

**Miller Condor GC Series & New
Holland Guardian R Series
SmarTrax™ Installation Manual**

P/N 016-4001-121 Rev B 09/15

E23341

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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**

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.

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.

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: Miller
MODEL: Condor GC Series

MAKE: New Holland
MODEL: Guardian R Series

FIGURE 1. Miller Condor GC Series



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

Note: *If your machine is not listed, install the antenna on the front-center of the cab.*

Note: *The units in the table below are measured in inches. To convert the values to centimeters, multiply the listed value by 2.54.*

Note: *The values in the table below must be converted into feet or meters before being entered into the field computer.*

- *To convert the values to feet, divide the listed value by 12.*
- *To convert the values to meters, multiply the listed value by 0.0254.*

Machine Preset	Antenna X Position (left to right)	Antenna Y Position (from the rear wheel axle to the antenna position on the cab in inches)	Antenna Z Position (ground to top of antenna in inches)
Miller Condor GC Series/New Holland Guardian R	Centered	87	138

- 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.

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

-Miller Condor GC Series & New Holland Guardian R Series SmarTrax™ Installation Manual

-Manual No. 016-4001-121 Rev. B

-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.

2

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 local Raven dealer.

TABLE 1. SmarTrax Installation Kit (P/N 117-4001-121)

Picture	Item Description	Part Number	Qty.
Not Pictured	Manual - SmarTrax and SmartSteer Calibration & Operation	016-0171-277	1
Not Pictured	Manual - Miller Condor GC Series SmarTrax Installation	016-4001-121	1
	Valve - SmarTrax Hydraulic	334-0003-090	1
	Node - SmarTrax 3D Node	063-0173-228	1

TABLE 1. SmarTrax Installation Kit (P/N 117-4001-121)

Picture	Item Description	Part Number	Qty.
	Bracket - Hydraulic Valve Mounting	107-0171-907	1
	Bracket - Rotary Sensor Mounting	107-0171-945	1
	Bracket - Electrical Bulkhead Cover	107-0172-193	1
	Bracket - Rotary Sensor Arm Mounting	116-0159-674	1
	Bracket - Condor Rotary Sensor Mounting	116-0159-719	1
	Cable - Node Harness	115-4001-139	1
	Cable - Valve Harness	115-4001-140	1
	Assembly - Rotary Sensor Wheel Angle Sensor	063-0181-013	1
	Transducer - 0-3000 PSI Pressure	422-0000-086	1
	Bolt - 5/16" - 18 x 7/8" Hex	311-0052-104	4
	Bolt - 5/16" - 18 x 1-1/4" Hex	311-0052-106	2

TABLE 1. SmarTrax Installation Kit (P/N 117-4001-121)

Picture	Item Description	Part Number	Qty.
	Bolt - 3/8"-16 UNC x 1-1/4" Hex	311-0054-106	5
	Nut - 3/8"-16 Zinc Flanged Lock	312-1001-164	2
	Nut - 5/16"-18 Thin Nylon Insert Lock	312-4001-107	2
	Washer - 5/16" Split Lock	313-1000-019	4
	Washer - 5/16" Flat	313-2300-011	4
	Washer - 3/8" Flat	313-2300-013	4

TABLE 2. Hydraulic Kit (P/N 117-0199-125)

Picture	Item Description	Part Number	Qty.
	Fitting - -8 ORFS M/M/F Swivel Run Tee Adapter	333-0012-028	1
	Fitting - -6 ORFS M/F 90° Swivel Elbow	333-0012-065	2
	Fitting - -6 ORFS M/M/F Swivel Run Tee Adapter	333-0012-069	2
	Fitting - -8 ORFS M/M Straight Adapter	333-0012-070	1

TABLE 2. Hydraulic Kit (P/N 117-0199-125)

Picture	Item Description	Part Number	Qty.
	Fitting - -6 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-233	2
	Fitting - -8 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-304	3
	Hydraulic Hose - -6 ORFS (F) 90° to -6 ORFS (F) - 84"	214-1000-318	1
	Hydraulic Hose - -6 ORFS (F) 90° to -6 ORFS (F) - 72"	214-1000-674	1
	Hydraulic Hose - -8 ORFS (F) 90° to -8 ORFS (F) - 27"	214-1000-956	2
	Hydraulic Hose - -8 ORFS (F) 90° to -8 ORFS (F) - 36"	214-1000-957	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
<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

Before mounting the SmarTrax valve (P/N 334-0003-090) 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.

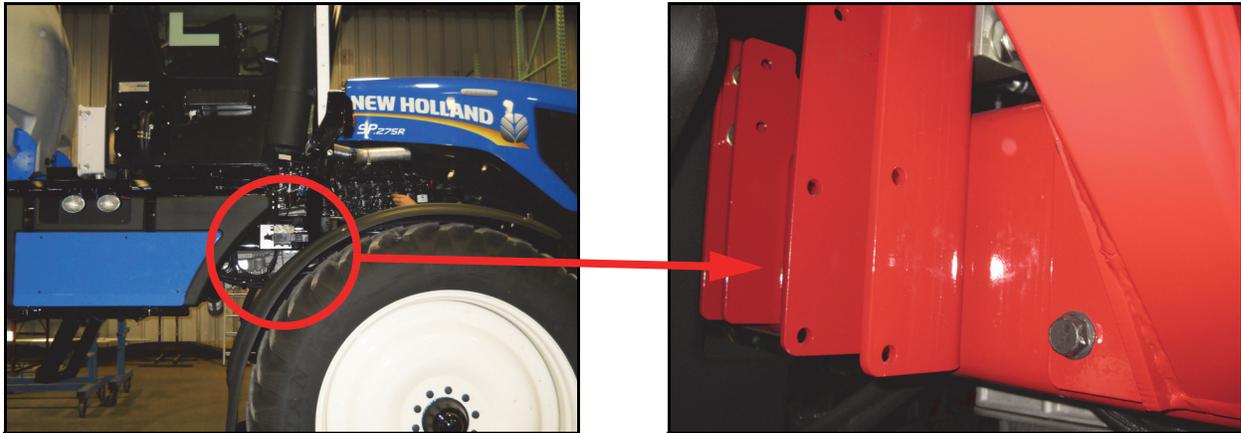
FIGURE 1. Fittings Installed in the SmarTrax Valve



Fitting	Part Number	Port
Fitting - -6 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-233	A, B
Fitting - -8 ORFS (M) to -10 SAE O-Ring (M) Straight Adapter	333-0012-304	P, T, EF
Transducer - 0-3000 PSI Pressure	422-0000-086	PS

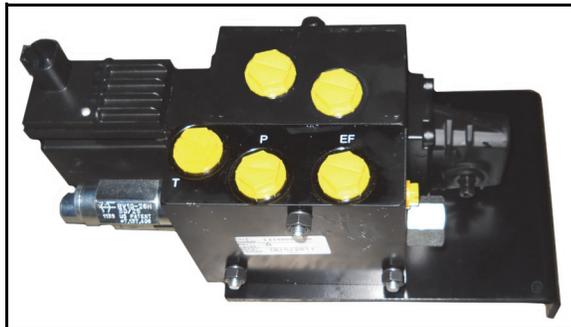
Mount the SmarTrax Valve

FIGURE 2. SmarTrax Valve Mounting Location



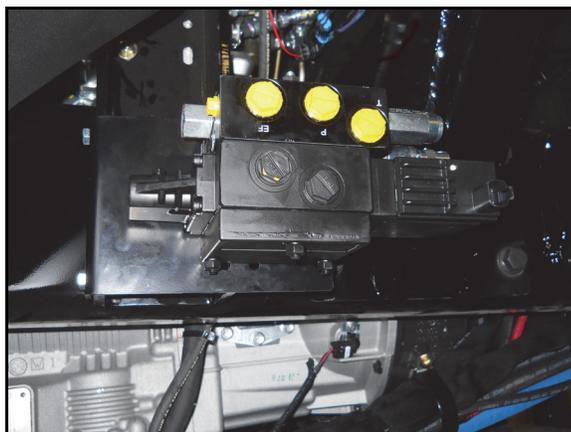
1. Identify the SmarTrax valve (P/N 334-0003-090) mounting location on the right cab support in front of the hydraulic tank.

FIGURE 3. SmarTrax Valve Installed on Mounting Bracket



2. Secure the SmarTrax valve (P/N 334-0003-090) to the valve mounting bracket (P/N 107-0171-907) 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).

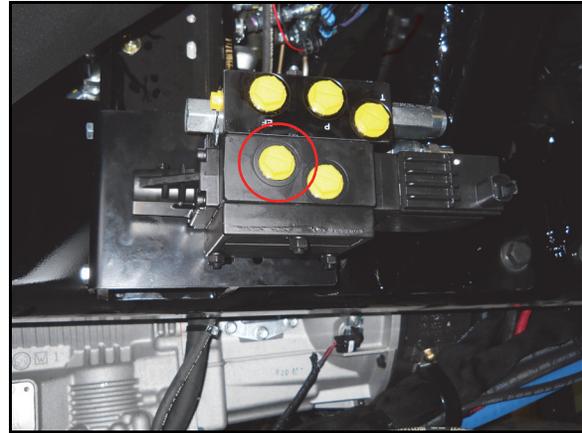
FIGURE 4. Valve Mounted on the Machine



3. Mount the SmarTrax valve to the holes in the cab support using two 3/8"-16 UNC x 1-1/4" hex bolts (P/N 311-0054-106), two 3/8" flat washers (P/N 313-2300-013), and two 3/8"-16 zinc flanged lock nuts (P/N 312-1001-164).

Install the Left and Right Steering Hoses

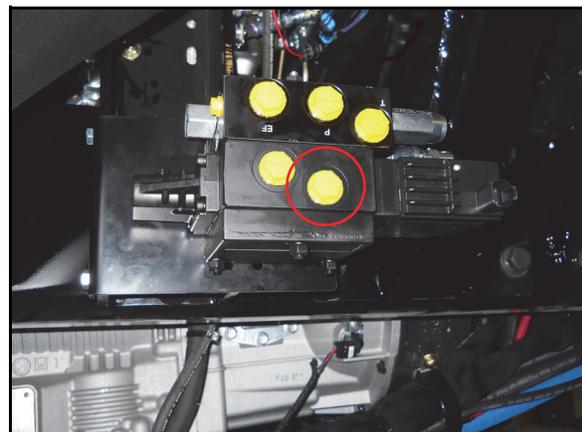
FIGURE 5. Left Steering Hose Connections



1. Locate and disconnect the left steering hose from the base-end of the hydraulic steering cylinder.
2. Install a -6 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-069) in the open port of the left steering cylinder.
3. Connect the machine's left steering hose to the opposite end of the installed tee fitting.
4. Install the 90° end of the supplied hydraulic hose (P/N 214-1000-318) on the 90° end of the installed tee fitting.
5. Connect the straight end of the installed hydraulic hose on the fitting installed in Port A of the SmarTrax valve (P/N 334-0003-090).

Note: It may be necessary to install a -6 ORFS M/F 90° swivel elbow fitting (P/N 333-0012-065) on Port A of the SmarTrax valve to achieve the connection.

FIGURE 6. Right Steering Hose Connections

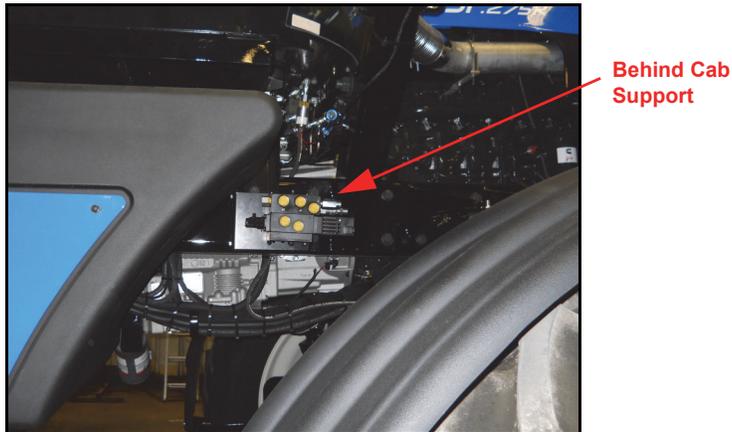


6. Locate and disconnect the right steering hose from the base-end of the hydraulic steering cylinder.
7. Install a -6 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-069) in the open port of the right steering cylinder.
8. Connect the machine's right steering hose to the opposite end of the installed tee fitting.
9. Install the 90° end of the supplied hydraulic hose (P/N 214-1000-674) on the 90° end of the installed tee fitting.
10. Connect the straight end of the installed hydraulic hose on 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) on Port B of the SmarTrax valve to achieve the connection.

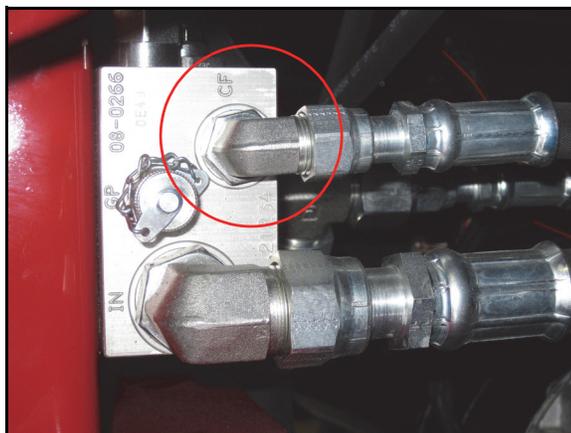
Install the Pressure Hoses

FIGURE 7. Machine's Relief Valve Location



1. Locate the machine's relief valve on the back side of the cab support on which the SmarTrax valve (P/N 334-0003-090) is mounted.

FIGURE 8. Pressure Relief Valve CF Port

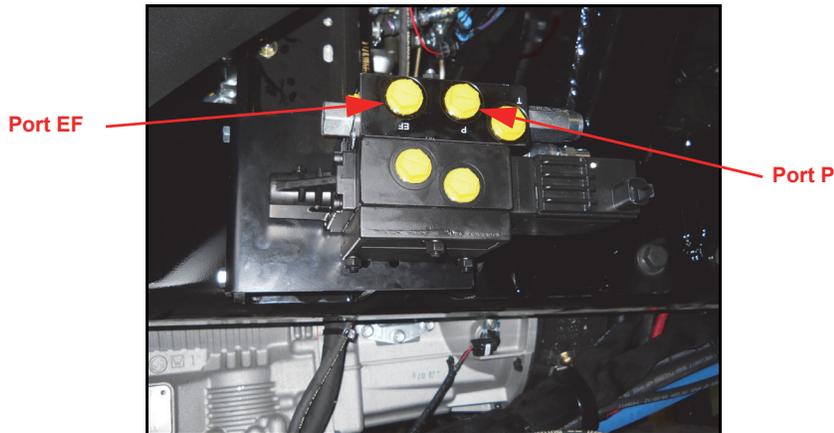


2. Disconnect the machine's pressure hose from the CF port on the relief valve.

Note: Do not remove the 90° elbow fitting from the relief valve.

3. Install a -8 ORFS M/M straight adapter fitting (P/N 333-0012-070) on the end of the machine's pressure hose.
4. Install the straight end of the supplied hydraulic hose (P/N 214-1000-956) on the installed adapter fitting.

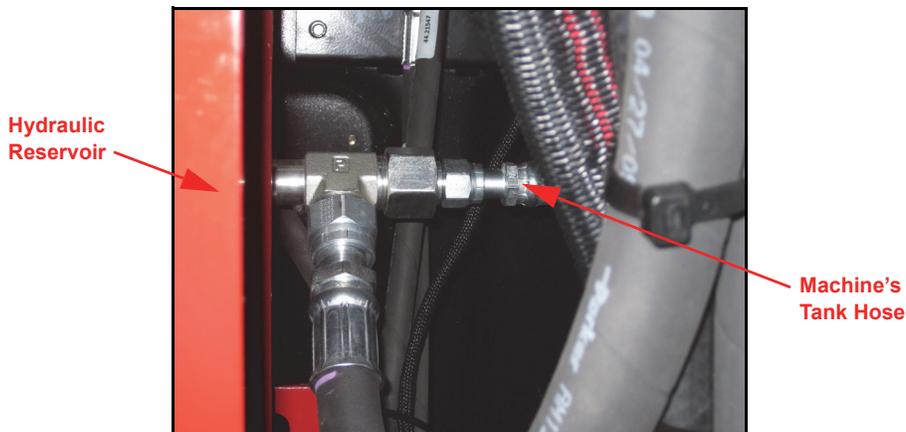
FIGURE 9. Pressure Hose Connections



5. Route and connect 90° end of the installed hydraulic hose to the fitting installed in Port EF of the SmarTrax valve (P/N 334-0003-090).
6. Install the straight end of the supplied hydraulic hose (P/N 214-1000-956) on the existing elbow fitting in port CF of the machine's relief valve.
7. Connect the 90° end of the installed hydraulic hose to the fitting installed in Port P of the SmarTrax valve.

Install the Tank Hose

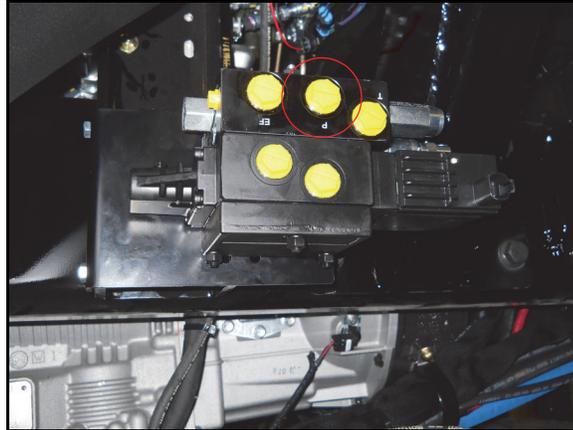
FIGURE 10. Machine's Tank Hose



1. Locate the tank hose on the hydraulic reservoir on the right side of the machine.
2. Disconnect the machine's tank hose from the existing tank tee fitting.

3. Install a -8 ORFS M/M/F swivel run tee adapter fitting (P/N 333-0012-028) on the machine's tank tee fitting.
4. Connect the machine's tank hose to the opposite end of the installed tee fitting.
5. Install the straight end of the supplied hydraulic hose (P/N 214-1000-957) on the 90° end of the installed tee fitting.

FIGURE 11. Tank Hose Connection

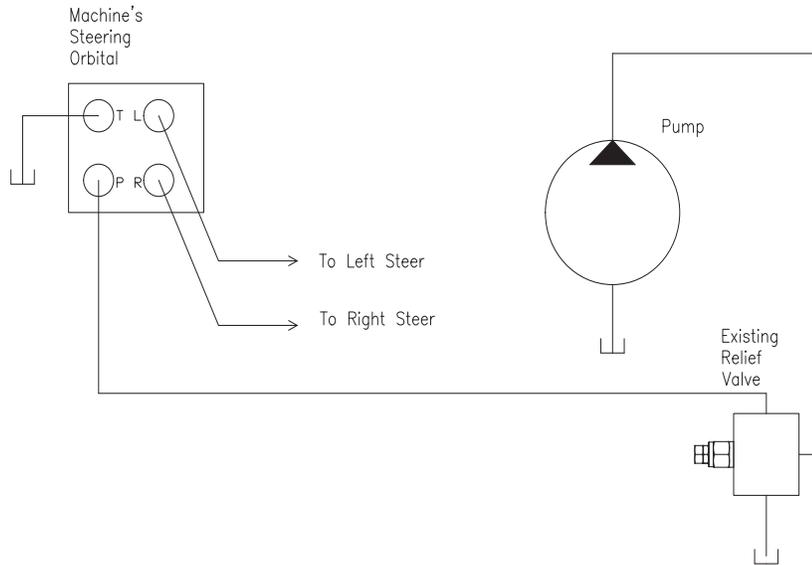


6. Connect the 90° end of the installed hydraulic hose to the fitting installed in Port T of the SmarTrax valve (P/N 334-0003-090).

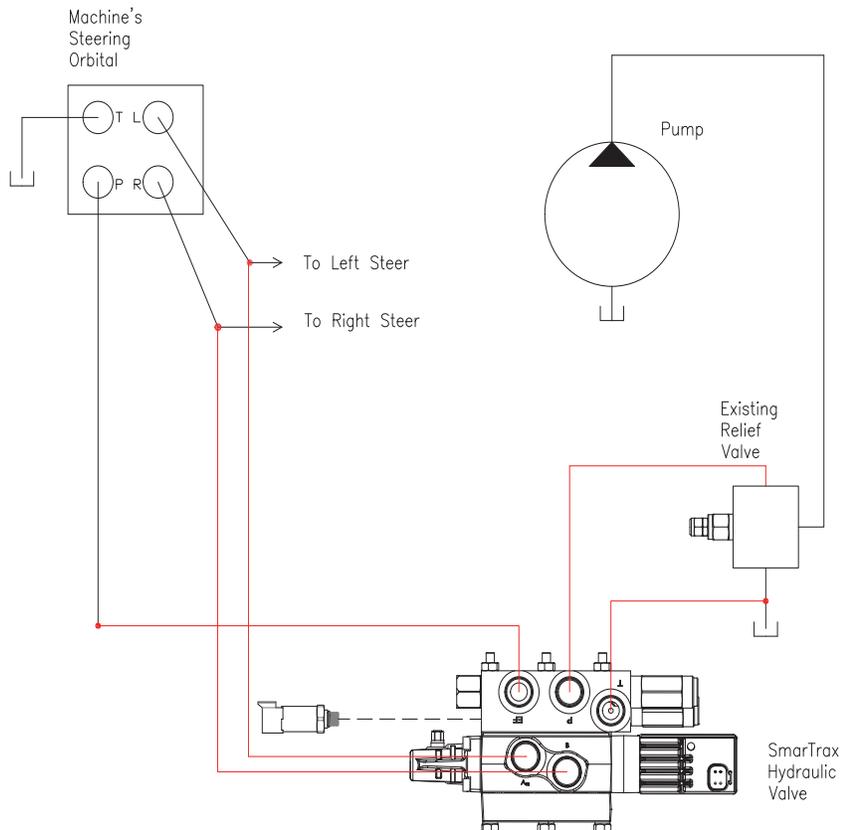


Hydraulic Diagram

Before SmarTrax Installation



After SmarTrax Installation

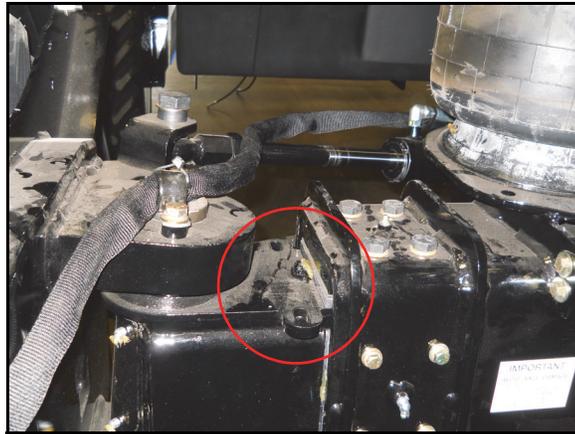


CHAPTER

4

***Wheel Angle Sensor
(WAS) Installation***

FIGURE 1. WAS Installation Location on Front Right Axle



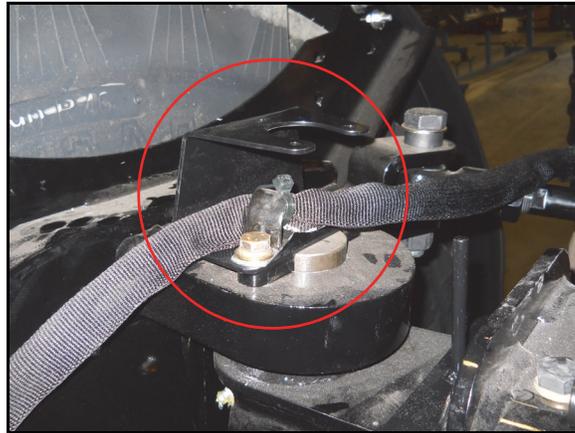
1. Turn the machine's front wheels to the left to access the right front axle.

FIGURE 2. Condor Rotary Sensor Mounting Bracket Installed



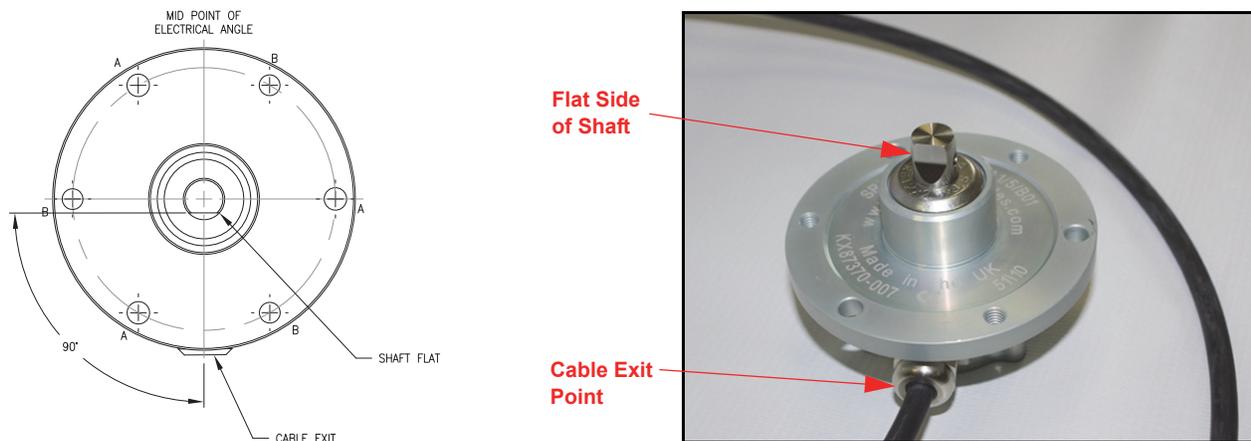
2. Install the Condor rotary sensor mounting bracket (P/N 116-0159-719) to the right front axle using two 5/16"-18 x 1-1/4" hex bolts (P/N 311-0054-106), four 5/16" flat washers (P/N 313-2300-011), and two 5/16"-18 thin nylon insert lock nuts (P/N 312-4001-107).

FIGURE 3. Sensor Mounting Bracket Installed



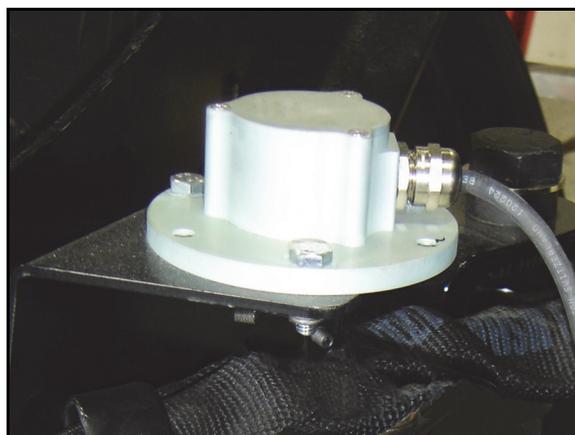
3. Install the sensor mounting bracket (P/N 107-0171-945) on the machine's frame using the machine's existing 1/2" axle bolts.

FIGURE 4. Rotary Sensor Assembly Alignment



4. Align the flat side of the shaft with the cable exit point as shown in the figure above.

FIGURE 5. Rotary WAS Positioned on Machine



5. Install the rotary WAS on the installed sensor mounting bracket using the supplied mounting hardware.

Important: The WAS should be installed so that the cable points straight ahead.

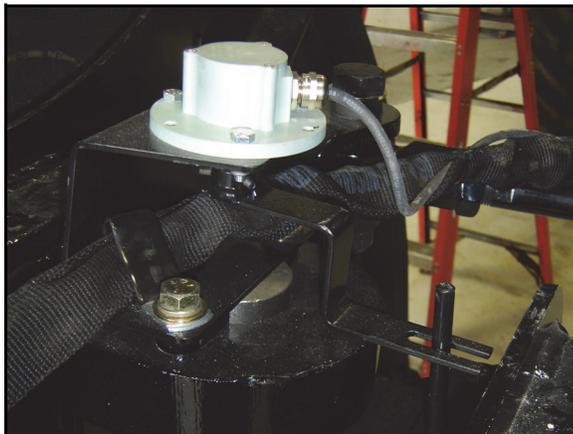
6. Install the set screws through the holes in the collar of the rotary sensor arm bracket.

FIGURE 6. Arm Bracket Installed on Sensor Mounting Bracket Shaft



7. Slide the forked end of the arm bracket onto the shaft of the Condor rotary sensor mounting bracket (P/N 116-0159-719).

FIGURE 7. Arm Bracket Installed on WAS



8. Using care not to move the sensor shaft, slide the collar end of the arm bracket over the sensor shaft.
9. Secure the arm bracket to the shaft by tightening the installed set screws.

CHAPTER

5

***Cab Component
Installation***

Install the SmarTrax Node

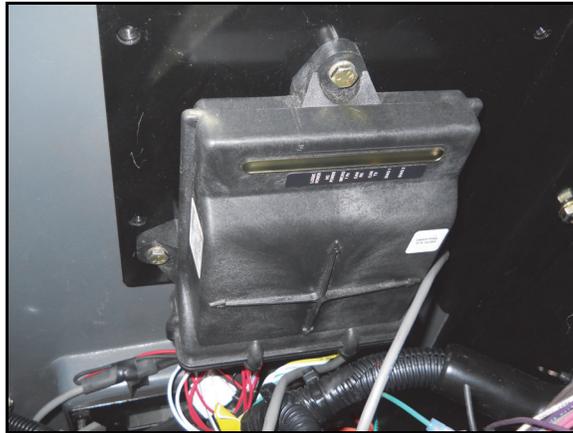
Install the SmarTrax Node and Node Harness

FIGURE 1. Plastic Tray to be Removed



1. Remove the plastic tray located in the right-rear corner of the cab.
2. Locate the factory-installed node mounting plate in the front of the compartment.

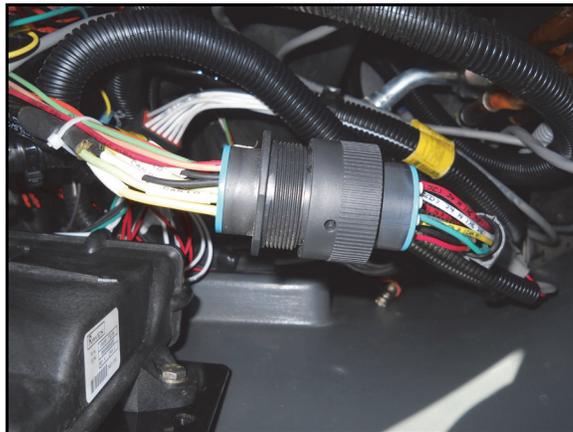
FIGURE 2. SmarTrax Node Installed



3. Install the two large, rectangular connectors of the node harness (P/N 115-4001-139) into the correct ports of the node, tightening the bolts on the harness connectors to secure the connections.
4. Mount the SmarTrax node (P/N 063-0173-228) to the node mounting plate using three 3/8"-16 x 1-1/4" bolts (P/N 311-0054-106).

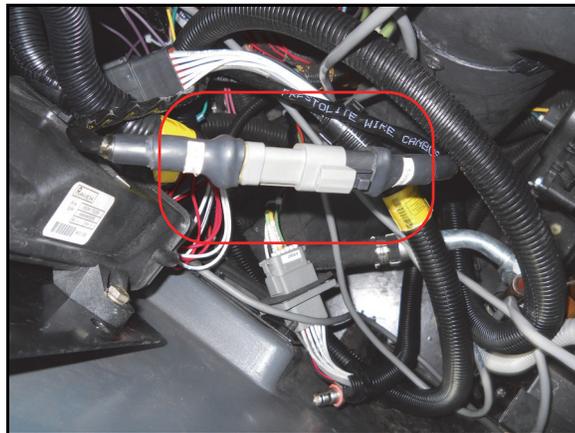
Note: The node forward direction number as shown in the figure above is 6.

FIGURE 3. 19-Pin Deutsch Connection



5. Connect the round 19-pin Deutsch connection on the node harness to the mating connector on the machine's harness, located in the node compartment.

FIGURE 4. Machine's Existing GPS Connection



6. Locate and disconnect the machine's existing 3-pin Deutsch GPS connection.

FIGURE 5. Node Harness GPS Connections



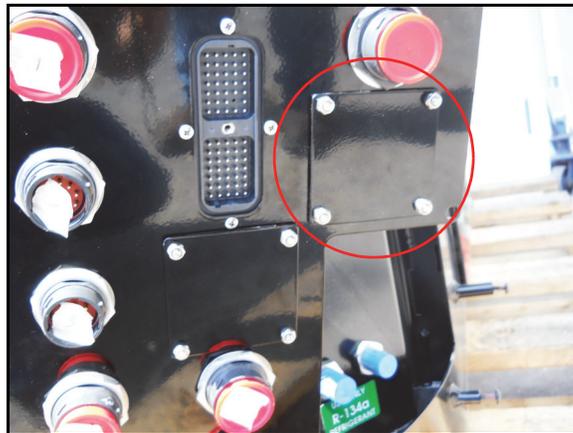
7. Connect the machine's GPS connectors to the mating connectors on the node harness.

FIGURE 6. Shroud to be Removed



8. Remove the plastic shroud located on the outside of the machine, in the right-rear corner of the cab.

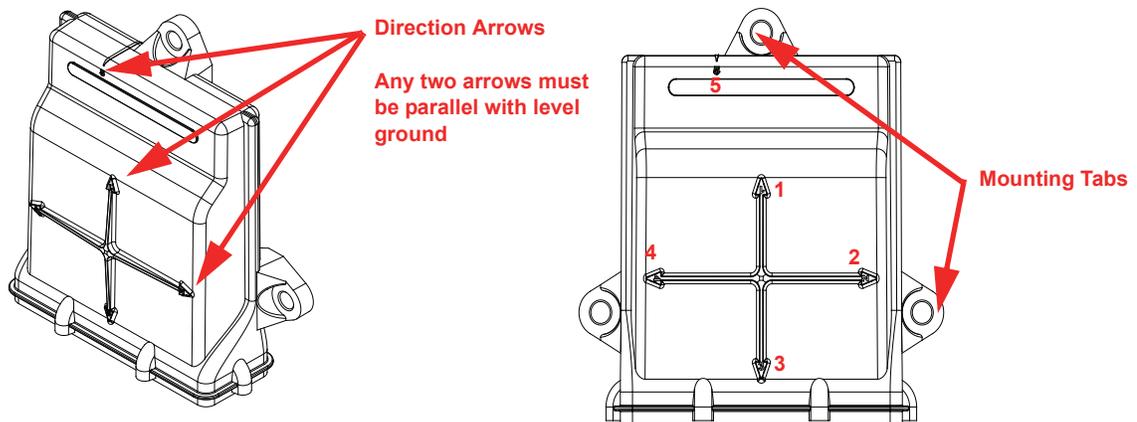
FIGURE 7. Cover Plate to be Removed



9. Remove the cover plate from the bulkhead as shown in the figure above.
10. Install the supplied bulkhead cover plate (P/N 107-0172-193) on the bulkhead cover panel using the nuts and bolts removed in step 9.
11. From inside the cab, install the round bulkhead connector through the hole in the bulkhead cover panel.
12. Tighten the bulkhead nut to secure the connection.

Node Mounting Locations

FIGURE 8. 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.

Install the Valve Harness

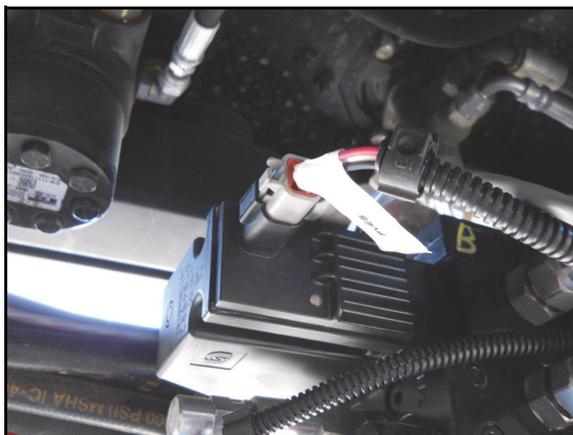
1. Plug the round 19-pin connector of the valve harness (P/N 115-4001-140) into the mating round 19-pin connector of the node harness (P/N 115-4001-139) installed at the bulkhead.
2. Route the valve harness under the cab to the SmarTrax valve (P/N 334-0003-090) mounting location.

FIGURE 9. PSI Connection



3. Connect the PSI connector to the transducer (P/N 422-0000-086) installed in Port PS of the SmarTrax valve.

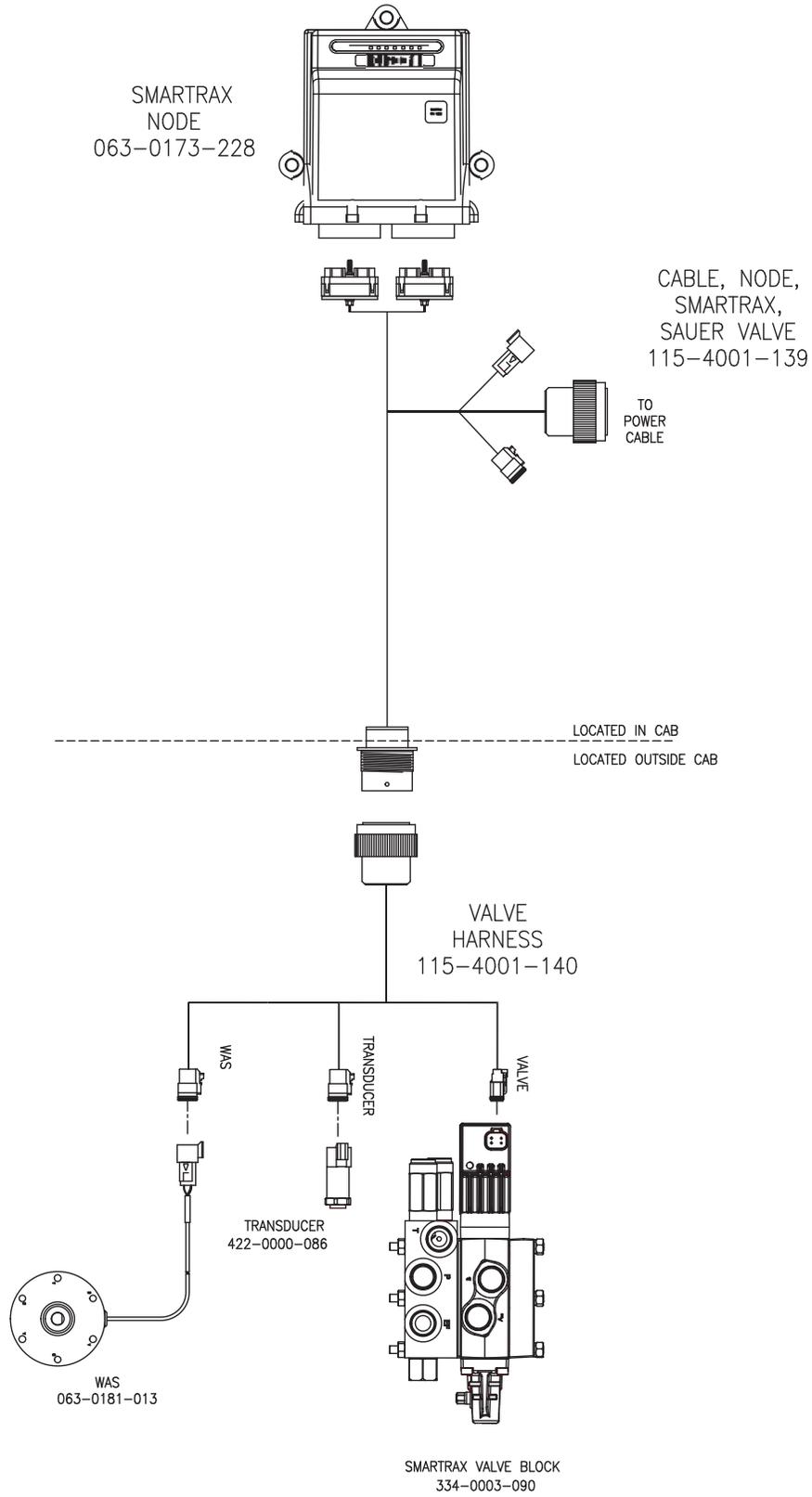
FIGURE 10. PVES Connection



4. Connect the PVES connector to the open PVES port on the end of the SmarTrax valve.
5. Connect the SPS connector to the cable of the installed rotary sensor (P/N 063-0181-013).
6. Loop and tie-off the ENABLE connector, securing it away from moving parts and heat sources.

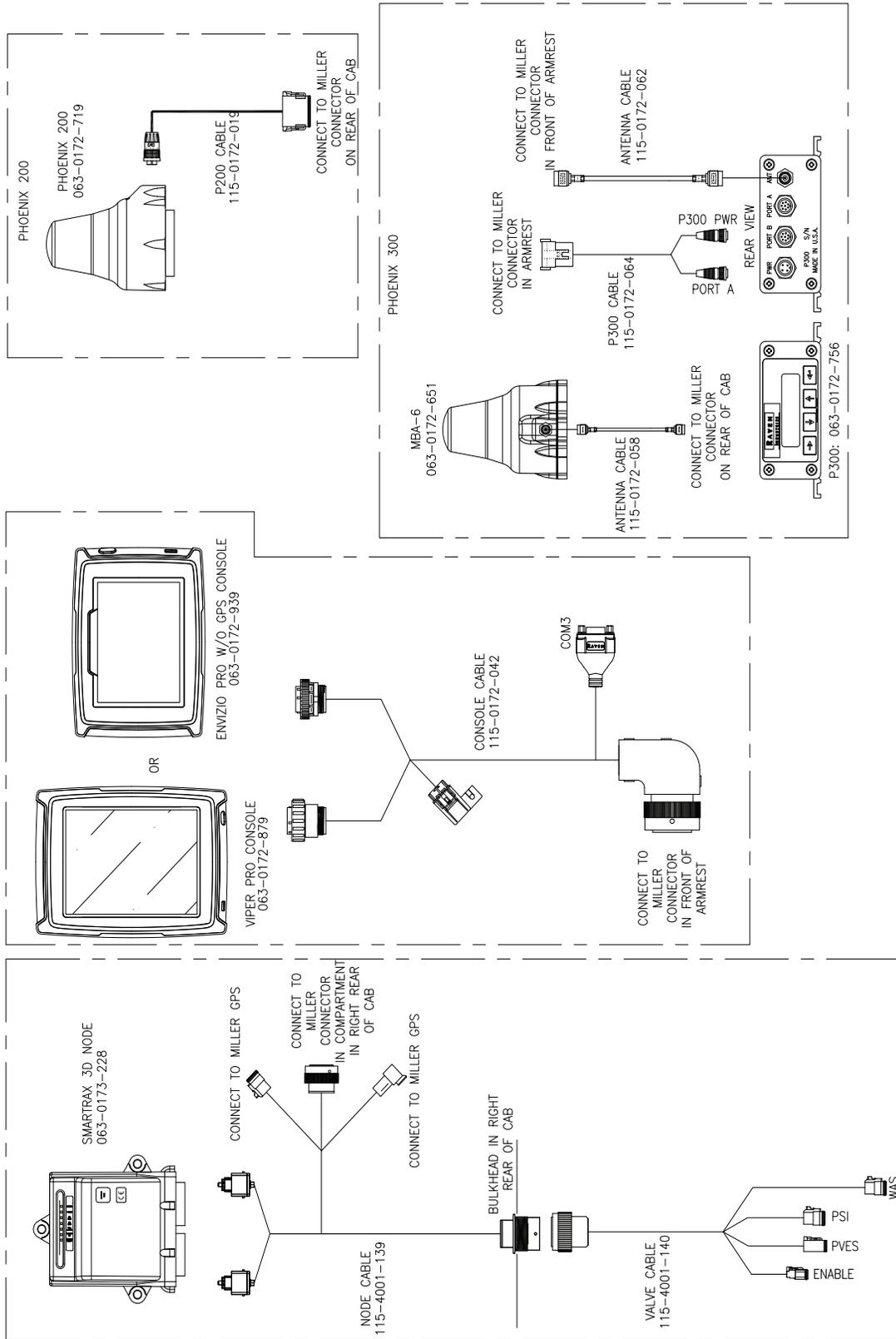
Note: The ENABLE connector is not used in this SmarTrax system installation.

FIGURE 11. Valve Harness Wiring Diagram

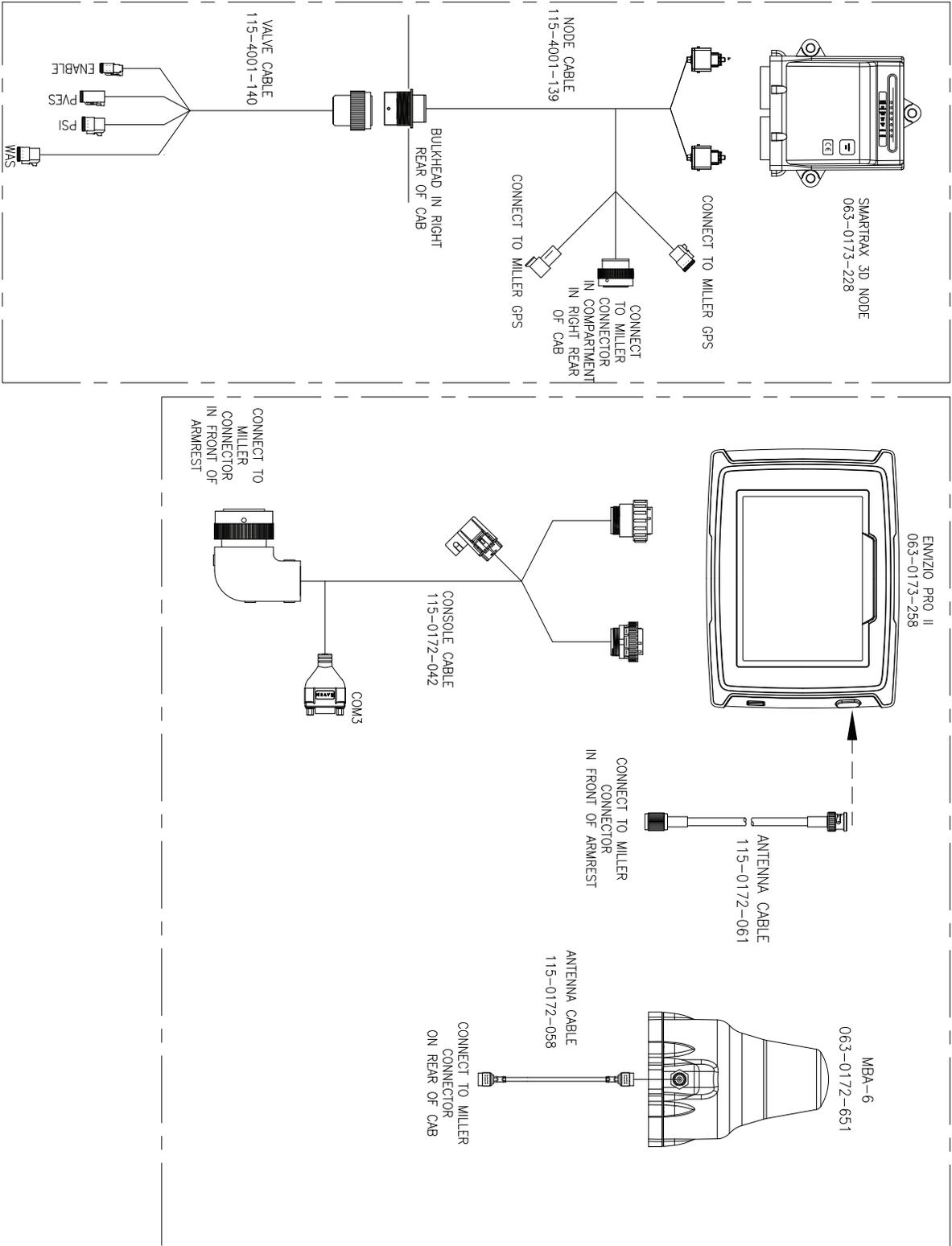


System Diagrams

ENVIZIO PRO/VIPER PRO/SMARTRAX 3D/ MILLER/GUARDIAN



ENVIZIO PRO WITH GPS/SMARTRAX 3D/ MILLER/GUARDIAN



CHAPTER

6

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 fittings and hose connections to ensure that:
 - Hoses are not running 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.*

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

What Does this Warranty Cover?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

How Long is the Coverage Period?

Raven Applied Technology products are covered by this warranty for 12 months from the date of retail sale. In no case will the Limited Warranty period exceed 24 months from the date the product was issued by Raven Industries Applied Technology Division. This warranty coverage applies only to the original owner and is non-transferable.

How Can I Get Service?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries.

What Will Raven Industries Do?

Upon confirmation of the warranty claim, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense.

What is not Covered by this Warranty?

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

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



Extended Warranty

What Does this Warranty Cover?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

Do I Need to Register My Product to Qualify for the Extended Warranty?

Yes. Products/systems must be registered within 30 days of retail sale to receive coverage under the Extended Warranty. If the component does not have a serial tag, the kit it came in must be registered instead.

Where Can I Register My Product for the Extended Warranty?

To register, go online to www.ravenhelp.com and select Product Registration.

How Long is the Extended Warranty Coverage Period?

Raven Applied Technology products that have been registered online are covered for an additional 12 months beyond the Limited Warranty for a total coverage period of 24 months from the date of retail sale. In no case will the Extended Warranty period exceed 36 months from the date the product was issued by Raven Industries Applied Technology Division. This Extended Warranty coverage applies only to the original owner and is non-transferable.

How Can I Get Service?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries. In addition, the words "Extended Warranty" must appear on the box and all documentation if the failure is between 12 and 24 months from the retail sale.

What Will Raven Industries Do?

Upon confirmation of the product's registration for the Extended Warranty and the claim itself, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense.

What is Not Covered by the Extended Warranty?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other damages. Cables, hoses, software enhancements, and remanufactured items are not covered by this Extended Warranty. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

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