

**Case IH Patriot 250/2240/2250
& New Holland SP2500 (80'-
100' Booms) AutoBoom®
Installation Manual**

P/N 016-0230-047 Rev. C

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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 or a safe working distance away from the booms 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 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

GENERAL

- 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 reduce performance and possibly damage the AutoBoom hydraulic valve.

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

ELECTRICAL

GENERAL

- 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.
- A minimum of 12 VDC is required for system operation with a maximum of 15 VDC.

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

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.

CHAPTER

INTRODUCTION

2

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: Case IH

MODEL: Patriot 250/2240/2250

MAKE: New Holland

MODEL: SP2500

FIGURE 1. Case IH Patriot 250



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-sized 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

SAE O-ring fitting



ORFS fitting



JIC fitting



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

- Case IH Patriot 250/2240/2250 & New Holland SP2500 (80'-100' Booms) AutoBoom® Installation Manual
- P/N 016-0230-047 Rev. C
- 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.



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. Raven CAN UltraGlide Installation Kit (P/N 117-0232-112) or ISO CAN UltraGlide Installation Kit (117-0232-131)



Picture	Item Description	Part Number	Qty.
Not Pictured	Manual - AutoBoom Calibration & Operation	016-0130-071 or 016-0130-079	1
Not Pictured	Manual - Case IH Patriot 250/2240/2250 & New Holland SP2500 AutoBoom Installation	016-0230-047	1
	Valve - AutoBoom Hydraulic	063-0131-124	1
	Node - UltraGlide AutoBoom	063-0130-013 or 063-0130-053	1

TABLE 1. Raven CAN UltraGlide Installation Kit (P/N 117-0232-112) or
ISO CAN UltraGlide Installation Kit (117-0232-131)




Picture	Item Description	Part Number	Qty.
	Sensors - Right Ultrasonic	063-0130-012	1
	Sensor - Left Ultrasonic	063-0130-014	1
	Sensors - Center Ultrasonic	063-0130-018	1
	Bracket - Sensor Mounting	107-0172-501	3
	Cable - 50' Ultrasonic Sensor Extension	115-0230-050	2
	Cable - AutoBoom Harness	115-0230-073	1
	U-Bolt - 3-1/16" W x 5" L x 3/8" Thread	107-0171-607	2
	U-Bolt - 2-1/16" W x 3" L x 3/8" Thread	107-0171-609	4
	Bolt - 5/16"-18 x 7/8" Hex	311-0052-104	4
	Bolt - 3/8"-16 UNC x 1-1/4" Hex	311-0054-081	15

TABLE 1. Raven CAN UltraGlide Installation Kit (P/N 117-0232-112) or
ISO CAN UltraGlide Installation Kit (117-0232-131)



Picture	Item Description	Part Number	Qty.
	Nut - 3/8"-16 Zinc Flanged Lock	312-1001-164	27
	Washer - 5/16" Split Lock	313-1000-019	4

TABLE 2. Hydraulic Installation Kit (P/N 117-0134-075)

Picture	Item Description	Part Number	Qty.
	Fitting - -8 ORFS M/M/F Swivel Run Tee	333-0012-028	2
	Fitting - -6 ORFS M/F 90° Swivel Elbow	333-0012-065	2
	Fitting - -6 ORFS M/M/F Swivel Run Tee	333-0012-069	4
	Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-084	2
	Fitting - -6 ORFS (M) to -8 SAE O-Ring (M) 90° Elbow	333-0012-165	2
	Fitting - -8 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter	333-0012-168	2
	Fitting - -6 O-Ring to 11/16" Hex Plug	333-0012-194	2

TABLE 2. Hydraulic Installation Kit (P/N 117-0134-075)



Picture	Item Description	Part Number	Qty.
	Hydraulic Hose - -8 ORFS (F) to -8 ORFS (F) 90° - 36"	214-1000-311	2
	Hydraulic Hose - -6 ORFS (F) 90° to -6 ORFS (F) - 44"	214-1000-494	4

TABLE 3. Inner Ultrasonic Installation Kit (P/N 117-0137-026)











Picture	Item Description	Part Number	Qty.
	Sensor - Left Ultrasonic	063-0130-012	1
	Sensor - Right Ultrasonic	063-0130-014	1
	Bracket - Sensor Mounting	107-0172-501	3
	Cable - 40' Ultrasonic Sensor Extension	115-0171-602	2
	U-Bolt - 2-1/16" W x 3" L x 3/8" Thread	107-0171-609	4
	Bolt - 3/8"-16 UNC x 1-1/4" Hex	311-0054-081	8
	Nut - 3/8"-16 Zinc Flanged Lock	312-1001-164	16

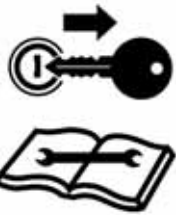
TABLE 4. Optional Wheel Kit (P/N 117-0138-017)

Picture	Item Description	Part Number	Qty.
	Axle Assembly - AutoBoom	063-0131-567	2
	Bracket - Case IH Weldment	116-0159-544	2
	Wheel	322-0131-008	2

CHAPTER

3

HYDRAULIC SYSTEM INSTALLATION



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 damage 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 THE FITTINGS ON THE AUTOBOOM VALVE

Before mounting the AutoBoom valve on the machine, install the fittings in the appropriate ports of the AutoBoom 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.

Fitting	Part Number	Port
Fitting - 11/16" ORFS (M) to 3/4" SAE O-Ring (M) 90° Elbow	333-0012-165	LF CYL RTN, RTCYLRTN
Fitting - 11/16" ORFS (M) to 9/16" SAE O-Ring (M) Straight Adapter	333-0012-084	LC, RC
Fitting - 13/16" ORFS (M) to 3/4" SAE O-Ring (M) Straight Adapter	333-0012-168	P, T
Fitting - 11/16" Hex 9/16" SAE O-Ring Plug	333-0012-194	LV, RV

MOUNT THE AUTOBOOM VALVE


FIGURE 1. AutoBoom Valve Mounted on the Machine



Secure the AutoBoom valve (P/N 063-0131-124) to the mounting bracket on the machine's center rack using four 5/16" hex bolts (P/N 311-0052-104) and four 5/16" lock washers (P/N 313-1000-019).


NOTE: Mount the valve so that Ports LC and RC point down.

INSTALL THE PRESSURE AND TANK HOSES



⚠ WARNING

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

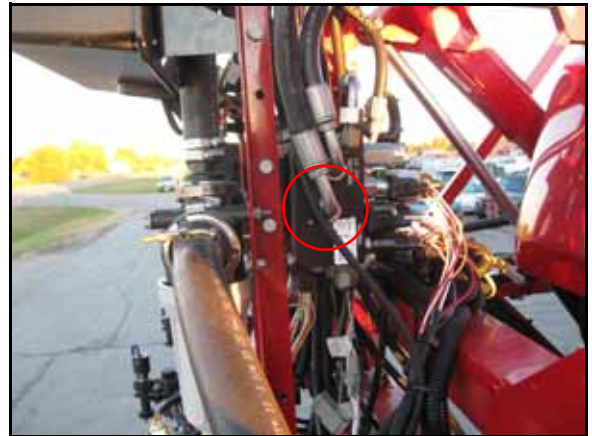


⚠ CAUTION

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

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

FIGURE 2. Pressure Hose Installed



1. Disconnect the machine's pressure hose from the machine's hydraulic valve.
2. Install a 13/16" ORFS M/M/F swivel run tee fitting (P/N 333-0012-028) in the machine's pressure port.
3. Attach the machine's pressure hose to the opposite end of the installed tee fitting.
4. Connect the 90° end of the supplied hydraulic hose (P/N 214-1000-311) to the 90° end of the tee fitting.
5. Connect the straight end of the installed hydraulic hose to Port P of on the AutoBoom valve.

FIGURE 3. Tank Hose Installed



6. Disconnect the machine's tank hose from the machine's hydraulic valve.
7. Install a 13/16" ORFS M/M/F swivel run tee fitting (P/N 333-0012-028) in the machine's tank port.
8. Attach the machine's tank line to the opposite end of the installed tee fitting.
9. Connect the 90° end of the supplied hydraulic hose (P/N 214-1000-311) to the 90° end of the tee fitting.
10. Connect the straight end of the installed hydraulic hose to Port T on the Autoboom valve.

INSTALL THE LEFT AND RIGHT CYLINDER HOSES

1. Trace the machine's right cylinder hose from the rod-end of the right tilt cylinder to the machine's hydraulic valve.
2. Disconnect the machine's right tilt cylinder hose from the machine's hydraulic valve.

FIGURE 4. Right Cylinder Hose Installed



3. Install 11/16" ORFS M/M/F swivel run tee adapter fittings (P/N 333-0012-069) in the open cylinder port of the machine's hydraulic valve.
4. Connect the machine's right cylinder hose to the opposite end of the tee fitting installed in the right cylinder port.
5. Install the 90° end of the supplied hydraulic hose (P/N 214-1000-494) on the 90° end of the installed tee fitting.

6. Connect the straight end of the installed hydraulic hose to the fittings installed in Port RC of the AutoBoom valve.

FIGURE 5. Left Cylinder Hose Installed

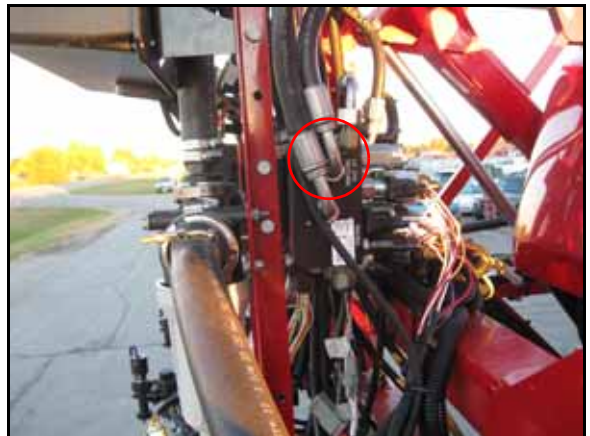


7. Trace the machine's left cylinder hose from the rod-end of the left tilt cylinder to the machine's hydraulic valve.
8. Disconnect the machine's left tilt cylinder hose from the machine's hydraulic valve.
9. Connect the machine's left cylinder hose to the opposite end of the tee fitting installed in the left cylinder port.
10. Install the 90° end of the supplied hydraulic hose (P/N 214-1000-494) on the 90° end of the installed tee fitting.
11. Connect the straight end of the installed hydraulic hose to the fittings installed in Port LC of the AutoBoom valve.

3

INSTALL THE LEFT AND RIGHT DOWN HOSES

FIGURE 6. Left Down Hose Installed



1. Trace the machine's left return hose from the base-end of the left tilt cylinder to the machine's hydraulic valve.
2. Disconnect the machine's left tilt return hose from the machine's hydraulic valve.
3. Install a 11/16" ORFS M/F 90° swivel elbow fitting in the open port of the machine's hydraulic valve.
4. Install a 11/16" ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-069) on the installed elbow fitting.
5. Connect the machine's left return hose to the opposite end of the installed tee fitting.

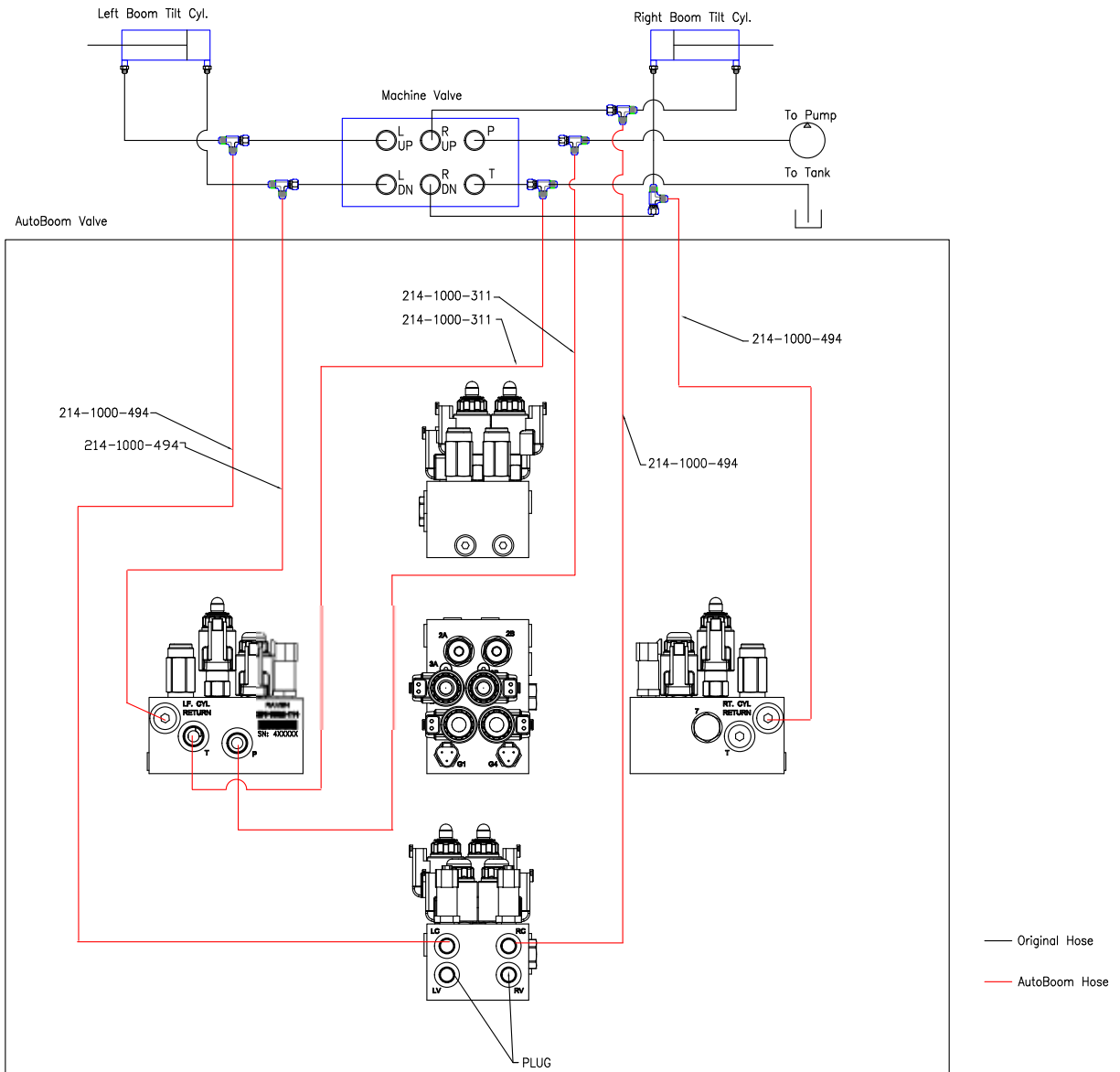
6. Install the 90° end of the supplied hydraulic hose (P/N 214-1000-494) on the 90° end of the installed tee fitting.
7. Connect the straight end of the installed hydraulic hose to the fitting installed in Port LF CYL RTN of the AutoBoom valve.

FIGURE 7. Right Down Hose Installed



8. Trace the machine's right return hose from the base-end of the right tilt cylinder to the machine's hydraulic valve.
9. Disconnect the machine's right tilt return hose from the machine's hydraulic valve.
10. Install a 11/16" ORFS M/F 90° swivel elbow fitting in the open port of the machine's hydraulic valve.
11. Install a 11/16" ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-069) on the installed elbow fitting.
12. Install a 11/16" ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-069) in the open return port of the machine's hydraulic valve.
13. Connect the machine's right return hose to the opposite end of the installed tee fitting.
14. Install the 90° end of the supplied hydraulic hose (P/N 214-1000-494) on the 90° end of the installed tee fitting.
15. Connect the straight end of the installed hydraulic hose to the fitting installed in Port RTCYL RTN of the AutoBoom valve.

HYDRAULIC DIAGRAM



CHAPTER

4

ULTRASONIC SENSOR INSTALLATION

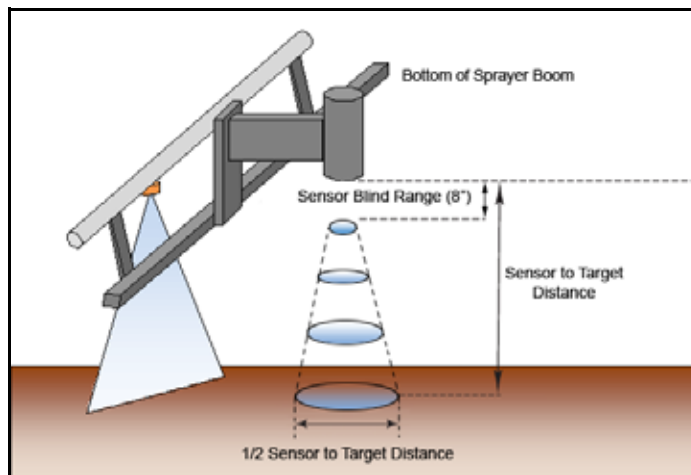
NOTE: For optimal system performance, Raven Industries recommends a five sensor system configuration. If the machine is not already equipped with inner sensors, a dual system upgrade kit (P/N 117-0137-026) is required to complete the five sensor configuration. The dual sensor upgrade kit is sold separately. Contact your local Raven dealer for ordering information.

MOUNT THE BOOM SENSORS

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 UltraGlide 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 1. Illustration of Sensor's Blind Range



MOUNT THE BOOM SENSORS

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

FIGURE 2. Sensor Installed on Mounting Bracket



1. Install the left and right ultrasonic sensors (P/N 063-0130-012 and 063-0130-014) on the ultrasonic sensor mounting brackets (P/N 107-0172-501) using four 3/8"-16 x 1-1/4" hex bolts (P/N 311-0054-081) and four 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164) per sensor.

FIGURE 3. Left Boom Sensor Installed



2. Mount the left boom sensor assembly on the front of the left outer boom section 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).

NOTE: Ensure that the sensor does not contact the inner boom section when the boom is folded in toward the cab.

3. Mount the right boom sensor assembly on the front of the right outer boom section 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).

NOTE: Ensure that the sensor does not contact the inner boom section when the boom is folded in toward the cab.

FIGURE 4. Left Inner Boom Sensor Installed



4. If optional inner boom sensors are being installed, repeat the steps above to mount the inner boom sensors to the front of the boom.

MOUNT THE CENTER SENSOR

FIGURE 5. Center Sensor Installed



1. Install the center ultrasonic sensor (P/N 063-0130-018) on the remaining ultrasonic sensor mounting bracket (P/N 107-0172-501) using four 3/8"-16 x 1-1/4" hex bolts (P/N 311-0054-081) and four 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).
2. Mount the center sensor assembly to the right side of the center rack using two 2-9/16" W x 3-1/2" L x 3/8" thread U-bolts (P/N 107-0171-616) and four 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).

CONNECT THE SENSOR CABLES

1. Connect the left sensor cable (P/N 115-0230-050) 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 cable(s) (P/N 115-0230-050 or 115-0171-602).

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

CHAPTER

5

GAUGE WHEEL INSTALLATION (OPTIONAL)

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 outside of the boom fold, but inside of the boom breakaway.

MOUNT THE GAUGE WHEELS

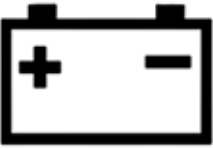
FIGURE 1. Gauge Wheel Installed



1. Remove the nuts from the right wheel axle (P/N 063-0131-567).
2. Place the wheel (P/N 322-0131-008) on the right wheel axle.
3. Reinstall the lug nuts on the wheel axle to secure the wheel.

4. Mount the right wheel receiver bracket (P/N 116-0159-544) to the front of the right boom using four U-bolts, and eight flanged lock nuts.
5. Insert the right wheel axle into the right wheel receiver bracket, positioning it so that the bottom of the wheel touches the ground (or nearly so) and the wheel faces away from the machine.
6. Secure the gauge wheel assembly in the wheel mounting bracket by installing two hex bolts and two hex nuts.
7. Repeat the steps above to install the left wheel.

WIRING CONNECTIONS

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

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. AutoBoom Node Installed



1. Secure the AutoBoom node (P/N 063-0130-013 or 063-0130-053) to the valve hydraulic mounting bracket using three 3/8"-16 zinc hex bolts (P/N 311-0054-081) and three 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).

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

2. Insert the large, rectangular node connectors on the harness cable (P/N 115-0230-073) into the corrector ports of the AutoBoom valve.
3. Tighten the bolts on the node connectors to secure the connections.

CONNECT THE HARNESS TO THE AUTOBOOM VALVE

FIGURE 2. AutoBoom Harness Connected to Valve



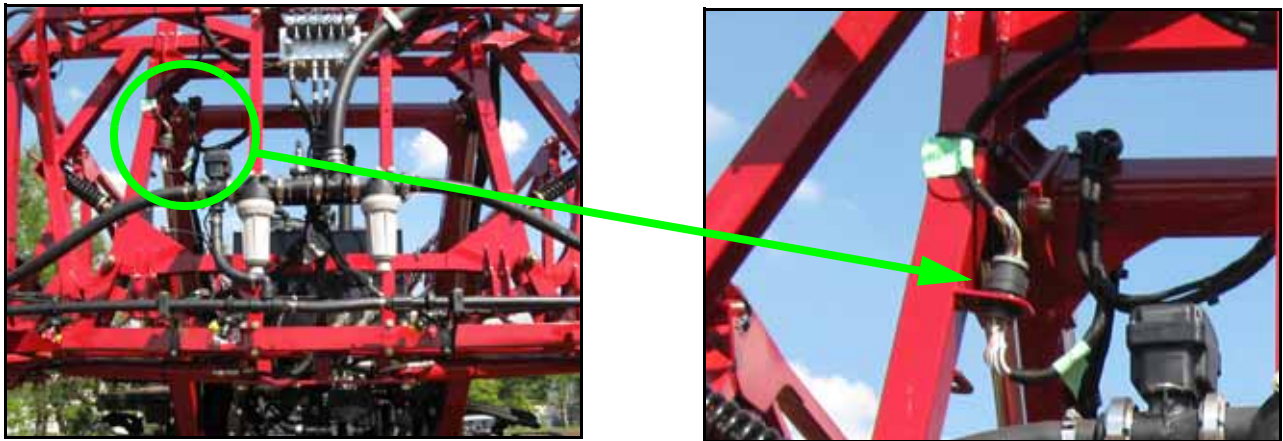
1. Locate the LEFT PRESS and RIGHT PRESS connectors on the harness cable (P/N 115-0230-073).
2. Route the connectors to the AutoBoom valve (P/N 063-0131-124).
3. Connect the LEFT PRESS connector to Port G1 on the AutoBoom valve.
4. Connect the RIGHT PRESS connector to Port G4 on the AutoBoom valve.
5. 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.

CONNECT THE HARNESS TO THE SENSORS

1. Locate the CENTER SENSOR connector on the AutoBoom harness cable (P/N 115-0230-073).
2. Connect the CENTER SENSOR connector to the installed center sensor (P/N 063-0130-012).
3. Locate the LEFT SENSOR (OUTER) connector on the AutoBoom harness cable.
4. Connect the LEFT SENSOR (OUTER) connector to the installed 50' sensor extension cable (P/N 115-0230-050).
5. Locate the RIGHT SENSOR (OUTER) connector on the AutoBoom harness cable (P/N 115-0230-073).
6. Connect the RIGHT SENSOR (OUTER) connector to the installed 50' sensor extension cable.
7. If optional inner boom sensors are installed, repeat the steps above to connect the inner sensors.

CONNECT THE HARNESS TO THE CAN CONTROLS

FIGURE 3. AutoBoom Harness Cable Installed



1. Locate the machine's harness cable bulkhead connection in the upper-left corner of the center boom section.
2. Disconnect the machine's cable from the bulkhead connector.

FIGURE 4. AutoBoom Harness Connected to Machine's Harness Connections



3. Install the mating 31-pin connectors of the AutoBoom harness cable (P/N 115-0230-073) on each end of the machine's harness connections.

FIGURE 5. Machine's Existing CAN Connection



4. Locate and disconnect the machine's existing 4-pin CAN connection in front of the transducer on the center boom section.

NOTE: The CAN connection may or may not have a terminator installed.

FIGURE 6. AutoBoom Harness Installed on Machine's CAN Connections



5. Install the mating 4-pin connectors of the AutoBoom harness cable on each end of the machine's CAN connections.

NOTE: If the machine's CAN connection had a terminator installed, install it on the remaining CAN connection on the AutoBoom harness cable.

CONNECT THE LEFT AND RIGHT CENTERING SENSORS - IF APPLICABLE

NOTE: The Left Prox Switch and Right Prox Switch connections on the AutoBoom cable (P/N 115-0230-073) remain disconnected on after-market AutoBoom installations. They are connected only on machines that have factory-installed proximity switches on the main boom fold section.

FIGURE 7. Extension Cable Installed on Sensor

1. Install the male end of the 2-pin weatherpack 63" extension cable (P/N 115-0172-147) on the left centering sensor cable located on top of the left boom, near the center rack.

FIGURE 8. Extension Cable Connected to AutoBoom Harness

2. Connect the female end of the installed extension cable to the LEFT PROX. SWITCH connection of the AutoBoom harness cable (P/N 115-0230-073).
3. Repeat the steps above to connect the right centering sensor (located on top of the right boom, near the center rack) to the RIGHT PROX. SWITCH harness cable connection.
4. Loop and tie-off excess cable, allowing for boom folding and center rack operation.

CONNECT THE POWER LEADS

FIGURE 9. Machine's Existing Power Connection



1. Locate the machine's existing 2-pin power connection in front of the pressure transducer.
2. Remove the dust cap from the machine's power connection.

FIGURE 10. AutoBoom Harness Cable Power Connection



3. Install the Logic Power connector of the AutoBoom harness cable on the machine's power connection.
4. Connect the machine's AUX POWER connector to the AUX POWER connector on the AutoBoom harness cable.

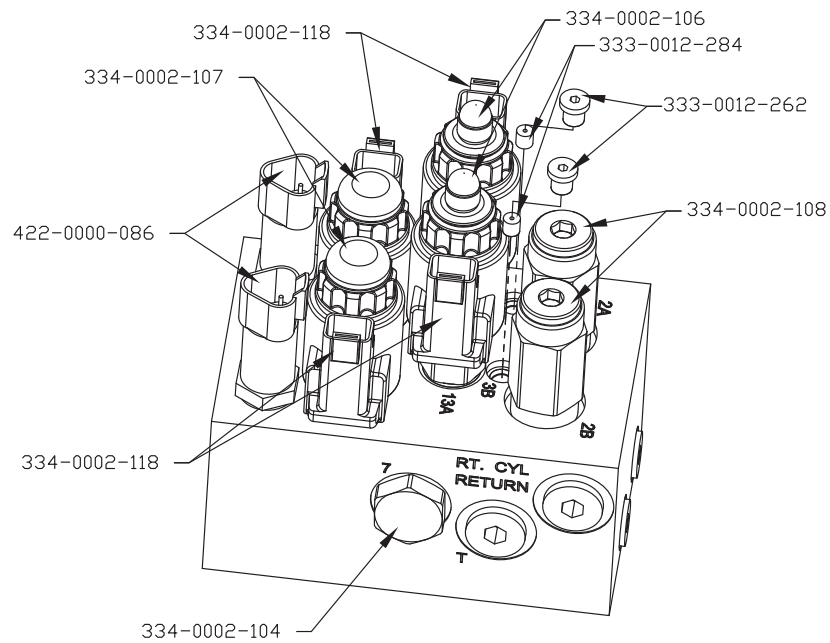
CHAPTER

REPLACEMENT PARTS

7

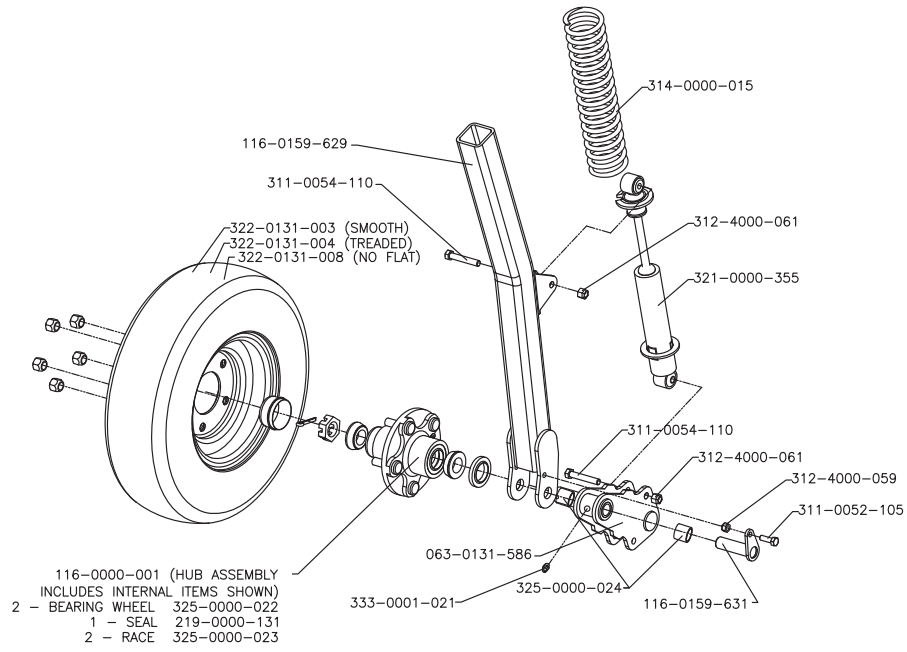
This section contains replacement part diagrams for the UltraGlide AutoBoom system. Refer to these diagrams when calling to request replacement parts.

VALVE

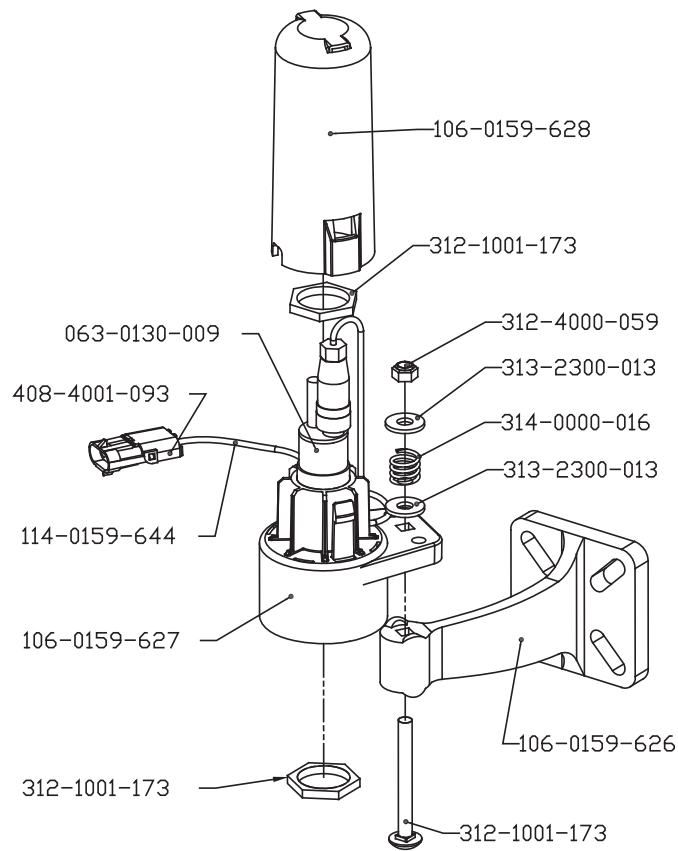


063-0131-124
VALVE, HYDRAULIC POWERGLIDE
PLUS/ULTRAGLIDE, CLOSED CENTER, AUTOBOOM

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RAVEN

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.