Steer Ready Kit Installation Guide

Kit: EDX-SR-JD8030FM, P/N 911-3003-000

Fits John Deere Tractor Models:

8130 8230 8330 8430 8530

NOTE: *This installation kit is specific only to the John Deere models listed above that have a hydraulic flow meter and a standard axle. If your machine does not have a flow meter or a standard axle, or you are unsure if it has, contact your local dealer before continuing this installation.*

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
  - 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 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.

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	750-5002-000	1	Sensor, dual output, BEI	
WC	602-1087-000	1	Connector arm, steering, long	
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"	

Kit Contents - Wheel Angle Sensor *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
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	
Bag W3 of 3 contains WK and WL				
WK	675-0106-000	2	Clamp, 1-1/4" polypropylene, EDX	
WL	675-2005	2	Bolt - 3/8NC x 3-1/4" Gr5 ZP	
	678-1054	2	Washer, narrow flat - 3/4"OD x 13/32"ID x 1/16" thk ZP	
	676-1035	2	Nut, nylock - 3/8NC ZP	
WM	640-0070-000	1	WAS rod mount	
WN	640-0104-000	1	EDX WAS housing mount	

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 (Steering) prefix.

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
SA	478-0008	2	Magnet, flex - 1/2"W x 1"L x 1/8"T, plain, 1	
SB	675-0077	1	Epoxy, Hardman 04001 - single double bub	
SC	602-1062	1	Bracket, steering wheel switch mounting	
SD	726-1054	1	Assy, eDrive steering wheel switch	
SE	677-2002	4	Tie strap, 7" releasable	
Bag S1 of 1 contains SF				
SF	675-1138-000	1	Screw, self drilling, 8-18 x 3/4" Hex	

Kit Contents - Electronic Control Unit

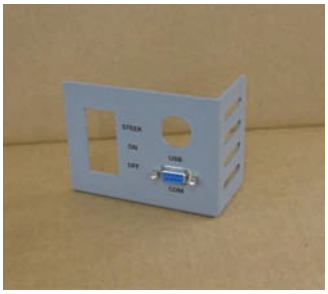
Unpack the electronic control unit kit and identify the required parts as shown. Kit items are A, B, C etc. with an E (Electronic) prefix.

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EA	051-0226-000#	1	ECU main cable	
EB	Not used	N/A	Not used/included in kit	N/A
EC	051-0250-000#	1	Steering controller main cable, PVED	
ED	051-0251-000#	1	Valve cable, JD AutoTrac	
EE	051-0230-000#	1	WAS cable	
EF	051-0229-000#	1	SWS cable	

Kit Contents - Electronic Control Unit *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EG	054-0117-000#	1	Power switch	
EH	051-0254-000#	1	Flow meter phantom plug, JD AutoTrac	
EI	051-0166-000#	1	CAN-PWR cable	
EJ	806-1031-000#	1	Controller (ECU)	
EK	750-5003-000	1	Steering controller	
EL	640-0091-000	1	ECU mount bracket	

Kit Contents - Electronic Control Unit *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EM	640-0102-000	1	Steering controller mount bracket, steer ready	
EN	726-1093-000	1	Switch bracket	
Bag E1 of 1 contains EO, EP, EQ and ER				
EO	675-1190-000	4	Screw, self drilling, #10 x 1-1/2", Hex ZP	
EP	675-1188-000	2	Screw, mach, M6 x 12mm, PPH, ZP	
EQ	675-1210-000	2	Screw, mach, M6-1.0 x 16mm, PPH, ZP	
ER	675-2048-000	2	Bolt, 1/4"-20 x 1-1/2", Gr5 ZP	
	678-1073-000	2	Washer, flat - 1/4"ID x 5/8"OD x 1/16" thk	
	676-1040	2	Nut, 1/4NC Gr5 ZP	
ES	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 **WD** and **WE**, attach the WAS **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 sides (Figure 1a).

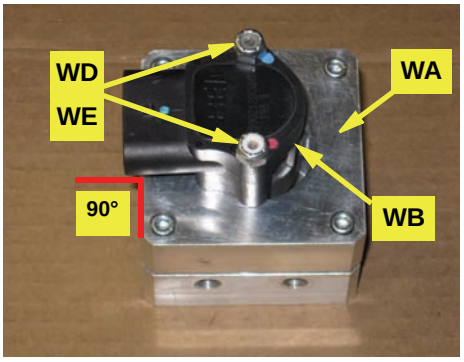


Figure 1a: Prepared WAS housing\connector

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

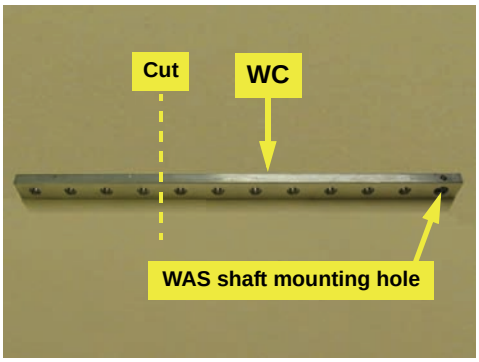


Figure 1b: WAS connector arm preparation

c. Using hardware **WE** (nut) and **WF** (screw), attach the cut WAS arm **WC** to the WAS assembly. The arm should be mounted in the same direction as the WAS wire connector **WB** (Figure 1c).

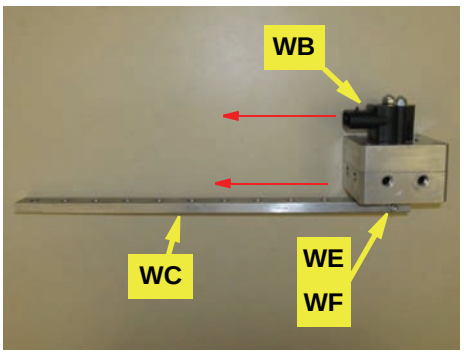


Figure 1c: Attached WAS arm

d. Check which axle type your tractor has. The axle type determines the length of the cut threaded rod and the assembled threaded rod (Figures 1d-i and 1d-ii).

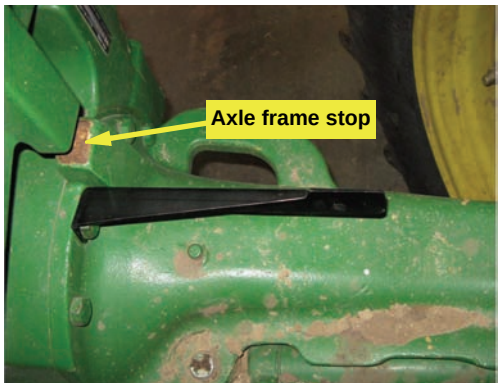


Figure 1d-i: 1st axle type

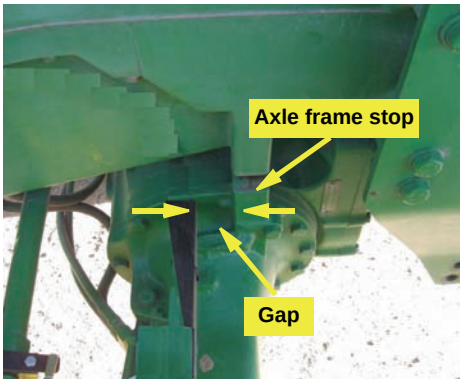


Figure 1d-ii: 2nd axle type

1. Prepare the wheel angle sensor *(continued)*.

NOTE: *Before you cut the threaded rod **WG** at step 1e, screw the provided nuts **WH** onto the rod so that they are inside the cut you will make. After you have cut the rod, the nuts can help clean the threads.*

e. For axles with housing bolts close to the axle frame stop (1st axle type) cut the rod to be 5¾″ long (Figure 1e-i).

For axles with housing bolts further away from the axle frame stop (2nd axle type) cut the rod to be 2¾″ long (Figure 1e-ii).

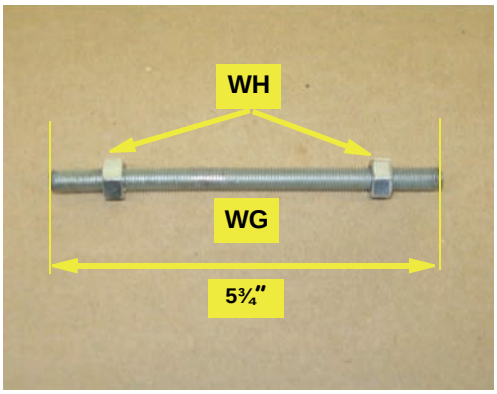


Figure 1e-i: Cut threaded rod - 1st axle type

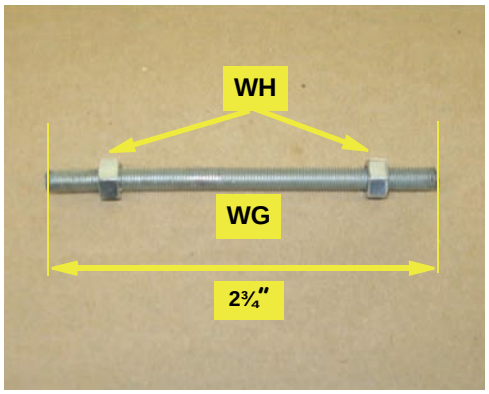


Figure 1e-ii: Cut threaded rod - 2nd axle type

f. Screw the lock nuts **WH** and swivel rod ends **WI** onto the cut threaded rod **WG**. For axles with housing bolts close to the axle frame stop (1st axle type) set the center-to-center stud measurement to 7″ (Figure 1f-i). Leave **WH** loose until you complete linkage adjustment at step 2e on page 11.

For axles with housing bolts further away from the axle frame stop (2nd axle type) set the center-to-center stud measurement to 4″ (Figure 1f-ii). Leave **WH** loose until you complete linkage adjustment at step 2e on page 11.

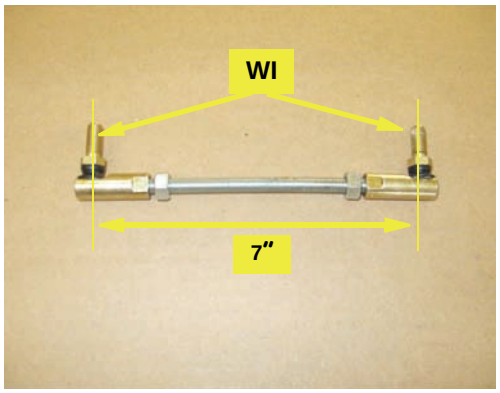


Figure 1f-i: Assembled threaded rod - 1st axle type

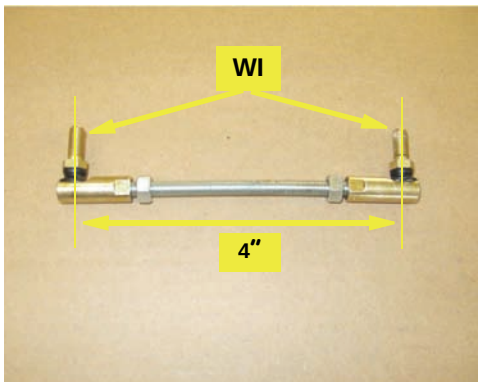


Figure 1f-ii: Assembled threaded rod - 2nd axle type

2. Install the WAS.

NOTE: *In the following section the photos are of the first axle type where the WAS mounting bracket bolt is close to the axle frame stop. If your tractor has the second axle type, mount the bracket accordingly.*

a. Locate the top front axle bolt, next to the axle stop, on the right side of the tractor. Install the WAS mounting bracket **WN** here (Figures 2a-i and 2a-ii).

Figure 2a-i: WAS mounting bracket location

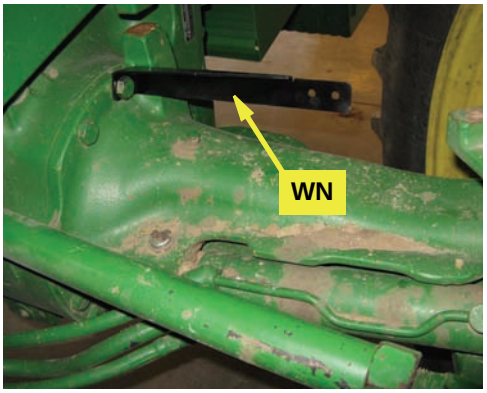


Figure 2a-ii: Installed WAS mounting bracket

b. Use the provided hardware **WL** to install the clamp **WK** and rod mount **WM** to the tie rod next to the lock nut (Figure 2b).

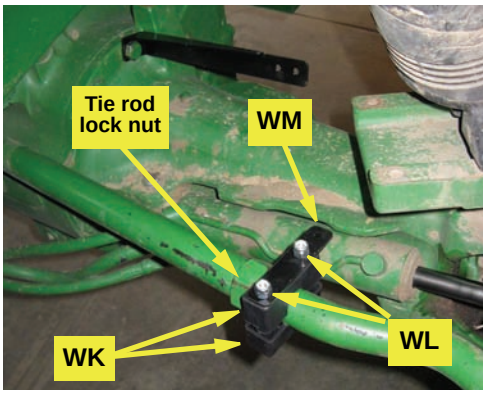


Figure 2b: Installed link clamp and bracket

c. Using hardware **WJ, a**ttach the WAS assembly to the bracket **WN**. Make sure the WAS connector is pointing inwards (Figure 2c).

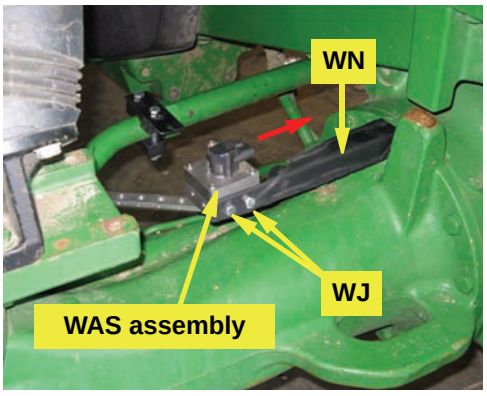


Figure 2c: Installed WAS assembly

2. Install the WAS (*continued*).

d. Using the remaining hardware **WH**, install the assembled WAS linkage from step 1d between the rod bracket **WM** and the last hole in the WAS connector arm **WC**. Install the linkage with the swivel studs downwards but leave the swivel stud nuts **WH** loose (Figure 2d).

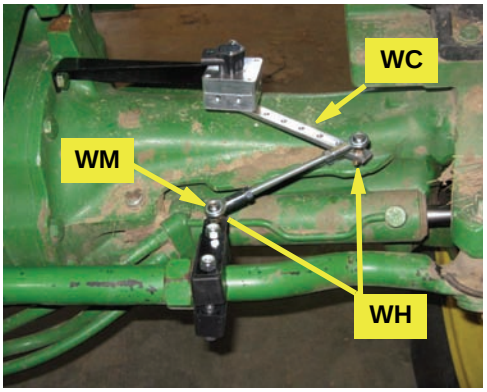


Figure 2d: WAS linkage rod connected

e. With all hardware **WH** loose, slowly turn the wheels full left lock then full right lock (Figures 2e and 2f). Check that the linkage moves freely without binding and adjust the linkage if necessary.

f. When the linkage does move freely and without binding, tighten hardware **WH** on the rod and the swivels.


Figure 2e: Full left lock


Figure 2f: Full right lock

Installation - Steering Wheel Switch (SWS)

1. Prepare and attach the steering sensor mounting.

a. Pull the fan control knob off its spindle then locate and remove the six screws securing the top and bottom steering column covers. Remove the covers (Figure 1a and inset).

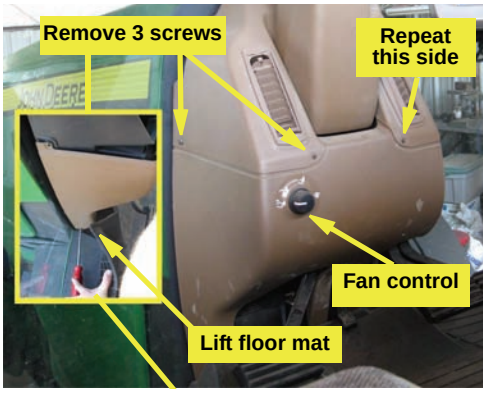


Figure 1a (with inset): Removing steering column cover screws

b. With the column covers removed, peel back the rubber flooring to expose the steering shaft and the raised front edge of the metal floor pan (Figure 1b).

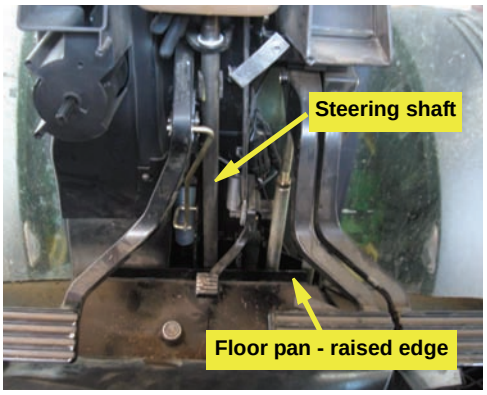


Figure 1b: Floor pan edge and steering shaft

c. Cut the aluminum sensor bracket **SC** 2¼″ from the end with the pre-drilled sensor mounting hole (Figure 1c - top), then drill a 5/32″ pilot hole on the centerline of the bracket. Drill the hole so that its center is 1/4″ from the cut end (Figure 1c - bottom).

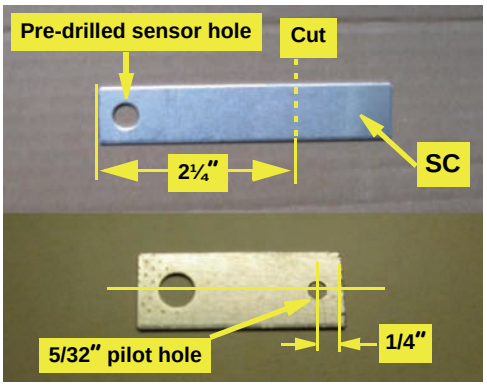


Figure 1c: Cut and drilled sensor bracket

d. Put a 90° twist in the bent, drilled sensor bracket. Before twisting, ensure that:

- The inside edge of your first grip is at least 5/8″ from the end with the pre-drilled sensor mounting hole (to ensure that the twist does not interfere with the sensor mounting hole).
- The inside edge of your second grip is 1″ from the recently cut end (Figure 1d - not to scale).

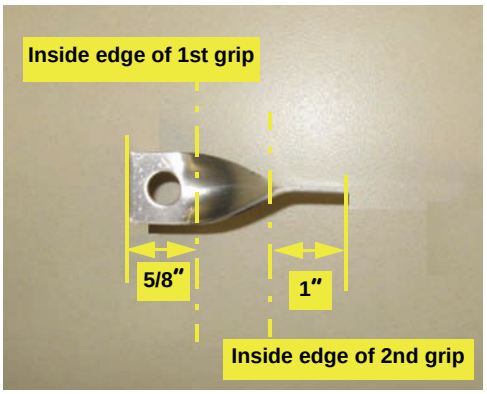


Figure 1d: Twisted bracket (not to scale)

1. Prepare and attach the steering sensor mounting *(continued)*.

e. Attach the twisted aluminum bracket **SC** to the raised edge of the floor pan using the self-drilling screw **SF** through the pilot hole. Position the center of the pilot hole 1″ from the centerline of the steering shaft (Figure 1e).

f. Carefully bend the bracket forward until the center of the sensor hole aligns with the center of the steering shaft (Figure 1e).

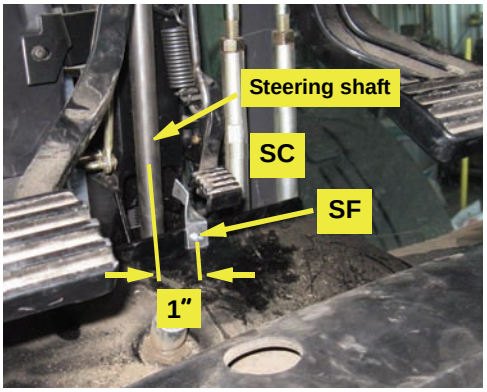


Figure 1e: Installed sensor/sensor bracket

2. Attach the magnets and install the steering sensor.

Thoroughly clean two areas of the steering shaft, 180° apart, so that you can attach the magnets with their centers aligned with the center of the sensor hole in the sensor bracket.

a. Mix epoxy **SB** as directed on the package then attach both magnets **SA** to the cleaned steering shaft 180° apart. Align the center of each magnet with the center of the sensor hole in the sensor bracket (Figure 2).

b. Install the steering sensor **SD** in its bracket. Set the sensor tip 1/8″ to 1/4″ from the magnets (Figure 2). (You will connect **SD** to the ECU in the next section).

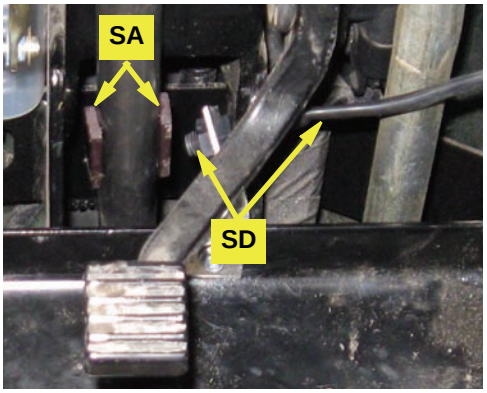


Figure 2: Attached magnets and installed sensor.

NOTE: *After installation, turn the steering wheel to check for clearance between magnets and sensor.*

c. Reinstall the steering column covers and the fan control knob.

Installation - Electronic Control Unit (ECU)

1. Install the ECU.

Locate the ECU **EJ**, mounting brackets **EL** and **EM**, and hardware **EO, EP, EQ** and **ER**.

a. Locate the ECU mounting location to the left of the driver's seat on the cab floor (Figure 1a).

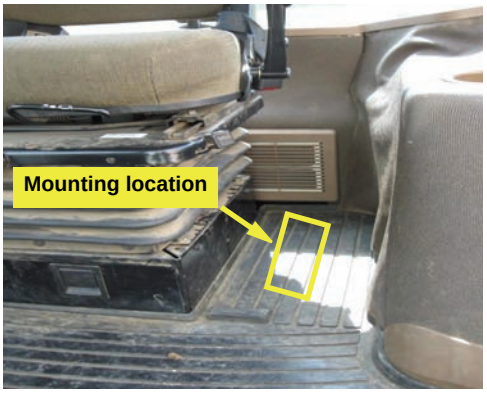


Figure 1a: Mounting location

b. Facing the one inch tabs of bracket **EL** towards the driver's seat, align the bracket parallel to the tractor seat frame. The bracket should be 3″ from side of the seat frame and 10½″ from the front edge of the seat frame (Figure 1b).

Using the provided hardware **EO** fasten the bracket to the cab floor. Using a small level (not shown), level the bracket as close as possible.

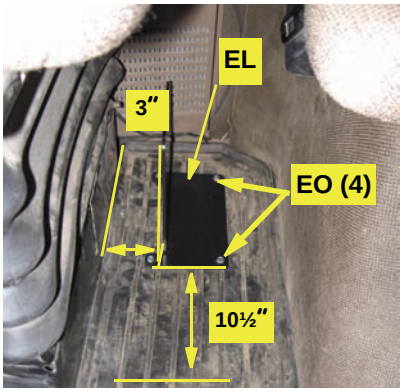


Figure 1b: ECU bracket installation

NOTE: *In steps c, d and e following, you will mount the ECU (**EJ**) directly against the inside face of bracket **EL** (the inside face being the face away from the driver's seat). You will mount the steering controller **EK** indirectly against the outside face of bracket **EL** using a second bracket **EM**. Mount both **EJ** and **EK** with their cable connectors towards the rear of the tractor.*

c. Using the shorter hardware **EP** through the rear-most holes in bracket **EL,** attach **EJ** (cable connectors rearward) loosely to the inside face of bracket **EL** (Figure 1c - viewed from driver's seat side).

d. Using the longer hardware **EQ** through the narrow side of bracket **EM** (wider side forward) and the remaining holes in bracket **EL,** secure **EJ** and **EM** to **EL** (Figure 1c). Tighten **EP** and **EQ**.

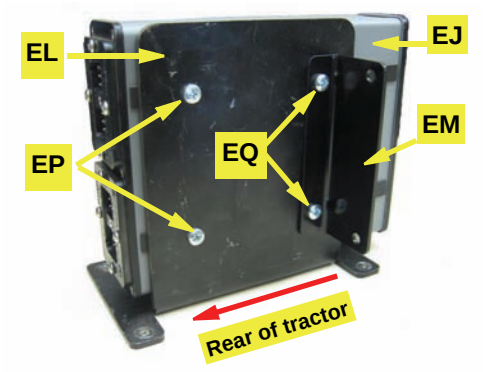


Figure 1c: Installed ECU and controller bracket (Viewed from driver's seat side)

NOTE: *It may be necessary to attach cable EA to the ECU before attaching the ECU to its bracket EL. See step 2a on page 15 for connection details.*

e. Using hardware **ER**, attach steering controller **EK**, connectors rearward, to its bracket **EM** (Figure 1d).

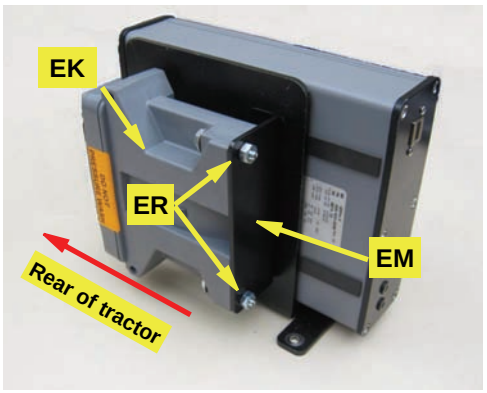


Figure 1d: Installed steering controller

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. If not already attached, attach main cable **EA** to **EJ** using an Allen wrench to secure the cable. The **EA** connector only connects with the **EJ** socket that is in line with the power and communications indicators at the opposite end of the ECU - the lower socket in this installation (Figure 2a).

Attach steering controller cable **EC**'s two 12-pin plugs to the corresponding gray and black connectors on the steering controller **EK** (Figure 2a).

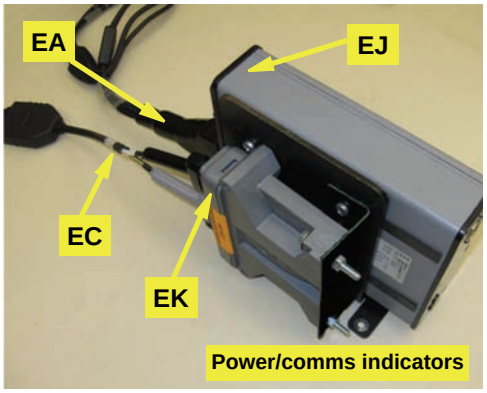


Figure 2a: Installed ECU and steering controller cables

b. Connect **EC**'s connector labeled 'ECU' to **EA**'s connector labeled 'STEERING CONTROLLER' (not shown).

c. Connect cables **EE** (WAS) and **ED** (valve) to their respective connectors on controller cable **EC** then route them, with the power cable from **EA,** out the back window and down to the left side of the tractor. Route the cables along the frame with existing cables and hoses (Figure 2b).

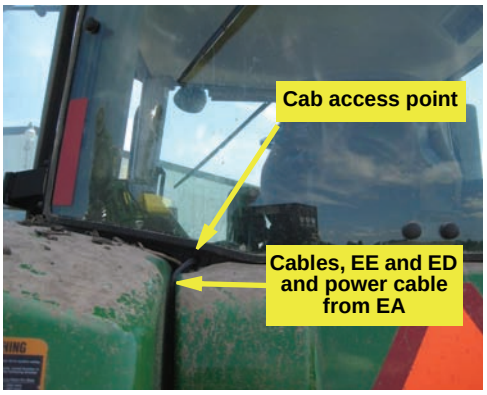


Figure 2b: Cables out from cab

d. Route cable **EE** to the front axle and attach it to the installed WAS (Figures 2c-i and 2c-ii).

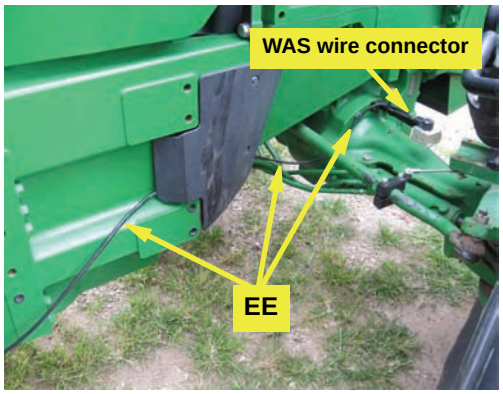


Figure 2c-i: WAS cable routing

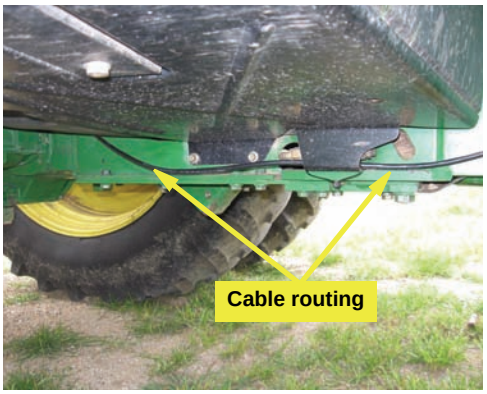


Figure 2c-ii: WAS cable routing

e. Locate the flow meter and PVED valve in front of the cab (Figure 2d). Remove the plastic shield to gain access.

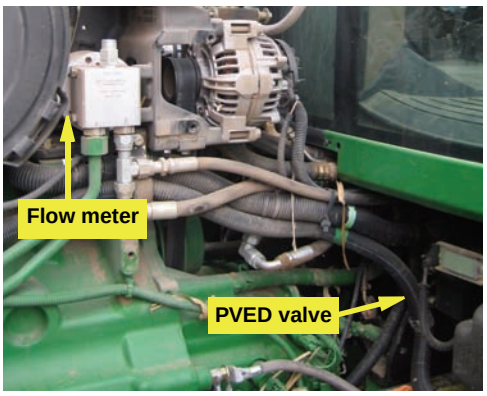


Figure 2d: Flow meter and PVED locations

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

f. Locate and disconnect the 4-pin wire connector from the PVED valve (Figure 2e). Cover the disconnected cable connector with plastic wrap. Connect cable **ED** to the open wire connector on the PVED valve (not shown).

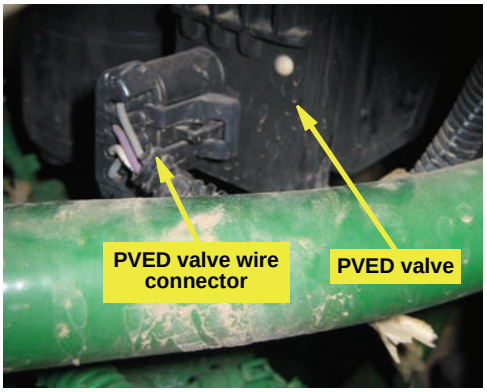


Figure 2e: PVED and wire connector

g. Locate and disconnect the 4-pin wire connector from the flow meter. Install the phantom connector plug **EH** at the disconnected cable (Figures 2f-i and 2f-ii).

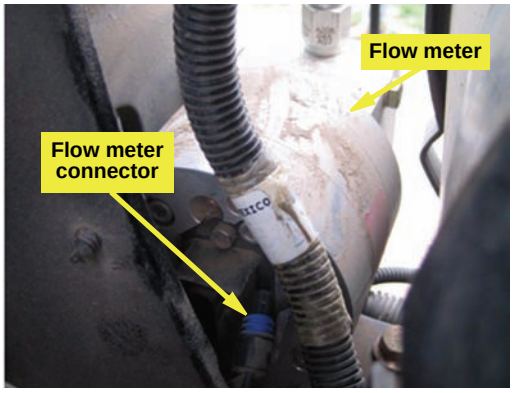


Figure 2f-i: Flow meter and wire connector (opposite end from Figure 2d)

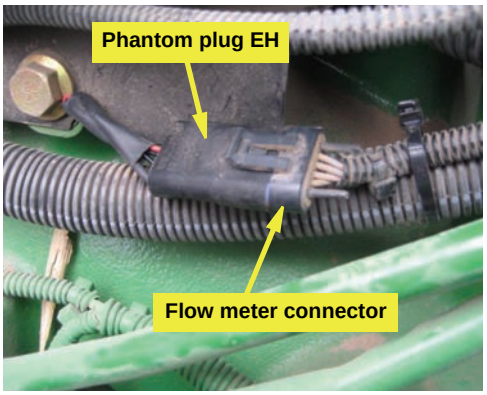


Figure 2f-ii: Phantom connector plug installed at tractor's flow meter connector

h. Using tie straps **ES**, fasten cables **EE**, **ED** and the disconnected PVED and flow meter cables to existing cables and hoses so that they are free from moving parts.

i. Install SWS cable **EF** between **EC**'s connector labeled 'SWS' and SWS switch **SD**'s cable installed at step 2b of the SWS installation section.

j. 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 **EN** mounting it in the cab at the operator's preferred location. Route the cable in the cab so it is clear from any machine operation controls.

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

k. Connect CAN-PWR cable **EI** to **EA**'s open connection labeled 'TERMINAL/RECEIVER'. Route the cable in the cab so that it is clear of any machine operation controls. Connect the opposite end of cable **EI** to the guidance terminal.

l. Route the power cable part of cable **EA** (routed from the cab at step 2c) to the tractor's battery and connect it.

Appendix A - ECU Cables and Connections