

Steer Ready Kit Installation Guide


Kit: EDX-SR-SPX4420, P/N 911-3014-000

Fits CaseIH Sprayer Models:

**SPX3230
SPX3320
SPX3330
SPX4420
SPX4430**



Read and Follow Safety Messages

- In these instructions, you will see the heading **WARNING** and the safety alert symbol . They indicate a hazardous situation that, if not avoided, could result in death or serious injury. The safety messages provide information to identify a hazard associated with potential injury.
- Before installing, operating, or performing maintenance or service on any part of the system:
 - Read and understand this installation guide and all of the safety information.
 - Read and understand the Steer Ready User Guide.
- Do not allow anyone to operate without instruction.
- Keep these instructions and all related safety information with the manual for your machine and other implements.

If you have any questions or need assistance, contact your local dealer or distributor.

Overview

A series of equipment specific kits has been developed to work in conjunction with your steer ready system. For the machine models listed above, these kits contain the components for:

- the wheel angle sensor (WAS) - if applicable
- the steering wheel switch (SWS - for steering override) - if applicable
- the electronic control unit (ECU)

The items in each applicable kit are detailed in the tables that follow the safety warnings on the next page. After the kit tables there are step-by-step installation instructions for each of the kits supplied.

Please read this manual thoroughly before beginning the installation.

⚠ WARNING:

To avoid serious injury or death during machine operation, install the appropriate kits for your machine make and model.

Machine Preparation

⚠ WARNING:

Inspect the machine and perform any needed maintenance (for example, contaminated hydraulic fluid) before installing the Steer Ready Installation Kit. This kit cannot perform as intended on a machine that is not maintained properly. Errors in performance increase the risk of operator and bystander injury or death.

Failure to maintain clean hydraulic fluid and operational hydraulic components can cause loss of directional control resulting in serious injury or death.











Turn off the machine and power off all Steer Ready components when installing or performing maintenance.

Before attempting to install any of the components, park the machine on a clean level floor with adequate clearance to work all around.



Before you perform any drilling, cutting or fastening, ensure that no other machine components, such as hydraulic hoses or electrical wiring, will be damaged. Failure to follow this warning may cause physical injury and/or damage to the machine.

Kit Contents - Wheel Angle Sensor

Unpack the wheel angle sensor kit and identify the required parts as shown. Kit items are A, B, C etc. with a W (Wheel) prefix.






REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
Bag 710-0099-000 (W1 of 2) contains WA to WF				
WA	720-0045-000#	1	WAS assembly	
WB	750-5002-000	1	Sensor, dual output, BEI (‘Wire connector’)	
WC	602-1087-000	1	Connector arm, steering	
WD	675-1191-000	2	Screw, mach, 8-32 x 3", PPH ZP	
WE	676-1054-000	3	Nut, nylock 8-32NC, ZP	
WF	675-1150-000	1	Screw, 8-32 x 1", Allen socket cap, ZP	
WG	675-2031-000	1	Threaded rod, 5/16-24 x 12"	
Bag W2 of 2 contains WH, WI and WJ				
WH	676-1053-000	4	Nut, 5/16-24 standard ZP	
WI	760-0018-000	2	Rod end swivel with stud, 5/16-24	
WJ	675-2010-000	2	Bolt, 5/16NC x 3/4" Gr5 ZP (Attach WAS assembly to WK)	

Kit Contents - Wheel Angle Sensor (*continued*)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
WK	640-0120-000	1	WAS assembly mounting bracket	
WL	640-0121-000	1	WAS link rod bracket	

Kit Contents - Steering Wheel Switch

Unpack the steering wheel switch kit and identify the required parts as shown. Kit items are A, B, C etc. with an S (Switch) prefix.

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
SA	478-0008	2	Magnet, flex - 1/2" W x 1" L x 1/8" thk, plain 1 (Only one is required for this installation)	
SB	675-0077	1	Epoxy, Hardman 04001 - single double bub	
SC	602-1062	1	Bracket, steering wheel switch mounting	
SD	726-1054	1	Assembly, steering wheel switch/cable	
SE	677-2002	4	Tie strap, 7" releasable	

Kit Contents - Electronic Control Unit





Unpack the electronic control unit kit and identify the required parts as shown. Kit items are A, B, C etc. with an E (Electronic) prefix.

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EA	051-0226-000#	1	Main cable	
EB	Not used	N/A	Not used/included in kit	N/A
EC	051-0228-000#	1	Steering controller main cable	
ED	051-0255-000#	1	Valve cable	
EE	051-0230-000#	1	WAS cable	
EF	051-0229-000#	1	SWS cable	
EG	054-0117-000#	1	Power switch	

Kit Contents - Electronic Control Unit (continued)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EH	051-0166-000#	1	CAN-PWR cable	
EI	806-1031-000#	1	Controller (ECU)	
EJ	750-5003-000	1	Steering controller	
EK	640-0091-000	1	ECU mount bracket	
EL	640-0102-000	1	Steering controller mount bracket, steer ready	
EM	726-1093-000	1	Switch bracket	
Bag E1 of 2 contains EN, EO and EP				
EN	675-1197-000	4	Screw, self-drilling, # 10-16 x 2-1/2", Hex, ZP	

Kit Contents - Electronic Control Unit (continued)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EO	675-1188-000	2	Screw, mach, M6 x 12mm, PPH, ZP (Mount EI on EK)	
EP	675-1210-000	2	Screw, mach, M6-1.0 x 16mm, PPH, ZP (Mount EI and EL on EK)	
Bag E2 of 2 contains EQ				
EQ	675-2048-000	2	Bolt, 1/4" -20 x 1-1/2", Gr5, ZP	
	678-1073-000	2	Washer, flat, 1/4ID, 5/8OD, 1/16thk	
	676-1040	2	Nut, 1/4NC Gr5 ZP (Mount steering controller on EL)	
ER	677-2002	20	Tie strap, 7" releasable	

Installation - Wheel Angle Sensor (WAS)

⚠ WARNING:

Switch off the machine's engine while installing or adjusting the WAS. Keep others away and stay clear of mechanical steering linkages to prevent serious injury or death from pinch point hazards while manually operating the hydraulic steering circuit.

1. Prepare the wheel angle sensor.

- a. Using the provided hardware **WE** (nuts) and **WD** (bolts - not visible), attach the WAS wire connector **WB** to the WAS housing **WA**. Install the bolts up through the bottom of the housing. The WAS wire connector **WB** can be mounted 90° to any of the WAS housing **WA** sides (Figure 1a).

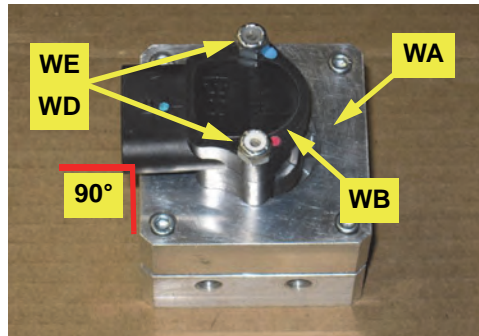


Figure 1a: Prepared WAS housing\connector

- b. Cut six holes off WAS arm **WC** at the opposite end from the WAS shaft mounting hole (Figure 1b).

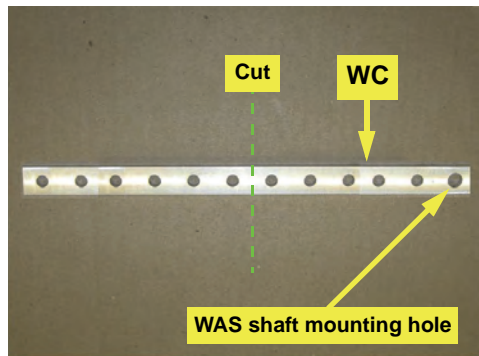


Figure 1b: WAS arm preparation

- c. Using hardware **WF** (screw) and **WE** (nut), attach the WAS arm **WC** to the WAS assembly. Mount the arm in the opposite direction to the WAS wire connector **WB** (Figure 1c with inset).

NOTE:

Before you cut the rod at step d, screw the provided nuts **WH** onto the threaded rod **WG** so that they are inside the cut you will make. After you have cut the rod, the nuts can help clean the threads.

- d. Cut threaded rod **WG** to 6¼" long (Figure 1d-i) then screw swivel rod ends **WI** onto the cut rod to achieve a center-to-center stud measurement of 7½" (Figure 1d-ii). Leave **WH** loose until you complete linkage adjustment at step 2f.

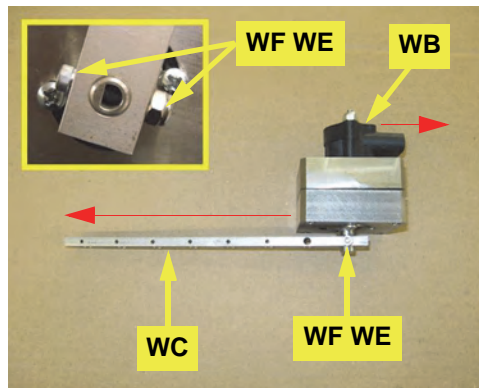


Figure 1c with inset: WAS arm installed

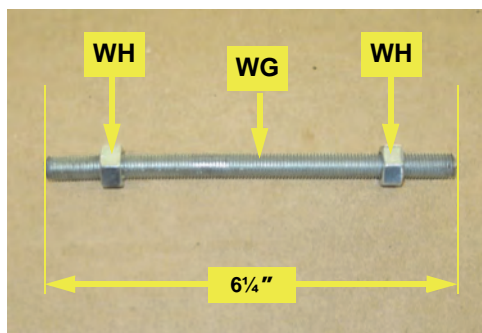


Figure 1d-i: Threaded link rod preparation

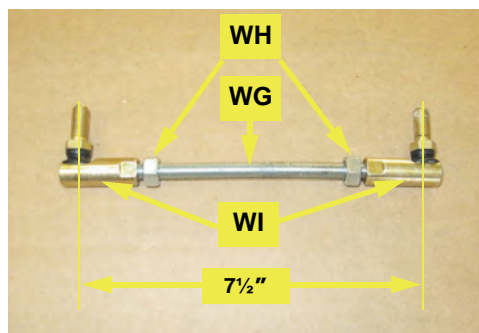


Figure 1d-ii: Assembled threaded link rod

2. Mount the wheel angle sensor.

NOTE:

Some figures in this section show prototype brackets and fittings. Install your brackets and fittings as described.

- a. Using hardware **WJ** mount the WAS assembly from step 1 on the outer face of bracket **WK**. Mount the WAS assembly with the base of wire connector **WB** flush with the bend in **WK** and connector arm **WC** arcing away from the long side of **WK** (Figure 2a).

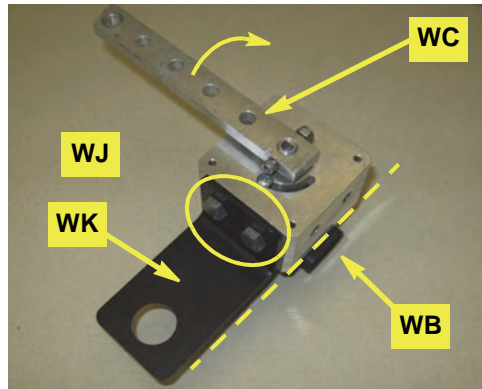


Figure 2a: WAS assembly on mounting bracket

- b. Remove the right side track adjusting cylinder's outer mounting bolt (Figure 2b inset). Using this bolt, mount the WAS and bracket assembly. Mount the assembly with connector arm **WC** uppermost (Figure 2b).

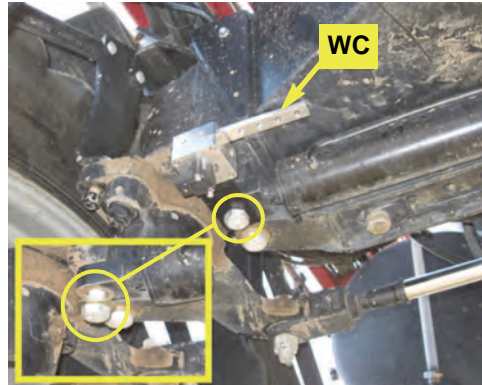


Figure 2b with inset: WAS assembly installed

- c. Remove the nut from the right side front fender bracket bolt on the steering arm. Using this nut, mount WAS link rod bracket **WL** (Figure 2c). Ensure **WL** is pointing directly forward.

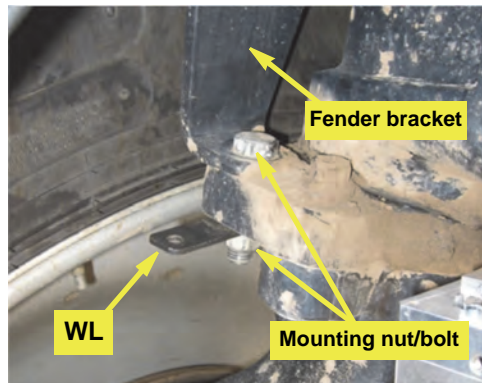


Figure 2c: WAS link rod bracket installed on fender bracket nut/bolt

- d. Using hardware **WH**, install the link rod assembly from step 1 between the last hole in WAS arm **WC** and bracket **WL**. Set the swivel studs downward at both ends (Figure 2d). Leave swivel nuts **WH** loose.

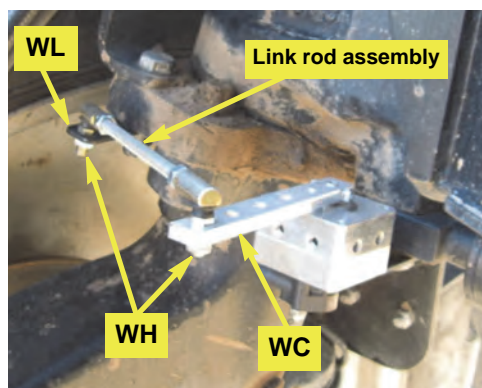


Figure 2d: WAS link rod assembly installed

2. **Mount the wheel angle sensor (continued).**

- e. With all hardware **WH** loose, slowly turn the wheels full left lock then full right lock. Check that the linkage moves freely without binding and adjust the linkage as necessary (Figures 2e-i and 2e-ii). (You will connect the ECU WAS cable to WB later.)
- f. When the linkage does move freely and without binding, tighten hardware **WH** on the rod and the swivels (Figure 2e-ii).



Figure 2e-i: Full left lock

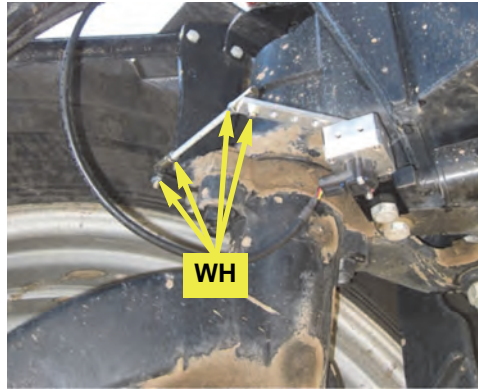


Figure 2e-ii: Full right lock

Installation - Steering Wheel Switch (SWS)

1. Prepare the switch bracket.

Prepare switch bracket **SC** as follows (Figure 1 - not to scale):

- Mark a bend line $1\frac{3}{4}$ " from the pre-drilled end
- Cut $1\frac{3}{8}$ " from the other end
- Drill a $\frac{3}{8}$ " hole on the bracket center line halfway between the bend line and the cut end
- Put a 90° bend at the bend line

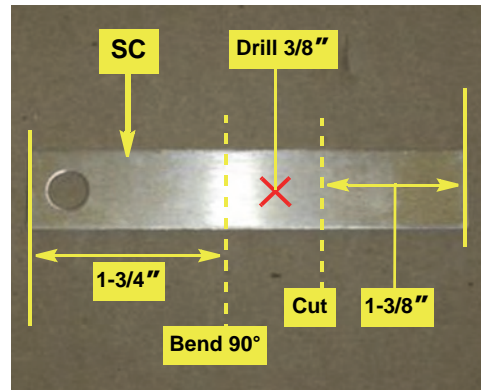


Figure 1: Switch bracket preparation (not to scale)

2. Prepare steering column, install magnets.

a. Locate the four nut/studs at the base of the steering column and remove the center rear nut (nearest the driver - Figure 2). Using the prepared switch bracket as a template on the stud, mark the steering column in the center of the pre-drilled hole. Remove the bracket and drill a $\frac{1}{2}$ " hole in the steering column (Figure 2, left inset).

b. Cut one magnet **SA** in half then trim each half into shape to pass through the $\frac{1}{2}$ " hole (keep the magnet as big as possible, round for example). Using the two-part epoxy **SB**, attach one half of the magnet to the inner steering shaft. Turn the shaft 180° and attach the other half of the magnet (Figure 2, right inset).

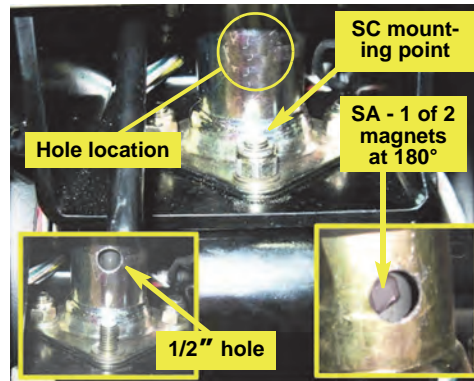


Figure 2 with inset: Drilled steering column, installed magnets

3. Install the switch.

Install switch **SD** in its bracket **SC**. Mount the switch/bracket assembly on the center rear stud. Adjust the bend in bracket **SC** and the switch nuts to set the sensor face to $\frac{1}{8}$ " to $\frac{1}{4}$ " from the magnets (Figure 3).

NOTE:

You will connect the ECU's SWS cable (EF) to SD's cable in the next section.

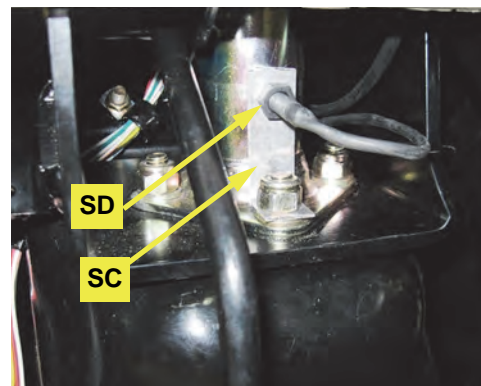


Figure 3: Installed switch bracket and switch

Installation - Electronic Control Unit (ECU)

See Appendix A for a schematic of the cable connections.

1. Install the ECU.

- a. Identify the ECU mounting location on the cab floor to the right and forward of the driver's seat near the right window and close to the rear edge of the floor mat.

Facing the one inch tabs of bracket **EK** inward place the bracket with (Figure 1a):

- Its front edge (at the bend) 4¼" from the rearmost corner of the right pillar.
- Its front outer corner 2½" from the window.
- Its rear outer corner 3½" from the window.

Using hardware **EN**, fasten the bracket to the cab floor (Figure 1a). Use a small level (not shown) to check the level of the bracket. Adjust accordingly.

NOTE:

Do not overtighten the self-drilling screws. Overtightening could cause the fastener to fail.

- b. With the ECU **EI** against the outside face of its bracket **EK** (power/communications indicators at the top, connectors at the rear), pass the shorter hardware **EO** through the rearmost holes in bracket **EK** (the connectors end) and loosely attach **EI** (Figure 1b).

Pass the longer hardware **EP** through the narrow side of controller bracket **EL** (wide side forward) and the forward holes in bracket **EK**, and attach **EI** and **EL** to **EK** (Figure 1b). Tighten **EO** and **EP** (Figure 1b).

- c. Using hardware **EQ**, attach steering controller **EJ** (connectors rearward, pressure wash warning outward) to its bracket **EL** (Figure 1c).
- d. Connect ECU main cable **EA** to the socket on the ECU **EI** that is in line with the power and communications indicators at the opposite end of the ECU (**EA** will only fit that socket—the top socket in this installation). Use an Allen wrench to secure the cable to the ECU (Figure 1d). Connect steering controller main cable **EC** (see step 2a following).

2. Assemble and install the cables.

On a clean surface, lay out all the cables and become familiar with the connections and where they are to be placed. See Appendix A.

- a. Connect steering controller cable **EC**'s two 12-pin connectors (black and gray) to their respective sockets on the steering controller **EJ** (Figure 1d).

NOTE:

*Figure 2a on the next page shows cable **EC** with a 1:4 cable junction block. Your **EC** may have two 1:2 cable junction blocks.*

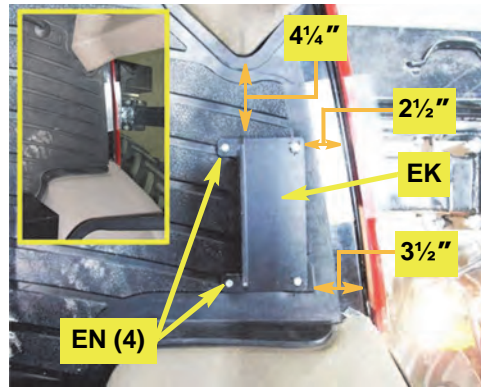


Figure 1a: ECU mounting bracket location/installed

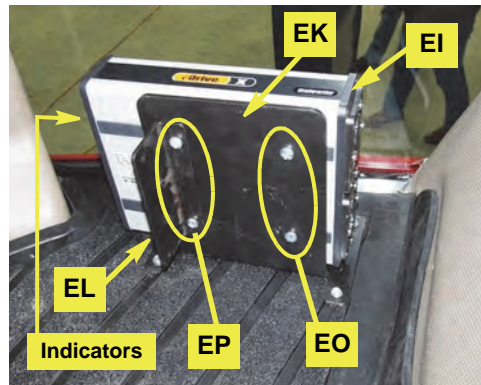


Figure 1b: ECU installed

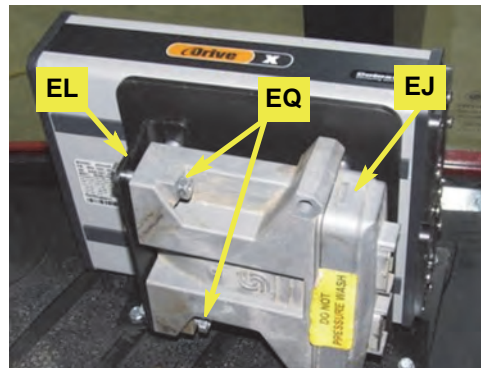


Figure 1c: Installed steering controller

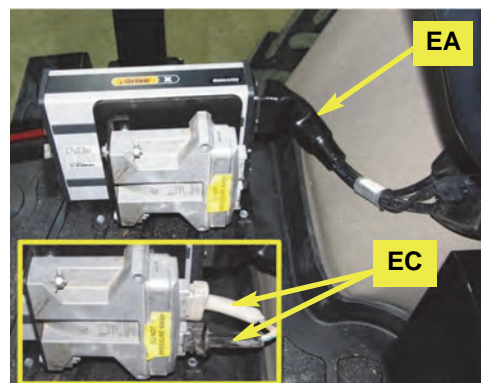


Figure 1d: Installed ECU main cable (and, inset, steering controller main cable)

2. **Assemble and install the cables (continued).**

b. Connect **EC**'s connector labeled 'VALVE' to valve cable **ED**. Connect **ED**'s four-pin and two-pin connectors to the machine's autosteer valve block. See Figure 2b and step f.

c. Connect **EC**'s connector labeled 'ECU' to **EA**'s connector labeled 'STEERING CONTROLLER' (Figure 2a).

d. Install WAS cable **EE** between **EC**'s connector labeled 'WAS' (Figure 2a) and wire connector **WB** on the rear axle. See step f for details.

e. Install SWS cable **EF** between **EC**'s connector labeled 'SWS' (Figure 2a) and steering wheel switch connector **SD**. Route **EF** forward then, under the floor mat, past the right window and across the front right window (Figure 2b and right inset) to the steering column. Using cable ties **SE** as required, join **EF** and **SD** in the lower steering column space (Figure 2b, left inset).

f. Route valve, WAS and battery cables as follows:

- Route valve cable **ED**, WAS cable **EE** and **EA**'s detachable battery cable through the cab access hole at the right rear corner of the cab (Figure 2c, top left inset).
- Using cable ties **ER** route **ED** to the machine's autosteer hydraulic block behind the front axle (Figure 2c and top right inset). Disconnect the machine's two solenoid connectors (4-pin, labelled 'STEER VALVE' and 2-pin, labelled 'OVERRUN VALVE') and connect **ED**'s 4-pin and 2-pin connectors respectively (Figure 2c, bottom left and bottom right insets).
- Using cable ties **ER** route **EE** to the WAS assembly on the right side adjusting cylinder. Connect **EE** to **WB**'s wire connector (Figure 2d).

g. Attach power switch **EG** to cable **EA**'s connector labeled 'SWITCH'. Some machines are equipped with pop out tabs that you can remove and replace with switch **EG**. If no tab is available, you can use bracket **EK** mounting it in the cab at the operator's preferred location.

NOTE: Set the switch to **OFF** before connecting **EA** to the battery at step i below.

h. Connect CAN-PWR cable **EH** to **EA**'s open connection labeled 'TERMINAL/RECEIVER' (Figure 2a). Route the cable in the cab so that it is clear of any machine operation controls. Connect the opposite end of cable **EH** to the guidance terminal.

i. Route the power cable part of cable **EA** to the tractor's 12V battery and connect it.

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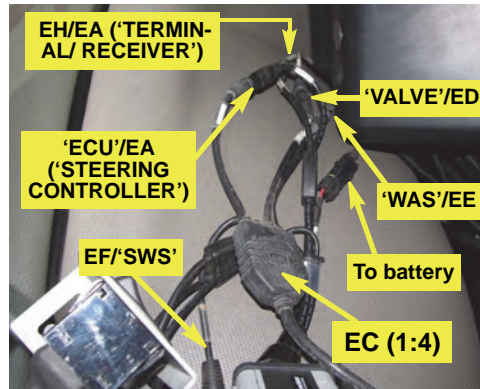


Figure 2a: ECU/steering controller connections

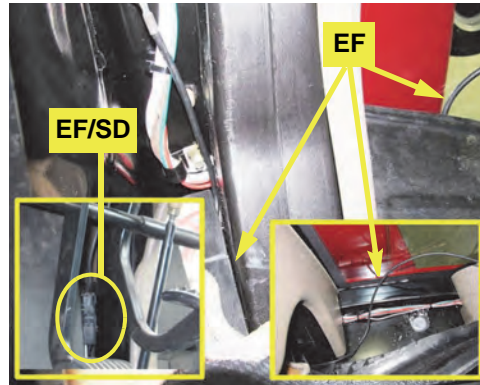


Figure 2b with insets: SWS cable routed to and connected to switch/sensor cable

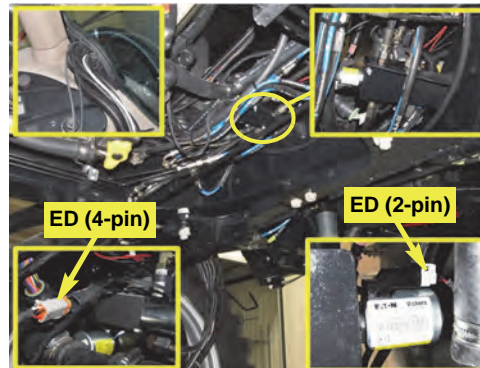


Figure 2c with insets: Valve cable connected at machine's autosteer valve block solenoids

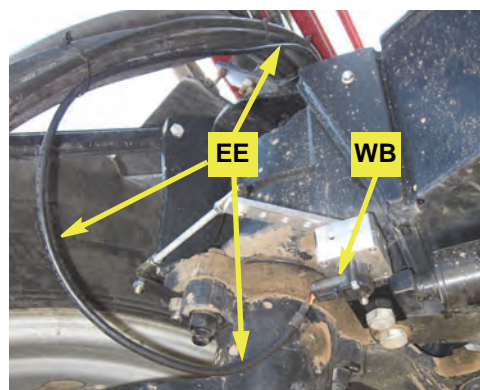


Figure 2d: WAS cable to wire connector

Appendix A - ECU Cables and Connections

