

Steer Ready Kit Installation Guide

Kit: EDX-SR-C8120, P/N 911-3011-000

Fits Case and New Holland Combine Models:

<u>Case</u>		<u>New Holland</u>	
7120	7230†	CR940	CR9040
8120	8230†	CR960	CR9060
9120	9230†	CR970	CR9070
			CR9080

† Deluxe cab models only, see picture
(inset) at far right



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 starting below. 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 kit 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 3) contains WA to WF				
WA	720-0045-000#	1	WAS assembly	
WB	760-5002-000	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	

Kit Contents - Wheel Angle Sensor (continued).

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
WG	675-2031-000	1	Threaded rod, 5/16-24 x 12"	
Bag W2 of 3 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	2	Bolt, 5/16NC x 3/4" Gr5, ZP (Attach WA to WK)	
WK	640-0140	1	WAS assembly mounting bracket	
WL	640-0128	1	WAS link rod bracket	
Bag W3 of 3 contains WM				
WM	675-2061-000	2	U-bolt, 3/8"-16 x 2-3/4" x 4-5/16", ZP (Attach WK and WL to steering cylinder and tie rod respectively)	

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	
SB	675-0077	1	Epoxy, Hardman 04001 - single double bub	

Kit Contents - Steering Wheel Switch (*continued*)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
SC	602-1062	1	Steering wheel switch mounting bracket	
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	051-0305-000#	1	SR valve cable	

Kit Contents - Electronic Control Unit *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EE	051-0230-000#	1	WAS cable (See ES - combines only)	
EF	051-0229-000#	1	SWS cable	
EG	054-0117-000#	1	Power switch (Use EGa to mount if necessary)	
EGa	726-1093-000	1	Switch bracket (Use to mount EG, if required)	
EH	051-0166-000#	1	CAN-PWR cable	
EI	Not used	N/A	Not used/included in kit	N/A
EJ	806-1031-000#	1	Controller (ECU)	

Kit Contents - Electronic Control Unit *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EK	750-5003-000	1	Steering controller	
EL	640-0091-000	1	ECU (EJ) mounting bracket (Also mounts EM and EK)	
EM	640-0102-000	1	Steering controller mounting bracket, steer ready	
Bag E1 of 2 contains EN, EO and EP				
EN	675-1197-000	4	Screw, self-drilling, 10 x 2-1/2", hex, ZP (Attach EL to cab floor)	
EO	675-1188-000	2	Screw, mach, M6 x 12mm, PPH, ZP (Mount ECU EJ on EL)	
EP	675-1210-000	2	Screw, mach, M6 x 16mm, PPH, ZP (Mount ECU EJ and EM on EL)	
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, 1/4"ID, 5/8"OD, 1/16"Thk	
	676-1040	2	Nut, 1/4NC Gr5, ZP	
			(Mount EK on EM)	
ER	677-2002	20	Tie strap, 7" releasable	

Kit Contents - Electronic Control Unit (*continued*)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
ES	051-0294-000#	1	WAS extension cable (combines only) (Use with EE)	
ET	051-0304-000#	1	Power cable - long (combines only)	

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.

- 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).

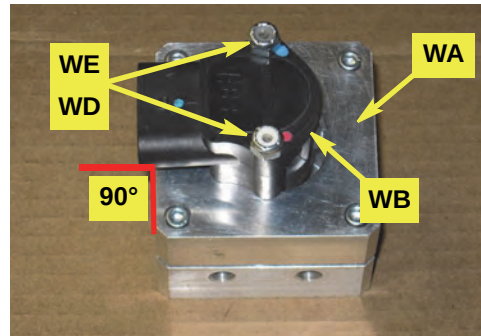


Figure 1a: Prepared WAS housing\connector

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

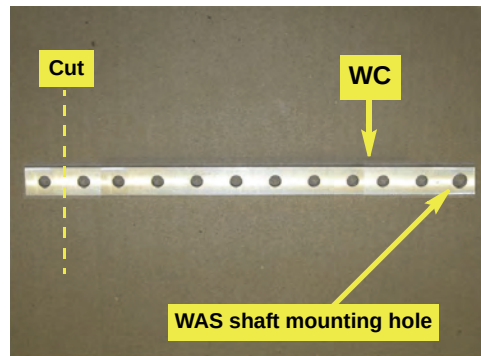


Figure 1b: WAS arm preparation

- 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).

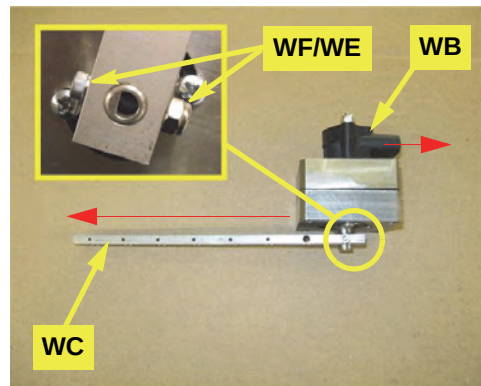


Figure 1c with inset: WAS arm installed

- Screw nuts **WH** then swivel rod ends **WI** onto the WAS link rod **WG** to achieve a center-to-center stud measurement of 13½" (Figure 1d). Leave **WH** loose until you complete linkage adjustment at step 2f.

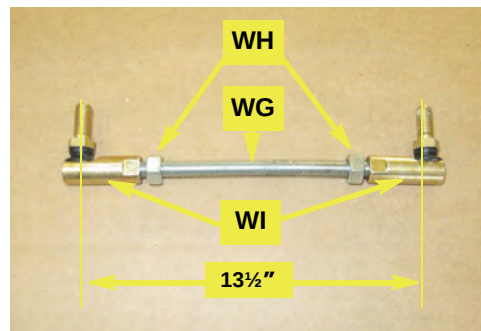


Figure 1d: Assembled threaded link rod

2. Mount the wheel angle sensor.

NOTE: Figures in this section show prototype brackets. Install your brackets as described.

- a. Using bolts **WJ** install the WAS assembly from step 1 on bracket **WK**. Have the wire connector **WB** on top, pointing away from the two, wider, U-bolt holes. Connector arm **WC**'s working arc will be toward the front of the machine (Figure 2a).
- b. Using U-bolt **WM**, install the WAS assembly and its bracket **WK** on the forward side of the left steering cylinder at the rear axle. Set the center of the U-bolt 12½" from the piston rod end of the cylinder (Figure 2b with inset).

NOTE: Use tie straps **ER** as required to ensure hydraulic hoses are kept clear of the WAS assembly and its moving parts.

- c. Using U-bolt **WM**, mount link rod bracket **WL** on the forward side of the tie rod. Set the center of the U-bolt 4¾" from the inner edge of the tie rod end lock nut. Mount the bracket with its short leg upward and pointing forward, away from the tie rod. Ensure bracket **WL** is vertical (Figure 2c).
- d. Using nuts **WH** (not visible), install the link rod from step 1 between the last hole in connector arm **WC** and bracket **WL**. Set the swivel studs downward at both ends (Figures 2d-i and 2d-ii - see **Note** following). Leave swivel nuts **WH** loose.

NOTE: Install the link rod with the wheels straight ahead initially, not on a full lock as shown in Figures 2d-i and 2d-ii).

- e. With all nuts **WH** loose, slowly turn the wheels full left lock then full right lock (Figures 2d-i and 2d-ii). Check that the linkage moves freely without binding and adjust the linkage as necessary.
- f. When the linkage does move freely and without binding, tighten nuts **WH** on the rod and the swivels (Figure 2d-ii).

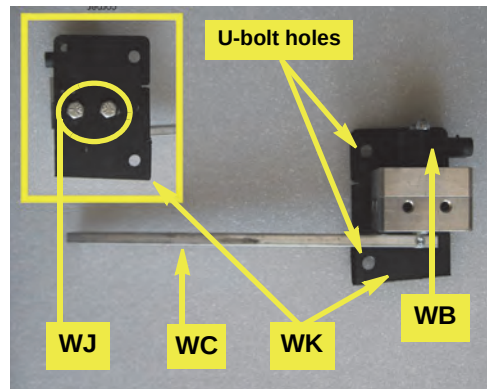


Figure 2a: WAS assembly mounted on its bracket

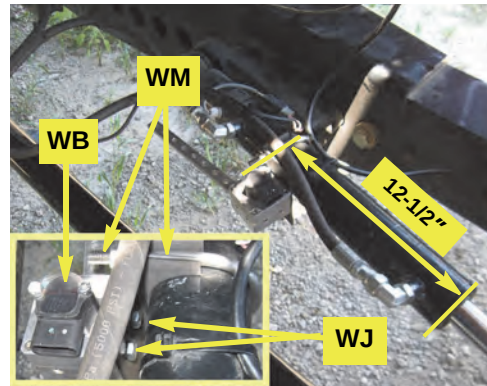


Figure 2b with inset: WAS assembly installed on left steering cylinder

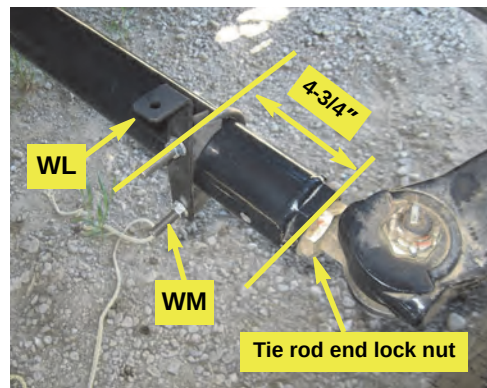


Figure 2c: WAS link rod bracket installed

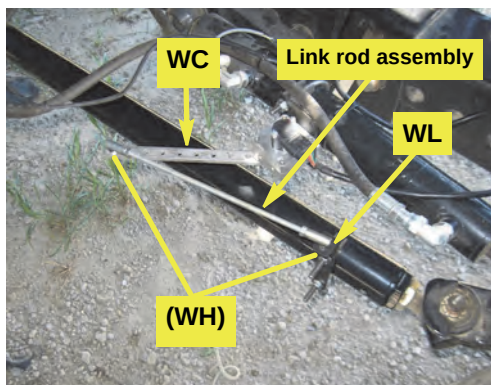


Figure 2d-i: WAS link rod assembly installed - left lock

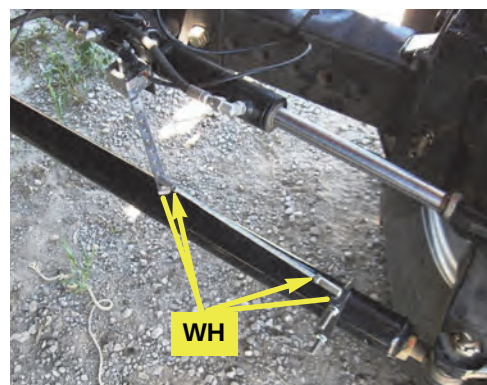


Figure 2d-ii: WAS link rod assembly installed - right lock

Installation - Steering Wheel Switch (SWS)

1. Prepare the switch bracket.

Prepare switch bracket **SC** as detailed (Figure 1 with inset):

- Cut 1" from the un-drilled end
- Cut a 3/4" long, 1/4" wide slot at the newly cut end
- Put an upward 90° bend 1" from the pre-drilled end and apply a slight clockwise twist (Figure 1 and inset)

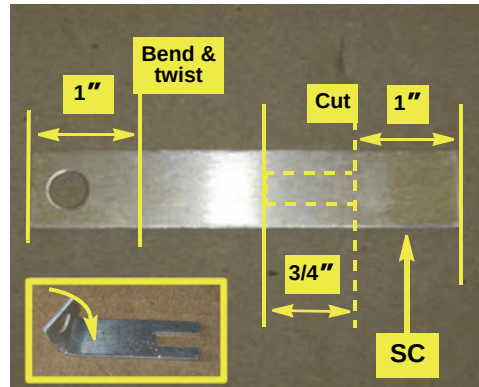


Figure 1 with inset: Switch bracket preparation (not to scale)

2. Install the switch bracket.

- a. Retracting the steering column rubber boot surround as required (Figure 2 - top inset), access the bottom of the steering column and shaft. Loosen the locknut on the adjustable stop under the steering column tilt-pedal on the right side of the column (Figure 2 and bottom inset).

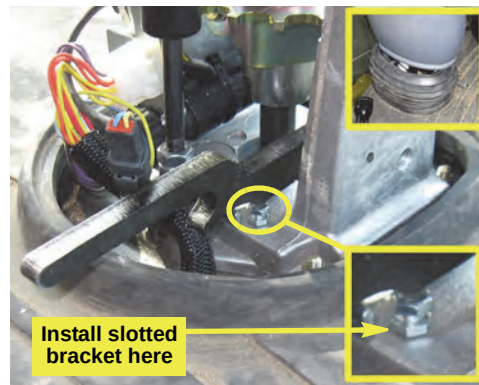


Figure 2 with insets: Switch bracket mounting location

- b. Slide the slotted end of switch bracket **SC** under the locknut and align **SC**'s switch hole with the vertical centerline of the steering shaft (Figure 3). Tighten the locknut.

3. Install the magnets and the switch.

Using the two-part epoxy **SB**, install magnets **SA**, 180° apart, on the steering shaft. Install the magnets vertically, centered on the switch hole in the switch bracket (Figure 3).

- c. Install switch **SD** in bracket **SC** and use the switch nuts to set the sensor face to 1/8" to 1/4" from the magnets (Figure 3). Leave **SD**'s cable out from under the bottom of the boot surround (you will connect the ECU's SWS cable **EF** to **SD**'s cable in the next section).
- d. Refit the boot surround.

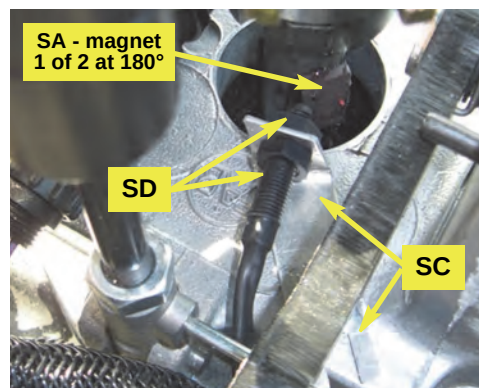


Figure 3: Installed switch bracket, magnets and switch

Installation - Electronic Control Unit (ECU)

See Appendix A for a schematic of the cable connections.



Before drilling (or using self-drilling screws) in the cab, make sure there is nothing that can be damaged by the drilling or by any self-drilling screws used to secure the ECU mounting bracket. Secure anything that could be damaged away from where the screws come through. See Figure 1 for an example of a pre-drilling check; it shows an under-floor cabling compartment.

NOTE:

Although measurements and floor mat references provide an accurate guide, ensure that when installed, the bracket will be perpendicular to the front of the machine (that is, parallel to the machine's fore/aft centerline). Also, use a small level to set the bracket as level as possible - see steps following.

1. Install the ECU and steering controller.

- a. If installed, remove the black mounting box to the right of the driver's seat (Figure 1a, left inset) and its four studs (Figure 1a, right inset - but see Note following).

NOTE:

You can install the ECU mounting bracket after removing only the right front stud (circled in Figure 1a right inset) in the previous step.

- b. Facing the one-inch tabs of bracket **EL** toward the right side of the cab, place the bracket with (Figure 1a):
- Its rear edge 4" from the back of the cab
 - Its inner edge 10" from the right side of the driver's seat

NOTE:

At the next step, do not overtighten the self-drilling screws. Overtightening could cause the fastener to fail.

- c. Using self-drilling screws **EN**, fasten bracket **EL** to the cab floor (Figure 1b). Use a small level (not shown) to check the level of the bracket. Adjust accordingly.
- d. With the ECU **EJ** against the inside face of its bracket **EL** (power/communications indicators at the bottom), use the shorter screws **EO** through the rearmost holes in bracket **EL** (the ECU connectors end - Figure 1b inset) to loosely attach **EJ**.
- Using the longer screws **EP** through the narrow side of controller bracket **EM** (wider side forward) and the forward holes in bracket **EL**, secure **EJ** and **EM** to **EL** (Figure 1b). Tighten **EP** and **EO**.
- e. Using hardware **EQ**, attach steering controller **EK**, connectors rearward, to its bracket **EM** (Figure 1c).



Figure 1: Example pre-drilling check

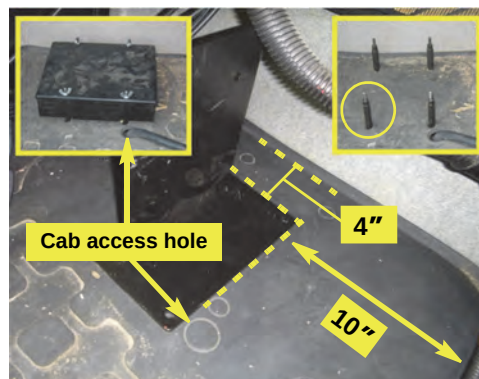


Figure 1a with insets: ECU mounting bracket location prepared and bracket installed

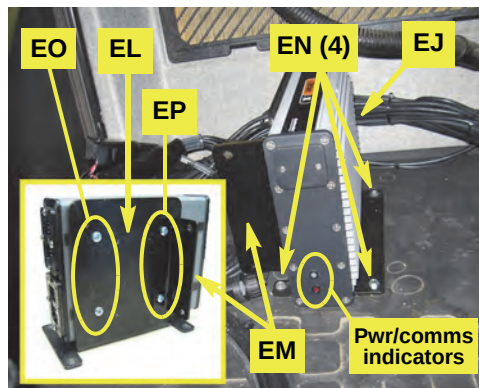


Figure 1b with inset: ECU and steering controller bracket installed

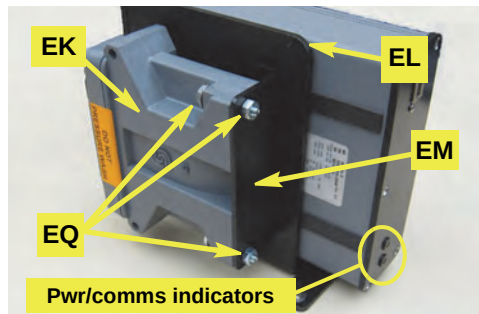


Figure 1c: Steering controller installed

1. **Install the ECU and steering controller (continued).**

- f. Connect main cable **EA** to the socket on the ECU **EJ** that is in line with the power and communications indicators at the opposite end of the ECU (**EA** will only fit that socket—the bottom socket in this installation). Use an Allen wrench to secure the cable to the ECU (Figure 1d).
- g. If it is not already in use, locate the cab access hole under the floor mat near the front left corner of the installed ECU and bracket (Figure 1a). Make a hole in the floor mat to pass ECU cables in/out of the cab. If the hole is already in use (as in Figure 1a's insets), pass the ECU cables through it with the existing cabling.

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. Attach steering controller cable **EC**'s two 12-pin plugs to the corresponding gray and black connectors on the steering controller **EK** (Figure 2a).
- b. Connect **EC**'s connector labeled 'ECU' to **EA**'s connector labeled 'STEERING CONTROLLER' (not shown).
- c. Connect **EC**'s connector labeled 'SWS' to SWS cable **EF**. Route **EF** to **SD**'s connector at the base of the steering column and connect them (not shown).
- d. Pass the round connector ends of SR valve cable **ED** and WAS extension cable **ES** through the cab access hole (see step g above). Connect **ED** and **ES** to **EC**'s connectors labeled 'VALVE' and 'WAS' respectively.

NOTE: Route all cables with other machine cables or plumbing, free from entanglement. Use tie straps **ER** as required.

- e. Route the SR valve cable **ED** from the ECU in the cab to the machine's valve cable connector behind the steering valve (remove the cab front panel below the windscreen to access the steering valve - Figure 2b and left inset). Split the connector and connect **ED** to the male (pin) side of it (Figure 2b - right inset). Dust/weatherproof the unused, open connector of the machine's valve cable.
- f. Connect WAS extension cable **ES** to WAS cable **EE** and route the cable(s) to the WAS assembly on the left rear steering cylinder. Connect **EE** to WAS wire connector **WB** (Figure 2c).
- 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**. (Alternatively, use bracket **EGa**.)

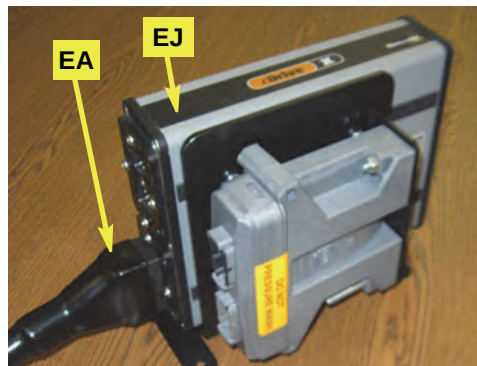


Figure 1d: ECU main cable installed

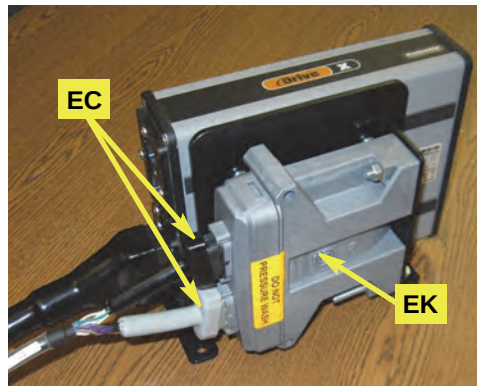


Figure 2a: Steering controller main cables connected at controller

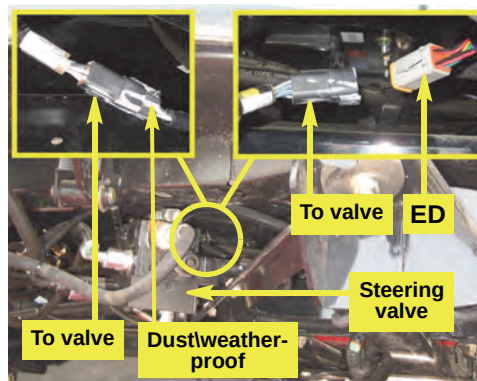


Figure 2b with insets: SR valve cable routed to disconnected steering valve cable

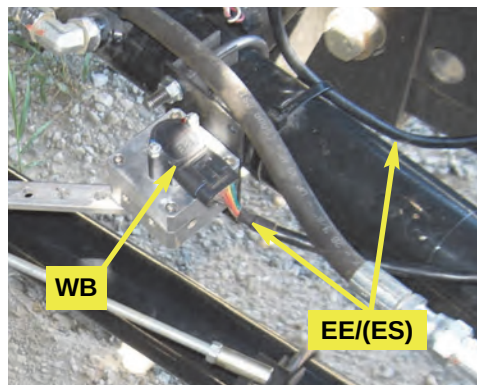


Figure 2c: WAS cable connected as WAS assembly

NOTE:

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

- h. Install CAN-PWR cable **EH** between **EA**'s open connection labeled 'TERMINAL/RECEIVER' and the guidance terminal. Connect your battery terminal cable to **EH**'s remaining connector. Route cables in the cab so that they are clear of any machine operation controls.

⚠ WARNING:

*Ensure you have connected main cable **EA** to the ECU (step 1f, page 12) and **ET** to **EA** (step i following) before you connect **ET** to the machine's battery.*

- i. Disconnect and discard the standard length power cable from ECU main cable **EA** and connect the extended power cable **ET**. Route the extended power cable **ET** to the machine's 12V battery and connect it.

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Appendix A ECU Cables and Connections

ECU CABLES AND CONNECTIONS - STEER READY COMBINE

