

Case IH 4300 SmarTrax Supplement & Installation Manual

P/N 016-0190-072 Rev B 09/15

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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.



Basic Kit Contents

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

CaseIH 4300 SmarTrax Kit Contents

Quantity	Item Description	Part Number
1	Sensor, Yaw	063-0172-684
1	Cable, Hydraulic Solenoid/Override	115-0171-466
1	Weldment, Bracket, Universal Hydraulic Mounting	116-0159-527
1	Kit, Hyd., SmarTrax, CIH 4300 Floater, '97 & Earlier	117-0194-072
1	Valve, Flow Control, 1/4" NPTF, w/Fittings	334-0001-053
1	Valve, Hyd., MM, Dual Counterbalance, w/FTGS	334-0003-026
1	Switch, Press., Micro, HD, 15-100 BAR ADJ., w/Fitting	422-0000-073
4	Bolt, 5/10-18 x 7/8" Hex	311-0052-104
2	Bolt, Machine, 5/16-18 UNC x 3" LONG	311-0052-113
2	Nut, Hex, 5/16-18 UNC	312-1001-034
4	Nut, 3/8-16	312-1001-037
6	Washer, 5/16 Lock, Split	313-1000-022
2	Washer, .312 I.D. x .734 O.D.	313-2300-011
4	Washer, Flat, 3/8"	313-2300-013
1	Valve, Hyd., Open Center, PWM	334-0003-064
1	Manual, Installation	016-0190-072
1	Manual, Installation, SmarTrax	016-9001-012
1	Label, Warning, Do Not Step	041-0159-688
1	Label, Warning, Tampering	041-0159-689
1	FTG., Adapter, Swivel Run Tee, -8 JIC M/M/F	333-0012-039
1	FTG., Elbow, 45° Swivel, -8 JIC M/F	333-0012-040
5	FTG., Elbow, 90° Swivel, -6 JIC M/F	333-0012-042
4	FTG., Adapter, Swivel Run Tee, -6 JIC M/M/F	333-0012-043
1	FTG., Elbow, 90° Swivel, -8 JIC M/F	333-0012-064
2	FTG., Adapter, STR., -6 JIC (F) To -8 JIC (M)	333-0012-118
2	Hose, Hyd., -8 JIC (F) to -6 JIC (F), 24"	214-1000-171
1	Hose, Hyd., -8 JIC (F) to -8 JIC (F), 18"	214-1000-250
1	Hose, Hyd., -8 JIC (F) 90° to -6 JIC (F), 18"	214-1000-428
3	Hose, Hyd., -6 JIC (F) 90° to -6 JIC (F), 12"	214-1000-429

CHAPTER

2

SAFETY

Hydraulic Safety Precautions



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 Precautions

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:

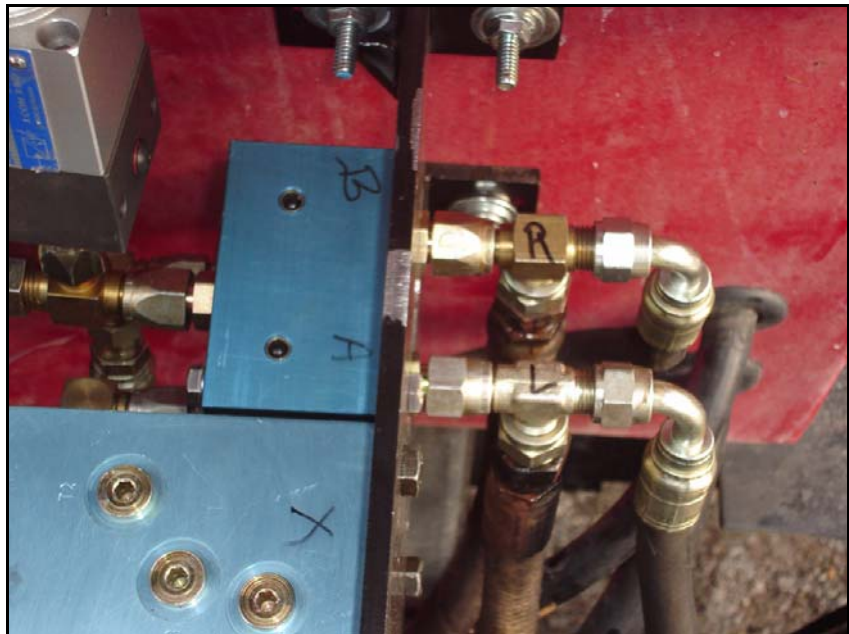
- **Via phone:** 1-800-243-5435
- **Via mail:**
Raven Industries
Flow Control Division
205 E. 6th St.
Sioux Falls, SD 57104
- **Via email:** fcinfo@ravenind.com

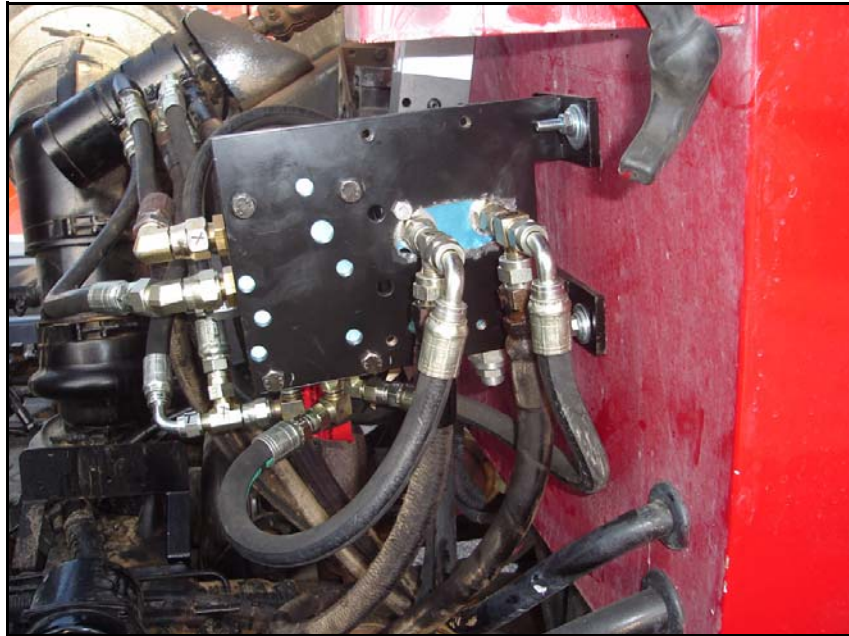
CHAPTER

3

**MOUNTING THE UNIVERSAL BRACKET
AND HYDRAULIC VALVE**

1. Position the hydraulic valve on the universal bracket, over the top of the proper hole pattern. Secure the valve to the bracket using the supplied bolts and washers.
2. Mount the smaller counterbalance valve to the bracket. Two mounting holes and clearance holes/slots will have to be drilled to mount the valves as shown. The valve can be moved up on the bracket to allow the fittings to hang over the edge of the valve.





3. Position the bracket on the front of the cab, under the hood.
4. Drill holes to fit the mounting bracket pattern and attach the universal mounting bracket to the machine using the supplied 3/8" hex bolts.



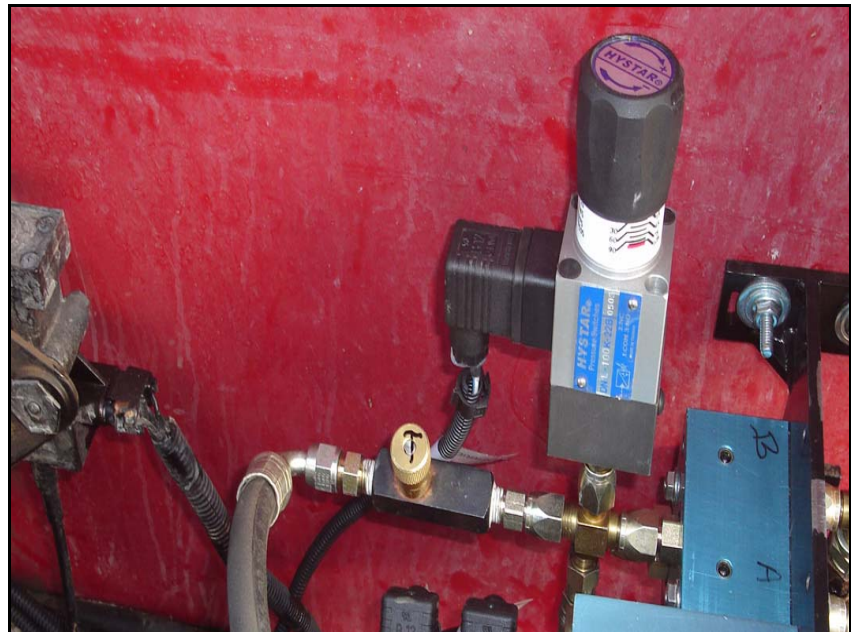
CHAPTER

4

HYDRAULICS

Mounting the Counterbalance Valve, Pressure Switch, and Needle Valve

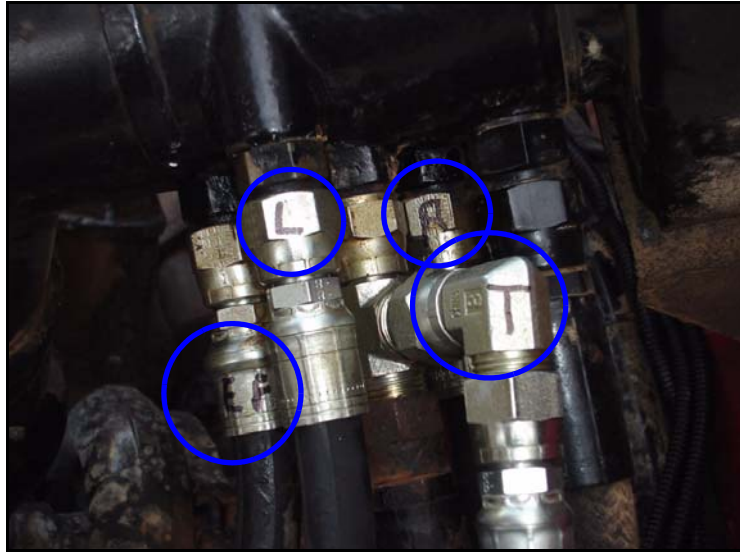
1. Connect the pressure switch with the tee fitting to the brake port of the counterbalance valve.
2. Attach the needle valve to the open port of the tee of the pressure switch.





3. Locate and label the ports on the steering orbital as shown below.





In this picture, the ports are labeled:
EF - Pressure In (from EF port on the SmarTrax valve)
R - Right Steer Port
T - Tank Port
L - Left Steer Port

Pressure Hose

1. Remove the existing pump to orbital hose and attach it to the 'P' port on the SmarTrax valve. It may be necessary to use the supplied 90 degree 3/4" JIC elbow fittings to ensure the hoses are routed properly.

Excess Flow Hose

1. Connect one end of the excess flow hose (P/N 214-1000-250) to the fitting EF Port on the SmarTrax Valve.
2. Connect the remaining open end of the excess flow hose to the pressure port on the steering orbital.

Tank Port Hose

1. Remove the existing tank to orbital hose at the orbital and attach a supplied 3/4" tee fitting to the orbital.
2. Reconnect the hose to the tee fitting.
3. Attach a tee fitting to the 'T' Port on the SmarTrax valve.
4. Connect one end of the tank hose (P/N 214-1000-428) to this tee and the other end to the remaining open port of the tee on the orbital.

Needle Valve Hose

1. Attach the hose (P/N 214-1000-429) to the needle valve, which is attached to the counterbalance valve.

2. Attach the other end of the hose to the tee fitting that is connected to the 'T' Port on the SmarTrax valve.

'CB' to Right Steer Hose

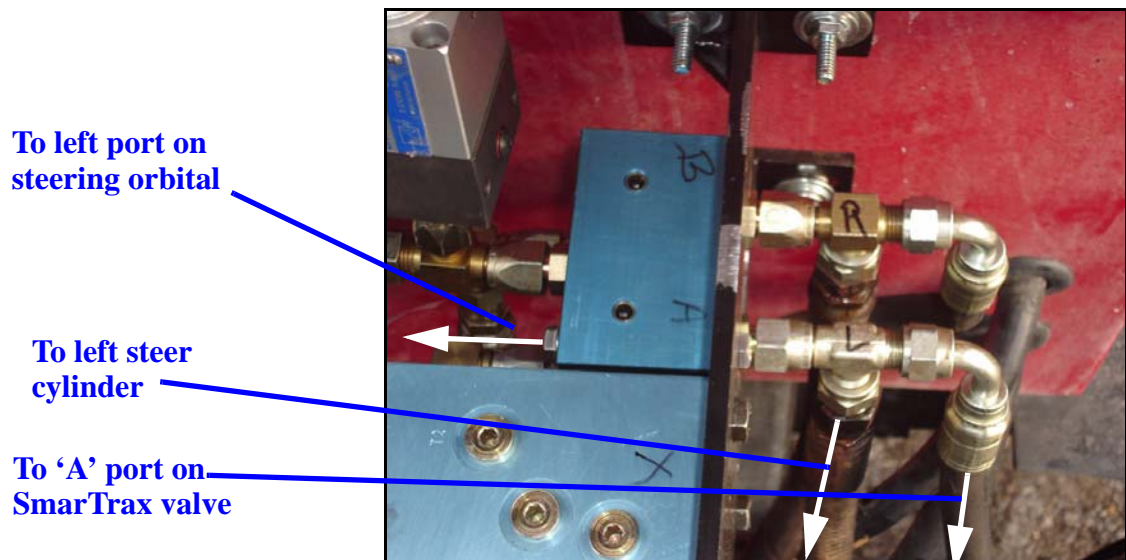
1. Remove the hose attached to the right steer port of the orbital.
2. Connect the 'CB' to the right steer hose (P/N 214-1000-171) to the open right steer port on the orbital.
3. Connect the other end to the 'B' port on the side of the counterbalance valve with the brake port. You may need to install an elbow fitting on the counterbalance valve to properly route the new hose.

'CB' to Left Steer Hose

1. Remove the hose attached to the left steer port of the orbital.
2. Connect the 'CB' to the left steer hose (P/N 214-1000-172) to the open left steer port on the orbital.
3. Connect the other end to the 'A' Port on the side of the counterbalance valve with the brake port. You may need to install an elbow fitting on the counterbalance valve to properly route the new hose.

'B' Port to Counterbalance Hose

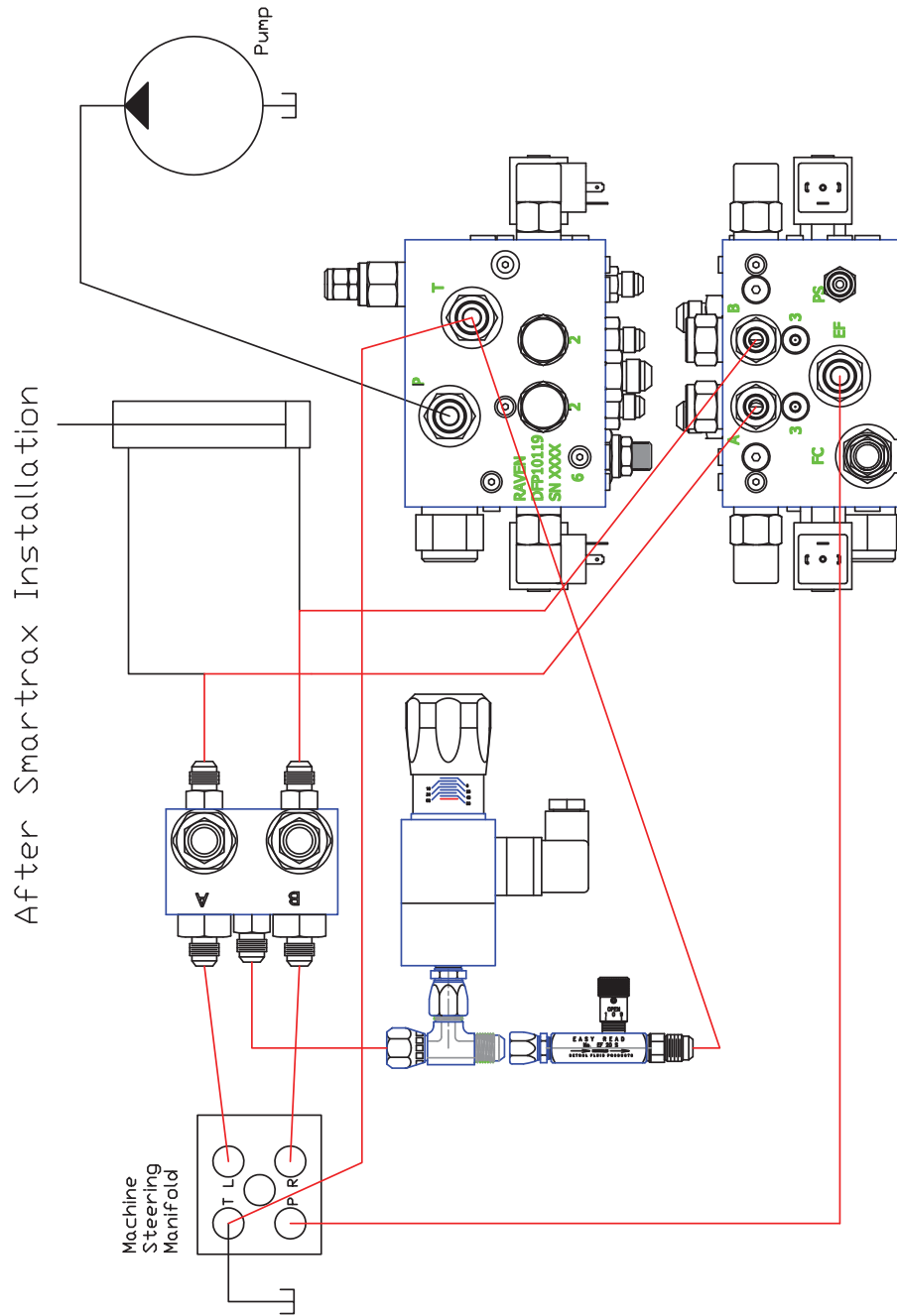
1. Install the supplied 9/16" JIC tee fitting to the port that is opposite the 'B' port on the counterbalance valve.
2. Connect the right steer hose that was disconnect from the orbital to one of the open ports on the tee using a supplied reducer fitting.
3. Connect the 90 degree end of the 'B' Port to the counterbalance hose (P/N 214-1000-429) to the remaining open port on the tee.
4. Connect the remaining open end of the hose to the 'B' port on the SmarTrax Valve using a 90 degree fitting.



‘A’ Port to Counterbalance Hose

1. Install the supplied 9/16” JIC tee fitting to the port that is opposite the A port on the counterbalance valve.
2. Connect the left steer hose that was disconnect from the orbital to one of the open ports on the tee using a supplied reducer fitting.
3. Connect the 90 degree end of the ‘A’ port to the counterbalance hose (P/N 214-1000-429) to the remaining open port on the tee.
4. Connect the remaining open end of the hose to the ‘A’ port on the SmarTrax Valve using a 90 degree fitting.

CaseIH 4300 SmarTrax Installation



CHAPTER

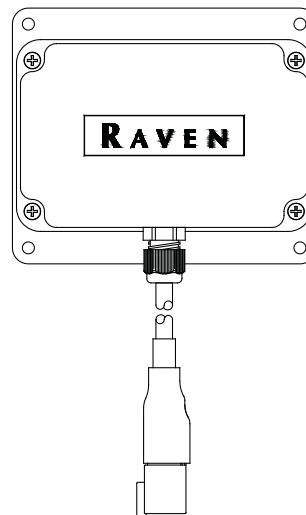
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SENSOR MOUNTING

**Yaw Sensor
Installation****Mounting the Yaw Sensor**

Installing the Raven Yaw Sensor is quick and easy. Raven recommends that you keep the following points in mind while installing the sensor:

- The sensor is not weatherproof. Mount the sensor inside of the machine's cab or drivers compartment.
- Mount the sensor to a flat surface parallel to the ground with the Raven logo facing up. The floor of the cab is generally ideal.
- Once mounted, the sensor should remain fixed in relation to the vehicle. The sensor should not become loose or rotate due to machine vibration or movement.
- The sensor should also be mounted in a location where it will not be kicked or jarred during normal equipment operation.
- The cable does not need to be oriented in any way to the direction of travel of the vehicle. Mount the sensor to with the cable routed to avoid tripping hazards or damaging the cable or yaw sensor.



Installation

- Mount the Yaw Sensor to the floor inside of the vehicle's cab using the double sided tape on the sensor or steel bolts or screws through the mounting plate. See the Mounting the Yaw Sensor section on the previous page for mounting location considerations.
- Connect the supplied sensor cable to the Yaw Sensor and to the Yaw Sensor connector on the SmarTrax Interface cable.

CHAPTER

6

START-UP PROCEDURES

Prior to using the SmarTrax system:

- 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 6 seconds. Refer to the Universal Kit Manual for additional instructions.

- Adjust the Pressure Switch to the most responsive setting. Refer to the Universal Kit Manual for instructions.

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RAVEN INDUSTRIES

LIMITED WARRANTY

WHAT IS COVERED?

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

HOW LONG IS THE COVERAGE PERIOD?

This warranty coverage runs for 12 months from the purchase date of your Raven Flow Control Product. This warranty coverage applies only to the original owner and is not transferrable.

HOW CAN YOU GET SERVICE?

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

WHAT WILL RAVEN INDUSTRIES DO?

When our inspection proves the warranty claim, we will, at our option, repair or replace the defective part and pay for return freight.

WHAT DOES THIS WARRANTY NOT COVER?

Raven Industries will not assume any expense or liability for repairs made outside our plant without written consent. We are not responsible for damage to any associated equipment or product 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 is authorized to assume for us any liability. Damages caused by normal wear and tear, mis-use, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.