Steer Ready Kit Installation Guide

Kit: EDX-SR-CMX, P/N 911-3006-000

Fits Case MX Magnum and New Holland T8000 Models:

MX180	**MX210**	**MX255**	**MX305**	**T8010**
MX190	**MX215**	**MX260**	**MX315**	**T8020**
	MX225	**MX275**	**MX335**	**T8030**
	MX230	**MX285**	**MX340**	**T8040**
	MX235	**MX290**		**T8050**
	MX245			

NOTE:

1. This installation kit is specific to the CASEIH and New Holland models listed above that have factory installed AccuGuide hydraulics. If your machine does not have AccuGuide hydraulics or you are unsure of your machine compatibility, contact your local dealer before continuing this installation.

2. Two different wheel angle sensor (WAS) adapter cables are supplied with this kit and only one of them will be the right one for your model. Your machine's computerized management system will alert you if the wrong cable is installed and it is essential that you follow the cable installation instructions carefully to enable the system to complete its check.

3. Because of slight wiring variations between some late models, you may find that after installing the correct WAS adapter cable (according to the procedure and checks described), you do not get coarse WAS readings during calibration (see the Outback eDriveX w/S3 User Guide or Outback MAX Help). If this occurs, you will need to make a small modification to one of the WAS adapter cables and use that. Instructions are provided (see page 10).

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 manuals for your machine and other implements.

If you have 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 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 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.

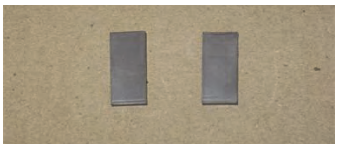
Turn off the machine and power off all steer ready components when installing or performing maintenance.

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 electrical wiring, will be damaged. Failure to follow this warning may cause physical injury and/or damage to the machine.

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 a S (Switch) prefix.

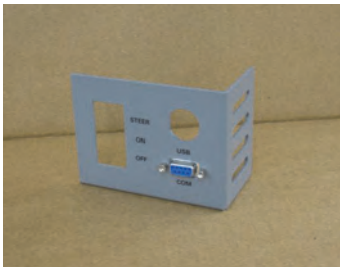
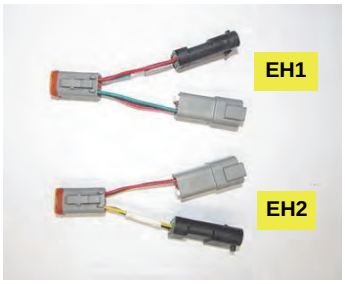
REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
SA	478-0008	2	Magnet, flex - 1/2"W x 1"L x 1/8"Thk, plain	
SB	675-0077	1	Epoxy, Hardman 04001 - single double bub	
SC	602-1062	1	Bracket, steering wheel switch mounting	
SD	726-1054	1	Assembly, steering wheel switch	
SE	677-2002	4	Tie strap, 7" releasable	

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	ECU main cable	
EB	Not used	N/A	Not used/included in this kit	
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	

Kit Contents - Electronic Control Unit *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
EG	054-0117-000#	1	Power switch (Use EGa to mount if necessary)	
EGa	726-1093-000	1	Switch bracket (Mount EG, if necessary)	
EH1	051-0256-000#	1	WAS adapter cable (older models - see pages 8 and 9)	
	or		***or***	
EH2	051-0347-000	1	WAS adapter cable (newer models - see pages 8 and 9. You may need to modify this cable, see steps.)	
EI	051-0166-000#	1	CAN-PWR cable	
EJ	806-1031-000#	1	Controller (ECU)	
EK	750-5003-000	1	Steering controller	

Kit Contents - Electronic Control Unit *(continued)*

EL	640-0091-000	1	ECU mounting bracket	
EM	640-0102-000	1	Steering controller mounting bracket, steer ready	
Bag E1 of 1 contains EN, EO, EP and EQ				
EN	675-1197-000	4	Screw, self-drilling, #10-16 x 2-1/2", hex, ZP	
EO	675-1188-000	2	Screw, mach, M6-1.0 x 12mm, PPH, ZP	
EP	675-1210-000	2	Screw, mach, M6-1.0 x 16mm, PPH, ZP	
EQ	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	
ER	677-2002	20	Tie strap, 7" releasable	

Installation - Steering Wheel Switch (SWS)

1. Install the steering wheel switch.

a. Locate the steering shaft under the steering console near the cab floor. The shaft is surrounded with a metal shield (Figure 1a).

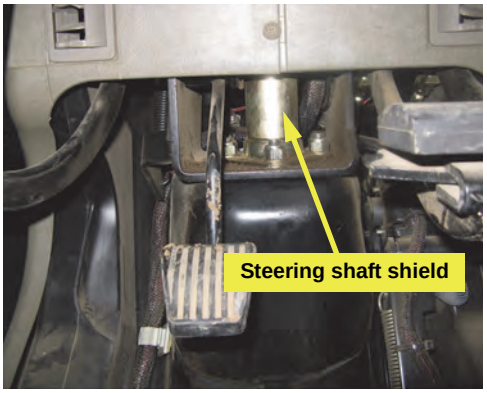


Figure 1a: The shielded steering shaft

b. Drill a 3/8″ hole in the sensor bracket **SC** at the opposite end from the sensor hole. Put a 90° bend in the end just drilled to 3/8″ (Figure 1b).

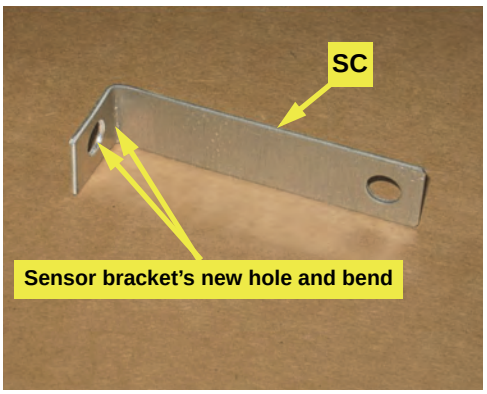


Figure 1b: Newly drilled/bent sensor bracket

c. Remove the bottom steering shaft shield flange nut. Using the bent sensor arm as a template, drill a ½″ hole in the steering shaft shield (Figure 1c).

Cut the magnet **SA** in half. 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 magnet.

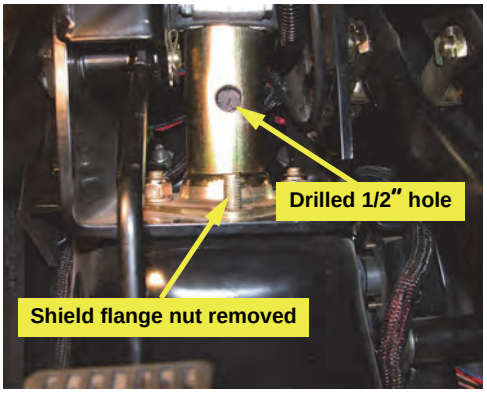


Figure 1c: Drilled shaft shield and installed magnets

d. Attach sensor **SD** to the bracket **SC**. Fasten the sensor arm to the steering shaft shield flange with the nut removed at step 1c (Figure 1d).

e. Align the sensor **SD** with the magnets and adjust the sensor face to 1/8″ to 1/4″ from the magnets (Figure 1d).

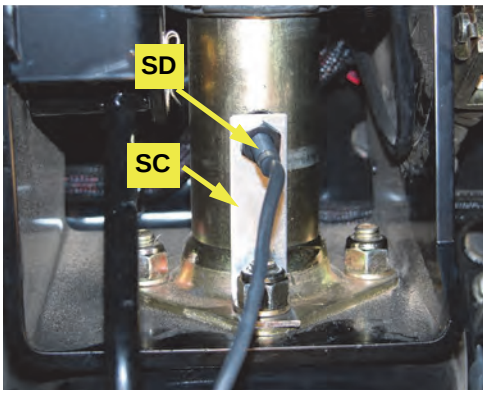


Figure 1d: Installed sensor arm

Installation - Electronic Control Unit (ECU)

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 underfloor cabling compartment.

NOTE: *Although measurements and mat references provide an accurate guide, ensure that when installed, the ECU 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.*

Figure 1: Example pre-drilling check

1. Install the ECU.

a. Locate the ECU mounting location at the front right corner of the cab floor (Figure 1a).

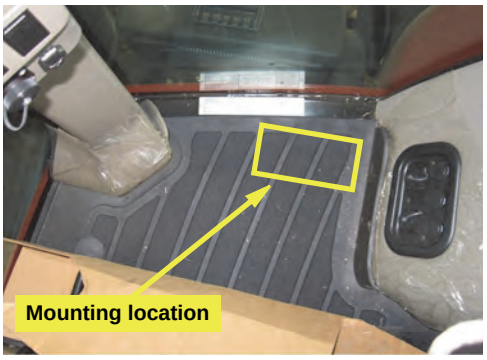


Figure 1a: ECU mounting location

b. With bracket **EL**'s one-inch tabs facing away from the right hand cab window, align the bracket parallel to the machine's fore/aft centerline. The front and rear outer corners of the bracket should be 2″ and 3″ from the window respectively (Figure 1b).

Using self-drilling screws **EN** fasten **EL** to the cab floor (see warning above). Using a small level (not shown), level the bracket as close as possible.

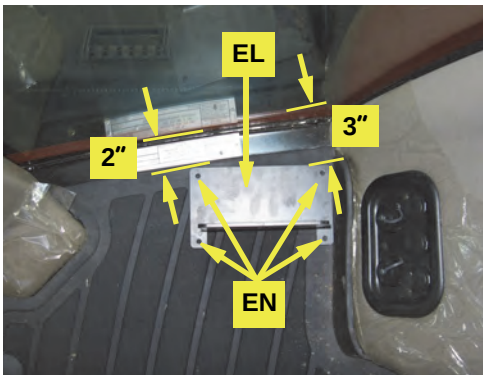


Figure 1b: Installed ECU bracket

c. Using the shorter screws **EO** through the rearmost holes in bracket **EL,** attach **EJ** (cable connectors rearward) loosely to the window side of bracket **EL** (Figure 1c - viewed from driver's seat side).

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

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 8 for connection details.*

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

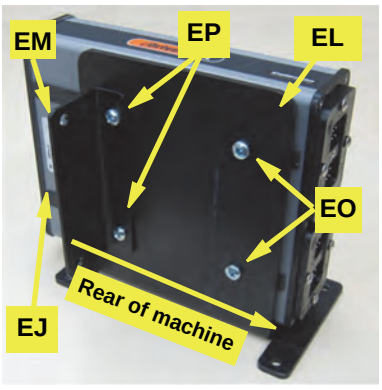


Figure 1c: Installed ECU

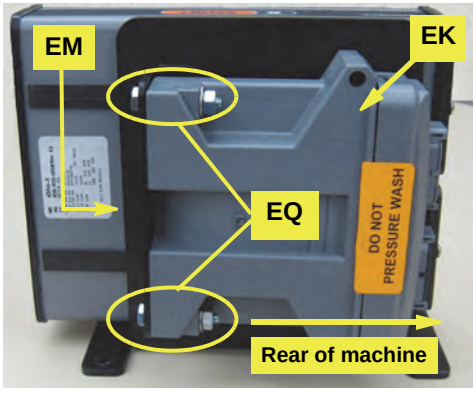


Figure 1d: Installed steering controller

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 upper 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).

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 machine. Route the cables along the frame with existing cables and hoses (Figure 2b).

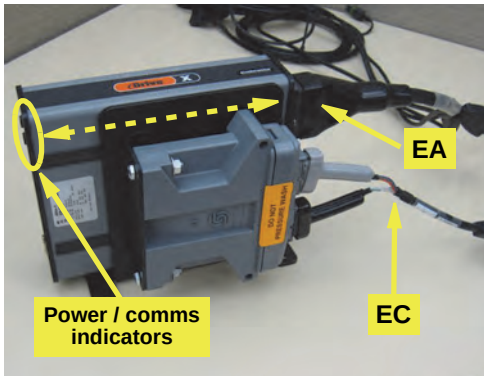


Figure 2a: Installed ECU and steering controller cables

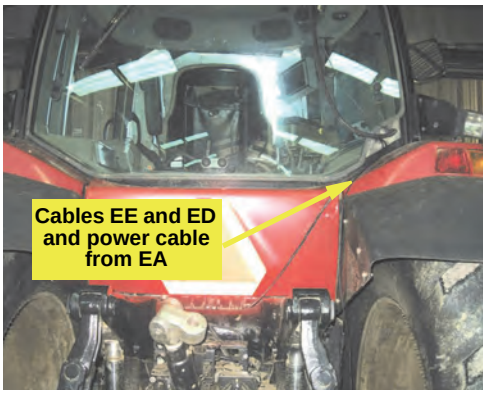


Figure 2b: Cables out from cab

⚠WARNING: Read these special instructions before continuing.

At step 2e on the next page you will determine which WAS adapter cable (EH1 or EH2) to use. The two cables are marked with their part numbers—051-0256-000 and 051-0347-000 (just 0256 and 0347 in step 2e)—and you will need to:

- *Install either cable*
- *Check the machine's data management readout*
- *Change to the other cable if required*

This is what you will do:

When instructed to at step 2e, install either EH1 or EH2 (as a very general guide, older machines will require EH1, newer machine's EH2).

Turn on the machine's ignition **but do not attempt to drive the machine* (do not even start the engine—it is not necessary - see * below)**.

Check the data display console (see Figure 2c—yours may look slightly different but the messages will be the same). If you see either the **DIFFLOCK FAULT** *message (Figure 2c, left) or the* **MFD FAULT** *message (Figure 2c, right), change to the other WAS adapter cable.* ***Attempts to drive the machine with either code displayed may result in the machine locking up.**

NOTE: *Because of slight variations to cabling on late models you might need to modify cable EH2. See step 3, page 10.*

Figure 2c: Wrong WAS adapter cable warnings

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

d. Locate the factory-installed WAS and WAS cabling on the left front axle. Open the plastic split loom to expose the 6-pin wire connection (Figure 2d-i).

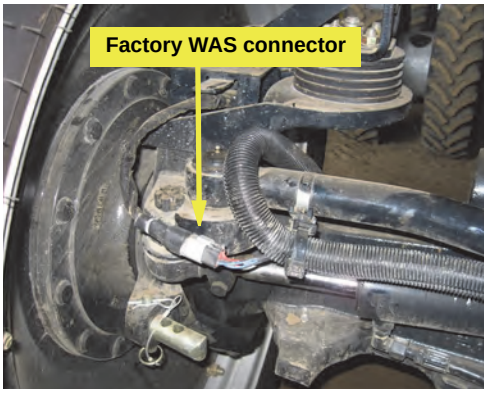


Figure 2d-i: Factory 6-pin WAS connector

e. Disconnect the 6-pin connector (Figure 2d-ii) and connect WAS adapter **EH1** (part # 0256) or **EH2** (part # 0347) to the open male and female connectors (Figure 2d-iii).

⚠WARNING: ***Read and follow the instructions under the warning on page 8 before proceeding.***

f. Check the machine's data management system for the **DIFFLOCK FAULT** or **MFD FAULT** message as described under the warning on page 8. Change to the other WAS adapter cable if you get either warning. Ensure you do not get either warning with the second cable.


Figure 2d-ii: Disconnected 6-pin connector

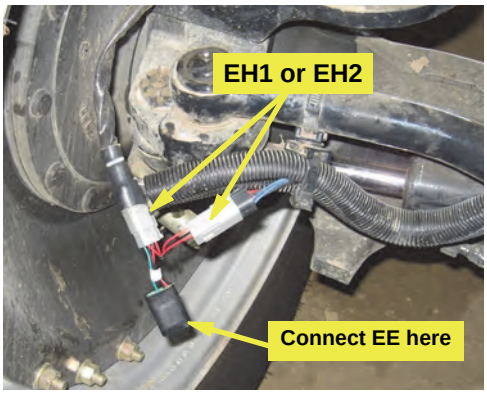


Figure 2d-iii: WAS adapter installed

Route WAS cable **EE** to the factory WAS. Connect WAS cable **EE** (not shown) to WAS adapter **EH1** or **EH2** (Figure 2d-iii).

Route cable **EE** with existing cabling and secure with tie straps **ER**.

g. Locate the factory-installed hydraulic steering valve near the cab firewall (Figure 2e).

h. Locate and disconnect the 2-pin wire connector from the enable valve (Figure 2e). Seal (weatherproof) the disconnected cable connector with plastic wrap.

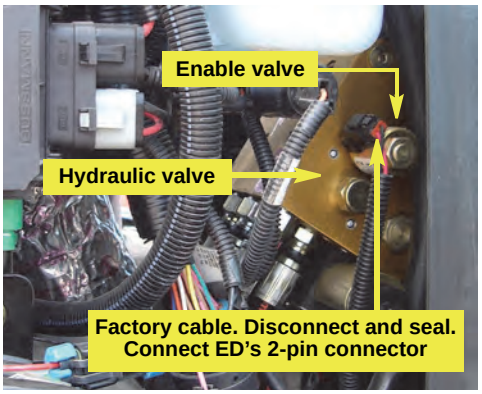


Figure 2e: Factory cabling to hydraulic valve's enable valve.

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

i. Connect **ED**'s 2-pin connector labeled 'ENABLE VALVE' to the open wire connector on the enable valve (not shown - but see Figure 2f-ii).

j. Locate the valve wire connection under the hydraulic valve. Disconnect the wire connection and seal (weatherproof) the male connector with plastic wrap (Figure 2f-i).

Connect **ED**'s 4-pin connector labeled 'STEER' to the open female wire connection (Figure 2f-ii).

k. Using tie straps **ER**, fasten cables **EE**, **ED** and disconnected hydraulic valve cables to existing cables.

l. Install SWS cable **EF** between **EC**'s connector labeled 'SWS' and SWS switch **SD**'s cable installed at step 3d of the SWS installation section.

m. Attach power switch **EG** to cable **EA**'s connector labeled 'SWITCH'. If the machine has no pop-out tabs that you can remove to install **EG**, use bracket **EGa** 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 switch EG to OFF before connecting EA to the battery at step o below.*

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

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

3. Modify a WAS adapter cable (if necessary).

NOTE: *This will be necessary only if, during post-installation calibration of eDriveX, you get no WAS values from the coarse WAS calibration (see the Outback eDriveX w/S3 User Guide or Outback MAX Help). If it is necessary, modify cable **EH2 (0347)** as follows.*

a. Using a small standard screwdriver, remove the orange end cap from the male plug (Figure 3a).

b. Using the same screwdriver release the clips retaining the yellow and red wires ***on the WAS cable connector side*** of the plug (pins 4 and 6). Slide the wires out and switch their positions—so side-by-side red/red, yellow/yellow wires in the whole plug (Figure 3b and insets). Ensure that the wires snap back into place.

c. Refit the orange end cap then install/re-install **EH2** (Figure 2d-iii, page 9).

d. Check for no FAULT messages (step 2f, page 9), then check for WAS readings after recalibrating coarse WAS.

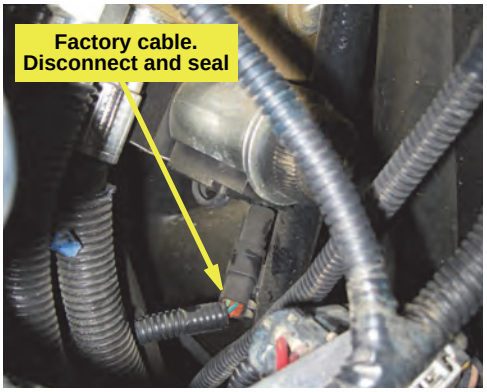


Figure 2f-i: Factory cable to hydraulic valve

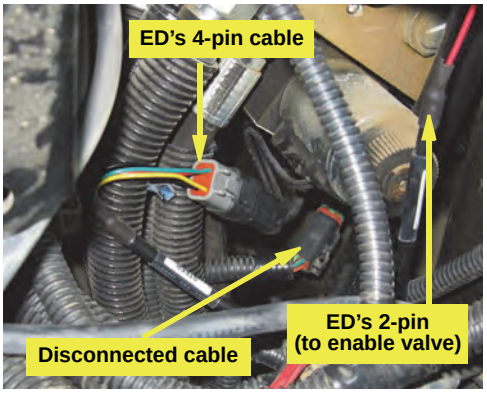


Figure 2f-ii: Valve cable's 4-pin connection (and 2-pin cable, see step 2i)

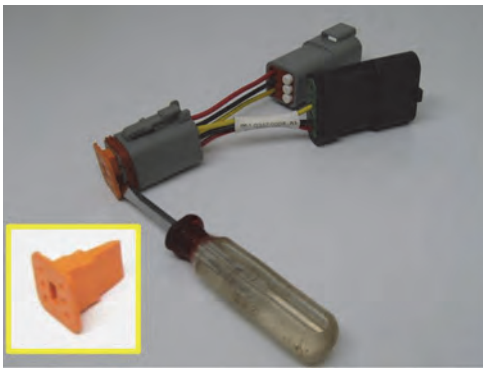


Figure 3a with inset: Removing end cap from 051-0347-000 (EH2)

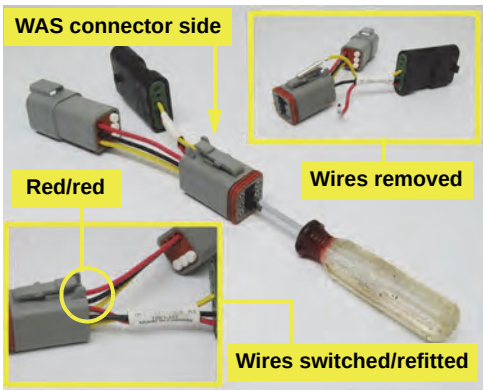


Figure 3b with insets: Removing/switching red/yellow cables - WAS cable connector side

Appendix A - ECU Cables and Connections