

**Case IH STX 275-500 and New  
Holland TJ 275-500 - Model Years  
2001-2005 SmarTrax™ Installation  
Manual**

*P/N 016-5032-020 Rev A    09/15    E19561*

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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 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: Case IH**

**MODEL: STX 275/325/375/425/440/450/500**

**MAKE: New Holland**

**MODEL: TJ 275/325/375/425/450/500**

**FIGURE 1. Case IH STX 450**



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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. Bleed pressure from the hydraulic system by loosening the hydraulic fittings slowly, where applicable.

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 on the front center of the machine's cab.
- 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>

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*-Case IH STX 275-500 and New Holland TJ 275-500 - Model Year 2001-2005 SmarTrax™ Installation Manual*

*-Manual No. 016-5032-020 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.*

## 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.

**Note:** The SmarTrax node (P/N 063-0173-228) is sold separately. Contact your local Raven dealer for ordering information.

**TABLE 1. SmarTrax Installation Kit (P/N 117-5032-020)**

Picture	Item Description	Part Number	Qty.
Not Pictured	Manual - Case IH STX 275/325/375/425/440/450/500 and New Holland TJ 275/325/375/425/450/500 SmarTrax Installation Manual	016-5032-020	1
Not Pictured	Manual - SmarTrax and SmartSteer Calibration & Operation	016-0171-277	1
	Valve - SmarTrax Hydraulic	334-0003-089	1
	Bracket - Node Mounting	107-0172-084	1
	Bracket - Hydraulic Valve Mounting	116-0159-506	1
	Cable - Node Harness	115-4001-126	1
	Cable - Valve Harness	115-4001-153	1
	Assembly - SmarTrax Enable Foot Switch	063-0172-470	1

**TABLE 1. SmarTrax Installation Kit (P/N 117-5032-020)**

Picture	Item Description	Part Number	Qty.
	Transducer - 0-3000 PSI Pressure	422-0000-086	1
	Tape - 3.5" Double-Sided	332-0000-019	6
	Bolt - 1/2"-13 x 2-1/2" Hex	311-0058-101	2
	Bolt - 5/16"-18 x 7/8" Hex	311-0052-104	4
	Nut - 3/8"-16 UNC 3B Nylon Insert Lock	312-4000-061	3
	Nut - 1/2"-13 Lock	312-4000-101	2
	Washer - 5/16" Split Lock	313-1000-019	4
	Washer - 0.531" ID x 1.062" OD x 0.095" Thick Flat	313-2300-018	4

**TABLE 2. Hydraulic Kit (P/N 117-0199-118)**

Picture	Item Description	Part Number	Qty.
	Fitting - -8 ORFS M/M/F Swivel Run Tee Adapter	333-0012-028	2
	Fitting - -12 ORFS M/M/F Swivel Run Tee Adapter	333-0012-029	2

TABLE 2. Hydraulic Kit (P/N 117-0199-118)

Picture	Item Description	Part Number	Qty.
	Fitting - -12 ORFS (F) to -8 ORFS (M) Reducer	333-0012-030	2
	Fitting - -10 ORFS M/M/F Swivel Run Tee Adapter	333-0012-031	4
	Fitting - -10 ORFS (F) to -8 ORFS (M) Reducer	333-0012-032	4
	Fitting - -6 ORFS M/F 90° Swivel Elbow	333-0012-065	1
	Fitting - -8 ORFS M/F 90° Swivel Elbow	333-0012-067	4
	Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-084	1
	Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) 90° Elbow	333-0012-085	1
	Fitting - -6 ORFS M/F 45° Swivel Elbow	333-0012-090	1
	Fitting - -8 ORFS M/F 45° Swivel Elbow	333-0012-102	4
	Fitting - -8 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter	333-0012-168	2
	Fitting - -8 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-304	2

TABLE 2. Hydraulic Kit (P/N 117-0199-118)

Picture	Item Description	Part Number	Qty.
	Hydraulic Hose - -8 ORFS (F) 90° to -8 ORFS (F) - 24"	214-1000-909	4
	Hydraulic Hose - -6 ORFS (F) 90° to -6 ORFS (F) - 12"	214-1000-910	1

**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.



**NOTICE**

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.

## Install Fittings in the SmarTrax Valve

Before mounting the SmarTrax valve (P/N 334-0003-089) 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. Refer to the figure and table below to install the fittings in the valve.

**FIGURE 1. Fittings Installed in the SmarTrax Valve**



Fitting	Part Number	Port
Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-084	LS STEER
Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) 90° Elbow	333-0012-085	LSPV
Fitting - -8 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter	333-0012-168	P, T
Fitting - -8 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-304	A, B
Transducer - 0-3000 PSI Pressure	422-0000-086	PS

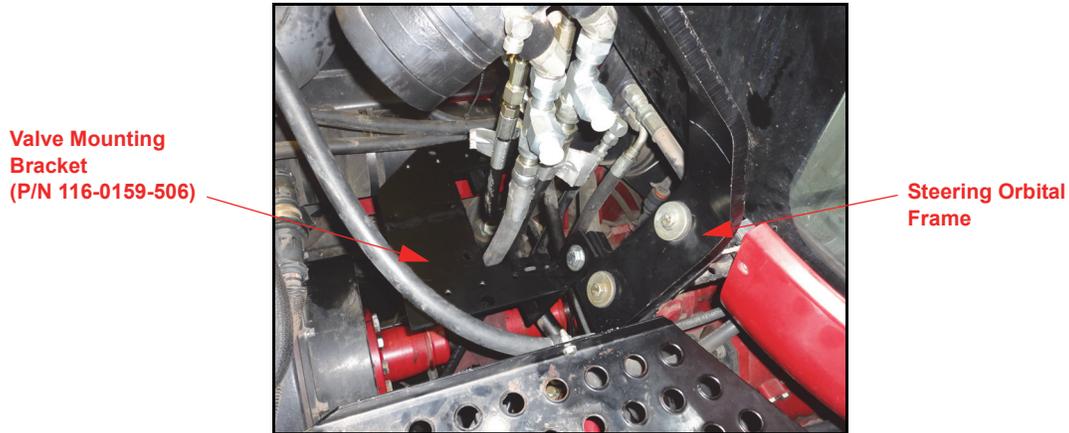
## Mount the SmarTrax Valve

FIGURE 2. Machine's Steering Orbital



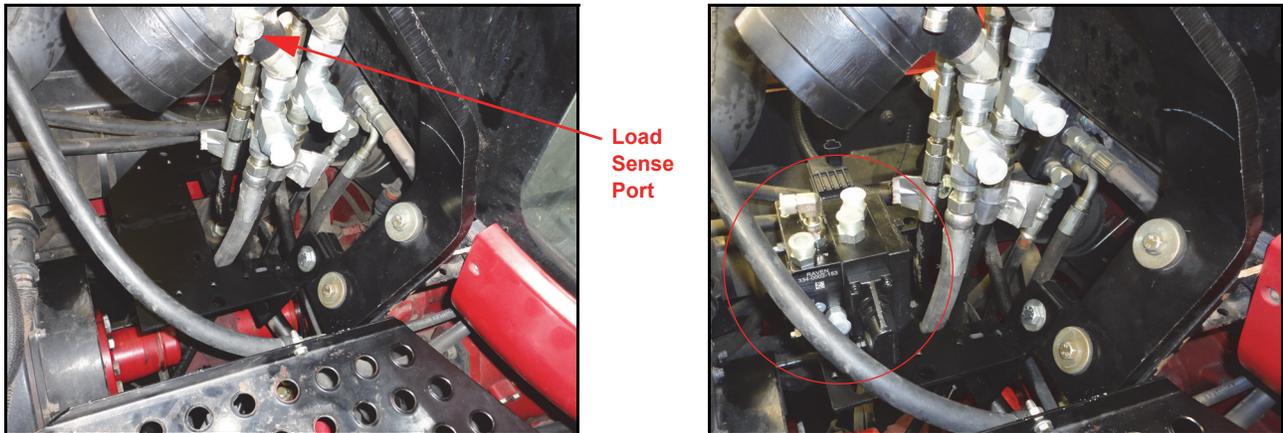
1. Lift the machine's hood and locate the steering orbital directly in front of the cab.

FIGURE 3. Valve Mounting Bracket Installed



2. Install the hydraulic valve mounting bracket (P/N 116-0159-506) to the steering orbital frame using two 1/2"-13 x 2-1/2" hex bolts (P/N 311-0058-101), four flat washers (P/N 313-2300-018), and two 1/2"-13 lock nuts (P/N 312-4000-101).

FIGURE 4. SmarTrax Valve Installed

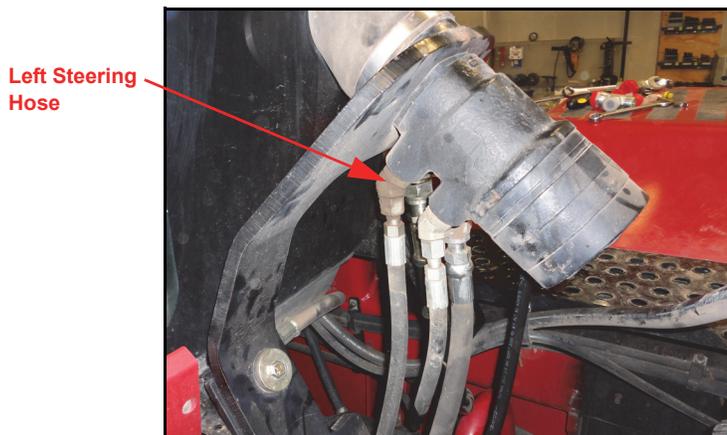


3. Mount the SmarTrax valve (P/N 334-0003-089) on the valve mounting plate using four 5/16"-18 x 7/8" bolts (P/N 311-0052-104) and four 5/16" lock washers (P/N 313-1000-019).

**Note:** The valve should be mounted so that Port LS STEER is located on the same side as the machine's load sense port on the steering orbital.

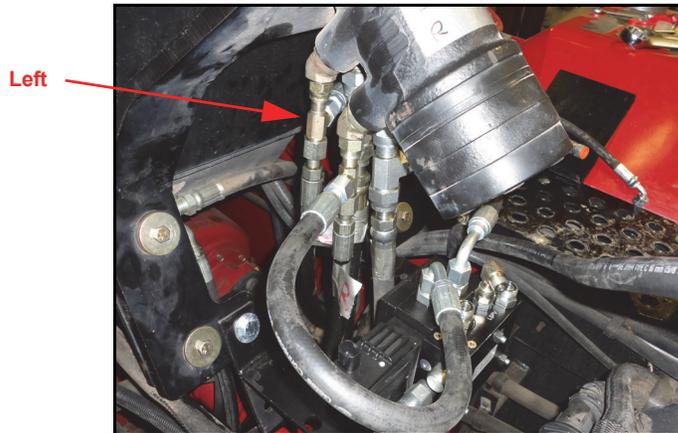
## Install the Left and Right Steering Hoses

FIGURE 5. Machine's Left Steering Hose on the Steering Orbital



1. Locate and disconnect the machine's left steering hose from the steering orbital.

FIGURE 6. Left Steering Hose Installed on Steering Orbital



2. Install an ORFS M/M/F swivel run tee fitting in the open port of the steering orbital.
  - Models 275/325 - Install a -10 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-031).
  - Larger models - Install a -8 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-028).

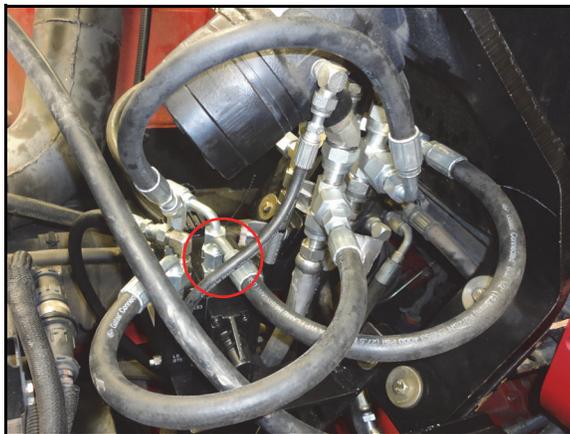
**Note:** Do not tighten the tee fitting. It may be necessary to adjust it when the SmarTrax hose is installed.

3. Connect the machine's left steering hose to the opposite end of the installed tee fitting.
4. **Models 275/325 only** - Install and tighten a -10 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-032) in the 90° end of the installed tee fitting.

**Note:** It may be necessary to install a -8 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-102) or -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on one end of the hydraulic hose to achieve the following SmarTrax hose connections.

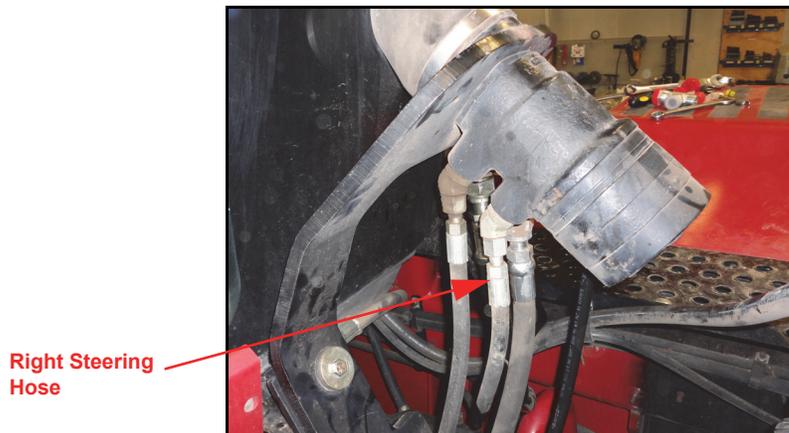
5. Install one end of the supplied hydraulic hose (P/N 214-1000-909) on 90° end of the installed tee fitting.

FIGURE 7. Left Steering Hose Installed on SmarTrax Valve



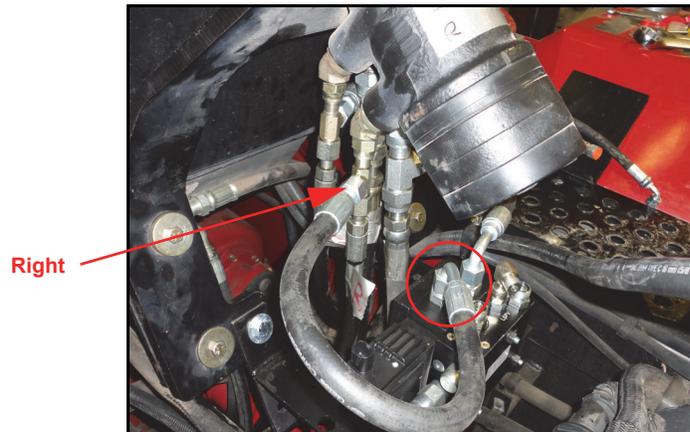
6. Connect the other end of the installed hydraulic hose to the fitting installed in Port A of the SmarTrax valve (P/N 334-0003-089).
7. Tighten all hose ends and the installed tee adapter fitting connection to the steering orbital.

FIGURE 8. Machine's Right Steering Hose on the Steering Orbital



8. Locate and disconnect the machine's right steering hose from the steering orbital.

FIGURE 9. Right Steering Hoses Installed



9. Install an ORFS M/M/F swivel run tee fitting in the open port of the steering orbital.
  - Models 275/325 - Install a -10 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-031).
  - Larger models - Install a -8 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-028).

**Note:** Do not tighten the tee fitting. It may be necessary to adjust it when the SmarTrax hose is installed.

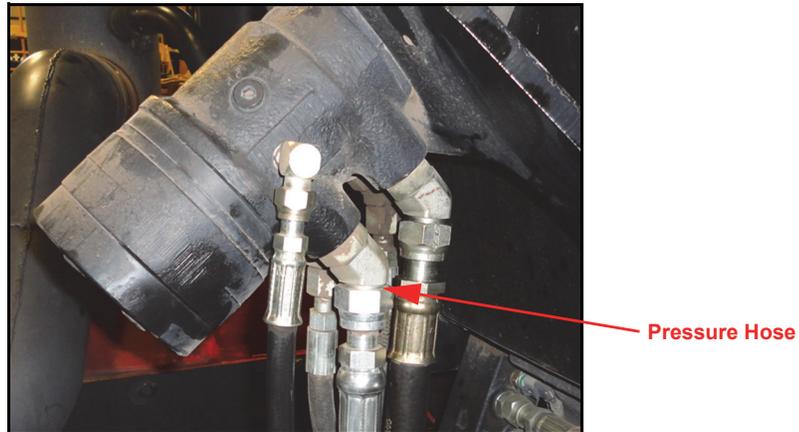
10. Connect the machine's right steering hose to the opposite end of the installed tee fitting.
11. **Models 275/325 only** - Install and tighten a -10 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-032) in the 90° end of the installed tee fitting.

**Note:** It may be necessary to install a -8 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-102) or -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on one end of the hydraulic hose to achieve the following SmarTrax hose connections.

12. Install one end of the supplied hydraulic hose (P/N 214-1000-909) on the 90° end of the installed tee fitting.
13. Connect the other end of the installed hydraulic hose to the fitting installed in Port B of the SmarTrax valve.
14. Tighten all hose ends and the installed tee adapter fitting connection to the steering orbital.

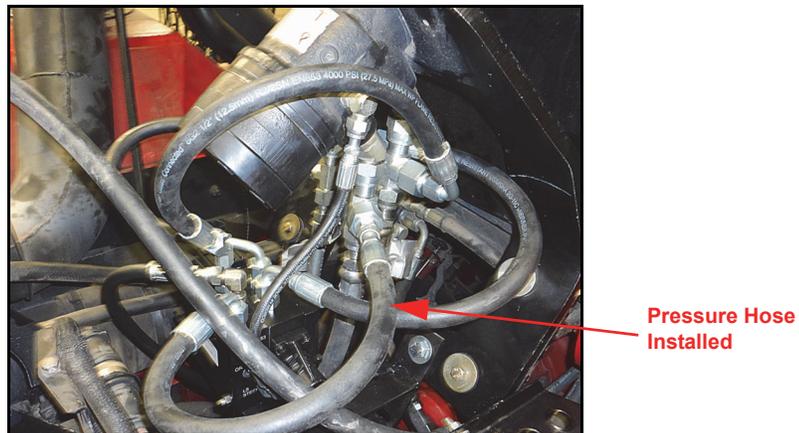
## Install the Pressure and Tank Hoses

FIGURE 10. Machine's Pressure Hose on the Steering Orbital



1. Locate and disconnect the machine's pressure hose from the steering orbital.

FIGURE 11. Pressure Hose Installed on the Steering Orbital



2. Install an ORFS M/M/F swivel run tee fitting in the open port of the steering orbital.
  - Models 275/325 - Install a -10 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-031).
  - Larger models - Install a -12 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-029).

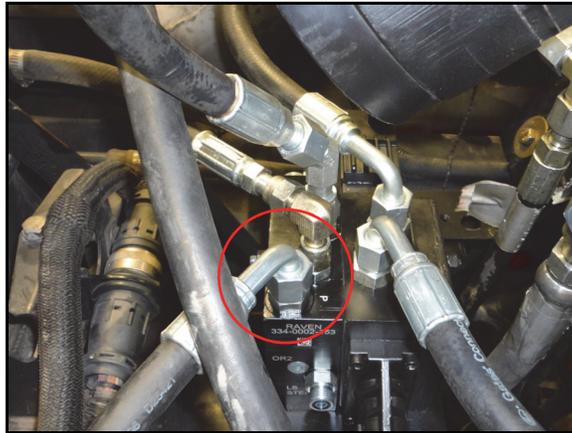
**Note:** Do not tighten the tee fitting. It may be necessary to adjust it when the SmarTrax hose is installed.

3. Connect the machine's pressure hose to the opposite end of the installed tee fitting.
4. Install and tighten an ORFS reducer fitting on the 90° end of the installed tee fitting.
  - Models 275/325 - Install a -10 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-032).
  - Larger models - Install a -12 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-030).

**Note:** It may be necessary to install a -8 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-102) or -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on one end of the hydraulic hose to achieve the following SmarTrax hose connections.

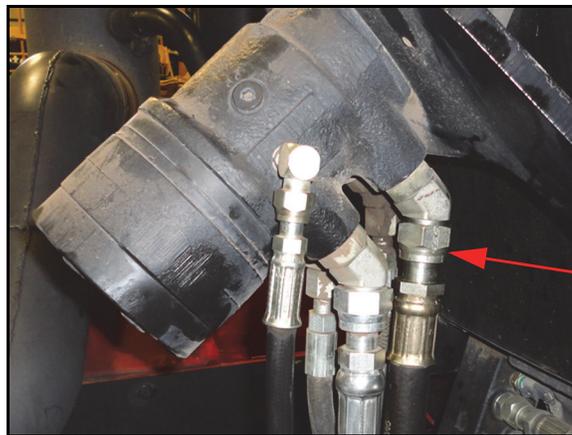
5. Install one end of the supplied hydraulic hose (P/N 214-1000-909) on the 90° end of the installed tee fitting.

FIGURE 12. Pressure Hose Installed on the SmarTrax Valve



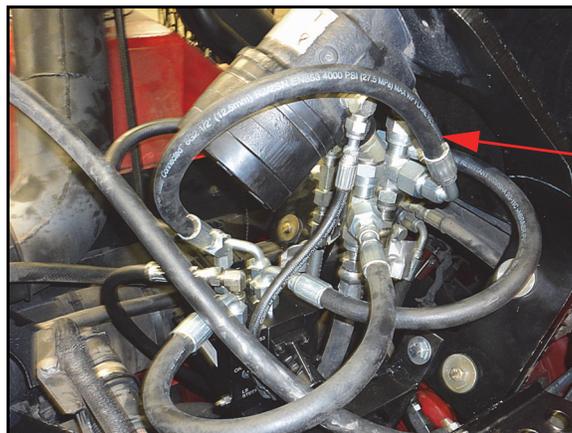
6. Connect the other end of the installed hydraulic hose to the fitting installed in Port P of the SmarTrax valve (P/N 334-0003-089).
7. Tighten all hose ends and the installed tee adapter fitting connection to the steering orbital.

FIGURE 13. Machine's Tank Hose on the Steering Orbital



8. Locate and disconnect the machine's tank hose from the steering orbital.

FIGURE 14. Tank Hose Installed on the Steering Orbital



9. Install an ORFS M/M/F swivel run tee fitting in the open port of the steering orbital.
  - Models 275/325 - Install a -10 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-031).
  - Larger models - Install a -12 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-029).

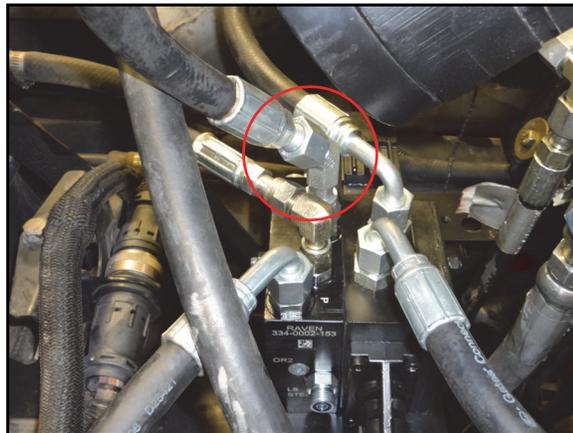
**Note:** Do not tighten the tee fitting. It may be necessary to adjust it when the SmarTrax hose is installed.

10. Connect the machine's tank hose to the opposite end of the installed tee fitting.
11. Install and tighten an ORFS reducer fitting on the 90° end of the installed tee fitting.
  - Models 275/325 - Install a -10 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-032).
  - Larger models - Install a -12 ORFS (F) to -8 ORFS (M) reducer fitting (P/N 333-0012-030).

**Note:** It may be necessary to install a -8 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-102) or -8 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-067) on one end of the hydraulic hose to achieve the following SmarTrax hose connections.

12. Install one end of the supplied hydraulic hose (P/N 214-1000-909) on the 90° end of the installed tee fitting.

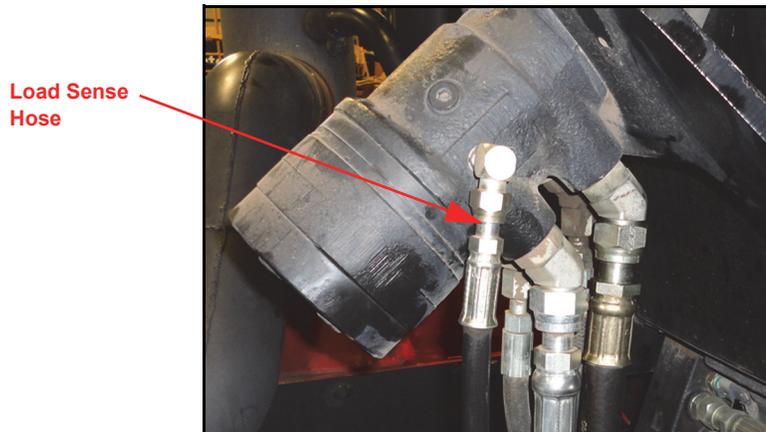
**FIGURE 15. Tank Hose Installed on the SmarTrax Valve**



13. Connect the other end of the installed hydraulic hose to the fitting installed in Port T of the SmarTrax valve.
14. Tighten all hose ends and the installed tee adapter fitting connection to the steering orbital.

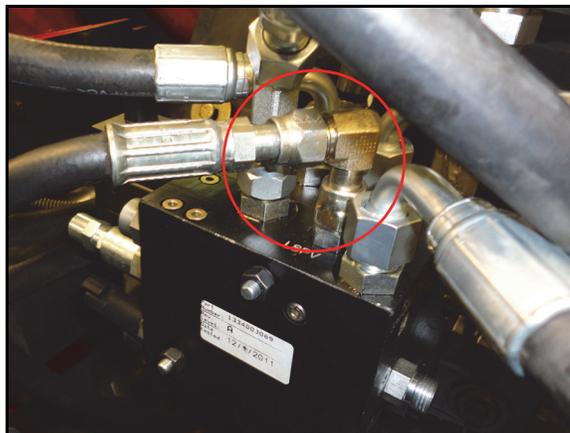
## Install the Load Sense Hoses

FIGURE 16. Machine's Hoses on the Steering Orbital



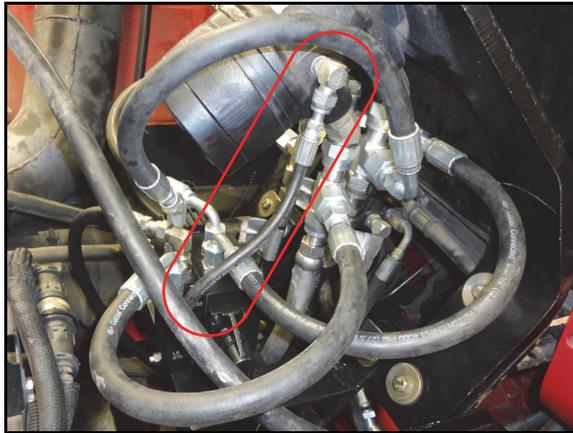
1. Locate and disconnect the machine's load sense hose from the steering orbital.

FIGURE 17. Machine's Load Sense Hose Connected to SmarTrax Valve



2. Connect the load sense hose to the fitting installed in Port LSPV of the SmarTrax valve (P/N 334-0003-089).

FIGURE 18. SmarTrax Load Sense Hose Installed



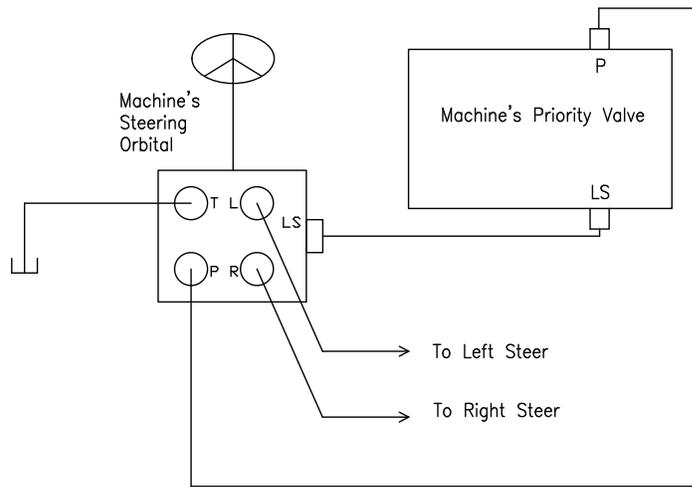
**Note:** It may be necessary to install a -6 ORFS M/F 45° swivel elbow fitting (P/N 333-0012-090) or -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) on one end of the hydraulic hose to achieve the following SmarTrax hose connections.

3. Install one end of the supplied hydraulic hose (P/N 214-1000-910) on the open port on the steering orbital.
4. Connect the other end of the installed hydraulic hose to the fitting installed in Port LS STEER of the SmarTrax valve.

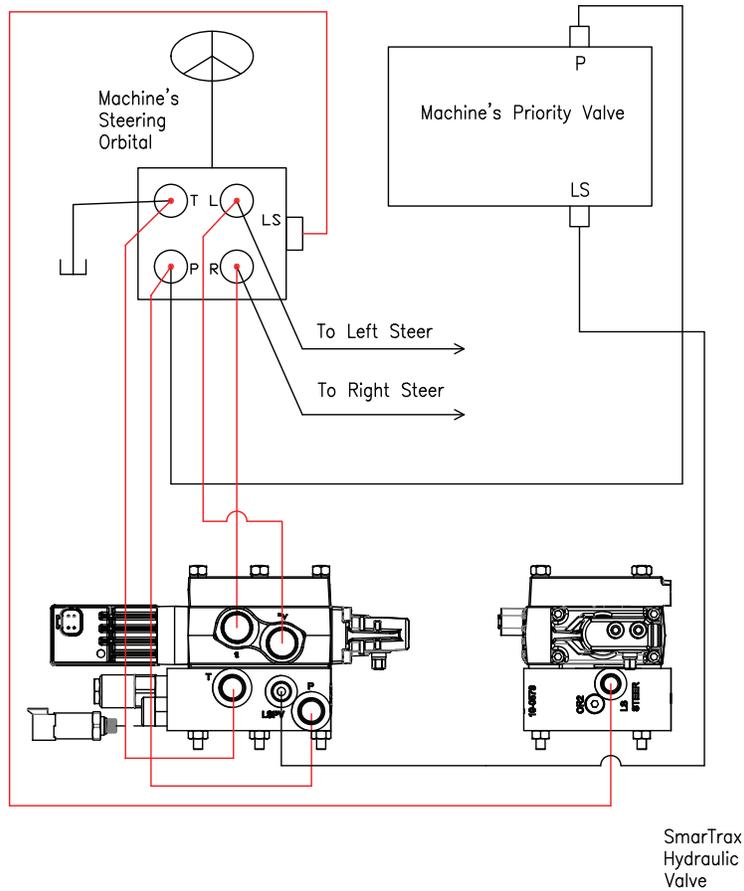


# Hydraulic Diagram

Before SmarTrax Installation



After SmarTrax Installation



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## CHAPTER

# 4

# *Cab Component Installation*

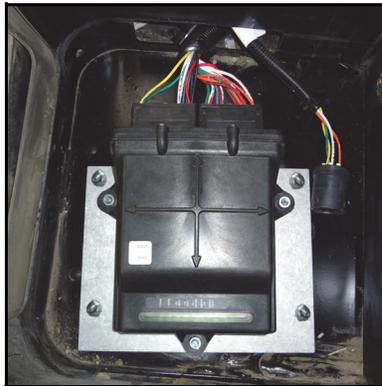
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## *Install the SmarTrax Node*

**Note:** The SmarTrax node (P/N 063-0173-228) is sold separately. Contact your local Raven dealer for ordering information.

## **Mount the SmarTrax Node**

FIGURE 1. SmarTrax Node Installed

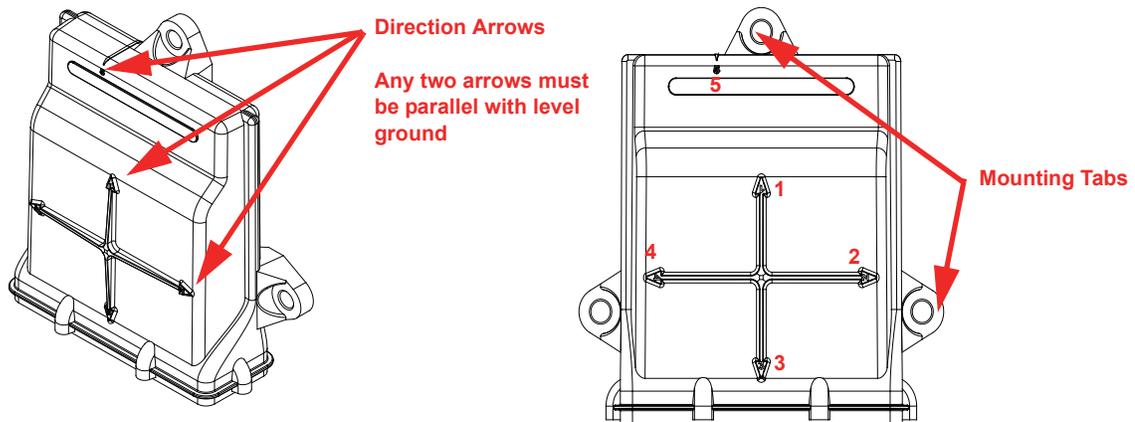


1. Mount the SmarTrax node to the node mounting bracket (P/N 107-0172-084) using three 3/8"-16 nylon insert lock nuts (P/N 312-4000-061).
2. Install the two large, rectangular connectors of the node harness (P/N 115-4001-126) into the correct ports of the node.
3. Tighten the bolts on the harness connectors to secure the connections.
4. Install six strips of 3.5" double-sided tape (P/N 332-0000-019) on the back of the node mounting bracket.
5. Remove the backing from the double-sided tape.
6. Adhere the node mounting bracket to the floor of the instructional seat compartment.

**Note:** The node connectors should be pointing toward the opening in the front of the instructional seat.

## 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.

## Route the Node Harness

1. Route the remainder of the node harness (P/N 115-4001-126) through the opening in the front of the instructional seat and behind the operator's seat.
2. Locate the opening in the plastic shroud behind the operator's seat.
3. Route the node harness through the opening, under the shroud, and into the fuse box located in the rear-right corner of the cab.

## Install the Foot Switch

FIGURE 3. Foot Switch Installed.



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. Locate the ENABLE connector on the node harness (P/N 115-4001-126) and connect it to the foot switch cable connector.

## Install the Valve Harness

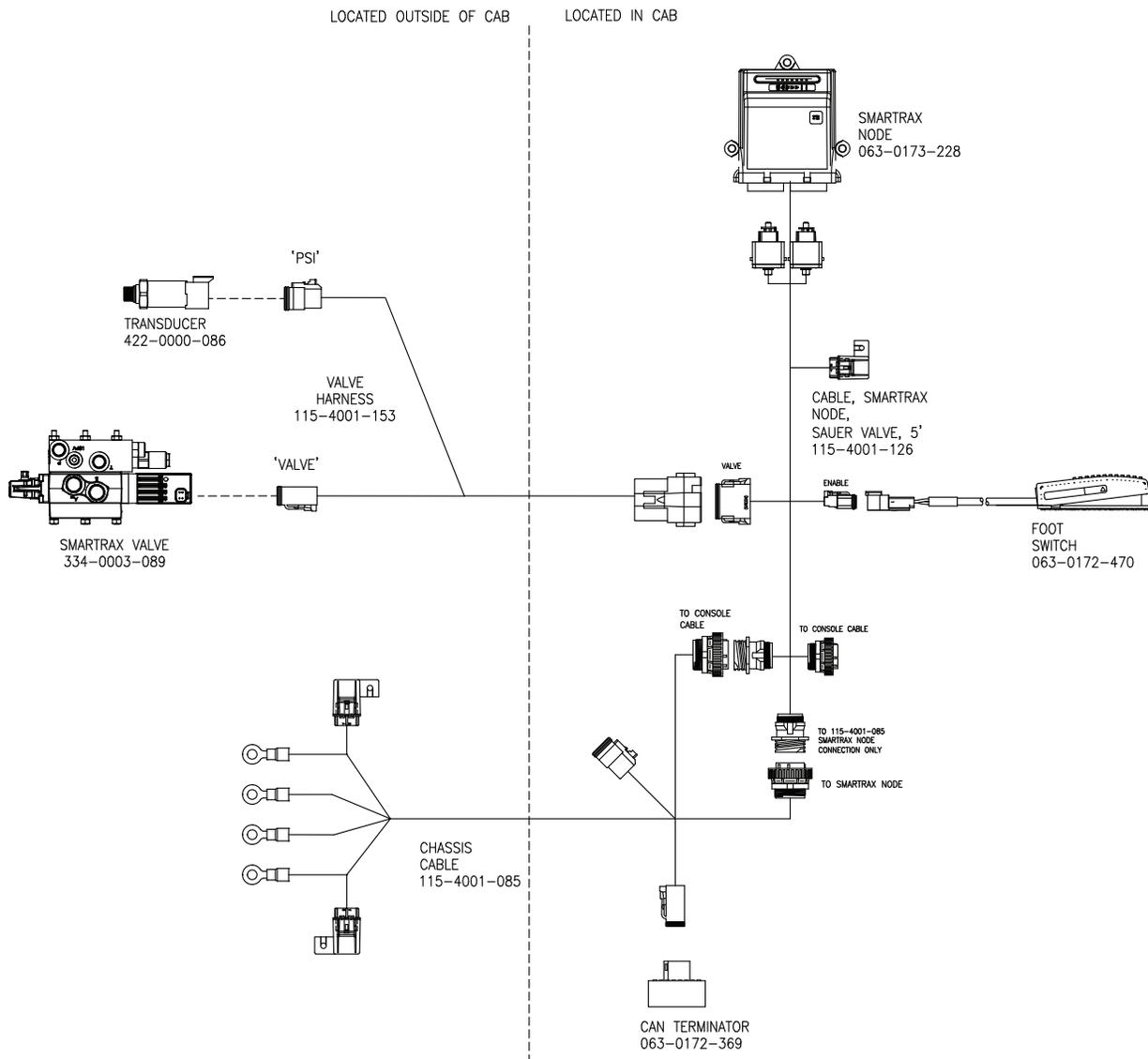
1. From outside the cab, route the 12-pin connector of the valve harness (P/N 115-4001-153) into the cab through the opening in the floor at the fuse box.
2. Plug the 12-pin connector of the valve harness into the VALVE connector of the node harness (P/N 115-4001-126).
3. Route the valve harness under the cab and toward the SmarTrax valve (P/N 334-0003-089).

FIGURE 4. PVE Connection



4. Plug the VALVE connector into the open PVE port on the SmarTrax valve.
5. Plug the PSI connector into the pressure transducer (P/N 422-0000-086) installed in Port PS of the SmarTrax valve.
6. Use plastic cable ties to secure the valve harness to the machine's frame, hoses, and/or cables, ensuring the cable does not come into contact with moving parts or heat sources.

FIGURE 5. Valve Harness Wiring Diagram



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## ***Install the Chassis Cable - SmarTrax-Only Systems (If Applicable)***

If the machine does not contain an existing chassis power system (such as AutoBoom, product control, etc.), it is necessary to install the chassis power cable to operate the SmarTrax system. If a CAN system already exists on the machine, refer to , *Connect SmarTrax to an Existing Chassis Cable (If Applicable)* below to connect the power to the SmarTrax system.

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

1. Locate the SmarTrax chassis cable (P/N 115-4001-085).
2. Connect the TO SMARTRAX NODE connector from the chassis cable to the TO 115-4001-085 SMARTRAX NODE CONNECTION connector on the node harness (P/N 115-4001-126).
3. Connect the TO CONSOLE CABLE connector on the node harness.
4. Connect the remaining connector on the node harness to the Raven console cable.
5. Install a terminator (P/N 063-0172-369) on the CAN cable connector.
6. Loop and tie-off the REMOTE SWITCH cable connection, securing it with plastic cable ties as necessary.

**Note:** *The REMOTE SWITCH connector is not used in the SmarTrax system. Ensure the cable is secured away from moving parts and heat sources.*

7. Connect the ring terminals to the battery.

**Note:** *The positive connectors are fused.*

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## ***Connect SmarTrax to an Existing Chassis Cable (If Applicable)***

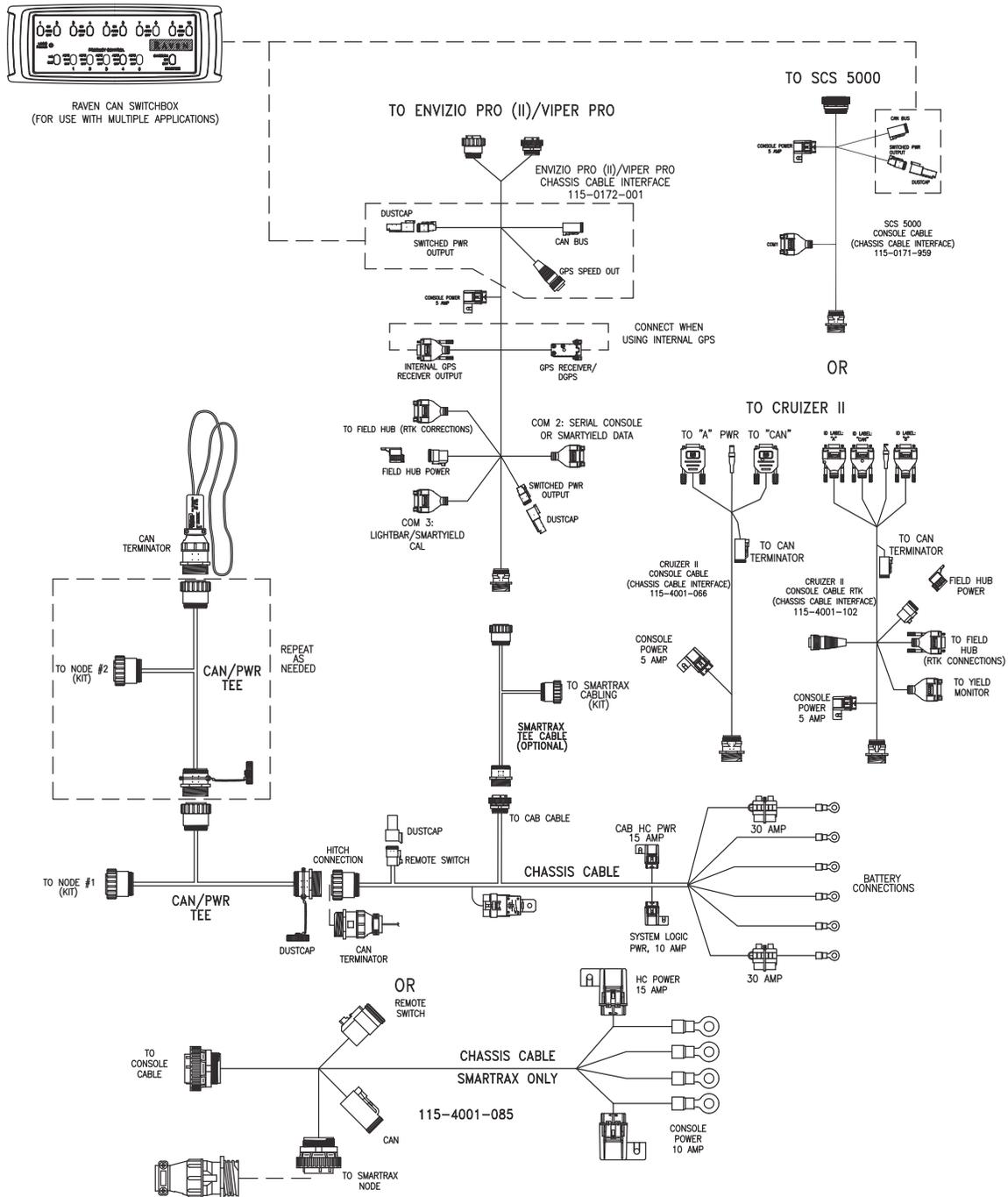
1. Locate and disconnect the connection between the Raven console cable and chassis cable on the machine's existing CAN system.
2. Install the SmarTrax node harness (P/N 115-4001-126) between the chassis and Raven console harness.
3. Loop and tie-off the TO 115-4001-085 SMARTRAX NODE CONNECTION ONLY cable connection, securing it with plastic cable ties as necessary.

**Note:** *The TO 115-4001-085 SMARTRAX NODE CONNECTION ONLY connector is not used in system containing existing chassis cables.*



# System Diagrams

FIGURE 6. Existing Chassis System Wiring Diagram











## CHAPTER

# 5

## *Startup Procedures*



### **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 fitting 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**

# **RAVEN INDUSTRIES**

## **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.

### ***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.