

eDrive VSi Installation Guide

Kit: EDVSi-MacDon M Series Swather, P/N 911-1005-000

Fits MacDon Swather Models:

M150 M200 M205



This installation kit is not applicable to the MacDon M100. The installation kit for the MacDon 9000 series is applicable to the M100.



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.
- 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

This is a general guideline for the installation of the eDrive VSi electric steering wheel. Every effort has been made to verify the following installation procedure. However, due to the manufacturing process outside of Hemisphere GPS' control, the installer may have to adapt this kit to your distinct situation.

The items in the kit are detailed in the table that follows the safety warnings on the next page. After the kit table there are step-by-step installation instructions.

Please read this manual thoroughly before beginning the installation.

WARNING:

The VSi Electric Steering Wheel is designed as a driver aid for precision agriculture applications. At all times the driver is fully responsible for the safe operation of the vehicle. It is not intended for and must not be enabled for use on roadways.

WARNING:

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

Machine Preparation

 WARNING:

Inspect the machine and perform any needed maintenance before installing the VSi kit (for example, adjust the steering linkage so that the machine drives straight ahead without manual steering). 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 properly adjusted steering linkage can cause loss of directional control resulting in serious injury or death.

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

Before attempting to install any of the components:

- Park the machine on a clean level floor
- Ensure adequate clearance to work all around
- Lower all implements and headers to the ground
- Apply the park brake and chock the wheels

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

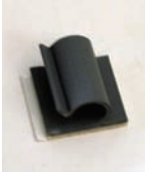
Unpack the supplied kit and identify the required parts as shown. Kit items are A, B, C etc. and those references are used in the step-by-step installation section of this guide.

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
A	750-8001-000	1	VSi steering wheel	
B		1	Splined shaft adapter (coupler)	
C		4	Screw, M5 x 10M flat head socket cap screws (Shaft adapter to VSi steering wheel)	

Kit Contents (continued)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
D		1	Anti-rotational (a/r) T bracket	
E		2	Bolt, M6 x 16, hex head	
		2	Washer, spring (Anti-rotational T bracket to steering wheel assembly)	
F		1	Linchpin (Anti-rotational T bracket retainer)	
G			Anti-rotational pillow block/U-bolt assembly:	
		1	U-bolt and saddle	
		1	Pillow block	
		2	Nut, nylock (Restrains anti-rotational T bracket)	
H	750-8007-000	1	Steering wheel center logo cap	
I	750-8003-000	1	VSi power cable	

Kit Contents *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
J	750-8002-000	1	VSi junction box	
K		1	Junction box mounting bracket	
L	051-0259-000#	1	CAN bus harness	
M	750-8005-000	1	CAN bus terminator	
N		1	Junction box comms cable clip	

eDrive VSi Installation Procedure

NOTE:

On a clean surface lay out all the components and check them against the packing list (see “Kit Contents” on page 2). Become familiar with the components and where they are to be installed before proceeding with the installation (see “Appendix A - eDrive VSi Connections” on page 9).

1. Prepare the eDrive VSi electric steering wheel.

- a. Apply anti-seize (not supplied) to the splines of the shaft adapter (coupler) **B** to facilitate later removal (Figure 1a with inset).

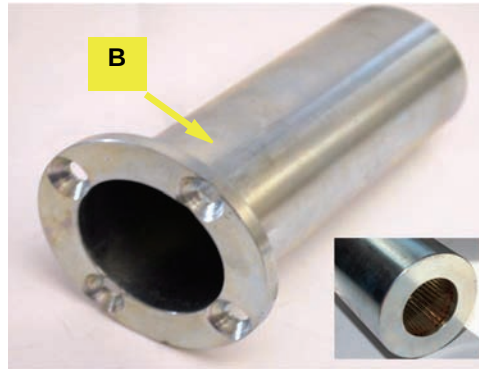


Figure 1a with inset: Splined shaft adapter (coupler)

- b. Place the VSi steering wheel **A** on a clean surface with the wheel facing up. Insert shaft adapter **B** into steering wheel **A** (Figure 1b).

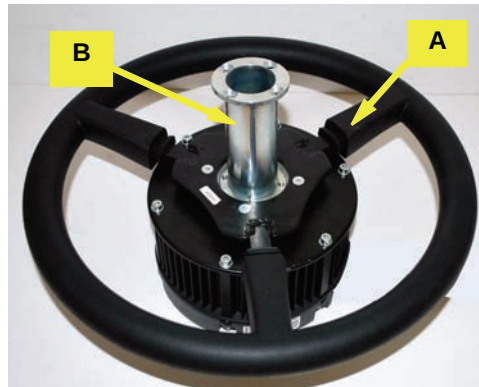


Figure 1b: Inserting the shaft adapter into steering wheel



At step 1c following, tighten the screws to the specified torque only. **DO NOT OVERTIGHTEN - DAMAGE MAY OCCUR.**

- c. Using the four countersunk screws **C**, secure the shaft adapter **B** in the steering wheel. Torque the screws to **6 N·m (53 in-lb)** (Figure 1c).

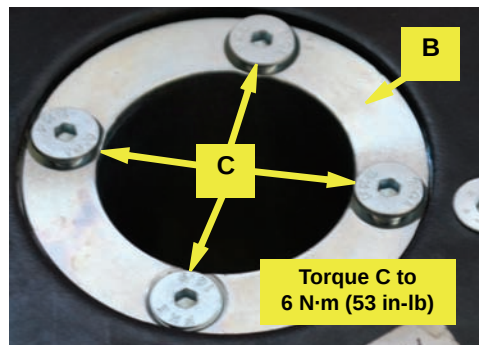


Figure 1c: Securing the shaft adapter. See **Warning**.

2. Install the anti-rotational T bracket.

NOTE:

The final position of the anti-rotational (a/r) T bracket will be determined by where you install the a/r pillow block/U-bolt assembly (G) at step 4. This will also fix the position of the steering wheel assembly's communications port. So, before you install the a/r T bracket (and the pillow block), decide where you want the communications port to be. Consider the cabling and visibility of the work area. In Figure 2, the comms port will be at the front of the steering column (toward the windscreen) if you install the pillow block assembly with its bushing on the right side of the steering column (see Figure 4).



When completing this step, ensure that you (i) use only the bolts provided, (ii) use the spring washers provided and (iii) tighten the bolts to the specified torque only. **DO NOT OVERTIGHTEN OR OMIT WASHERS - DAMAGE WILL OCCUR.**

Using hardware E, attach the anti-rotational T bracket D to the base of the steering wheel assembly A. Screw E into the appropriate threaded inserts (see note preceding). Torque the bolts to **8 N·m (71 in-lb)** (Figure 2).

3. Remove the machine's steering wheel.

- Remove the center cap from the steering wheel (Figure 3a left inset).

Remove the two exposed hex head bolts and the black metal plate: they are the steering wheel puller (Figure 3a). Remove the steering wheel retaining nut (keep for later reuse - Figure 3a right inset).

- Reinstall the metal plate and tighten its two bolts evenly to pull the steering wheel off its shaft (Figure 3b with inset).

NOTE:

If you have doubts about or difficulties with this procedure, contact your local dealer.

4. Install the anti-rotational pillow block/U-bolt assembly.

Install the anti-rotational pillow block/U-bolt assembly G near the top of the steering column. Consider where you want the comms port to be when the steering wheel assembly is installed. Leave the nylock nuts loose enough to move the assembly (Figure 4).

NOTE:

In this installation, the pillow block's bushing is on the right side of the steering column. With the T bracket installed as in Figure 2, the comms port will be at the front of the steering column, toward the windscreen.

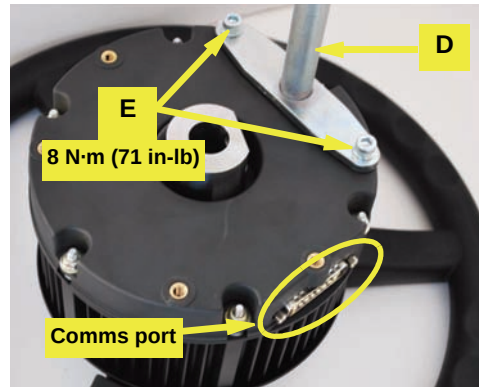


Figure 2: Anti-rotational T bracket installed. Comms port will be on the front of steering column if pillow block bushing to the right.

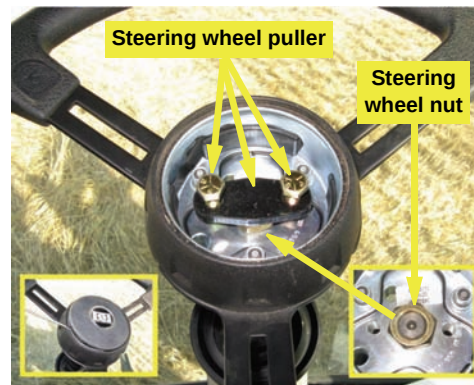


Figure 3a with insets: Steering wheel puller and retaining nut (right inset)

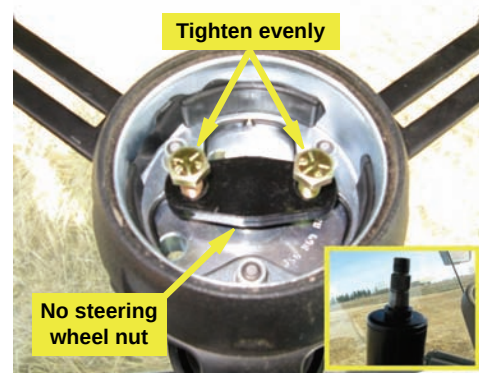


Figure 3b with inset: Steering wheel removal

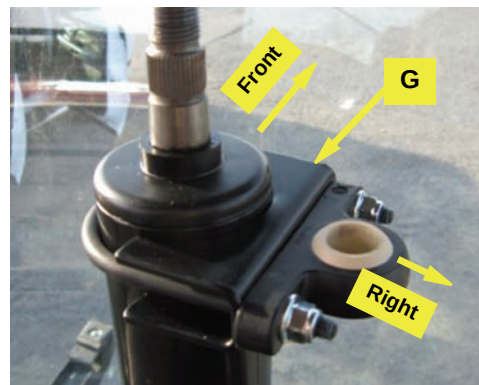


Figure 4: Pillow block assembly installed

5. **Install the VSi steering wheel assembly.**

- a. Slide the steering wheel assembly onto the steering shaft while guiding the shaft of T bracket **D** into the pillow block **G** bushing. Insert and lock linchpin **F** (Figure 5a).



Figure 5a with inset: Steering wheel assembly and linchpin (inset) installed

- b. Refit the steering wheel retaining nut removed at step 3a. Torque the nut to the manufacturer's specification (Figure 5b). Install the Outback center cap **H** (Figure 5b left inset).
- c. Slide the pillow block assembly **G** as high as possible on the steering column and torque the U-bolt nylock nuts to **8 N·m (71 in-lb)** (Figure 5b right inset).

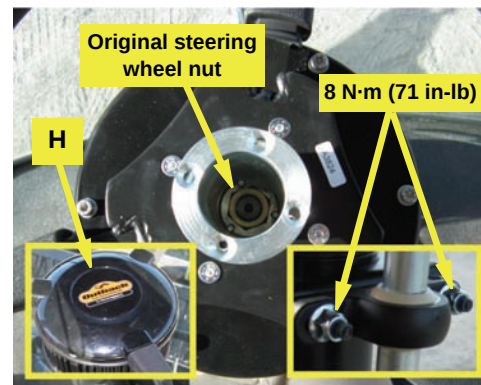


Figure 5b with insets: Steering wheel torqued, center cap refitted (left inset), pillow block nuts torqued (right inset)

6. **Install and connect the electric steer junction box.**

NOTE: Before continuing, refer again to “Appendix A - eDrive VSi Connections” on page 9.

- a. Route the power supply cable **I** from the battery into the cab to where you will mount the junction box **J** at steps 6b and 6c. Ensure the cable will not be a trip hazard. Connect the ring terminals to the battery (not shown).



When mounting the junction box in the following steps, ensure that the ON/OFF switch on the junction box is within easy reach of the operator. The switch must be in the OFF position when the vehicle is not under field guidance or on a road. See Figure 6a.

Ensure that the mounted junction box cannot interfere with movement of the steering column or visibility to the work area. Also keep in mind the location of the steering wheel assembly's comms port.

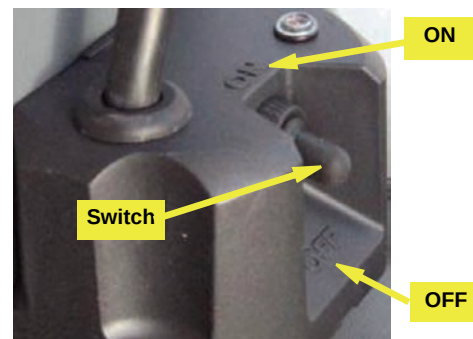


Figure 6a: Junction box ON/OFF switch

6. **Install and connect the electric steer junction box (continued).**
- b. Mount the electric steer junction box bracket **K** on the steering column or windscreen using your preferred method, for example fasteners, double-sided tape, nylon ties (not provided) (Figure 6b).



If drilling the steering column, ensure nothing inside the column can be damaged.

- c. Clip the junction box **J** into place on its bracket **K** (Figure 6b) then connect **J**'s 15-pin comms cable connector to the communications port on the steering wheel assembly (Figure 6c). Use clip **N** suitably (not shown).

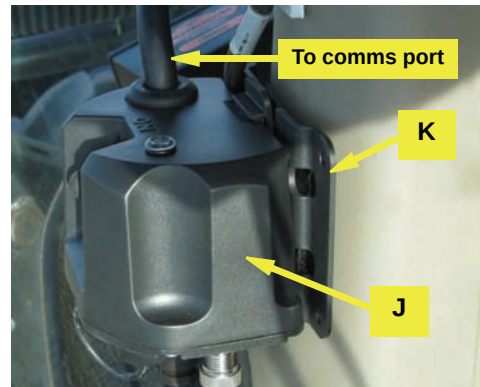


Figure 6b: Mounted junction box bracket and junction box

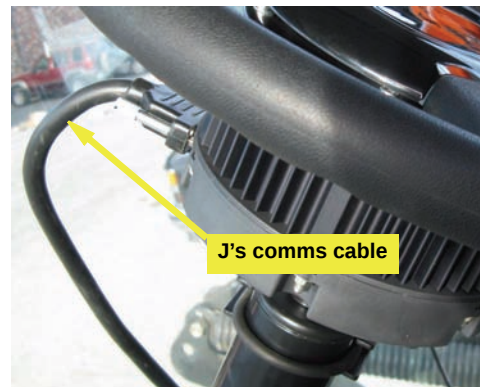


Figure 6c: Junction box comms cable connected to steering wheel assembly

- d. Connect the gray connector of the power cable **I** (routed into the cab at step 6a) to the gray cable from the junction box **J** (Figure 6d).
- e. Connect the threaded 5-pin connector on the CAN bus harness **L** to either of the threaded connectors on the junction box **J**. Connect the CAN bus terminator **M** to the other threaded connector on the junction box (Figure 6e-i).

Connect, according to the cable labeling, the two other connectors on CAN cable **L** to the EDRIVETC and the TERMINAL/RECEIVER (Figure 6e-ii).

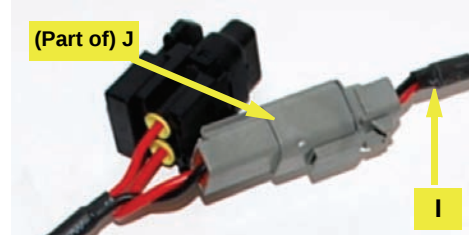


Figure 6d: Power cable to junction box cable

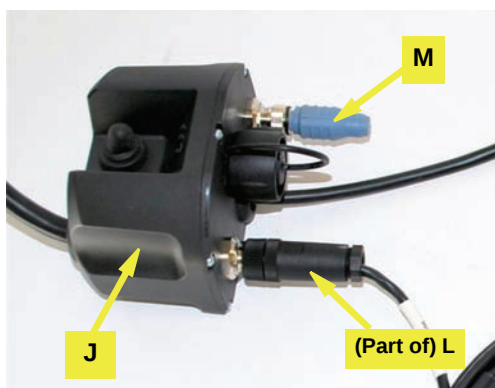


Figure 6e-i: CAN harness and terminator connected to junction box

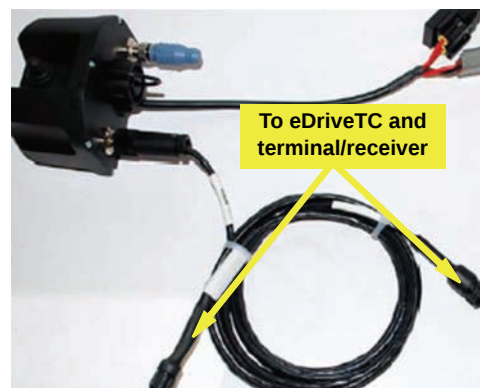


Figure 6e-ii: CAN cables to eDriveTC and terminal/receiver

Appendix A - eDrive VSi Connections

