

RAVEN

# Steering Control Installation Manual



**John Deere R-Series, Tier IV**

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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 Steering Control system.

- Follow all safety information presented within this manual.
- Follow all safety labels affixed to the Steering Control 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.
- If you require assistance with any portion of the installation or service of your Raven equipment, contact your local Raven dealer for support.

When operating the machine after installing the Steering Control system, observe the following safety measures”

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

## **WARNING**

- When starting the machine for the first time after installing the Steering Control system, be sure that all persons are standing clear of the machine in case a wheel moves unexpectedly.
- Read all safety requirements and precautions in the machine's operation manual prior to operating a machine equipped with the Steering Control system feature. Failure to follow safety precautions may lead to damage to the equipment, personal injury, or death.
- To prevent accidental engagement of steering and loss of vehicle control, turn the road switch on when driving down the road.

## **CAUTION**

- The GPS steering system does not detect obstacles in the vehicle's path. The operator must observe the path being driven to avoid obstacles.
- When engaged, the GPS steering system controls only the steering of the vehicle. The operator must control the speed of the vehicle.

## CHAPTER

# 2

# *Introduction*

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

This manual applies to the following machines:

**MAKE: John Deere**

**MODEL: R-Series, Tier IV**

**FIGURE 1. John Deere 8310R**



## *Preparing for Installation*

Before installing the Steering Control system, park the machine where the ground is level, clean, and dry. Bleed pressure from the hydraulic system and 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 when installing the Steering Control 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.

Raven Industries recommends the following best practices when installing or operating the Steering Control system for the first time, at the start of the season, or when moving the Steering Control 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.).
- Ensure the machine's hydraulic valve is using fresh oil and debris is flushed from the hydraulic hoses, valves, and filters.

## Point of Reference

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

## Tools Needed

The following tools may be needed to install the Steering Control system:

- Screwdrivers of various sizes
- SAE standard-sized wrenches
- Metric wrenches
- Side cutters
- Pliers

## Kit Contents

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

**TABLE 1. John Deere R-Series Tier IV SmarTrax Installation Kit (P/N 117-5034-010)**

Picture	Item Description	Part Number	Qty.
Not Pictured	Manual - SmarTrax and SmartSteer Calibration & Operation	016-0171-277	1
Not Pictured	Manual - John Deere R-Series Tier IV Steering Ready Installation	016-4001-010	1
	Node - Steering Control RTK	063-0173-228	1
	Cable - John Deere Tier IV SmarTrax Node	115-4001-118	1

**TABLE 2. John Deere Tier IV Node Mount Installation Kit (P/N 117-0197-102)**

Picture	Item Description	Part Number	Qty.
	Bracket - John Deere Tier IV Node Mounting	107-0172-055	1
	Bolt - M10 x 1.5 x 16 Hex Head	311-0070-036	2
	Nut - 3/8"-16 Nylon Insert Hex	312-4001-109	3

## Chapter 2

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**TABLE 2. John Deere Tier IV Node Mount Installation Kit (P/N 117-0197-102)**

Picture	Item Description	Part Number	Qty.
	Bolt - M10 x 1.5 x 25 Hex Head	311-0070-008	1
	Spacer - .750 OD x .385 ID x .500 Long	107-0172-099	1

CHAPTER  
**3**

# *System Installation*

## *Install the Steering Control Node*

**FIGURE 1. Node Mounting Location**



1. Remove the two bottom plugs from the right-rear post in the machine's cab.

**FIGURE 2. Node Mounting Bracket Installed**



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2. Install the node mounting bracket (P/N 107-0172-055) vertically (with 0° tilt) to the post as shown in the figure above using two M10 x 1.5 x 16 hex head bolts (P/N 311-0070-036).

**Note:** A spacer (P/N 107-0172-099) is provided for machines that do not contain a vertical mounting post. If this is the case, mount the node mounting bracket to the post using the spacer, one M10 x 1.5 x 16 hex head bolt, and one M10 x 1.5 x 25 hex head bolt (P/N 311-0070-008).

**FIGURE 3. Node Cable Installed on Node**



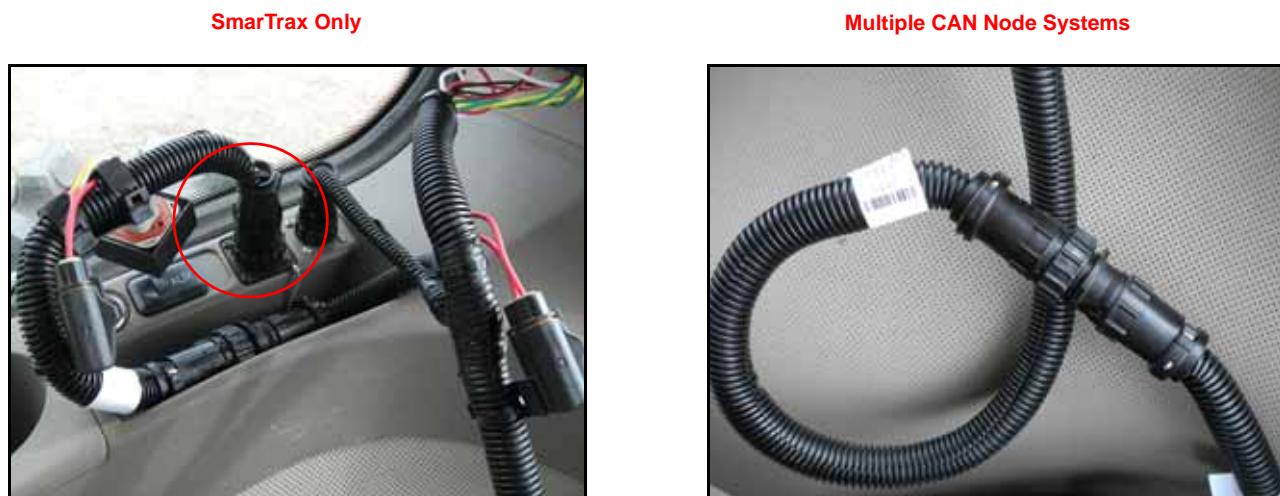
1. Insert the two large, rectangular connectors of the node cable (P/N 115-4001-118) into the correct ports of the node.
2. Tighten the bolts on the harness connectors to secure the connections.
3. Install the Steering Control node (P/N 063-0173-228) on the installed mounting bracket using three 3/8"-16 nylon insert hex nuts (P/N 312-4001-109).

## *Install the Node Cable*

**FIGURE 4. CAN Connection**



1. Connect the 9-pin CAN connector from the node cable into the 9-pin CAN connection of the platform, to the right of the operator's seat.

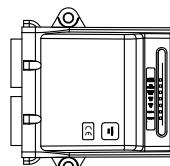
**FIGURE 5. Power Connection****2. Connect the power.**

- SmarTrax-only systems - Connect the 16-pin connector of the node cable to the power cable (P/N 115-4001-119). Connect the end of the installed power cable into the 3-pin power connector of the platform, to the right of the operator's seat.
- Multiple CAN node systems - Connect the 16-pin connector to the power cable (P/N 115-0171-938). Connect the 16-pin connector to the console cable (P/N 115-0172-001 for Viper Pro and Envizio Pro, P/N 115-0171-066 for Cruizer II).

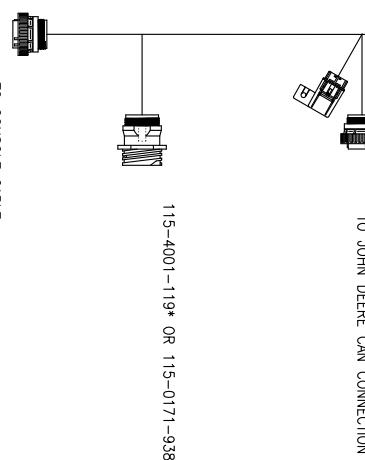
## System Diagram

CAN SMARTRAX, RTK, JOHN DEERE STEER READY, TIER IV

SMARTRAX KIT: 117-5034-010  
053-0173-228



SMARTRAX CABLE  
JOHN DEERE TIER IV  
115-4001-118



KIT ALSO INCLUDES:

JOHN DEERE STEER READY MANUAL (P/N 016-0197-008)  
NODE MOUNTING KIT (P/N 117-0197-102) – TIER IV  
SMARTRAX TERRAIN COMP MANUAL (P/N 016-0171-277)

\*USE 115-4001-119 POWER CABLE  
IF ONLY USING RAVEN SMARTRAX.  
USE 115-0171-938 IF USING  
ADDITIONAL RAVEN NODES.

NOTE:  
REFER TO DWG. 054-5000-001 FOR OTHER SYSTEM COMPONENTS.

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# RAVEN

## RAVEN INDUSTRIES

### 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.

#### ***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.

#### ***How Can I Get Service?***

Bring the defective part and proof of purchase to your Raven dealer. If your dealer agrees with the warranty claim, the dealer will send the part and proof of purchase to their distributor or to Raven Industries for final approval.

#### ***What Will Raven Industries Do?***

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

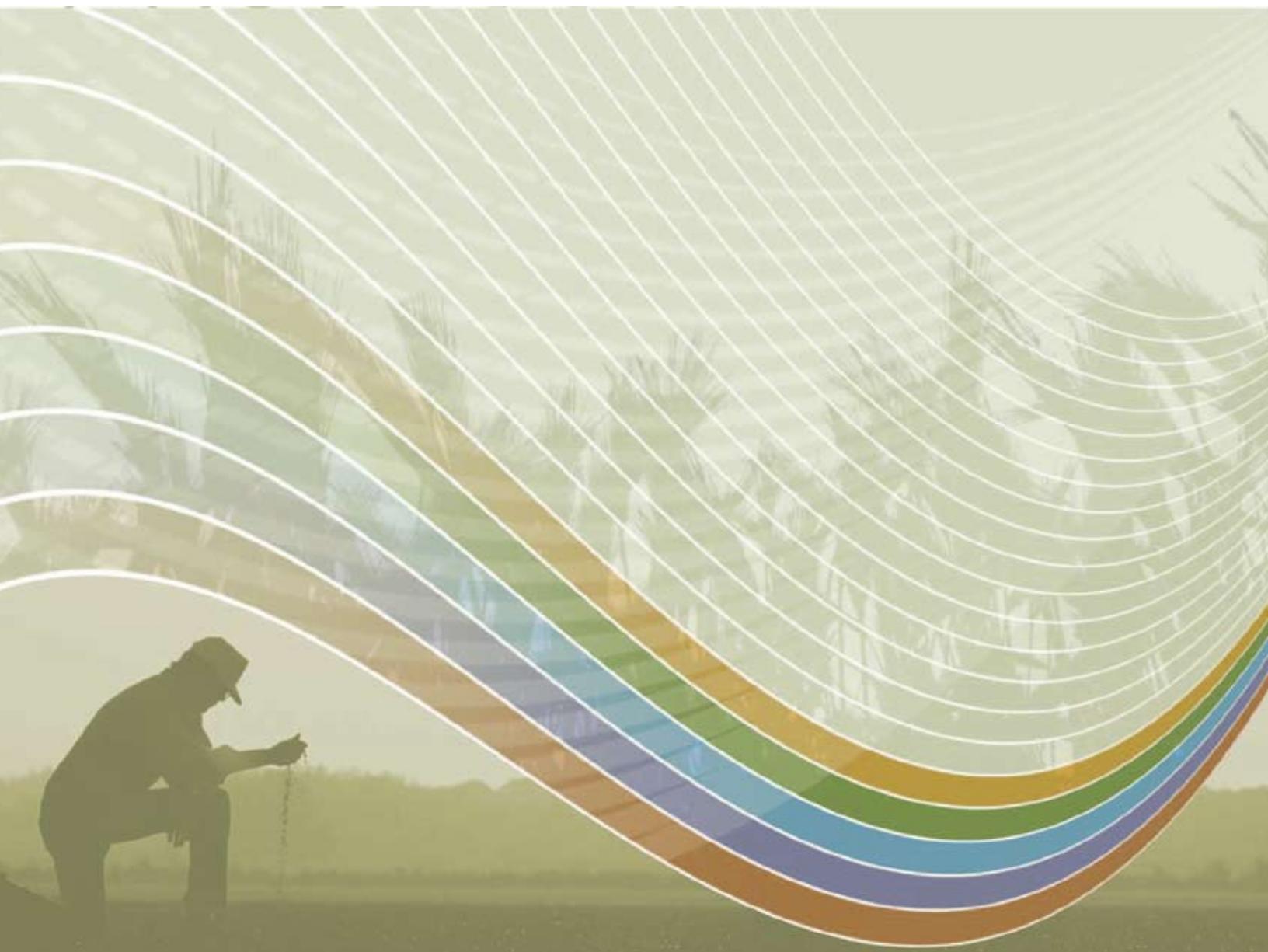
#### ***What is not Covered by this Warranty?***

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

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

**RAVEN**

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Steering Control Installation Manual  
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