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AutoBoom™ Installation Manual



Croplands 5000 & 6000 Series

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CHAPTER

1

Important Safety Information

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 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, during installation or maintenance.

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 valve.

Electrical Safety

- Always verify that the power leads are connected 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.

CHAPTER

2

Introduction

Introduction

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 the serial number of the machine in the space below.

MAKE: Croplands

MODEL: Pegasus 5000 & 6000 Series

YEAR:

SERIAL NUMBER:

FIGURE 1. Croplands Pegasus



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



ORFS fitting



JIC fitting (M)



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 115-0138-045)

Picture	Item Description	Part Number	Qty.
Not Pictured	Manual - Croplands Pegasus 5000 & 6000 Series AutoBoom Installation	016-0230-045	1
Not Pictured	Manual - CAN AutoBoom Calibration	016-0130-062	1
	Valve - UltraGlide AutoBoom	063-0131-126	1
	Plate - Hydraulic Block Mounting	107-0171-619	1
	Node - UltraGlide AutoBoom	063-0130-013	1
	Sensor - Right Ultrasonic	063-0130-012	1
	Sensor - Left Ultrasonic	063-0130-014	1
	Sensor - Center Ultrasonic	063-0130-018	1
	Cable - Tractor Connection Power	115-0171-770	1



TABLE 1. UltraGlide Installation Kit (P/N 115-0138-045)

Picture	Item Description	Part Number	Qty.
	Cable - AutoBoom Extension	115-0171-771	1
	Cable - CAN UltraGlide	115-0230-046	1
	Cable - Ultrasonic Sensor 60' Extension	115-0230-051	2
	Cable - 3-Pin DIN AutoBoom Center Rack Control Adapter	115-0230-077	2
	Cable - 3-Pin DIN 2-Pins Signal AutoBoom Boom Sense Adapter	115-0230-080	5
	U-Bolt - 2" L x 3" W x 3/8" Thread	107-0171-609	6
	Bolt - 5/16"-18 x 3-1/2" Hex	311-0052-115	4
	Nut - 5/16" Zinc Flanged Lock	312-1001-164	12
	Washer - 5/16" Zinc Plated	313-1000-019	4

Install the UltraGlide Hydraulic System

Install Fittings on 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.

Mount the AutoBoom Valve

FIGURE 1. AutoBoom Valve Mounted on the Machine



1. Mount the AutoBoom valve (P/N 063-0130-126) to the machine by “sandwiching” the machine’s center rack between the valve and the mounting plate (P/N 107-0171-619) and securing them with four 5/16”-18 x 3-1/2” hex bolts (P/N 311-0052-115) and four 5/16” lock washers (P/N 313-1000-019).

Install the Pressure and Tank Hoses



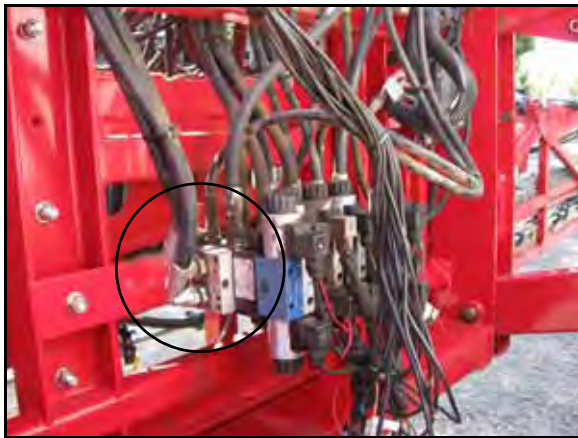
	<p>⚠ WARNING</p> <p>Hydraulics are under pressure. Care should always be taken with a system that has been pressurized. When disconnecting or purging hydraulic hoses, be aware that the hydraulic fluid within the machine's system may be extremely hot and under high pressure.</p>
	<p>⚠ CAUTION</p> <p>When 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.</p> <p>Object 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.</p>

FIGURE 2. Pressure and Tank Hoses Installed



1. Locate and disconnect the machine's pressure hose from the machine's hydraulic valve.
2. Connect the machine's pressure hose to the installed fittings in Port P of the AutoBoom valve.
3. Install the new hydraulic hose in the pressure port of the machine's hydraulic valve.
4. Connect the other end of the installed hydraulic hose to the fittings installed in Port EF of the AutoBoom valve.
5. Locate and disconnect the tank hose from the machine's hydraulic valve.
6. Route the machine's tank hose to the AutoBoom valve and connect it to the straight end of the installed tee fitting in Port T.
7. Connect one end of the new hydraulic hose to the 90° end of the installed tee fitting.
8. Connect the other end of the installed hydraulic hose to the tank port of the machine's hydraulic valve.

Install the Left and Right Cylinder Hoses - Pegasus 5000 Models with Lockout Valves Installed

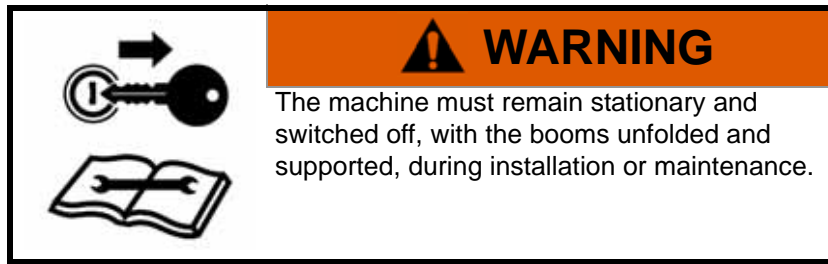


FIGURE 3. Machine's Lockout Valve



1. Disconnect the raise hose from the lockout valve on the machine's left tilt cylinder and the machine's hydraulic valve.

Note: Keep the hydraulic hose for future use.

2. Disconnect the down hose from the lockout valve.
3. Remove the lockout valve from the left tilt cylinder.

Note: Keep the lockout valve for future use.

4. Remove the orifice from the rod-end of the tilt cylinder.
5. Install the orifice in Port LV of the AutoBoom valve.
6. Disconnect the raise hose from the lockout valve on the machine's right tilt cylinder and the machine's hydraulic valve.

Note: Keep the hydraulic hose for future use.

7. Disconnect the down hose from the lockout valve.
8. Remove the lockout valve from the right tilt cylinder.

Note: Keep the lockout valve for future use.

9. Remove the orifice from the rod-end of the right cylinder.
10. Install the orifice in Port RV of the AutoBoom valve.
11. Remove the machine's tilt cylinders and replace them with the larger tilt cylinders.
12. Install the supplied fittings in the rod and base ports of the installed tilt cylinders.

FIGURE 4. New Tilt Cylinders Installed



13. Connect the machine's left down hose that was removed from the lockout valve to the base-end of the installed left tilt cylinder.

Note: The left down hose is the hose closest to the left tilt down coil on the machine's hydraulic valve.

14. Install one end of the new hydraulic hose to the rod-end of the left tilt cylinder.

FIGURE 5. Cylinder Hoses Installed on the AutoBoom Valve



15. Connect the other end of the installed hydraulic hose to the installed fitting in Port LC of the AutoBoom valve.
16. Install one end of the new hydraulic hose to the left up port of the machine's hydraulic valve.
17. Connect the other end of the installed hydraulic hose to the installed fitting in Port LV of the AutoBoom valve.
18. Connect the machine's right down hose that was removed from the lockout valve to the base-end of the installed right tilt cylinder.

Note: The right down hose is the hose closest to the right tilt down coil on the machine's hydraulic valve.

19. Install one end of the new hydraulic hose to the rod-end of the right tilt cylinder.
20. Connect the other end of the installed hydraulic hose to the installed fitting in Port RC of the AutoBoom valve.
21. Install one end of the new hydraulic hose to the right up port of the machine's hydraulic valve.

22. Connect the other end of the installed hydraulic hose to the installed fitting in Port RV of the AutoBoom valve.

FIGURE 6. Sub-plate Lockout Valve Installed



23. Locate the right boom up/down valve on the machine's hydraulic valve.
 24. Remove the valve assembly from the machine's hydraulic valve.
 25. Install a new sub-plate lockout valve on the machine's hydraulic valve.

Note: Verify that the oil galleries are properly aligned.

26. Install the right up/down valve assembly onto the installed sub-plate lockout valve.
 27. Locate the left boom up/down valve on the machine's hydraulic valve.
 28. Remove the valve assembly from the machine's hydraulic valve.
 29. Install a new sub-plate lockout valve on the machine's hydraulic valve.

Note: Verify that the oil galleries are properly aligned.

30. Install the left up/down valve assembly onto the installed sub-plate lockout valve.

Install the Left and Right Cylinder Hoses - Pegasus 6000 Models with Lockout Valves Installed

	<p>⚠ WARNING</p> <p>The machine must remain stationary and switched off, with the booms unfolded and supported, during installation or maintenance.</p>
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FIGURE 7. Machine's Lockout Valve



1. Disconnect the raise hose from the lockout valve on the machine's left tilt cylinder and the machine's hydraulic valve.

Note: Keep the hydraulic hose for future use.

2. Disconnect the down hose from the lockout valve.
3. Remove the lockout valve from the left tilt cylinder.

Note: Keep the lockout valve for future use.

4. Remove the orifice from the rod-end of the tilt cylinder.
5. Install the orifice in Port LV of the AutoBoom valve.
6. Remove the breather fitting from the base-end of the tilt cylinder.

FIGURE 8. Cylinder Hoses Installed



7. Install new fittings in the tilt cylinder.
8. Install one end of the new hydraulic hose on the rod-end of the left tilt cylinder.
9. Connect the other end of the installed hydraulic hose to Port LC of the AutoBoom valve.
10. Install one end of the new hydraulic hose to the left up port of the machine's hydraulic valve.
11. Connect the other end of the installed hydraulic hose to the installed fitting in Port LV of the AutoBoom valve.

12. Connect the machine's right down hose that was removed from the lockout valve to the base-end of the installed right tilt cylinder.

Note: The right down hose is the hose closest to the right tilt down coil on the machine's hydraulic valve.

13. Install one end of the new hydraulic hose to the rod-end of the right tilt cylinder.
14. Connect the other end of the installed hydraulic hose to the installed fitting in Port RC of the AutoBoom valve.
15. Install one end of the new hydraulic hose to the right up port of the machine's hydraulic valve.
16. Connect the other end of the installed hydraulic hose to the installed fitting in Port RV of the AutoBoom valve.

FIGURE 9. Sub-plate Lockout Valve Installed



17. Locate the right boom up/down valve on the machine's hydraulic valve.
18. Remove the valve assembly from the machine's hydraulic valve.
19. Install a new sub-plate lockout valve on the machine's hydraulic valve.

Note: Verify that the oil galleries are properly aligned.

20. Install the right up/down valve assembly onto the installed sub-plate lockout valve.
21. Locate the left boom up/down valve on the machine's hydraulic valve.
22. Remove the valve assembly from the machine's hydraulic valve.
23. Install a new sub-plate lockout valve on the machine's hydraulic valve.

Note: Verify that the oil galleries are properly aligned.

24. Install the left up/down valve assembly onto the installed sub-plate lockout valve.

Install the Left and Right Cylinder Hoses - No Lockout Valve

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

FIGURE 10. Cylinder Hoses Installed



1. Disconnect the raise hose from the left tilt cylinder.
1. Remove the orifice from the rod-end of the tilt cylinder.
2. Install the orifice in Port LV of the AutoBoom valve.
3. Install the new fitting in the rod-end of the tilt cylinder.
4. Trace the raise hose to the machine's hydraulic valve.
5. Disconnect the raise hose from the machine's hydraulic valve.
6. Connect the machine's raise hose to Port LC of the Autoboom valve.
7. Install the new hydraulic hose on the rod-end of the left tilt cylinder.
8. Connect the other end of the installed hydraulic hose to Port LV of the AutoBoom valve.
9. Disconnect the raise hose from the right tilt cylinder.
10. Remove the orifice from the rod-end of the tilt cylinder.
11. Install the orifice in Port RV of the AutoBoom valve.
12. Install the new fitting in the rod-end of the tilt cylinder.
13. Trace the raise hose to the machine's hydraulic valve.
14. Disconnect the raise hose from the machine's hydraulic valve.
15. Connect the machine's raise hose to Port RC of the Autoboom valve.
16. Install the new hydraulic hose on the rod-end of the right tilt cylinder.
17. Connect the other end of the installed hydraulic hose to Port RV of the AutoBoom valve.

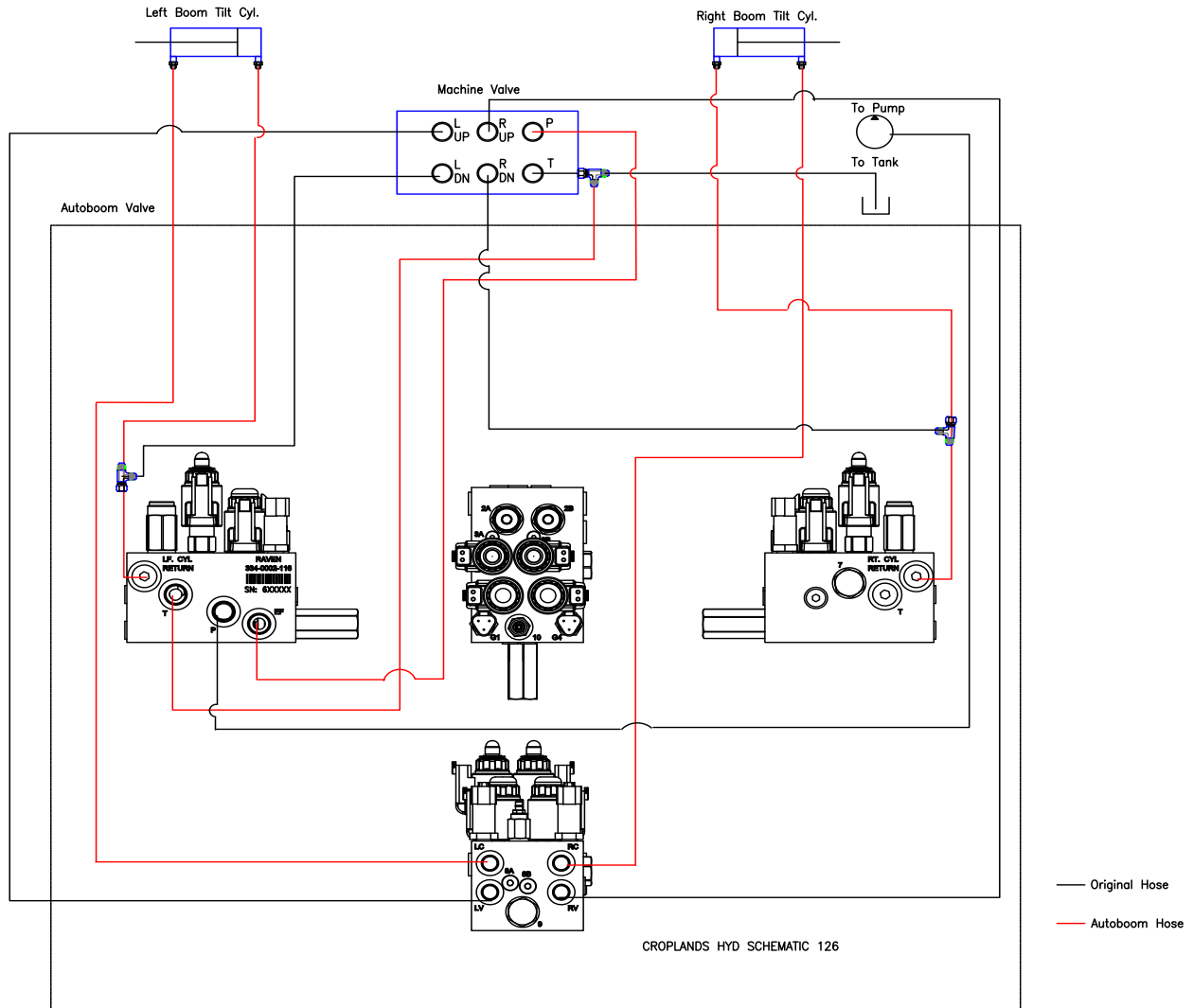
Install the Down Hoses

FIGURE 11. Down Hoses Installed



1. Install swivel run tee fittings in the LF CYL RTN and RT CYL RTN ports of the AutoBoom valve.
2. Trace the left cylinder down hose from the base-end of the left tilt cylinder to the machine's hydraulic valve.
3. Disconnect the machine's left down hose from the machine's hydraulic valve.
4. Connect the machine's left down hose to one end of the installed tee fitting in the LF CYL RTN Port of the AutoBoom valve.
5. Install one end of the new hydraulic hose to the other end of the installed tee fitting.
6. Connect the other end of the installed hydraulic hose to the left down port on the machine's hydraulic valve.
7. Trace the right cylinder down hose from the base-end of the right tilt cylinder to the machine's hydraulic valve.
8. Disconnect the machine's right down hose from the machine's hydraulic valve.
9. Connect the machine's right down hose to one end of the installed tee fitting in the RT CYL RTN Port of the AutoBoom valve.
10. Install one end of the new hydraulic hose to the other end of the installed tee fitting.
11. Connect the other end of the installed hydraulic hose to the right down port on the machine's hydraulic valve.

Hydraulic Schematic



Install the UltraGlide Sensors

Boom Sensor Mounting Locations

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

Mount the Boom Sensors

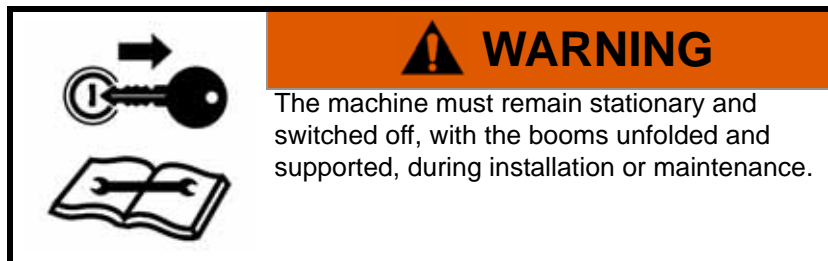


FIGURE 1. Mounted Boom Sensor

Single Sensor Mounting



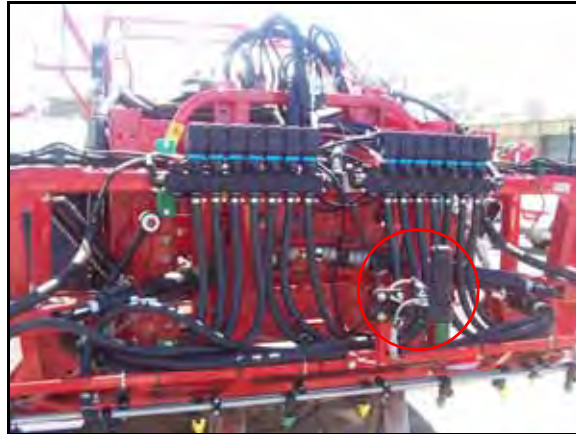
Optional Dual Sensor Mounting



1. Mount the left sensor (P/N 063-0130-014) to the front of the left boom using two 2" 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).
2. Tighten the nuts to ensure the sensor is mounted securely.
3. Repeat the steps above to mount the remaining boom sensor(s).

Mount the Center Rack Sensor

FIGURE 2. Center Sensor Mounting Location



1. Mount the center sensor (P/N 063-0130-018) to the machine's center rack using two 2" 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).
2. Tighten the nuts to ensure the sensor is mounted securely.

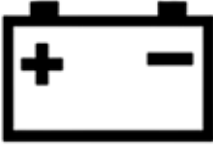
Connect the Sensor Cables

1. Connect the left sensor cable (P/N 115-0230-051) 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, allowing enough cable for boom racking and extension.
4. Repeat the steps above to connect the remaining boom sensor cable(s).

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

Install the UltraGlide Wiring

Wiring Connections

	<p>⚠ CAUTION</p> <p>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.</p>
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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

FIGURE 1. UltraGlide AutoBoom Node Installed



1. Mount the AutoBoom node (P/N 063-0130-013) to the machine's center rack.

Note: Position the node so that the connectors face sideways.

2. Insert the large, rectangular node connectors on the harness cable (P/N 115-0230-046) into the correct ports of the AutoBoom valve.
3. Tighten the bolts on the node connectors to secure the connection.

Connect the Harness to the Boom Function Controls

1. Locate the Left Press and Right Press connectors on the AutoBoom harness cable (P/N 115-0230-046).
2. Route the connectors to the AutoBoom valve (P/N 063-0131-126).
3. Connect the Left Press connector to Port G1 on the AutoBoom valve.
4. Connect the Right Press connector to Port G4 on 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 on the AutoBoom valve.
7. Connect the Right Solenoid connector to Port 4B on 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 on the AutoBoom valve.
10. Connect the Right Prop connector to Port 13A on the AutoBoom valve.

FIGURE 2. Machine's Boom Function Controls



11. Locate the left up coil on the machine's hydraulic valve.
12. Disconnect the connector from the coil.
13. Install the 2-pin signal 3-pin DIN boom sense adapter cable (P/N 115-0230-080) on the left up coil.
14. Connect the DIN connector that was removed from the coil to the installed boom sense adapter cable.
15. Locate the Left Solenoid Sense Up connector on the AutoBoom harness cable (P/N 115-0230-046) and connect it to the installed boom sense adapter cable.
16. Locate the left down coil on the machine's hydraulic valve.
17. Disconnect the connector from the coil.
18. Install the 2-pin signal 3-pin DIN boom sense adapter cable (P/N 115-0230-080) on the left down coil.
19. Connect the DIN connector that was removed from the coil to the installed boom sense adapter cable.
20. Locate the Left Solenoid Sense Down connector on the AutoBoom harness cable and connect it to the installed boom sense adapter cable.
21. Repeat the steps above to connect the right up and right down boom function control connections.

Install the Center Rack Control

FIGURE 3. Machine's Center Boom Function Coils



1. Locate the center up coil on the machine's hydraulic valve.
2. Unplug the coil connector from the center up coil.
3. Install a center rack boom sense adapter cable (P/N 115-0230-077) on the machine's center up coil.
4. Connect the machine's coil connector to the 3-pin end of the installed boom sense adapter cable.
5. Connect the female end of the installed adapter cable to the Center Solenoid Up Control harness connection.
6. Plug the male end of the installed adapter cable to the Center Solenoid Up Sense harness connection.
7. Locate the center down coil on the machine's hydraulic valve.
8. Unplug the coil connector from the center down coil.
9. Install a center rack control adapter cable (P/N 115-0230-077) on the machine's center down coil.
10. Connect the machine's coil connector to the 3-pin end of the installed boom sense adapter cable.
11. Connect the female end of the installed adapter cable to the Center Solenoid Down Control harness connection.
12. Plug the male end of the installed adapter cable to the Center Solenoid Down Sense harness connection.
13. Disconnect the open center valve connector on the machine's hydraulic valve.
14. Install a boom sense adapter cable (P/N 115-0230-080) on the open center coil.
15. Connect the DIN connector that was removed from the coil to the installed boom sense adapter cable.
16. Locate the Open Center connector on the AutoBoom harness cable and connect it to the installed boom sense adapter cable.

Connect the Harness Cable to the Sensors

1. Locate the Center Sensor connector on the AutoBoom harness cable.
2. Connect the Center Sensor connector to the installed center sensor (P/N 063-0130-018).
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 115-0230-051).
5. Locate the Right Outer Sensor connector on the AutoBoom harness cable.
6. Connect the Right Outer Sensor connector to the installed right sensor cable.
7. If optional inside boom sensors are installed, repeat the steps above to connect the sensors.

Connect the Harness Cable to the Controller Cable

1. Connect the harness cable (P/N 115-0230-046) to the AutoBoom extension cable (P/N 115-0230-771).
2. Route the AutoBoom extension cable (P/N 115-0230-771) toward the machine's cab.
3. Connect the harness cable to the tractor connection power cable (P/N 115-0230-770).

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

Connect the Controller (If Applicable)

1. Route the CAN extension cable toward the machine's cab.
2. Connect the CAN extension cable to the AutoBoom controller cable.
3. Locate the two controller connectors and connect them 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's operator has easy access to it.*

Connect the Field Computer (If Applicable)

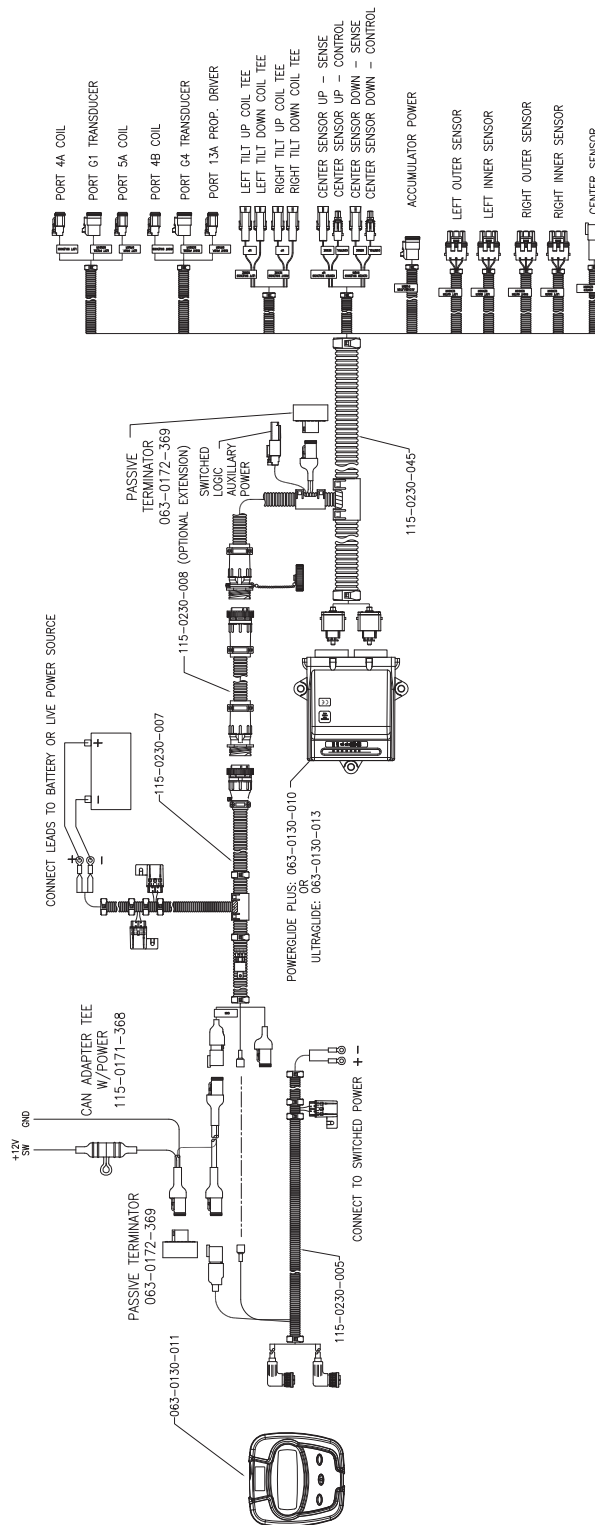
Refer to the Installation & Operation Manual and the appropriate wiring schematic beginning on for installation and wiring instructions for the specific field computer being used.

Connect the Power Leads

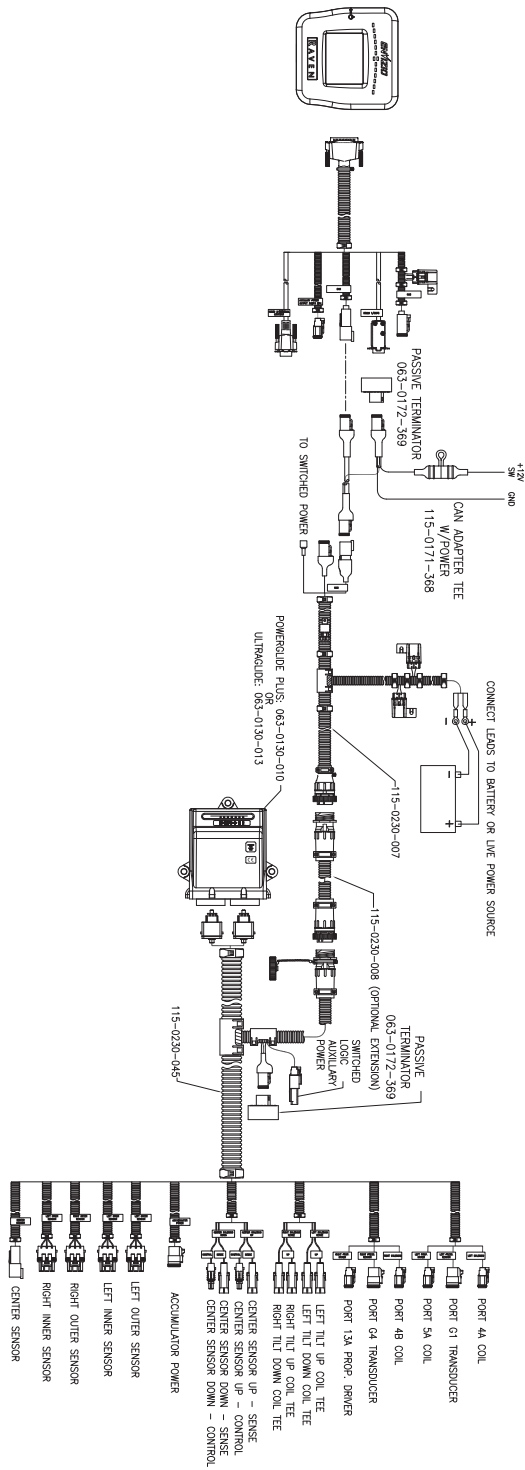
1. Locate the power cable that has the red and white power leads at one end.
2. Disconnect the machine's connectors from the battery terminals.
3. Install the red power lead on the positive battery terminal and reinstall the machine's battery connector.
4. Install the white power lead on the negative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

Wiring Schematics

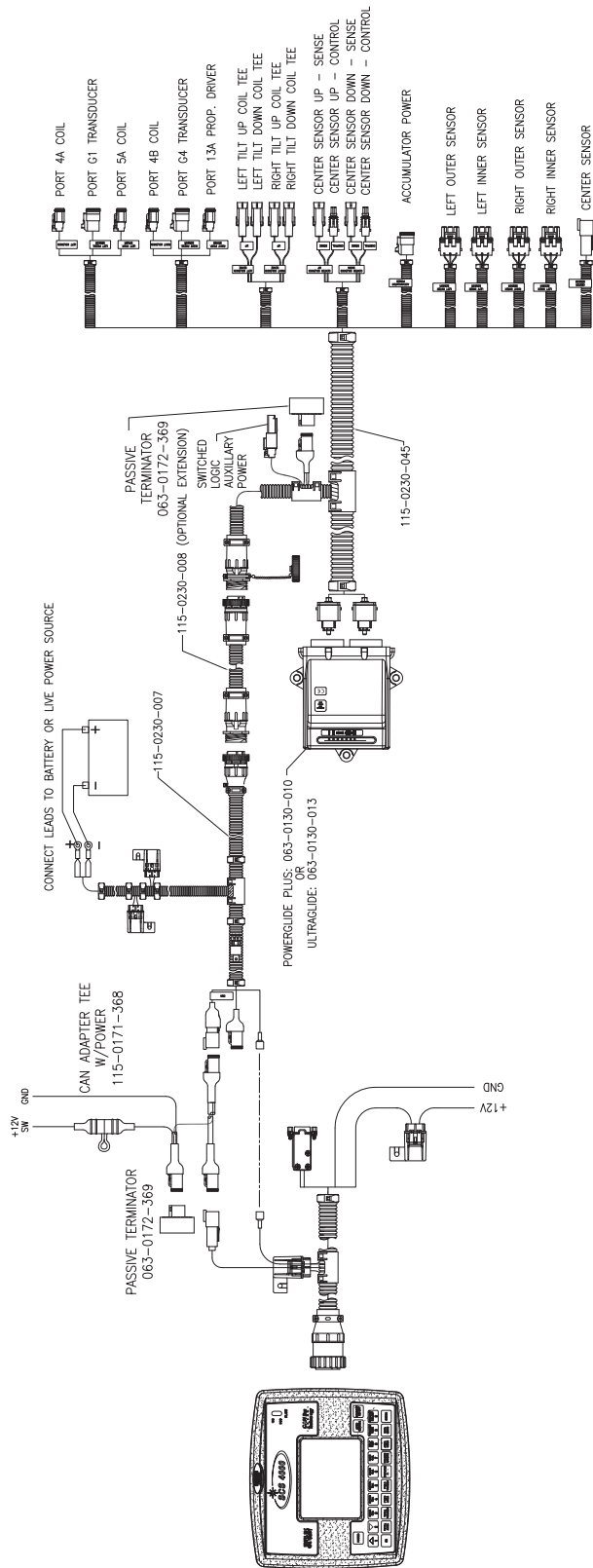
AutoBoom Controller



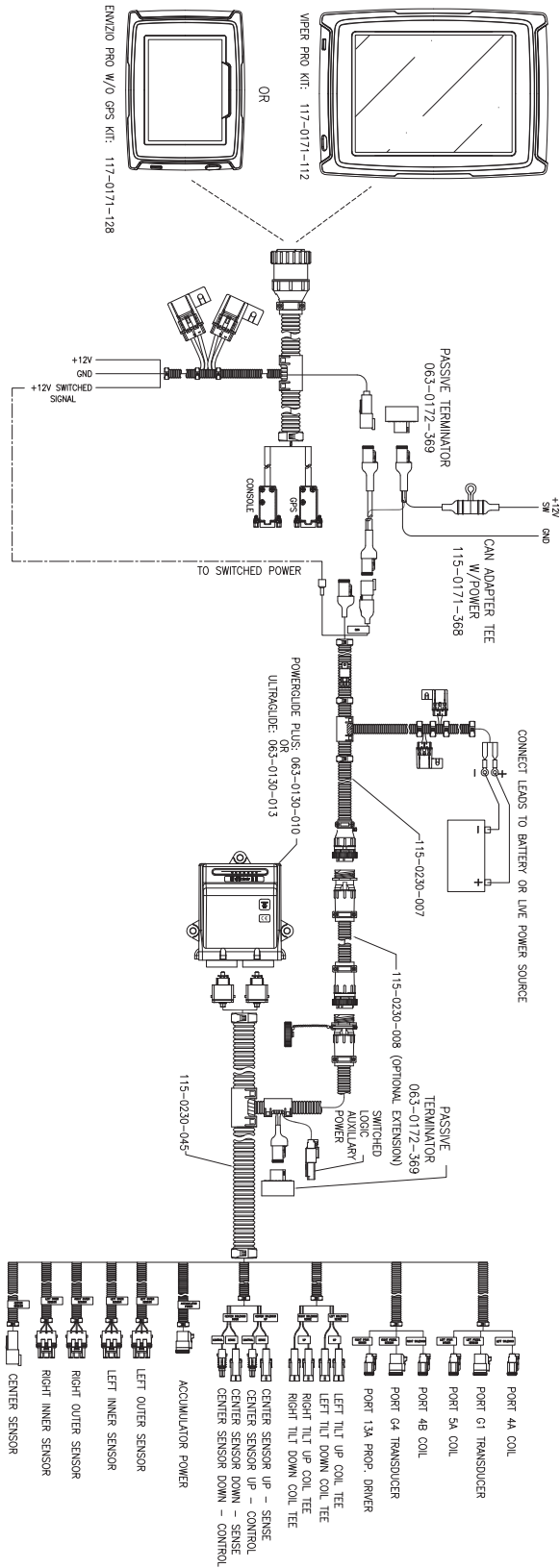
Envizio Plus



SCS 4000/5000



Viper Pro & Envizio Pro



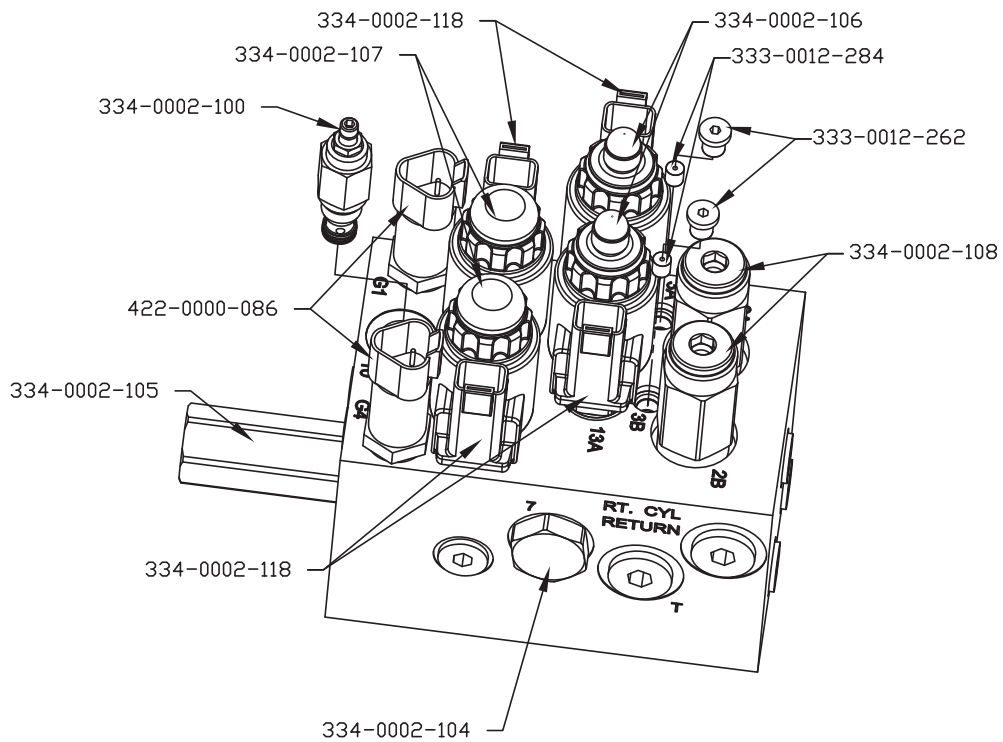
CHAPTER

6

Replacement Parts

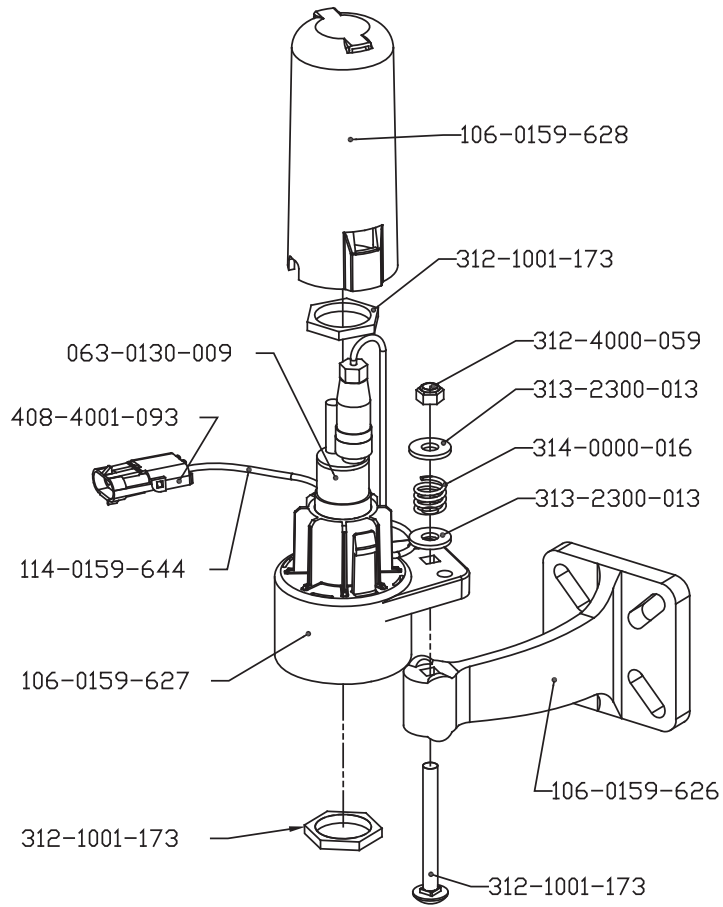
This section contains replacement part diagrams for the UltraGlide system. Please refer to these diagrams when calling to request replacement parts.

Valves



063-0131-126
VALVE, HYDRAULIC POWERGLIDE
PLUS/ULTRAGLIDE, OPEN CENTER, AUTOBOOM

Sensors



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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.

How Long is the Coverage Period?

Raven Applied Technology Division 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.

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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?

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R A V E N

Croplands 5000 & 6000 Series
AutoBoom™ Installation Manual
(P/N 016-0230-045 Rev A 06/10 E15910)

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