

RAVEN

Simply improving your position.SM

Steering Ready Installation Manual



John Deere 77x0, 78x0, 79x0 and 8000 Series

Disclaimer

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

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

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

Chapter 1 *Important Safety Information*..... 1
 Important Safety Information 1

Chapter 2 *Introduction*..... 3
 Introduction 3
 Steering Control Kit Contents 4

Chapter 3 *System Installation*..... 9
 Install the Steering Control Equipment 9

Chapter 4 *Wiring Schematics*..... 15
 SmarTrax Wiring Schematics 15

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 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

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. For future reference, write your serial number in the space below.

MAKE: John Deere

MODEL:

YEAR:

SERIAL NUMBER:

FIGURE 1. JD 8130



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.

Tools Needed

The following tools may be needed for installation of the Steering Control system:

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

Preparing for Installation

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.





Steering Control Kit Contents

The Raven Steering Control system utilizes one standard node mounting kit, and one kit tailored to link the Steering Control system to the Raven products that you have chosen to install on your machine. Before beginning installation, compare the items in the kits with the items listed in the kits below. If you have questions about the kits, contact your Raven dealer.

Note: *This section contains the kit contents for several different Raven product combinations. Be sure to identify the correct kit for the products being installed on the machine.*

SmarTrax 3D - Viper Pro/Envizio Pro

TABLE 1. SmarTrax 3D - Viper Pro/Envizio Pro JD 77X0, 78X0 and 79X0 Steer Ready Installation Kit (P/N 117-5034-001)

Picture	Item Description	Part Number	Qty.
See Table 3 on page 6	Kit - Viper Pro/ Envizio Pro JD 7000 Control Node Mounting Kit	117-0197-085	1
Not Pictured	Manual - JD Steer Ready	016-0197-004	1
Not Pictured	Manual - SmarTrax Terrain Comp Calibration	016-0171-277	1
	Cable - Control, JD Steering Ready	115-4001-054	1
	Cable -Smartrax Node, JD Steering Ready	115-4001-087	1
	Switch - SmarTrax Foot	063-0172-470	1
	Node - SmarTrax RTK	063-0173-228	1

SmarTrax 3D - Viper Pro/Envizio Pro

TABLE 2. SmarTrax 3D - Viper Pro/Envizio Pro John Deere 8000 Series Steer Ready Installation Kit (P/N 117-5034-002)








Picture	Item Description	Part Number	Qty.
See Table 3 on page 6	Kit - Viper Pro/ Envizio Pro JD 8000 Control Node Mounting Kit	117-0197-084	1
Not Pictured	Manual - JD Steering Ready	016-0197-004	1
Not Pictured	Manual - SmarTrax Terrain Comp Calibration	016-0171-277	1
	Cable -Smartrax Node, JD Steering Ready	115-4001-087	1

TABLE 2. SmarTrax 3D - Viper Pro/Envizio Pro John Deere 8000 Series Steer Ready Installation Kit (P/N 117-5034-002)

Picture	Item Description	Part Number	Qty.
	Cable - Control, JD Steering Ready	115-4001-054	1
	Switch - SmarTrax Foot	063-0172-470	1
	Node - SmarTrax RTK	063-0173-228	1





Standard Node Mounting Kit

TABLE 3. JD 8000 Series Node Mounting Kit (P/N 117-0197-084)

Picture	Item Description	Part Number	Qty.
	Plate - JD SmarTrax 8000 Series Mounting	107-0171-947	1
	Bolt - 1/4-20 x 7/8" FH	311-0002-308	3
	Nut - 1/4-20 UNC Lock Nylon insert	312-4000-057	3
	Washer - .312ID x .734OD x .065 Thk	313-2300-011	3

Standard Node Mounting Kit

TABLE 4. JD 7000 Series Node Mounting Kit (P/N 117-0197-085)

Picture	Item Description	Part Number	Qty.
	Plate - JD SmarTrax 7000 Series Mounting	107-0171-946	1
	Bolt - 1/4-20 x 7/8" FH	311-0002-308	3
	Nut - 1/4-20 UNC Lock Nylon insert	312-4000-057	3
	Washer - .312ID x .734OD x .065 Thk	313-2300-011	3

2

Install the Steering Control Equipment

1. Mount the SmarTrax node on the mounting plate (P/N 107-0171-947) for 8000 series and (P/N 107-0171-946) for 7000 series using three 1/4"-20 x 7/8" FH bolts (P/N 311-0002-308), three .312" ID x .734" OD x .065" thickness washers (P/N 313-2300-011), and three 1/4"-20 UNC lock nuts (P/N 312-4000-057).

FIGURE 1. Node Installed on Mounting Plate



2. Locate and remove the floor panel next to the seat.

FIGURE 2. Floor Panel



3. Mount the plate and the node where the panel was removed.

FIGURE 3. Node Mounting Example



4. Route the supplied control cable (P/N 115-4001-054) to the outside of the cab.
5. Remove the JD connector from valve and install the supplied Raven connector.

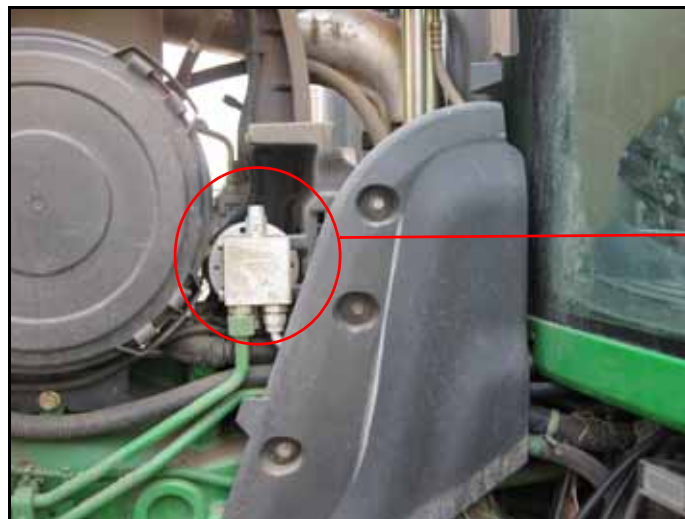
FIGURE 4. Valve Connector



Valve Connector

6. Determine if the tractor has a flowmeter or wheel sensor.

FIGURE 5. JD Flowmeter

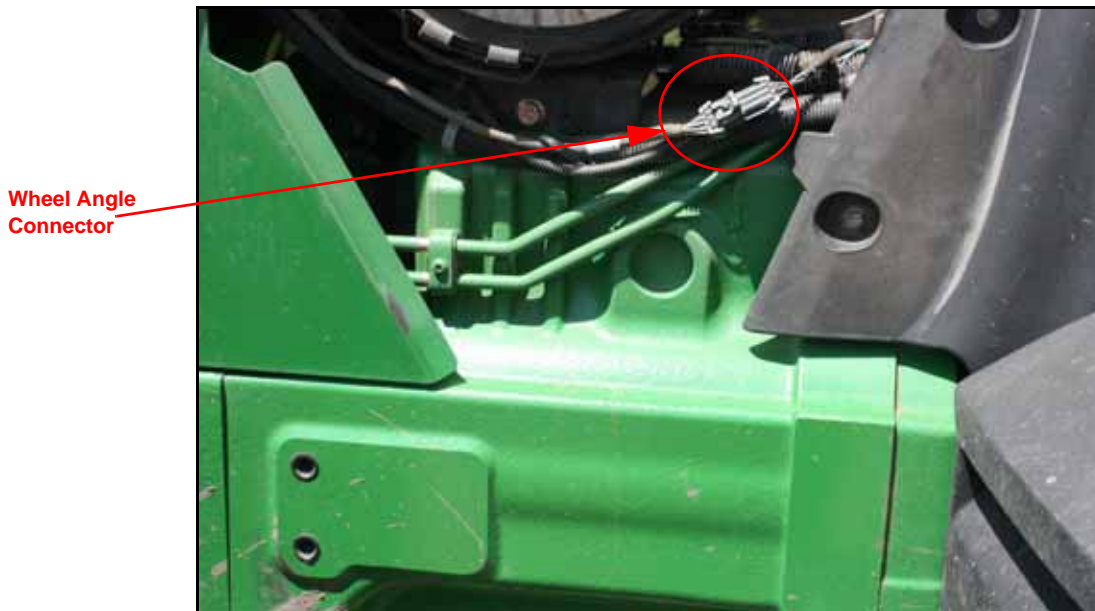


Flowmeter

7. If the tractor has a flowmeter (pictured above), remove the JD connector and connect the Raven connector back to the flowmeter.



FIGURE 6. JD Connector



8. If you have a wheel sensor, locate the 6 pin connector on side of tractor.
9. Disconnect the connectors and connect the supplied Raven cable to the cable going to the wheel sensor.

FIGURE 7. Wheel Angle Terminator



10. Mount the foot switch (P/N 063-0172-470) to the floor of the cab using screws or double-sided tape (not included in the installation kit).

Note: *The foot switch should be mounted in a location that allows the front of the pedal to be fully pressed without interference.*

11. Connect the foot switch to the node cable.
12. Connect the steering system to the Viper Pro/Envizio Pro using cable (P/N 115-4001-085 for steering only), or (P/N 115-4001-070) or (P/N 115-4001-071).

13. Remove the shroud around the steering wheel.

FIGURE 8.



14. Locate the encoder connectors.

FIGURE 9. Encoder Connectors



15. Disconnect the connectors.
16. Connect the Smartrax cable to one of the two open connectors going to the encoder.

CHAPTER

4

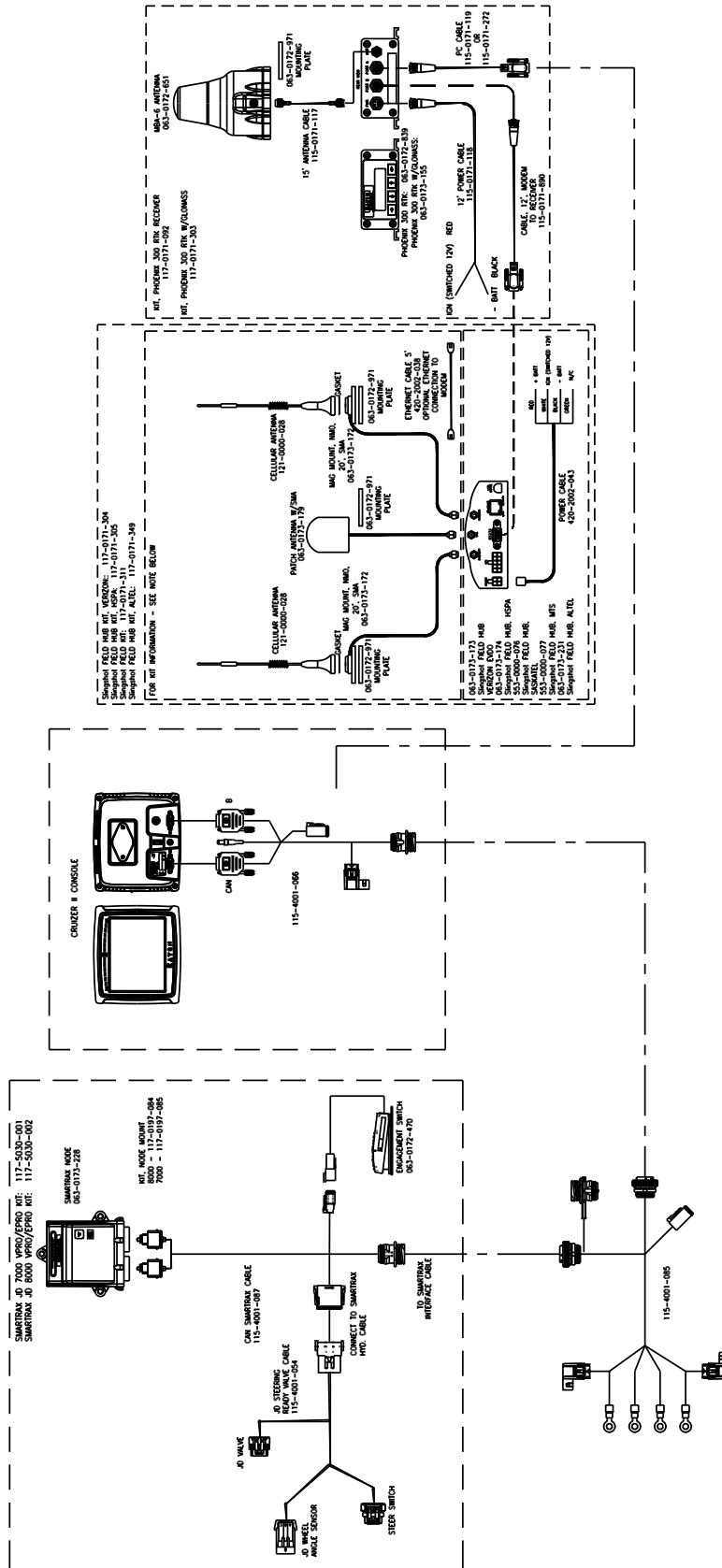
Wiring Schematics

SmarTrax Wiring Schematics

Refer to the Installation & Operation Manual and the appropriate wiring schematic in this chapter for the installation and wiring instructions for your specific field computer.

Envizio Pro/Viper Pro

ENVIZIO PRO/VIPER PRO JOHN DEERE FRONT STEER/STEERING READY W/SLINGSHOT



I

Introduction 3

- Preparing for Installation 4
- Recommendations 4
- Tools Needed 4

S

System Installation 9

- Installing the Steering Control Equipment 9

W

Wiring Schematics 15

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.

R A V E N

John Deere 77x0, 78x0, 79x0 and 8000 Series
Steering Ready Installation Manual
(P/N 016-0197-004 Rev B 1/11 E16990)

Simply improving your position.SM



Raven Industries
Applied Technology Division
P.O. Box 5107
Sioux Falls, SD 57117-5107

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

Notice: This document and the information provided are the property of Raven Industries, Inc. and may only be used as authorized by Raven Industries, Inc. All rights reserved under copyright laws.