

Wheelman Pro Installation Guide

Fit Kit: 810-0028-01

Fits the Following Vehicles

<u>Buhler Genesis</u>	<u>New Holland</u>
2145	8670
2160	8770
2180	8870
2210	8970

How to Use This Guide

This installation guide lists all the parts and provides instructions on how to install Wheelman Pro on the above vehicles. Read this manual thoroughly before beginning the installation.

- 1** Read and understand all safety warnings - page 2
- 2** Review the list of tools/items you may need to install Wheelman Pro - page 2
- 3** Review how your Wheelman Pro parts fit together - starting on page 3
- 4** Install Wheelman Pro - starting on page 6

1 Safety Information

As the operator of the vehicle, you are responsible for its safe operation. The autosteering system is not designed to replace the vehicle's operator. After installation, ensure all screws, bolts, nuts, and cable connections are tight and all cables have been secured to prevent them from being damaged.

The warnings starting below and those throughout this manual (indicated by either graphic at right) provide information to identify hazards associated with potential injury or death and tell you how to avoid them.



Read and understand this manual and all the warnings below before installing, operating, or performing maintenance or service. **FAILURE TO DO SO MAY CAUSE IRREVERSIBLE DAMAGE TO YOUR SYSTEM.** Keep this manual and all related safety information with the manuals for your vehicle. For questions or further assistance, contact Customer Support.

Safety Information and Warnings



To understand the potential hazards associated with the operation of an autosteer equipped vehicle, read the provided documentation before installing or operating the autosteering system.



To prevent accidental death or injury from being run over by the vehicle or automated motion of the steering system, never leave the vehicle's operator seat with autosteering engaged.



To prevent accidental death or injury from being run over by the vehicle, verify that area around the vehicle is clear of people and obstacles before startup, calibration, tuning, or use of autosteering.



To prevent the accidental engagement of autosteering and loss of vehicle control while driving on roads, shut down autosteering. Never drive on roads or in public areas with autosteering powered up.



To prevent accidental falls, maintain a stable position on the vehicle's platform or stairs when installing or removing the GPS antenna. If the vehicle does not provide a safe platform, use a ladder to safely access the vehicle's roof.



To avoid electrical shock hazards, remove the GPS antenna and/or other antennas from the vehicle before driving under low structures or low electrical power lines.

2 Tools/Items Needed for Installation

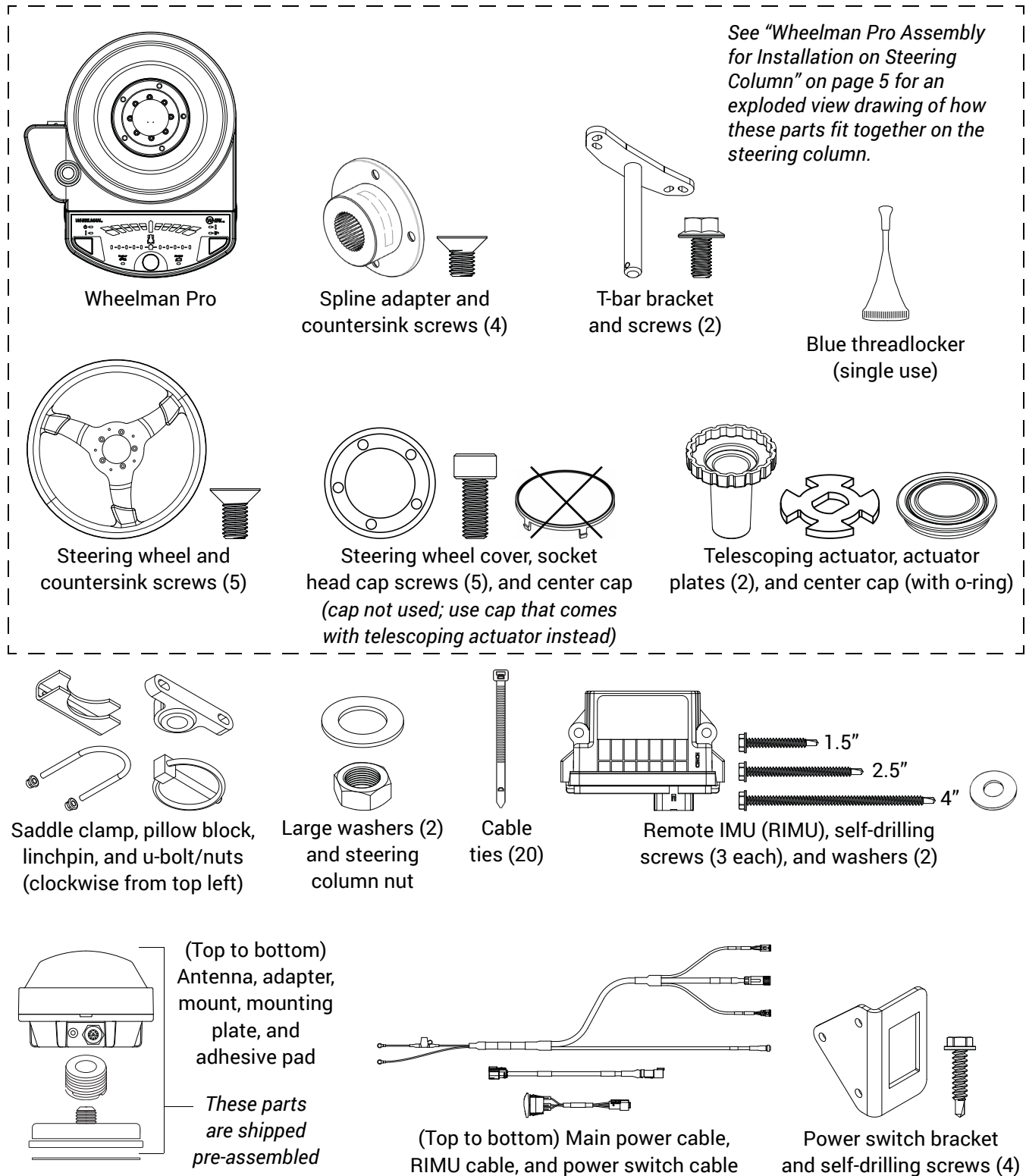
Make sure you have the right tools, such as:

- Wrenches, socket set, and screwdrivers
- Hex keys (4 mm and 5 mm)
- Hammer or steering wheel puller
- Torque wrench
- Cutting tools (for example, you may need to cut away part of the console cover)
- Tape measure (for vehicle measurements)

3 Parts for Your Installation

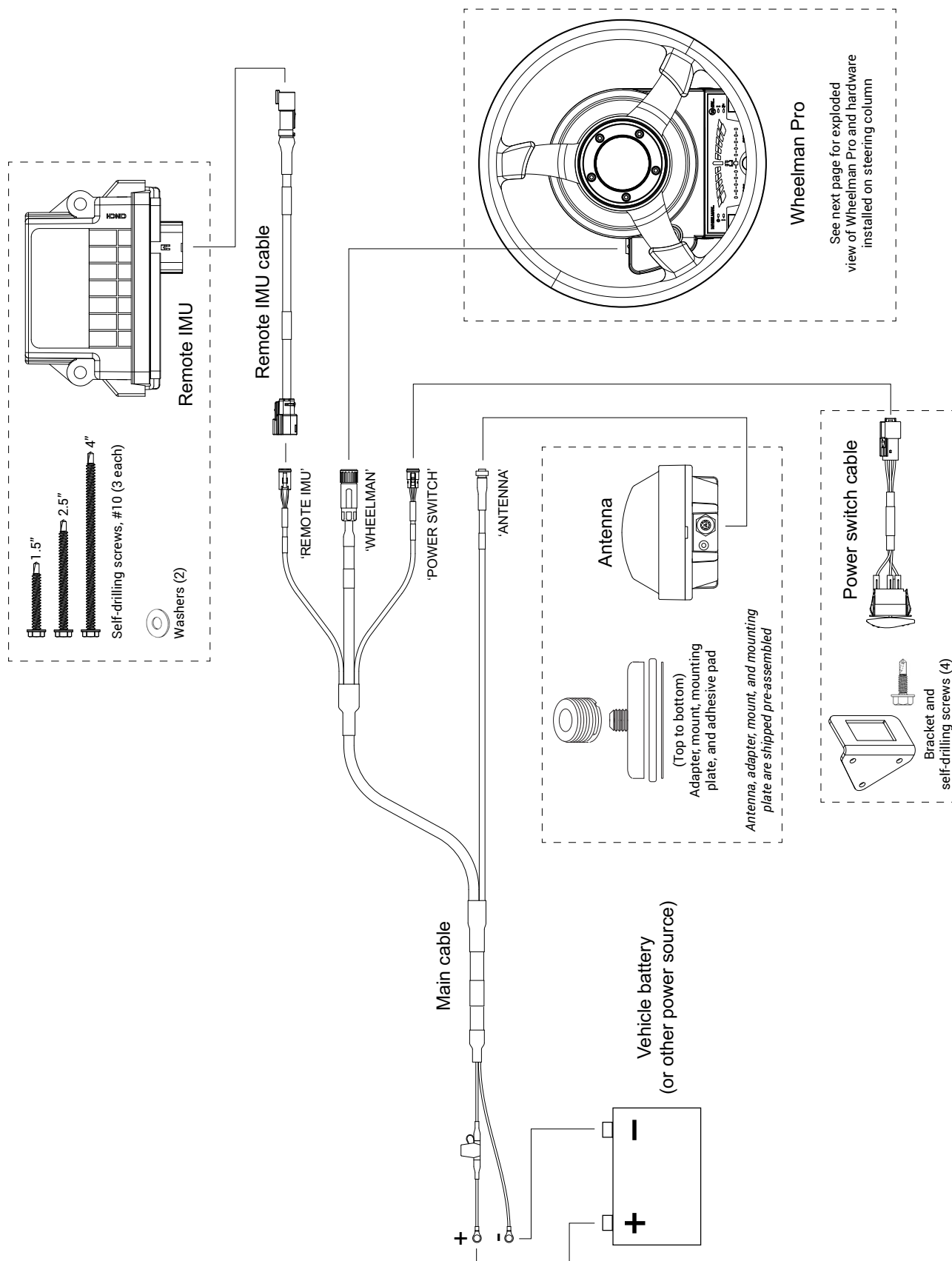
Use the diagrams that follow to:

- Below - verify you have all Wheelman Pro parts
- Page 4 - see an overview of cable connections
- Page 5 - see how the parts in the dotted rectangle below fit together on your steering column



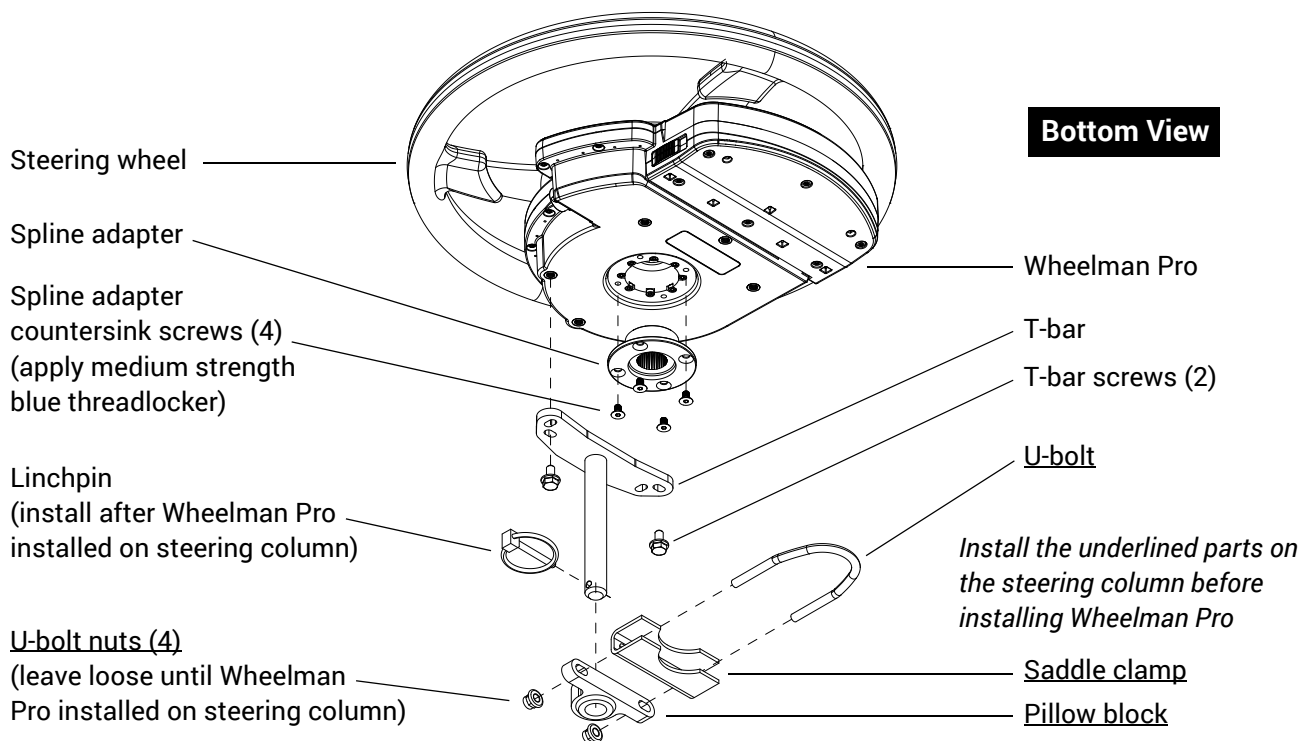
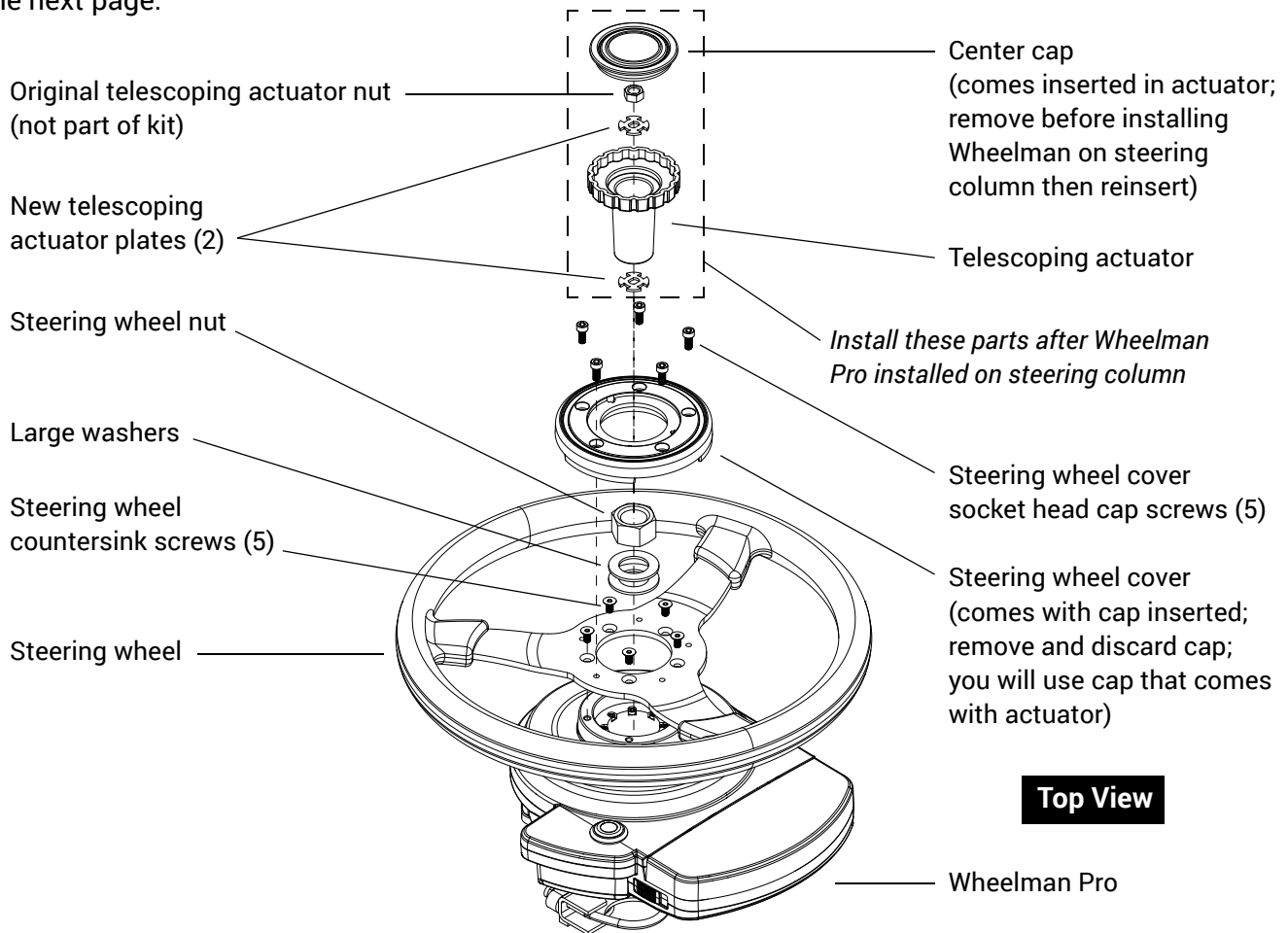
Wheelman Pro Connection Diagram

Review the diagram below to see how the Wheelman Pro parts are connected using the cables. The diagrams on the next page show how the Wheelman Pro is assembled on the steering column.



Wheelman Pro Assembly for Installation on Steering Column

Use the figures below to help you assemble Wheelman Pro as described in the instructions starting on the next page.



4 Install Wheelman Pro

Using the diagrams on the previous pages as a reference, complete this section to install Wheelman Pro on your vehicle.

NOTE:

Before beginning the installation:

- On a clean surface lay out all the components and check them against the diagram on the previous pages.
- Become familiar with the components and where they are to be installed.
- Work out how the harness is to be routed into/out of the cab (typically, through the rear window for closed cabs) to the battery and antenna. It is recommended to start at the battery and work back into the cab.

a Assemble the components that you will install on the steering column

You may want to perform these steps on a flat surface, such as a work bench. These steps show installing the following on the Wheelman Pro: spline adapter, t-bar, then the wheel; however, you may install them in any order. You can then install this assembly as one piece on the steering column in section d on page 9.

Using the parts overview on page 3, the assembly diagram on page 5, and the photos that follow as reference, assemble the components while noting the following:

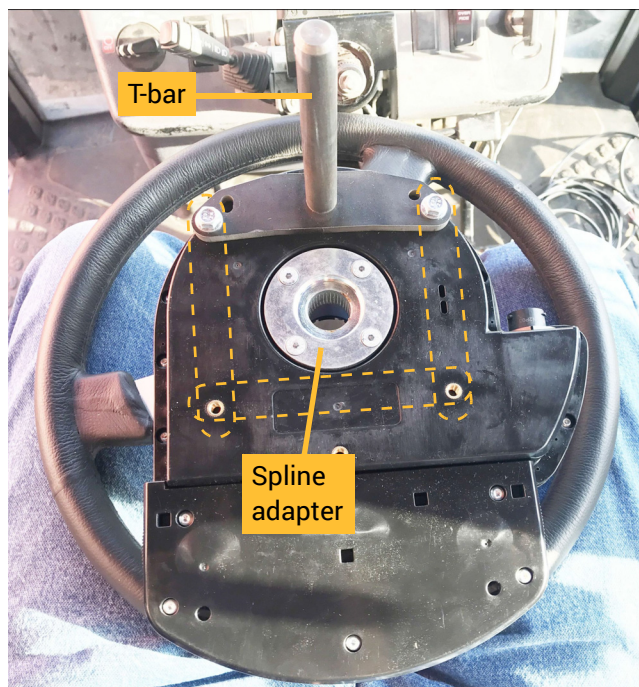
- Leave the t-bar loose—you will tighten it later.
- Do not install the clamp/u-bolt assembly yet—you will install the appropriate parts later.
- Do not install the telescoping assembly yet—you will install the appropriate parts later.

1. On the underside of the Wheelman Pro, install the spline adapter and the t-bar:

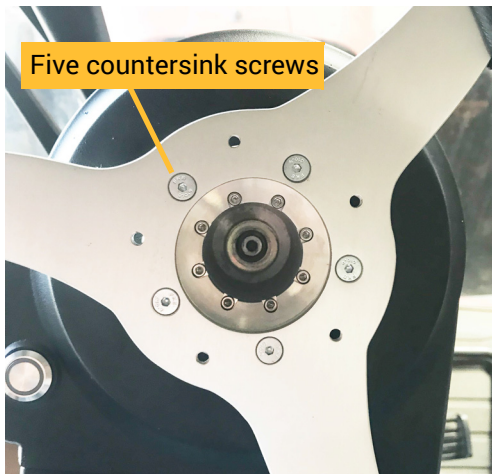
a. Apply blue threadlocker to the four spline adapter countersink screws, then using the screws and the hex key, install the spline adapter on the bottom of Wheelman Pro. Torque screws to 6 N·m (53 in-lb).

b. Using the two t-bar screws, attach the t-bar to the Wheelman Pro but do not tighten—you will tighten the screws after securing the Wheelman Pro to the steering shaft (step 4 on page 9).

You can attach the t-bar in the location at right or in one of the other three dotted line positions (curved part of t-bar base always on the outside farthest from the spline adapter). Whatever position you use, you must orient the clamp/u-bolt assembly to match it on the steering column.

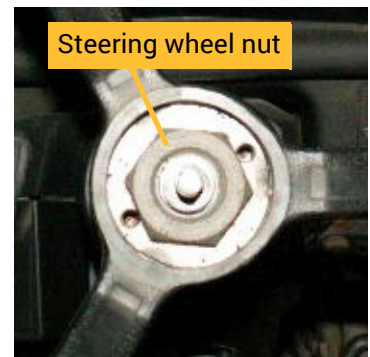
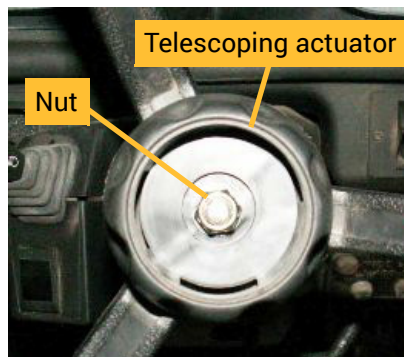


2. On the top side of the Wheelman Pro, install the new steering wheel (below left) and the steering wheel cover (below right)—although the photos below show the Wheelman already placed on the steering column, you may assemble these components on a flat surface, such as a workbench, before installing the assembly on the steering column. If you want to assemble these components while installing Wheelman Pro on the steering column, complete section b (remove existing steering wheel) and section c (install clamp/u-bolt assembly) first.
 - a. Place the new steering wheel on top of the Wheelman Pro, then using the five countersink screws that came with the steering wheel, fasten the wheel to the Wheelman Pro.
 - b. Carefully pop the Wheelman center cap out of the steering wheel cover—discard the cap, you will instead use the cap that comes preinserted in the telescoping actuator. Using the five socket head cap screws, install the steering wheel cover. Do not overtighten.



b Remove the existing steering wheel

1. Remove and discard the steering wheel center cap (below left).
2. Remove and retain the telescoping actuator nut (below center).
3. Remove and discard the telescoping actuator (below center).
4. Remove and discard the steering wheel nut (below right).



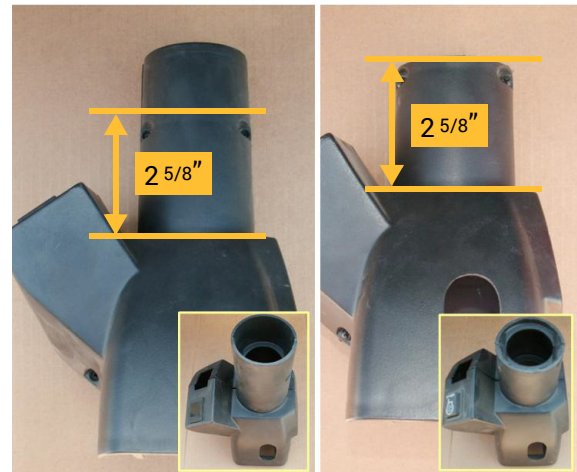
5. Using a steering wheel puller, rubber mallet, or suitable tool, remove the steering wheel (below right, after removal). If necessary, consult your equipment dealer if you are unsure of the correct procedure for removing the steering wheel.

6. Remove and discard the column cover (at left) to provide access to the steering column upper console (at right).



7. Modify the steering column upper console (to accommodate the pillow block) by reducing its height by a measured amount. **This is a permanent modification.**

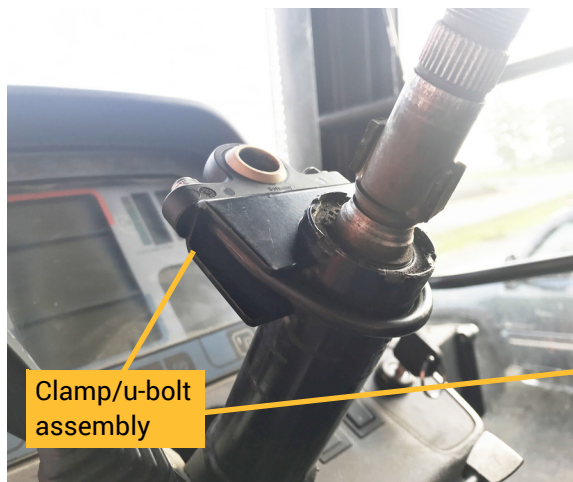
- a. Remove the steering column upper console by separating the two halves (not shown).
- b. Rejoin the two halves then mark a line 2-5/8" from the base of the conical part of the reassembled console (at left, just above the console's two top screws).
- c. Cut the top of the assembly off (at right) then reinstall the modified console around the steering column.



c Install the clamp/u-bolt assembly on the steering column

1. Install the clamp/u-bolt assembly near the top of the steering column (two example orientations below) with the pillow block hole in the appropriate position (where the t-bar will pass through it when the Wheelman Pro is installed on the steering column). Tighten the nuts. Do not overtighten.

Pillow block at 12 o'clock position

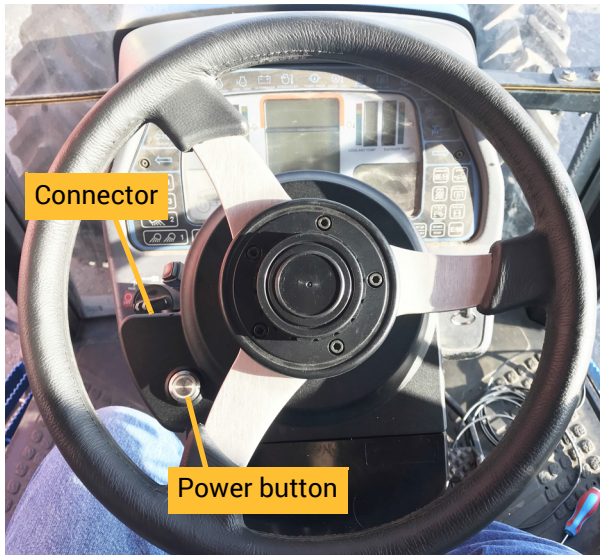


Pillow block at 3 o'clock position

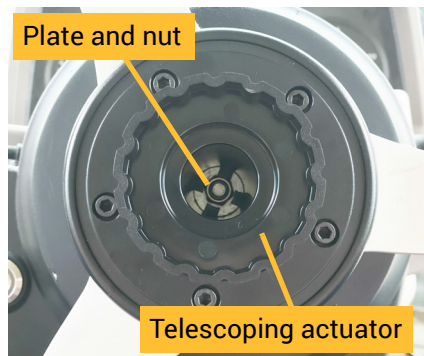
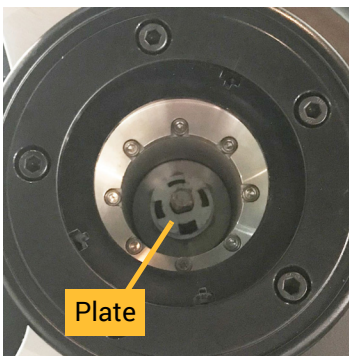


d Install the Wheelman Pro assembly on the steering column

1. Place the Wheelman Pro assembly (from section a) on the steering column with:
 - The power button and connector to the left of the steering column (below left, shown with telescoping actuator and cap installed—you will install these later).
 - The t-bar passing through the pillow block (below right)—you will insert the linchpin in the next step.



2. Insert the linchpin through the hole at the bottom of the t-bar (above right).
3. Install the two large washers over the steering shaft then, using the new steering column nut, secure the Wheelman Pro to the steering shaft. Tighten the nut. **DO NOT OVERTIGHTEN.**
4. Tighten the two t-bar screws that secure the t-bar to the Wheelman Pro.
5. Perform the following:
 - a. Install one of the telescoping actuator plates on the steering shaft (below left).
 - b. Install the new telescoping actuator on the steering column followed by the second actuator plate (below center).
 - c. Using the original telescoping actuator nut secure the telescoping actuator to the steering column (below center). **DO NOT OVERTIGHTEN.**
 - d. Snap the center cap into the steering wheel cover (below right).



e Install the Remote IMU (RIMU)

The Remote IMU (sometimes referred to as a gyro, but actually contains a set of gyros and accelerometers) measures your vehicle's movement in all directions to enable Wheelman to more precisely autosteer your vehicle.

⚠ WARNING: *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 RIMU. Secure anything that could be damaged away from where the screws come through. The photo at right is an example of a pre-drilling check; it shows an under-floor cabling compartment.*



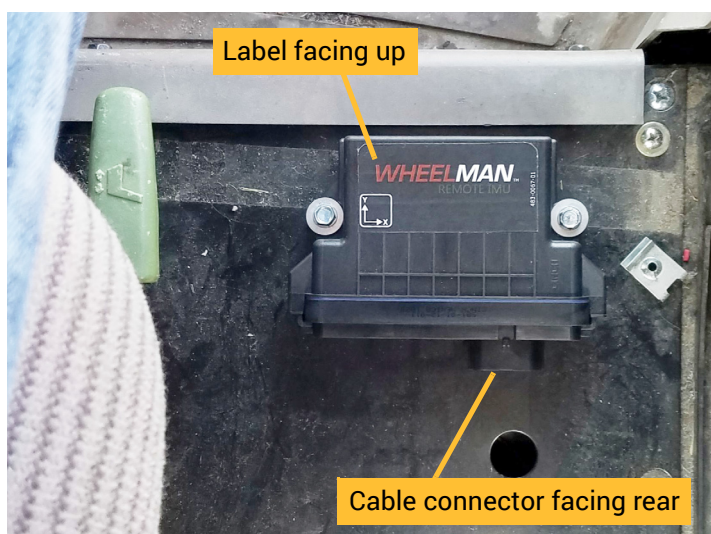
When installing the Remote IMU (RIMU):

- The mounting location must be solid to the vehicle frame or cab and be vibration-free.
- The RIMU must not move independently of the vehicle (not loose on the cab floor).
- The RIMU must be square to the floor and to the centerline of the vehicle.
- There must be sufficient clearance around the seat to accommodate the RIMU as the seat suspension moves up and down even with the seat at its lowest level (for example, with all the air removed).
- There must be sufficient clearance to rotate the seat without interfering with the RIMU.
- Do not mount the RIMU where it can:
 - Interfere with any of the vehicle's seat or other control levers and knobs.
 - Interfere with the operator's visibility while operating the vehicle.
 - Do not mount the RIMU where it can be damaged by falling objects or where other materials can be piled on it.

To install the Remote IMU:

1. Review the requirements above.
2. Using the two self tapping hex screws and washers, install the RIMU in your preferred location. Do not overtighten.

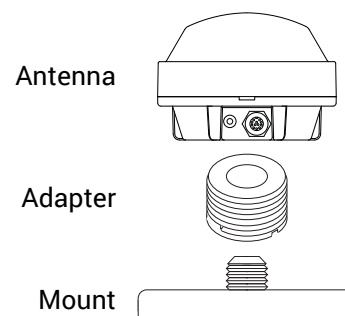
The photo at right shows the RIMU installed on the cab floor, to the right of the operator's seat, with the X-Y label pointing up, and with the connector pointing toward the rear. **You will enter the label and cable directions during vehicle setup in the Whirl app.**



f Mount the antenna on the vehicle roof

The antenna, adapter, and mount (at right) are shipped pre-assembled.

Once you place the mounting plate on the vehicle roof, you will not be able to move it. Therefore, plan your antenna location carefully.



To mount the antenna on the vehicle roof:

1. Clean and dry the vehicle surface where you will attach the antenna mounting plate.
2. Remove the paper backing from the adhesive on the back of the mounting plate (see photo at right).

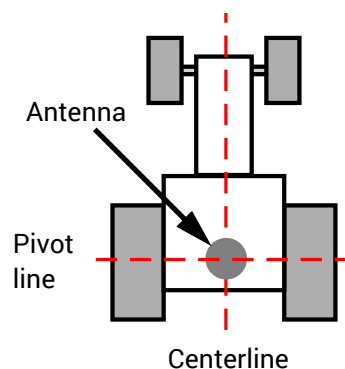


3. Position the mounting plate and press down hard for proper adhesion. When determining the location of the mounting plate, ensure that when you mount the antenna on the plate (next step) the antenna will be on the vehicle's centerline and pivot line.

NOTE:

Depending on your vehicle, if you cannot place the antenna on the centerline and/or pivot line, place the antenna as close as possible to these lines.

Measure the antenna left/right offset (distance left or right of centerline of antenna center) and the antenna pivot (distance front or rear of pivot line of antenna center). You will enter these values in the Whirl app during vehicle setup.



4. Ensure the antenna assembly (antenna, adapter, mount) is securely tightened, then place the assembly on the mounting plate (see photo at right).

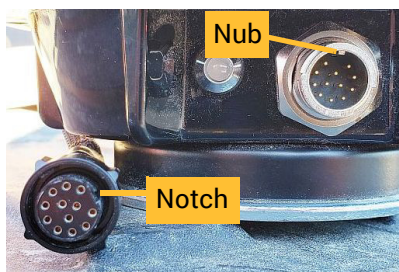


g Route and connect the cables

Using the “Wheelman Pro Connection Diagram” on page 4 as a guide, connect the cables included in your kit (main cable, Remote IMU cable, power switch cable) to the appropriate parts.

When routing cables:

- Stow cabling under carpets and at the edges of the cab.
- Store excess cable lengths with a minimum six-inch bend radius.
- Avoid high-temperature exposure (for example the exhaust, exhaust manifold).
- Hand tighten cables only—do not use tools.
- When connecting the main cable to the antenna, note the nub on the antenna's connector and the notch on the cable end (see near right). To connect the cable, align the notch with the nub, push the cable onto the antenna connector, then twist to the right to lock it in place (see far right).



NOTE:

Some machines are equipped with pop out tabs that you can remove and replace with the power switch (left photo). If no tab is available, you can use the power switch bracket (right photo), mounting it in the cab in your preferred location. Turn the power switch off before connecting the main cable to the battery.



Congratulations on successfully installing your Wheelman Pro. Return to the Quick Start Guide to finish setup.