGE WHEELS

**90' - 100 BOOMS**

**NOTE:** The appearance of the wheel axles may vary.

**FIGURE 33. Gauge Wheel Installed**

1. Remove the lug nuts from the left wheel axle (P/N 116-0159-779).
2. Place the wheel (P/N 322-0131-008) on the left wheel axle.
3. Align and place the hub retainer bracket (P/N 107-0171-617) over the wheel.
4. Reinstall the lug nuts on the wheel axle to secure the wheel and hub retainer bracket.
5. Secure the wheel mounting bracket (P/N 116-0159-779) to the front of the left boom using four 2-1/16” W x 3-1/2” L x 3/8” thread U-bolts (P/N 107-0171-609) and eight 3/8”-16 zinc flanged lock nuts (P/N 312-1001-164).
6. Insert the left wheel axle into the wheel mounting bracket, positioning it so that the bottom of the wheel touches the ground (or nearly so) and the wheel faces away from the machine.

7. 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).

8. Repeat the steps above to install the right wheel.

120' BOOMS

NOTE: The appearance of the wheel axles may vary.

**FIGURE 34. Gauge Wheel Installed**

1. Remove the lug nuts from the left wheel axle (P/N 063-0131-590).

2. Place the wheel (P/N 322-0131-008) on the left wheel axle.

3. Align and place the hub retainer bracket (P/N 107-0171-617) over the wheel.

4. Reinstall the lug nuts on the wheel axle to secure the wheel and hub retainer bracket.

5. Secure the left wheel mounting bracket (P/N 116-0159-757) to the front of the left boom using four 2-9/16" W x 3-1/2" L x 3/8" thread U-bolts (P/N 107-0171-616) and eight 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).

6. Insert the left wheel axle into the left wheel mounting bracket, positioning it so that the bottom of the wheel touches the ground (or nearly so) and the wheel faces away from the machine.

7. 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).

8. Repeat the steps above to install the right wheel.
INSTALL THE ULTRAGLIDE WIRING

WIRING CONNECTIONS

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. Identify the AutoBoom node (P/N 063-0130-016) mounting location on the existing mounting bracket to the left of the center of the machine).

FIGURE 35. Node Mounting Location

FIGURE 36. AutoBoom Node Installed
2. Mount the AutoBoom node on the machine’s mounting bracket using one 3/8"-16 x 1-1/4" hex bolt (P/N 311-0054-106) and one 3/8" zinc flanged lock nut (P/N 312-1001-164).

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

3. Insert the large, rectangular node connectors on the AutoBoom harness cable (115-0230-140) into the correct ports of the AutoBoom node.

4. Tighten the bolts on the node connectors to secure the connections.

**CONNECT THE HARNESS TO THE BOOM FUNCTION CONTROLS**

1. Locate the LEFT PRESS and RIGHT PRESS connectors on the AutoBoom harness cable (P/N 115-0230-140).

2. Route the connectors to the AutoBoom valve (P/N 063-0131-125).

3. Connect the LEFT PRESS connector to Port G1 of the AutoBoom valve.

4. Connect the RIGHT PRESS connector to Port G4 of the AutoBoom valve.

5. Locate the LEFT SOLENOID and RIGHT SOLENOID connectors on the harness cable.

6. Connect the LEFT SOLENOID connector to Port 4A of the AutoBoom valve.

7. Connect the RIGHT SOLENOID connector to Port 4B of the AutoBoom valve.

8. Locate the LEFT PROP and RIGHT PROP connectors on the harness cable.

9. Connect the LEFT PROP connector to Port 5A of the AutoBoom valve.

10. Connect the RIGHT PROP connector to Port 13A of the AutoBoom valve.

11. Connect the PROX SWITCH connector to the installed proximity sensor (P/N 412-6000-007).

12. Locate the 4-pin LEFT/RIGHT SENSE connector on the AutoBoom harness cable.

13. Install the boom sense serial inverter interface cable (P/N 063-0173-757) on the 4-pin harness cable connection.
14. Locate the machine’s boom function controls on the hydraulic valve at the rear of the machine.

**FIGURE 38. Machine’s Boom Function Controls**

15. Locate the left tilt up coil labeled S16 on the machine’s hydraulic valve.
16. Disconnect the connector from the left tilt up coil.
17. Install the LEFT UP connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.
18. Locate the left down coil labeled S15 on the machine’s hydraulic valve.
19. Disconnect the connector from the left tilt down coil.
20. Install the LEFT DOWN connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.
21. Locate the right tilt up coil labeled S17 on the machine’s hydraulic valve.
22. Disconnect the connector from the right tilt up coil.
23. Install the RIGHT UP connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.
24. Locate the right tilt down coil labeled S18 on the machine’s hydraulic valve.
25. Disconnect the connector from the right tilt down coil.
26. Install the RIGHT DOWN connectors of the boom sense serial inverter interface cable between the coil and the machine’s connector.

INSTALL THE CENTER RACK CONTROL

1. Locate the center up coil labeled S19 on the machine’s hydraulic valve.
2. Unplug the coil connector from the center up coil.
3. Install the pin 2 signal center rack control adapter cable (P/N 115-0230-144) on the center up coil.
4. Connect the coil connector that was disconnected in step 2 to the installed center rack control adapter cable.
5. Plug the 3-pin connector on the installed center rack control adapter cable into the CENTER UP connector of the AutoBoom harness cable (P/N 115-0230-140).
FIGURE 42. Center Rack Down Coil

6. Locate the center down coil labeled S10 on the machine’s hydraulic valve.
7. Unplug the coil connector from the center down coil.
8. Install the pin 1 signal center rack control adapter cable (P/N 115-0230-143) on the center down coil.
9. Connect the coil connector that was disconnected in step 7 to the installed center rack control adapter cable.
10. Plug the 3-pin connector on the installed center rack control adapter cable into the CENTER DOWN connector of the AutoBoom harness cable.

CONNECT THE HARNESS CABLE TO THE LOAD SENSE JAM VALVE

FIGURE 43. Load Sense Jam Valve

1. Locate the load sense jam valve on the combo valve.
2. Disconnect the coil connector from the load sense jam valve.
3. Install the pin 1 signal load sense valve adapter cable (P/N 115-0230-142) between the coil and its connector.
4. Locate the OPEN CENTER VALVE connector on the AutoBoom harness cable (P/N 115-0230-140).
5. Connect one end of the John Deere load sense extension cable (P/N 115-0230-078) to the OPEN CENTER VALVE connector on the AutoBoom harness cable.
6. Route the extension cable back to the load sense valve.
7. Connect the other end of the extension cable to the installed 1-pin load sense valve adapter cable.
CONNECT THE HARNESS CABLE TO THE SENSORS

1. Locate the CENTER SENSOR connector on the AutoBoom harness cable (P/N 115-0230-140).
2. Connect the CENTER SENSOR connector to the installed center sensor (P/N 063-0130-026).
3. Locate the LEFT OUTER SENSOR connector on the AutoBoom harness cable.
4. Connect the LEFT OUTER SENSOR connector to the installed left sensor cable (P/N 115-0171-527).
5. Locate the RIGHT OUTER SENSOR connector on the AutoBoom harness cable.
6. Connect the RIGHT OUTER SENSOR connector on the installed right sensor cable.
7. If optional inner boom sensors are installed, repeat the steps above to connect the INNER cable connectors to the sensors.

CONNECT THE HARNESS CABLE TO THE POWER/CAN CABLE

1. Route the CAN PWR connectors of the AutoBoom harness (P/N 115-0230-140) along the machine’s harness on the left side of the machine, toward the machine’s cab.
2. Connect the CAN PWR connector to the mating connector on the power/CAN cable (P/N 115-0230-141).

3. Remove the air conditioning line cover shield from the front-left corner of the cab.

4. Remove the shield bracket and air conditioning clamps.
5. Remove the headlight above the shield bracket location.

6. Locate and remove the terminator from the machine's harness behind the headlight.

7. Route the power/CAN cable (P/N 115-0230-141) into the cab roof along the steel air conditioning lines.
8. Connect the CAN BUS connector on the power/CAN cable to the machine’s harness.

**FIGURE 49. Bracket and Clamps Reinstalled**

9. Reinstall the air conditioning clamps and shield bracket.

**FIGURE 50. Air Conditioner Line Cover Shield Reinstalled**

10. Reinstall the air conditioner line cover shield.

**FIGURE 51. Headlight Reinstalled**
11. Reinstall the machine’s headlight.
12. Install the terminator that was removed from the machine’s harness on the remaining CAN BUS connection on the AutoBoom harness located at the rear of the machine.

**FIGURE 52. Switched Power Routing**

13. Route the +12 volt switched signal connector on the power/CAN cable through the opening in the rear cab window and toward the machine’s bus bar.
14. Connect the +12V switched signal connector to the switched power terminal.
15. Locate the power and ground leads on the power/CAN cable.

**FIGURE 53. Battery Compartment**

16. Disconnect the machine’s connectors from the battery terminals.
17. Install the power lead on the positive battery terminal and reinstall the machine’s battery connector.
18. Install the ground lead on the negative battery terminal and reinstall the machine’s battery connector.
This section contains replacement part diagrams for PowerGlide Plus and UltraGlide AutoBoom systems. Please refer to these diagrams when calling to request replacement parts.
VALVES

UNDER LSP PORT: 334-0002-125
334-0002-124

334-0002-107

334-0002-109
334-0002-118

334-0002-108
334-0002-104

333-0012-284

422-0000-086

333-0012-262

063-0131-125

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Limited Warranty

What Does this Warranty Cover?
This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

How Long is the Coverage Period?
Raven Applied Technology products are covered by this warranty for 12 months from the date of retail sale. In no case will the Limited Warranty period exceed 24 months from the date the product was issued by Raven Industries Applied Technology Division. This warranty coverage applies only to the original owner and is non-transferable.

How Can I Get Service?
Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer’s responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries.

What Will Raven Industries Do?
Upon confirmation of the warranty claim, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer’s expense.

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, labor, or other 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.
Extended Warranty

What Does this Warranty Cover?
This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

Do I Need to Register My Product to Qualify for the Extended Warranty?
Yes. Products/systems must be registered within 30 days of retail sale to receive coverage under the Extended Warranty. If the component does not have a serial tag, the kit it came in must be registered instead.

Where Can I Register My Product for the Extended Warranty?
To register, go online to www.ravenhelp.com and select Product Registration.

How Long is the Extended Warranty Coverage Period?
Raven Applied Technology products that have been registered online are covered for an additional 12 months beyond the Limited Warranty for a total coverage period of 24 months from the date of retail sale. In no case will the Extended Warranty period exceed 36 months from the date the product was issued by Raven Industries Applied Technology Division. This Extended Warranty coverage applies only to the original owner and is non-transferable.

How Can I Get Service?
Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer’s responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries. In addition, the words “Extended Warranty” must appear on the box and all documentation if the failure is between 12 and 24 months from the retail sale.

What Will Raven Industries Do?
Upon confirmation of the product’s registration for the Extended Warranty and the claim itself, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer’s expense.

What is Not Covered by the Extended 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, labor, or other damages. Cables, hoses, software enhancements, and remanufactured items are not covered by this Extended Warranty. 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.