

RAVEN

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SmarTrax™ Installation Manual



CaseIH SPX 3310

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CHAPTER

1

INTRODUCTION

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



Below you will see the kit contents that you should have received with this SmarTrax kit.

Basic Kit Contents

CaseIH SPX 3310 SmarTrax Kit Contents

Quantity	Item Description	Part Number
1	KIT, S.P.S.	063-0181-007
1	PLATE, MOUNTING, UNIVERSAL HYDRAULIC, PART "B"	107-0171-578
1	WELDMENT, BRACKET, UNIVERSAL HYD. MTG., PART "A"	116-0159-527
3	HOSE, HYDRAULIC, -6 ORFS (F) TO -6 JIC (F) 52" LG	214-1000-452
1	HOSE, HYDRAULIC, -4 JIC (F) TO -6 JIC (F) 52" LG	214-1000-460
1	HOSE, HYDRAULIC, -6 JIC (F) TO -8 JIC (F) 52" LG	214-1000-461
1	SWITCH, PRESSURE, MICRO, H.D., 15-100 BAR ADJ. W/FTGS.	422-0000-074
4	FITTING, ELBOW, 45° SWIVEL, 9/16" JIC M/F	333-0012-027
1	FITTING, ADAPTER, SWIVEL RUN TEE, -8 JIC M/M/F	333-0012-039
4	FITTING, ELBOW, 90° SWIVEL, 9/16" JIC M/F	333-0012-042
1	FITTING, ADAPTER, -4 JIC (M) TO -4 SAE O-RING (M)	333-0012-057
2	FITTING, ELBOW 90° SWIVEL, -6 ORFS M/F	333-0012-065
3	FITTING, ADAPTER, SWIVEL RUN TEE, -6 ORFS M/M/F	333-0012-069
2	FITTING, ELBOW 45° SWIVEL, -6 ORFS M/F	333-0012-090
1	FITTING, ELBOW, 90° SWIVEL, -4 JIC M/F	333-0012-154
4	BOLT, 5/16"-18 x 7/8" HEX HEAD	311-0052-104
4	BOLT, HEX, 3/8"-16 UNC x 1/2"	311-0054-105
4	BOLT, 3/8"-16 x 3"	311-0054-113
8	NUT, 3/8"-16	312-1001-037
4	WASHER, LOCK, 5/16"	313-1000-019
8	WASHER, LOCK, SPLIT, 3/8"	313-1000-022
12	WASHER, FLAT, 3/8"	313-2300-013
1	VALVE, HYDRAULIC, CLOSED CENTER LS	334-0003-062
1	MANUAL, INSTALLATION	016-0190-078
1	MANUAL, INSTALLATION, SMARTRAX	016-9001-021
1	LABEL, WARNING, DO NOT STEP	041-0159-688
1	LABEL, WARNING, TAMPERING	041-0159-689
1	CABLE, HYDRAULIC SOLENOID / OVERRIDE	115-0171-466

CHAPTER

2

SAFETY

Hydraulic Safety Requirements



Important: Hydraulics are under pressure. Never attempt to open or work on a hydraulic system with the equipment running. Care should always be taken when first opening a system that was previously pressurized.

When disconnecting the hydraulic hoses or when purging is required, be aware that the hydraulic oil within the machine system may be extremely hot and under high pressure. Caution must be exercised. Any work carried out on the hydraulic system must be performed in accordance with the machine manufacturer's approved maintenance instructions. Raven Industries recommends that appropriate protective equipment be worn when working on the hydraulic system. Objects or materials that are able to bypass the machine's hydraulic filtration system will adversely reduce performance and possibly damage the hydraulic valves.

Electrical Safety Requirements

Do not reverse the power leads. Doing so will cause severe damage to the equipment. Always check to make sure that the power leads are connected to the right polarity as marked. Ensure that the power cable is the last cable to be connected.

Contacting Raven Industries

We welcome your feedback about this manual. If you have any comments or suggestions for improvement, please let us know by contacting our Customer Support Center by any of the following methods:

- ◆ **Via phone:** 1-800-243-5435

- ◆ **Via mail:**
Raven Industries
Flow Control Division
205 E. 6th St.
Sioux Falls, SD 57104

- ◆ **Via email:** fcinfo@ravenind.com

CHAPTER

3

MOUNTING THE UNIVERSAL BRACKET AND VALVE

1. Position the t-shaped bracket on a flat spot on the steel frame support beam, just below the cab and behind the steering orbital.
2. Attach the universal mounting bracket to the machine using the provided bolts by drilling holes through the frame or by welding the bracket to the frame.



Helpful Hint: Review the hose connections and routing before drilling holes or welding in order to assure that the valve is mounted in a place where the supplied hoses will reach it from the steering orbital.

Notes:

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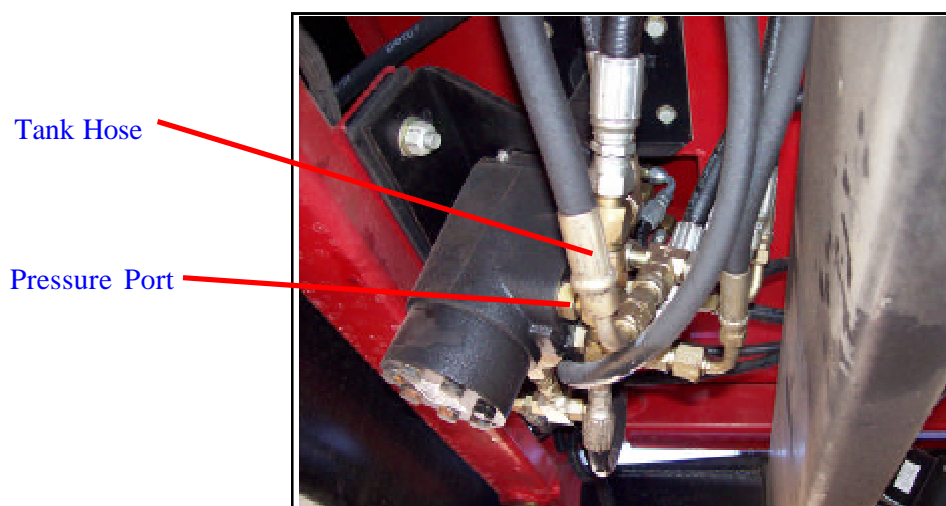
HYDRAULICS

Installing the Tank Port Hose

1. Remove the existing tank to orbital hose at the orbital and attach a provided tee fitting to the orbital.
2. Re-connect the hose to the tee fitting.
3. Connect one end of the tank hose (P/N 214-1000-452) to the tee and the other end to the T port on the steering assist valve. You may wish to install an elbow fitting on the orbital or on the steering assist valve to properly route the hose.

Installing the Pressure Hose

1. Remove the existing pressure hose at the orbital and attach a provided tee fitting on the orbital.
2. Re-connect the hose to the tee fitting.
3. Connect one end of the pressure hose (P/N 214-1000-461) to the tee and the other end to the P port on the steering assist valve. You may wish to install an elbow fitting on the orbital or on the steering assist valve to properly route the hose.

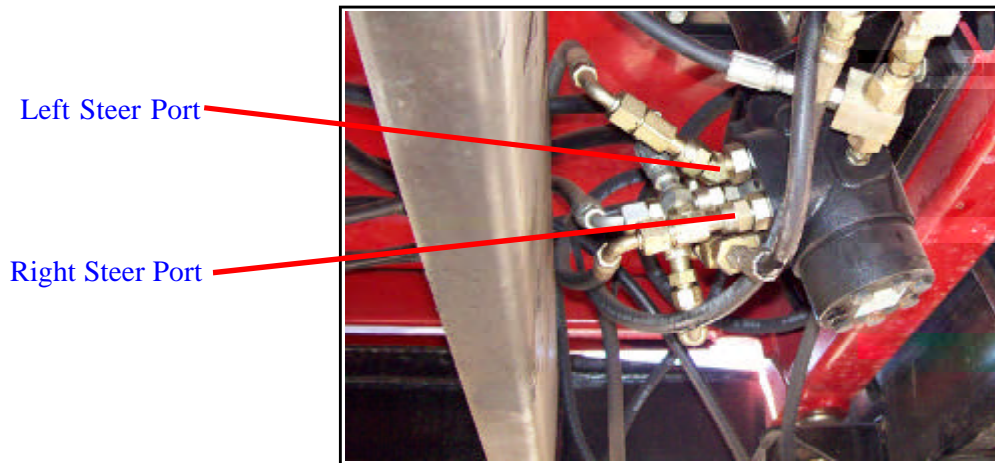


Installing the A Port to the Left Steer Hose

1. Remove the existing left steer hose at the orbital and attach a provided tee fitting to the orbital.
2. Re-connect the hose to the tee fitting.
3. Connect one end of the A port to left steer hose (P/N 214-1000-452) to the tee and the other end to the A port on the steering assist valve. You may wish to install an elbow fitting on the orbital or on the steering assist valve to properly route the hose.

Installing the B Port to the Right Steer Hose

1. Remove the existing right steer hose at the orbital and attach a provided tee fitting to the orbital.
2. Re-connect the hose to the tee fitting.
3. Connect one end of the B port to right steer hose (P/N 214-1000-452) to the tee and the other end to the B port on the steering assist valve. You may wish to install an elbow fitting on the orbital or on the steering assist valve to properly route the hose.



Installing the Pressure Switch

1. Connect the pressure switch to the PS port on the steering assist valve.

Installing the LS Steer Hose

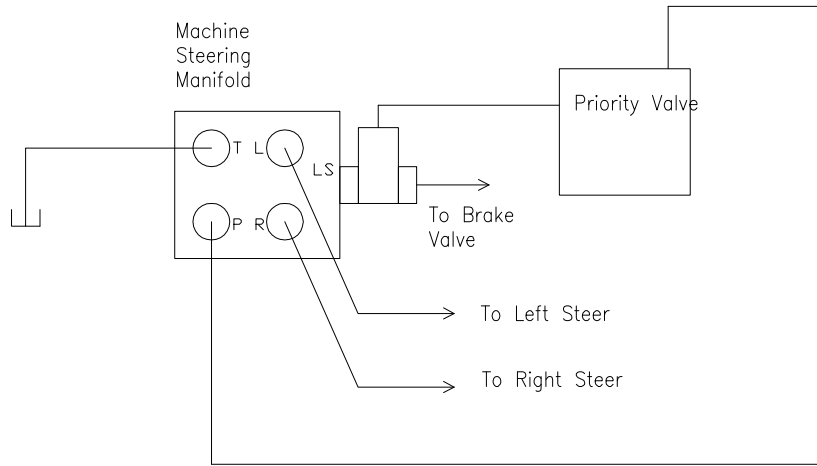
1. Remove the existing load sense hose, that goes to the priority valve behind the front axle of the machine, from the side of the orbital.
2. Attach one end of the new LS Steer hose (P/N 214-1000-460) to the orbital and the other end to the LS Steer port.

Installing the LS PV Hose

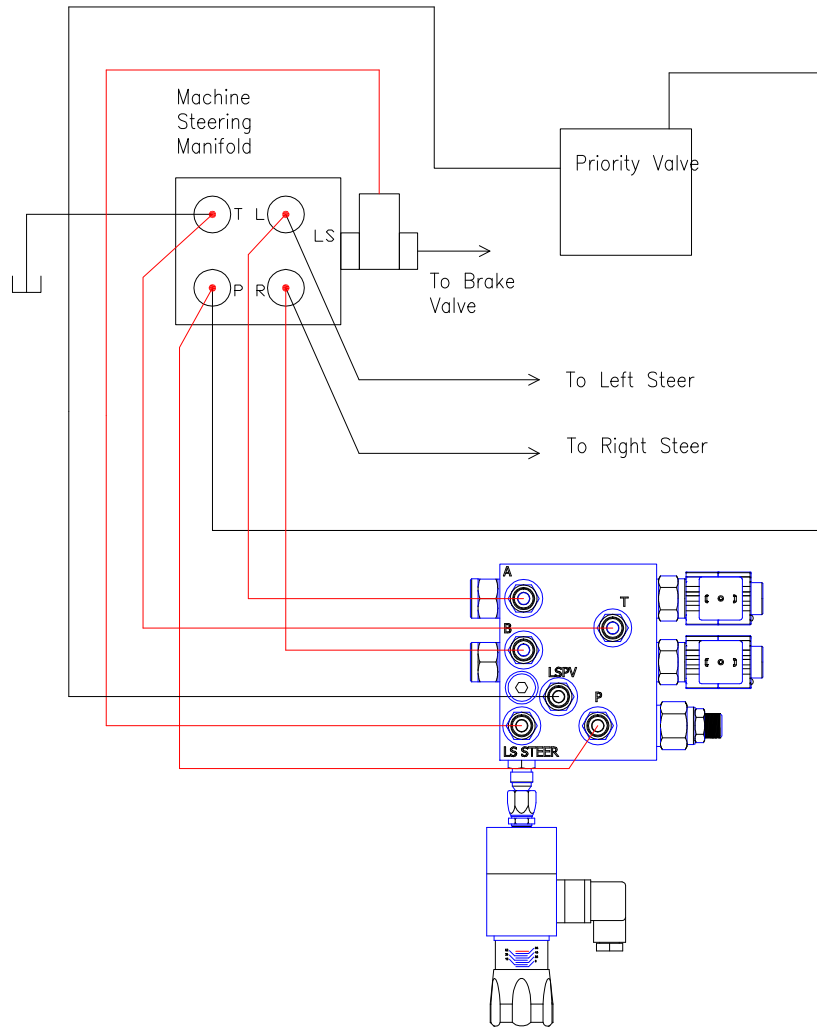
1. Remove the fitting from the LS PV port on the SmarTrax valve and insert the supplied -4 JIC to -4 SAE O-Ring fitting.
2. Connect the machine's priority valve hose to the LS PV Port on the SmarTrax valve.

Hydraulic Schematic

Before Smartrax Installation



After Smartrax Installation



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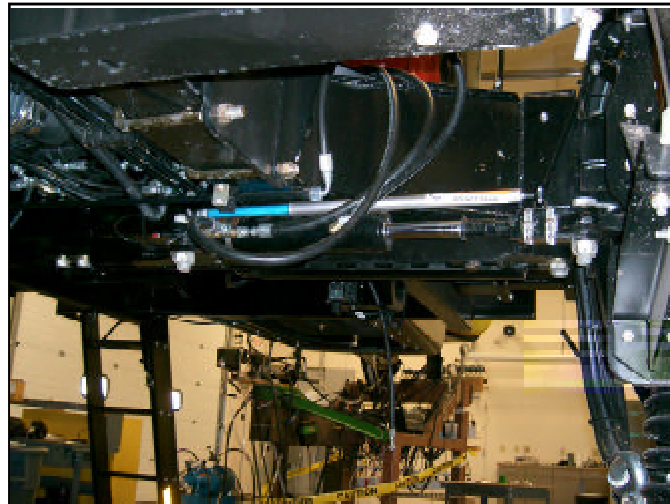
MOUNTING THE STEERING POSITION SENSOR

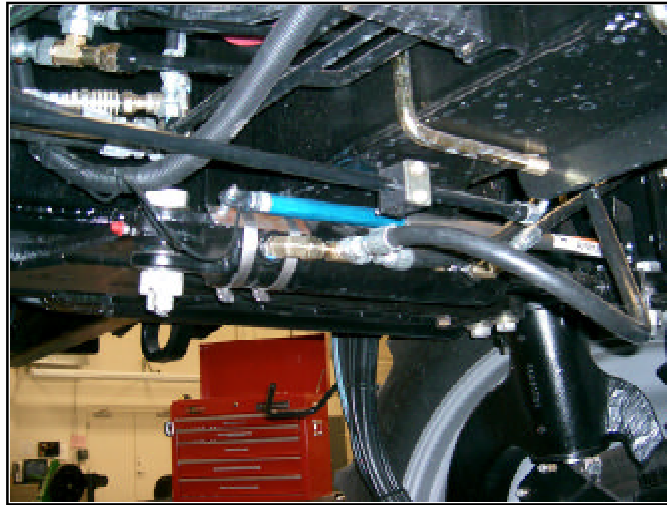
Mounting the SPS



Important: Be sure not to over extend or over compress the steering position sensor when turning the wheels.

1. Attach the steering position sensor to the right side steering cylinder using the provided band clamps, screws, and brackets.





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START-UP PROCEDURES

After installing the SmarTrax on your machine, always follow these start-up procedures.

- ◆ Make sure the Steering Position Sensor does not over-extend or over-compress when turning the wheels.
- ◆ Turn the wheels fully from side to side numerous times to remove air from the hydraulic system.



Important: Time the wheels for a full left to right and right to left time of approximately 5 seconds. Refer to the Universal Kit Manual for additional instructions on this.

- ◆ Adjust the pressure switch to the most responsive setting. Refer to the Universal Kit Manual for instructions on this.

Notes:

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Limited Warranty

What Does this Warranty Cover?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Product under normal use, maintenance, and service.

How Long is the Coverage Period?

Raven Applied Technology 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

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