

SmartTrax»»»

Straight shot to easy steering



Case IH SPX 3320

Supplement & Installation Manual

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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 3320 SmarTrax Kit Contents

Quantity	Item Description	Part Number
1	KIT, S.P.S.	063-0181-001C
1	BRKT, MNTG, SMARTRAX, CASE IH 4410	107-0171-705
1	HOSE, HYD., 11/16" ORFS (F) 90°, TO 9/16" JIC (f), 80" LG	214-1000-485
1	HOSE, HYD., 11/16" ORFS (F) TO 9/16" JIC (F), 128" LG	214-1000-488
1	HOSE, HYD., 13/16" ORFS (F) TO 9/16" JIC (F) 80" LG	214-1000-489
2	HOSE, HYD., 11/16" ORFS (F) 90° TO 9/16" JIC (F) 140" LG	214-1000-476
1	MANIFOLD, HYD., JD 8XXX OVERRIDE W/FITTINGS	334-0003-024
1	VALVE, HYD., SMARTRAX CLOSED CENTER-LOAD SENSE	334-0003-062
1	BRACKET, SPS CASE, INNER	116-0159-664
1	BRACKET, SPS CASE, OUTER	116-0159-665
6	SCREW, SET, HEX SOCKET HEAD, 3/8-16 X 1" LG	311-0015-769
6	NUT, 3/8-16, SS, HEX	312-1001-039
1	FTG., ADAPTER, SWIVEL RUN TEE, 13/16" ORFS M/M/F	333-0012-028
5	FTG., ELBOW, 90° SWIVEL, 9/16" JIC M/F	333-0012-042
3	FTG., PLUG 7/16", SAE O-RING INTERNAL HEX	333-0012-051
1	FTG., ELBOW, 90°, 11/16" ORFS M/F	333-0012-065
3	FTG., ADAPTER, SWIVEL RUN TEE, 11/16" ORFS M/M/F	333-0012-069
1	FTG., 11/16" ORFS (M) TO 9/16" SAE O-RING M/M	333-0012-084
4	SCREW, 10-32 x 3/4", PHILLIPS, STAINLESS STEEL	311-0007-037
2	SCREW, SOCKET, HEAD CAP, 1/4"-20 x 2" LG	311-0050-009
4	BOLT, 5/16"-18 x 7/8" HEX HEAD	311-0052-104
2	NUT, HEX, 1/4"-20	312-1001-074
4	NUT, NYLOCK, 10-32	312-4000-162
6	WASHER, LOCK, 1/4" SPLIT, ZINC	313-1000-016
4	WASHER, 5/16" LOCK, SPLIT, ZINC	313-1000-019
2	WASHER, FLAT, 1/4"	313-2300-009
1	MANUAL, INSTALLATION	016-0190-081
1	MANUAL, INSTALLATION, UNIVERSAL HYDRAULIC	016-9001-021
1	LABEL, WARNING, DO NOT STEP	041-0159-688
1	LABEL, WARNING, TAMPERING	041-0159-689
1	CABLE, HYD., PRESSURE COMP. COMMAND	115-0171-716

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 BRACKET AND VALVE

Mounting the Steering Control Valve to the Bracket

1. Remove fittings from LS-Steer, LS-PV, & PS ports on SmarTrax valve and install the supplied o-ring plugs if not already plugged.
2. Place the valve on the bracket with the coils to the side of the bracket pointing towards the left of the machine when installed.
3. Align the threaded holes on the valve with the mounting holes on the bracket.
4. Fasten the valve to the bracket using the supplied 5/16" bolts and lock washers.
5. This bracket will mount to the existing vehicle radar location (found beneath the cab) mounted to the inside of the vehicle's frame rail as shown on next page.

Installing the Override Bracket

1. Remove the fitting from the A port of the override and install the supplied SAE O-Ring to ORFS fitting.
2. Position the override over the set of holes that match the set on the override. Use the provided 1/4" x 2" hex head bolts along with the provided nyloc nuts to secure the override to the bracket.
3. Mount the override switch to the same side of the bracket as the valve (3320 same side). Orient the switch so that port A is on top and port B is on the bottom.

Installing the Hydraulic Bracket

To mount the bracket:

1. Begin by removing the two bolts holding the radar bracket in place.

Remove these two bolts.



2. Install the supplied bracket.
3. Re-install the two existing bolts and tighten both brackets to the frame. When tightening the radar bracket, make sure that the radar is in the same orientation as it was prior to removal in order for it to function properly.

CHAPTER

4

HYDRAULICS

Hose Routing & Connections



Important: Case IH Sprayers have adjustable wheel tracking. When routing the hoses for the left and right steering cylinders to the SmarTrax steering control valve, it is important to follow the same hose routing path as the factory installed hoses. By doing this, damage to any of the installed hoses will be avoided when adjusting the track width.

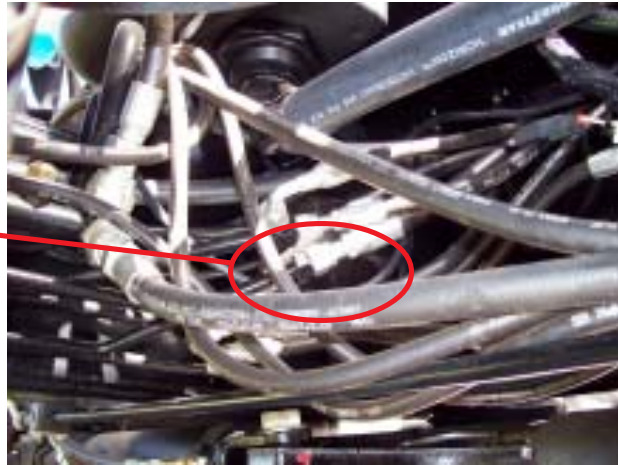
Installing the Tank Line

1. Remove the original tank line from the steel line coming from the rear of the machine. This point is on the inside of the frame on the left hand side of the sprayer. Trace the tank line towards rear of machine to large tank manifold under engine.

Pressure and Tank
Connections



Tank
Connection

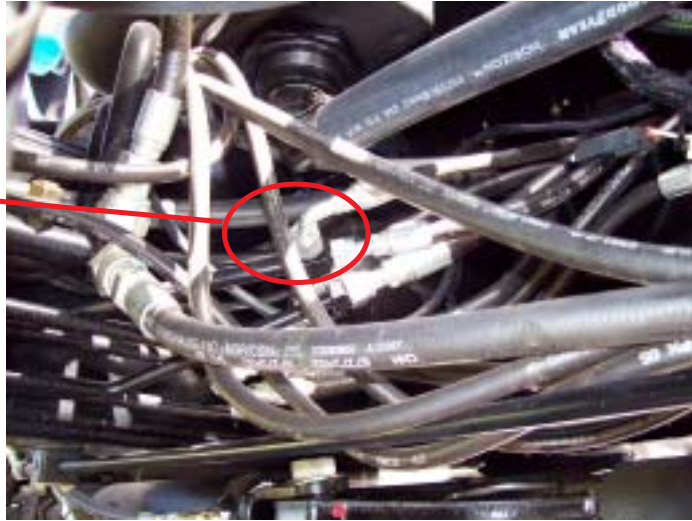


2. Once the tank line has been removed, install the supplied tee fitting onto the steel line and re-attach the original tank hose.
3. From the remaining open branch of the tee, connect the hose labeled 'Tank' (P/N 214-1000-489) to the T port on the steering control valve.

Installing the Pressure Line

1. Remove the original pressure hose from its connection point to the steel line coming from the rear of the machine. The steel pressure line runs on the inside of the frame on the left-hand side of the sprayer and makes a 45° bend just before connecting to the hydraulic hose.

Pressure
Connection

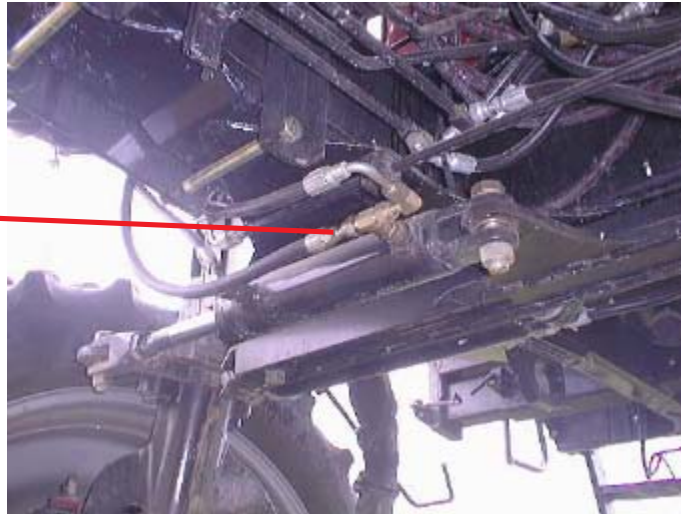


2. Once the line has been removed, install one of the provided tee fittings onto the steel line.
3. Connect the hose labeled 'Pressure Line' (P/N 214-1000-485) to one branch of the tee, then route it to the SmarTrax steering control valve to the P port.
4. Connect the original pressure hose to the remaining branch of the tee.

Installing the Right Steer Line

1. Remove the original hose on the steering cylinder located on the left-hand side of the machine. Remove the hose that is connected to the fitting located closest to the center of the machine, shown in the picture below.

Remove the original hose at this point and install the supplied tee and hose



2. Once the hose is removed, install one of the supplied tee fittings and re-connect the original hose.
3. Install the 90° end of the hose labeled P/N 214-1000-476 to the remaining branch of the tee fitting.
4. Once connected, route the hose in the same path as the original hose to avoid damage when moving the wheels in and out.
5. Once routed, connect the hose to the B port on the SmarTrax steering control valve.

Installing the Left Steer Line

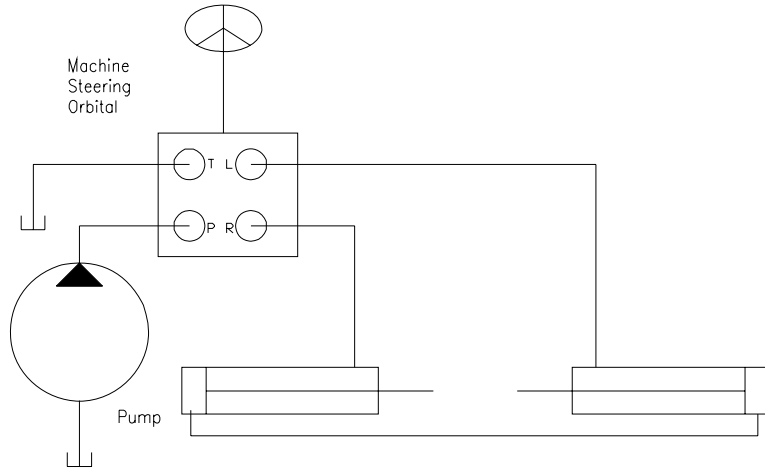
1. Remove the original hose on the steering cylinder located on the right-hand side of the machine. Remove the hose that is connected to the fitting located closest to the center of the machine, shown in the picture below.

Left Steer connection

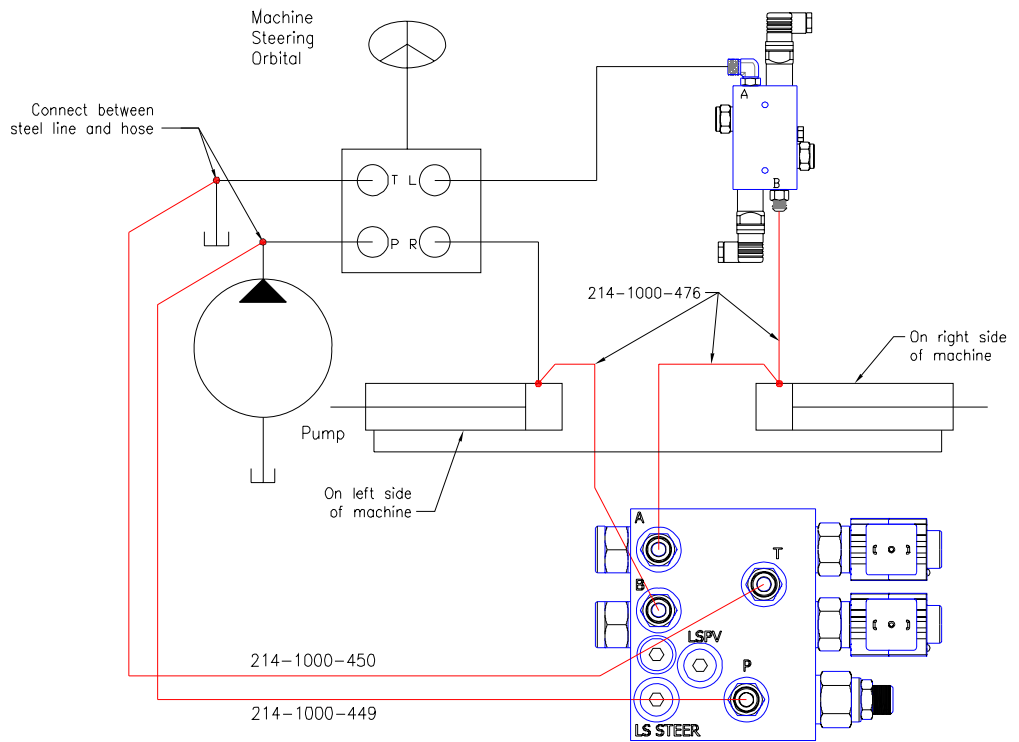


2. Route the original left steer hose to the SmarTrax override valve and connect it to the A port using a 90° fitting if required.
3. Install one of the supplied tee fittings on the steering cylinder.
4. Install the 90° end of the hose (P/N 214-1000-476) to the branch of the tee fitting.
5. Once connected, route the hose in the same path as the original hose to avoid damage when moving the wheels in and out.
6. Once routed, connect the hose to the A port on the SmarTrax steering control valve.
7. Connect the 'Steering Override B' hose (P/N 214-1000-488) to the B port on the override valve, route it to the steering cylinder on the right side of the machine, and connect it to the remaining open port on the tee.

Before Smartrax Installation



After Smartrax Installation



CHAPTER

5

STEERING POSITION SENSOR & WIRING HARNESS INSTALLATION

Installing the Steering Position Sensor (SPS)

The steering position sensor mounts to the right side steering cylinder.



1. Mount the supplied clamps as shown.
NOTE: It is suggested to either loctite the set screws or spot weld the clamps in place after verifying correct installation.



2. Mount sensor on top of the clamps to keep sensor as high as possible.
3. Be sure not to over-extend or over-compress the sensor.

CHAPTER

6

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 6 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.



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, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.

RAVEN



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