

**R A V E N**

# SmarTrax™ Installation Manual



**AGCO RoGator 84, 86, 94, and 96 Series**

## ***Disclaimer***

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## CHAPTER

# 1

# *Important Safety Information*

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## NOTICE

Read this manual and the operation and safety instructions included with your implement and/or controller carefully before installing the SmarTrax™ 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 SmarTrax 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 SmarTrax, observe the following safety measures:

- Be alert and aware of surroundings.
- Do not operate SmarTrax 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 SmarTrax is engaged.
- Disable SmarTrax when exiting the operator's seat and machine.
- Do not drive the machine with SmarTrax enabled on any public road.
- Determine and remain a safe working distance from other individuals. The operator is responsible for disabling SmarTrax when the safe working distance has diminished.
- Ensure SmarTrax is disabled prior to starting any maintenance work on SmarTrax or the machine.

## WARNING

- When starting the machine for the first time after installing SmarTrax, be sure that all persons stand clear in case a hose has not been properly tightened.
- The machine must remain stationary and switched off during SmarTrax installation or maintenance.

 **CAUTION**

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## *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 SmarTrax 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 SmarTrax valve.

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## *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.

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## CHAPTER

# 2

## *Introduction*

Congratulations on your purchase of the SmarTrax system! This system is designed to provide cutting-edge, hands-free steering of the machine via Global Positioning System (GPS) coordinates.

This manual applies to the following machines:

**MAKE: AGCO RoGator**

**MODEL: 84 Series - 984, 1084, 1184**

**86 Series - 1286, 1386**

**94 Series - 994, 1194**

**96 Series - 1396**

**YEAR: 2009-2011**

**FIGURE 1. AGCO RoGator 1084**

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## *Preparing for Installation*

Before installing the SmarTrax system, park the machine where the ground is level, clean, and dry. Turn off the machine and leave it 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 when installing or operating the SmarTrax system for the first time, at the start of the season, or when moving the SmarTrax system to another machine:

- Install the GPS antenna in the recommended location. Refer to the following table for the machine-specific antenna mounting location.

Machine Preset	Antenna X Position (left to right)	Antenna Y Position (front to back in inches)	Antenna Z Position (ground to top of antenna in inches)
RoGator 64/74/84/SS	Centered	9.5 ft./2.90 m	12.0 ft./3.66 m
RoGator x386/94/96	Centered	9.1 ft./2.77 m	12.8 ft./3.90 m
RoGator 1286C	Centered	8.5 ft./2.59 m	12.0 ft./3.66 m

- 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.).
- Ensure the machine's hydraulic system is using fresh oil and debris is flushed from the hydraulic hoses, valves, and filters.

Raven Industries recommends the following best practices when installing the SmarTrax 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.

### Point of Reference

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

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### 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](mailto:techwriting@ravenind.com)

- AGCO RoGator 84, 86, 94, and 96 Series SmarTrax™ Installation Manual
- Manual No. 016-5033-008 Rev. A
- 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.

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## Kit Contents

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

**TABLE 1. SmarTrax Installation Kit (P/N 117-5033-008)**

Picture	Item Description	Part Number	Qty.
Not Pictured	Manual - AGCO RoGator 84, 86, 94, and 96 Series SmarTrax Installation	016-5033-008	1
	Valve - SmarTrax Hydraulic	334-0003-088	1
	Bracket - Hydraulic Valve Mounting	107-0171-907	1
	Cable - Valve Harness	115-4001-198	1

**TABLE 1. SmarTrax Installation Kit (P/N 117-5033-008)**

Picture	Item Description	Part Number	Qty.
	Transducer - 0-3000 PSI Pressure	422-0000-086	1
	Bolt - 5/16"-18 x 7/8" Hex	311-0052-104	4
	Bolt - 1/2"-13 UNC x 2-1/2" Hex	311-0058-101	2
	Nut - 1/2"-13 Zinc Flanged Lock	312-1001-166	2
	Washer - 5/16" Split Lock	313-1000-019	4
	Washer - 1/2" Split Lock	313-1000-028	2
	Washer - 1/2" Flat	313-2300-017	2

**TABLE 2. Hydraulic Kit (P/N 117-0199-133)**

Picture	Item Description	Part Number	Qty.
	Fitting - -8 ORFS M/M/F Swivel Run Tee Adapter	333-0012-028	4
	Fitting - -6 ORFS M/F 90° Swivel Elbow	333-0012-065	4
	Fitting - -8 ORFS M/F 90° Swivel Elbow	333-0012-067	4

TABLE 2. Hydraulic Kit (P/N 117-0199-133)

Picture	Item Description	Part Number	Qty.
	Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-084	1
	Fitting - -6 ORFS M/F 45° Swivel Elbow	333-0012-090	4
	Fitting - -4 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-195	1
	Fitting - -6 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter	333-0012-199	2
	Fitting - -6 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-233	2
	Hydraulic Hose - -8 ORFS (F) to -6 ORFS (F) - 50"	214-1000-614	4
	Hydraulic Hose - -4 ORFS (F) to -6 ORFS (F) - 50"	214-1000-665	1

TABLE 3. Wheel Angle Sensor Installation Kit (P/N 117-0192-043)

Picture	Item Description	Part Number	Qty.
	Assembly - Rotary Wheel Angle Sensor	063-0181-013	1
	Bracket - WAS Arm Weldment	116-0159-671	1
	Bracket - WAS Mounting Weldment	116-0159-730	1

**TABLE 3. Wheel Angle Sensor Installation Kit (P/N 117-0192-043)**

Picture	Item Description	Part Number	Qty.
	Bolt - 1/4"-20 x 3/4	311-0050-103	4
	Bolt - 1/2"-13 x 7"	311-0058-113	1
	Nut - 1/2"-13 Zinc Hex	312-1001-166	1

**TABLE 4. Node Installation Kit (P/N 117-0197-103)**

Picture	Item Description	Part Number	Qty.
Not Pictured	Manual - SmarTrax and SmartSteer Calibration & Operation	016-0171-277	1
	Node - SmarTrax RTK	063-0173-228	1
	Cable - CAN Tee	115-0171-326	1
	Cable - RS 232 10' Extension	115-0171-891	1
	Cable - Node Harness	115-4001-197	1
	Assembly - Enable Foot Switch	063-0172-470	1

TABLE 5. Node Installation Kit (P/N 117-0171-300)

Picture	Item Description	Part Number	Qty.
	Bracket - Node Mounting	107-0171-861	1
	Spacer - 3/8" ID x 3/4" OD x 2-1/2" L	104-1000-255	3
	Bolt - 3/8"-16 x 1" Machine	311-0054-105	3
	Bolt - 3/8"-16 x 3-3/4" Machine	311-0054-116	3
	Bolt - 6 mm x 20 mm x 1.00 Metric Hex	311-0070-010	4
	Nut - 3/8"-16 Nylon Insert Lock	312-4000-061	3
	Washer - 6 mm Split Lock	313-1000-046	4



CHAPTER

3

*Hydraulic System  
Installation*



**⚠ WARNING**

Hydraulics are under pressure. Care should always be taken with a system that has been pressurized.

Before beginning the SmarTrax hydraulic installation, turn off the machine and relieve pressure by turning the steering wheel left and right.

Never work on a hot machine. Always allow it to cool before performing diagnostics, maintenance, or routine service.

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.

Tampering with hydraulic valves may cause serious injury or death, and will void the warranty.



**⚠ CAUTION**

When installing SmarTrax 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 SmarTrax hydraulic valve.

	<b>NOTICE</b>
<p>The appearance of the SmarTrax hydraulic valve may vary slightly from the images contained in this manual. However, the fittings, hose connections, and cable connections remain the same.</p>	

## *Install Fittings in the SmarTrax Valve*

**FIGURE 1.** Before mounting the SmarTrax 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.



Fitting	Part Number	Port
Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-084	LS STEER
Fitting - -4 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-195	LSPV
Fitting - -6 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter	333-0012-199	P, T
Fitting - -6 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-233	A, B
Transducer - 0-3000 PSI Pressure	422-0000-086	PS

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## Mount the SmarTrax Valve

FIGURE 2. SmarTrax Valve Mounting Location



1. Identify the SmarTrax valve mounting location on the center cross-member under the cab on the left side of the machine.

FIGURE 3. Valve Bracket Installed



2. Install the hydraulic valve mounting bracket (P/N 107-0171-907) on the cross-member using two 1/2"-13 UNC x 2-1/2" hex bolts (P/N 311-0058-101), two 1/2" flat washers (P/N 313-2300-017), and two 1/2"-13 zinc flanged lock nuts (P/N 312-1001-166).

**Note:** Some models may have pre-drilled holes in the cross-member. If pre-drilled holes are not present or do not allow the SmarTrax valve to be properly installed, drill holes in the location illustrated in Figure 2 above.

FIGURE 4. SmarTrax Valve Installed

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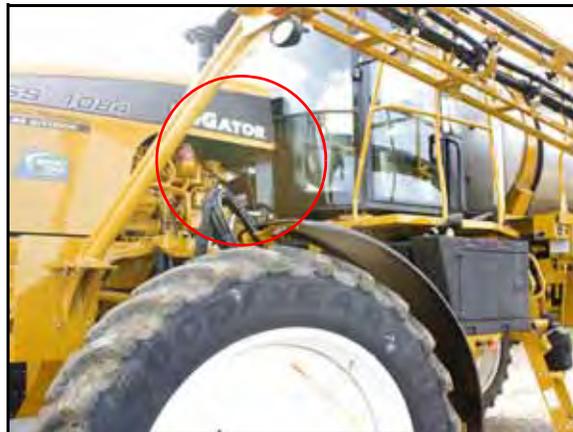
3. Secure the SmarTrax valve (P/N 334-0003-088) to the valve mounting bracket using four 5/16"-18 x 7/8" hex bolts (P/N 311-0052-104) and four 5/16" split lock washers (P/N 313-1000-019).

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## *Disconnect the Machine's Existing Hoses*

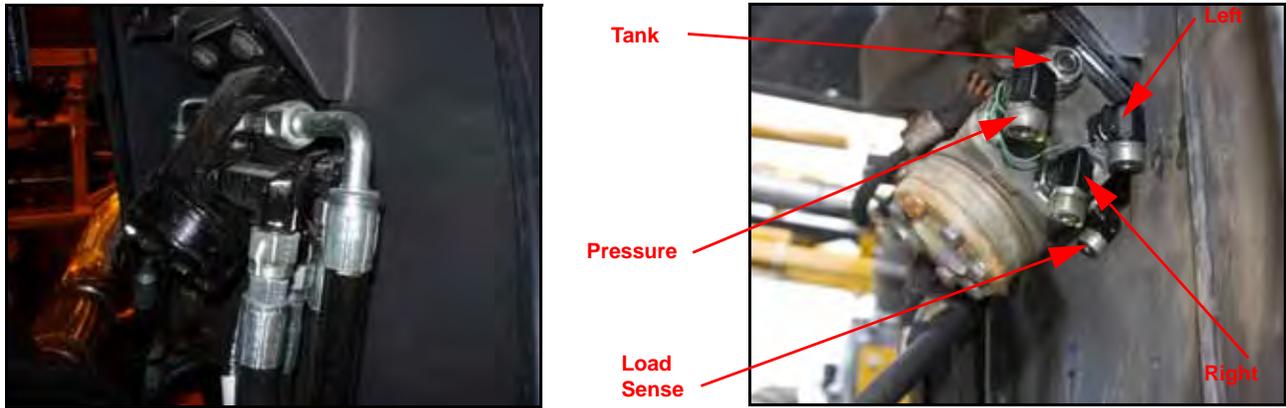
FIGURE 5. Steering Orbital Location

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1. Locate the steering orbital in front of the cab.
2. Open the engine bay cover and remove any guards or plates that may hinder access to the steering orbital.

FIGURE 6. Machine's Hoses Disconnected from Steering Orbital



3. Label the machine's existing hoses with the corresponding port.

**Note:** It may be necessary to trace the lines to the steering cylinders, hydraulic pump, and tank to determine the correct labeling of the hoses.

4. Disconnect the machine's hoses from the steering orbital.

## Install the Load Sense Hose

1. Route the machine's existing load sense hose to the SmarTrax valve (P/N 334-0003-088).
2. Connect the load sense hose to the fitting installed in Port LSPV of the SmarTrax valve.

FIGURE 7. Load Sense Hose Installed on Steering Orbital



3. Install the -4 ORFS end of the supplied hydraulic hose (P/N 214-1000-665) on the load sense port of the steering orbital.

FIGURE 8. Load Sense Hose Installed on SmarTrax Valve

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4. Connect the -6 ORFS end of the installed hydraulic hose to the fitting installed in Port LS STEER of the SmarTrax valve.

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## *Install the Left and Right Steering Hoses*

FIGURE 9. Left and Right Ports on the Steering Orbital

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1. Locate the left and right steering ports on the machine's steering orbital.

FIGURE 10. Machine's Left and Right Steering Hoses Installed



2. Install -8 ORFS M/M/F swivel run tee adapter fittings (P/N 333-0012-028) in the left and right steering ports of the steering orbital.
3. Connect the machine's left steering hose to the straight end of the tee fitting installed in the left steering port.
4. Connect the machine's right steering hose to the straight end of the tee fitting installed in the right steering port.

FIGURE 11. SmarTrax Hoses Installed



5. Install the -8 ORFS end of the supplied hydraulic hose (P/N 214-1000-614) on the 90° end of the tee fitting installed in the left steering port of the steering orbital.

**Note:** It may be necessary to install a -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on the installed adapter fitting to achieve the connection.

6. Connect the -6 ORFS end of the installed hydraulic hose to the fitting installed in Port A of the SmarTrax valve.

**Note:** It may be necessary to install a -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) or -6 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-090) on the installed adapter fittings to achieve the connection.

7. Install the -8 ORFS end of the supplied hydraulic hose (P/N 214-1000-614) on the 90° end of the tee fitting installed in the right steering port of the steering orbital.

8. Connect the -6 ORFS end of the installed hydraulic hose to the fitting installed in Port B of the SmarTrax valve.

**Note:** *It may be necessary to install a -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) or -6 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-090) on the installed adapter fittings to achieve the connection.*

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## Install the Pressure and Tank Hoses

FIGURE 12. Pressure and Tank Hoses Installed

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1. Install -8 ORFS M/M/F swivel run tee fittings (P/N 333-0012-028) in the pressure and tank ports of the machine's steering orbital.
2. Connect the machine's pressure hose to the straight end of the tee fitting installed in the pressure port.
3. Install the -8 ORFS end of the supplied hydraulic hose (P/N 214-1000-614) on the 90° end of the installed tee fitting.

**Note:** *It may be necessary to install a -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on the installed adapter fitting to achieve the connection.*

4. Install the -6 ORFS end of the installed hydraulic hose to the fitting installed in Port P of the SmarTrax valve (P/N 334-0003-088).

**Note:** *It may be necessary to install a -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) or -6 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-090) on the installed adapter fittings to achieve the connection.*

5. Connect the machine's tank hose to the straight end of the tee fitting installed in the tank port.
6. Install the -8 ORFS end of the supplied hydraulic hose (P/N 214-1000-614) on the 90° end of the installed tee fitting.

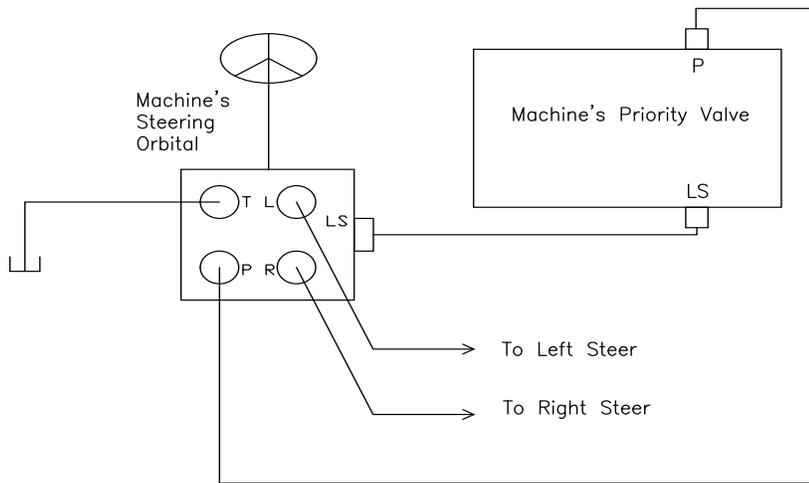
**Note:** *It may be necessary to install a -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on the installed adapter fitting to achieve the connection.*

7. Install the -6 ORFS end of the installed hydraulic hose to the fitting installed in Port T of the SmarTrax valve (P/N 334-0003-088).

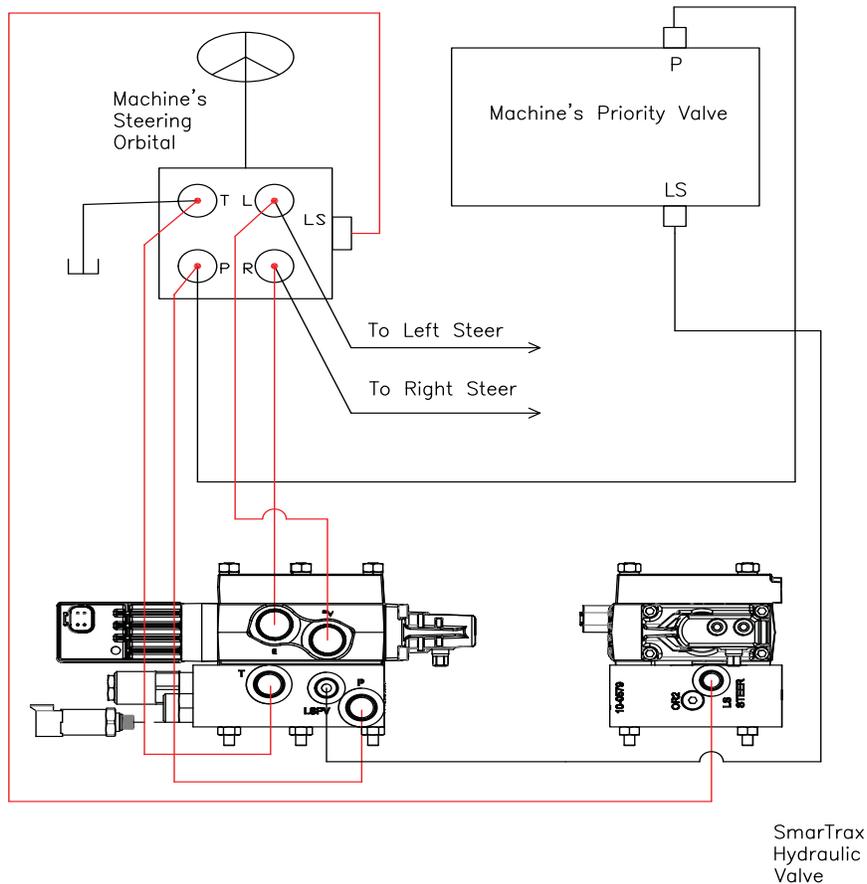
**Note:** *It may be necessary to install a -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) or -6 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-090) on the installed adapter fittings to achieve the connection.*

# Hydraulic Diagram

Before SmarTrax Installation



After SmarTrax Installation



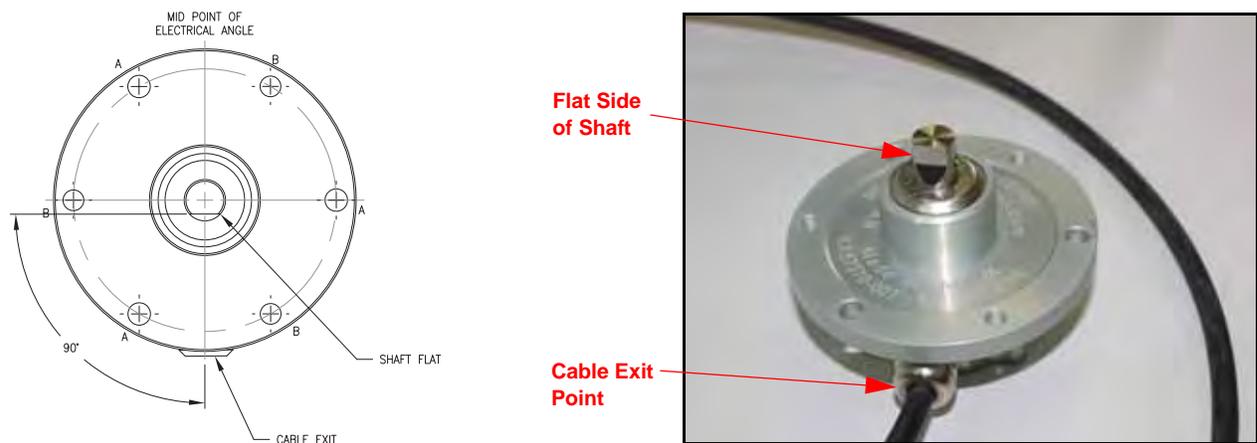
## CHAPTER

# 4

## *Wheel Angle Sensor Installation*

1. Park the machine on a level surface, with the wheels pointing straight ahead.

**FIGURE 1. Rotary Sensor Assembly Alignment**



2. Align the flat side of the shaft on the rotary sensor assembly (P/N 063-0181-013) so that it is parallel with the cable exit point as shown in the figure above.

**FIGURE 2. WAS Installation Location**



3. Locate the machine's kingpin on the right side of the axle as shown in Figure 2.

FIGURE 3. Rotary Sensor Installed

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4. Align the WAS mounting bracket (P/N 116-0159-730) over the holes in the machine's kingpin and secure it using four 1/4"-20 x 3/4" hex bolts (P/N 311-0050-103).
5. Install the rotary sensor assembly on the WAS mounting bracket using the supplied hardware.
6. Using care to not move the sensor shaft, slide the WAS arm bracket (P/N 116-0159-671) onto the rotary sensor shaft.
7. Insert the supplied set screw through the hole in the arm bracket, tightening it against the flat spot on the sensor shaft.
8. Install the 1/2"-13 hex nut (P/N 312-1001-166) on the 1/2"-13 x 7" hex bolt (P/N 311-0058-113).
9. Insert the head of the bolt into the slot on the WAS arm bracket and position the end of the bolt over the hole in the axle.
10. Screw the bolt into the hole in the axle until the head of the bolt rests on the WAS arm bracket.
11. Tighten the nut on the end of the bolt until it is snug against the axle.

## *Install the SmarTrax Node*

### Mount the SmarTrax Node - No AccuBoom™ Installed on Machine

1. Locate the access panel cover in the right-rear corner of the cab, below the side console.

**FIGURE 1. SmarTrax Node Installed**

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2. Secure the node (P/N 063-0173-228) to the node mounting bracket (P/N 107-0171-861) using three 3/8"-16 x 1" machine bolts (P/N 311-0054-105) and three 3/8"-16 nylon insert lock nuts (P/N 312-4000-061).
3. Install the node mounting bracket on the access panel cover using four 6 mm x 20 mm x 1.00 metric hex bolts (P/N 311-0070-010) and four 6 mm split lock washers (P/N 313-1000-046).

### Mount the SmarTrax Node - AccuBoom Installed on Machine

**Note:** *The AccuBoom system is sold separately. Contact your local Raven dealer for ordering information.*

1. Remove the AccuBoom node (P/N 063-0172-714) and node mounting bracket from the access panel cover in the right-rear corner of the cab, below the side console.

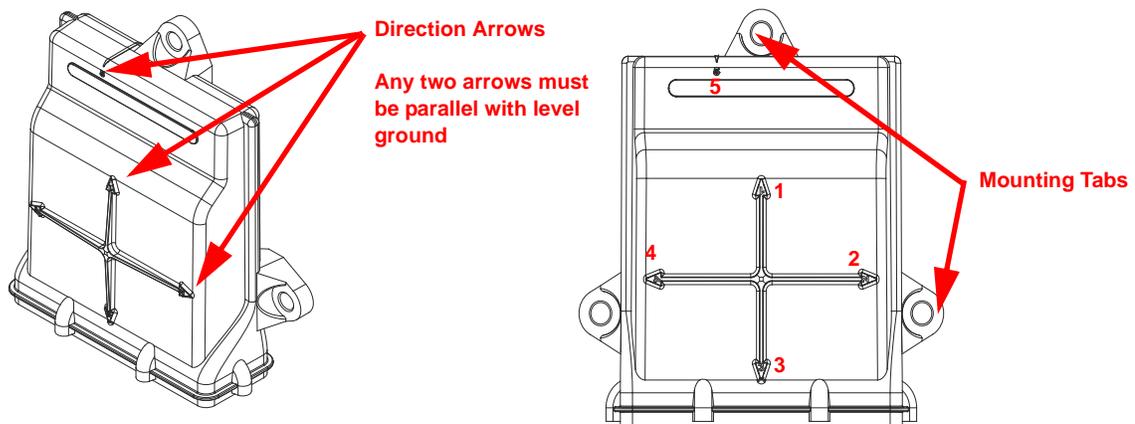
2. Remove the nuts and bolts used to secure the node to the node mounting bracket.

**Note:** *The nuts and bolts removed are not used in the SmarTrax system installation.*

3. Insert three 3/8"-16 x 3-3/4" machine bolts (P/N 311-0054-116) through the back of the node mounting bracket and the AccuBoom node mounting tabs.
4. Install 3/8" ID x 3/4" OD x 2-1/2" long spacers (P/N 104-1000-255) on the installed machine bolts.
5. Install the SmarTrax node (P/N 063-0173-228) on the installed machine bolts.
6. Secure the SmarTrax node using three 3/8"-16 nylon insert lock nuts (P/N 312-4000-061).

## Node Mounting Locations

FIGURE 2. Node Mounting



When choosing the location for the SmarTrax node, consider the following points:

- Mount the SmarTrax node inside the machine's cab on a flat, level surface for proper performance and cable connection.
- One of the six numbered direction arrows on the node must be oriented in the direction of forward vehicle travel, one arrow pointing straight up, and two of the arrows parallel to the ground.

**Note:** *Make a note of the number of the arrow that is oriented in the direction of forward vehicle travel. This number will be needed during the SmarTrax calibration process.*

- The node mounting location must not create tripping hazards.
- Mount the node in a location where it will not be kicked or jarred during normal equipment operation.
- The location must allow cable routing to avoid crimping or damaging the cables or the node connections.
- Securely fasten the node using bolts or screws through at least two of the three mounting holes. When mounted properly, the node should not become loose or rotate.

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## Install the Foot Switch

FIGURE 3. Foot Switch Installed

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1. Select a suitable location for the foot switch (P/N 063-0172-470) to be installed.

**Note:** *The foot switch should be installed in a location where the operator has easy access to it and is able to fully press the pedal.*

2. Using the holes in the foot switch as a template, drill holes in the floor of the cab.
3. Secure the foot switch to the floor by installing the supplied screws in each of the mounting holes.
4. Lift the floor mat and locate the access panel in the floor of the cab.

---

## Install the Node Harness

FIGURE 4. Node Harness Installed on Node

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1. Install the two large, rectangular connectors of the node harness (P/N 115-4001-197) into the correct ports of the SmarTrax node (P/N 063-0173-228).
2. Tighten the bolts on the node connectors to secure the connections.
3. Locate the ENABLE connector and connect it to the foot switch cable connector.

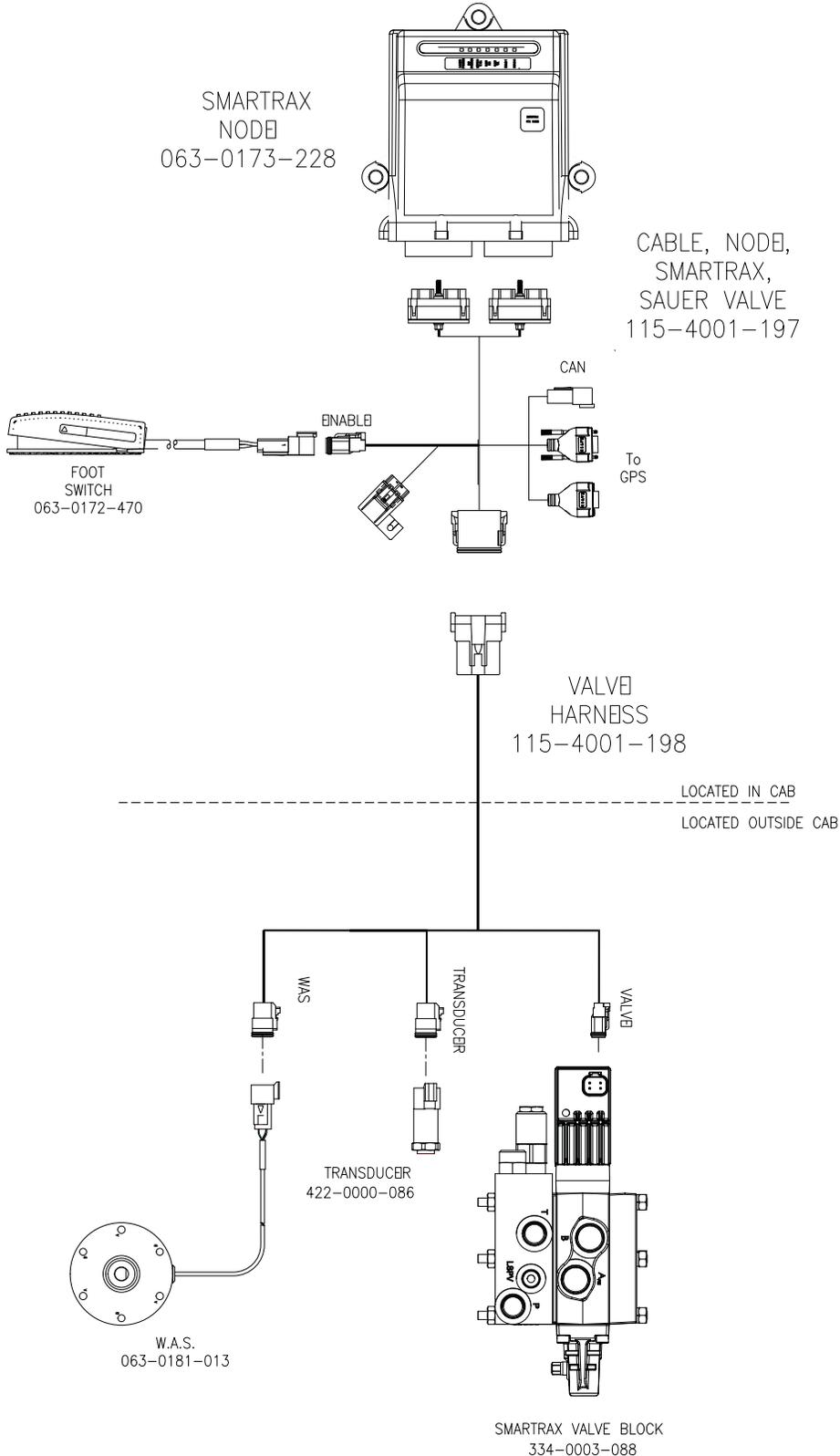
4. Connect the DGPS connector to the receiver or other GPS source.
5. Connect the DGPS OUT connector to the DGPS connector on the field computer cable.
6. Connect the CAN connector on the node harness to the machine's existing CAN connection.
7. Install the red ring terminal connections on machine's positive battery terminal studs.
8. Install the white ring terminal connections on the machine's negative battery terminal studs.

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### *Install the Valve Harness*

1. Connect the TRANSDUCER connector on the valve harness (P/N 115-4001-198) to the pressure transducer (P/N 422-0000-086) installed in Port PS of the SmarTrax valve (P/N 334-0003-088).
2. Connect the VALVE connector to the open 4-pin port on the SmarTrax valve.
3. Connect the CHASSIS connector on the valve harness to the mating 12-pin connector on the node harness (P/N 115-4001-197).
4. Route and connect the WAS connector to the cable of the installed WAS (P/N 063-0181-013).
5. Using plastic cable ties, secure any excess cable away from moving parts and heat sources.

FIGURE 5. Cable Harness Installation Diagram





**WARNING**

When starting the machine for the first time after installing SmarTrax, be sure that all persons stand clear in case a hose has not been properly tightened.

**WARNING**

Do not use hands to check for leaks. Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death.

### *Verify the SmarTrax System Installation*

1. Turn on the machine.
2. Double-check all fittings and hose connections to ensure that:
  - Hoses are not rubbing on or interfering with moving parts.
  - Hydraulic fluid is not leaking from the system.
3. Turn the machine's wheels fully from side to side repeatedly to remove air from the hydraulic system.

**Note:** *During the SmarTrax system installation, whenever the hydraulic system is purged for maintenance, or when fittings are loosened or disconnected, air is introduced into the lines of the hydraulic system. If air pockets are present, the wheels may not move consistently when the steering wheel is turned.*

4. Continue turning the wheels until they move steadily and smoothly when the steering wheel is turned.

5. Access the System Diagnostic screen by selecting the MACHINE TEST option on the Machine Type screen and turn the wheels using the Raven console.

**Note:** *If there are issues with the SmarTrax system, turn off the machine and correct them immediately. For additional assistance, refer to the SmarTrax and SmartSteer Calibration & Operation Manual (P/N 016-0171-277) or contact your local Raven dealer.*

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## *Calibrate the SmarTrax System*

Refer to the SmarTrax and SmartSteer Calibration & Operation Manual (P/N 016-0171-277) for instructions on calibrating the SmarTrax system, adjusting system settings, and system operation.

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# RAVEN

## Limited Warranty

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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 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](http://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.**



# RAVEN

AGCO RoGator 84, 86, 94, and 96 Series  
SmarTrax™ Installation Manual  
(P/N 016-5033-008 Rev A 03/13 E20820)



## Raven Industries

Applied Technology Division  
P.O. Box 5107  
Sioux Falls, SD 57117-5107  
[www.ravenprecision.com](http://www.ravenprecision.com)

Toll Free (U.S. and Canada): (800)-243-5435  
or Outside the U.S. :1 605-575-0722  
Fax: 605-331-0426  
[www.ravenhelp.com](http://www.ravenhelp.com)

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