Quick Start Guide
1. **Read and understand all safety warnings**
   Make sure you fully understand all the safety warnings before installing and using RANGER.

2. **Check package contents**
   Refer to the Kit Contents page in this guide to confirm you have received all parts of your RANGER install kit.

3. **Install RANGER**
   Use the instructions in this guide to install RANGER.

4. **Power on and get started using RANGER**
   Turn on RANGER and learn how to use RANGER to drive an A=B line.

5. **Get help when needed**
   Visit handsfreefarm.com to learn more about RANGER or to download the full RANGER User Guide.
   
   Have a question or issue? Submit your question anytime on handsfreefarm.com or contact Customer Service at 1-866-888-4472 (U.S. or Canada) during business hours.
Safety Warnings

The warnings below provide information to identify hazards associated with potential injury or death and tell you how to avoid them. The warnings apply whenever you use RANGER. Read and understand this manual and all the warnings below before installing, operating, or performing maintenance or service on RANGER. Do not allow anyone to operate without instruction. For questions or further assistance, contact Customer Service. Keep this manual and all related safety information with the manuals for your tractor and other implements.

<table>
<thead>
<tr>
<th>Warnings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Role of Operator</strong> - As with other navigation guidance systems within vehicles, pay attention to driving the vehicle. To avoid serious injury or death, do not become distracted by other tasks and be prepared to respond to field conditions. Stay seated while the vehicle is moving.</td>
</tr>
<tr>
<td><strong>Manual Override</strong> - Stop following the path displayed by RANGER if it is unsafe to proceed, such as when an obstacle is in the line of travel or there is an emergency. RANGER cannot identify obstacles or hazards in the field; only you can do this.</td>
</tr>
<tr>
<td><strong>Tractor Overturns</strong> - Overturns account for the largest number of agricultural vehicle-related fatalities each year on farms. Overturns are more likely to occur on slopes. RANGER cannot identify environments that pose an increased risk of overturn; only you can do this.</td>
</tr>
<tr>
<td><strong>Collisions with People and Objects</strong> - The second leading cause of agricultural vehicle-related fatalities occurs when vehicles run over people. RANGER cannot identify bystanders or other objects, such as trees, fences, boulders, and other equipment. Stop following the path indicated by RANGER to avoid people and objects.</td>
</tr>
<tr>
<td><strong>Operator Position</strong> - You must manually control the direction and speed of the tractor. Always remain in the operator position in the tractor when using RANGER.</td>
</tr>
<tr>
<td><strong>Installing RANGER</strong> - Before installing RANGER inspect the vehicle and perform any needed maintenance, such as a loose steering wheel, wheels out of alignment, uneven tire pressure, and contaminated hydraulic fluid. RANGER may not perform as intended on a vehicle that is not properly maintained. Errors in vehicle performance while following RANGER guidance increase the risk of operator and bystander injury or death. Turn off the vehicle and disengage RANGER when installing or performing maintenance. Before attempting to install any RANGER components, park the vehicle on a clean level floor with adequate clearance to work all around. Use an appropriate ladder or platform when installing or performing maintenance on cables, the antenna, and other RANGER components. Before you perform any drilling, cutting or fastening, ensure that no other vehicle components, such as electrical wiring, will be damaged. Failure to follow this warning may cause physical injury and/or damage to the machine. To avoid burns or electric shock injury when installing or removing RANGER, do not touch parts of the vehicle that are heated or electrically energized.</td>
</tr>
<tr>
<td><strong>Mounting the Console</strong> - Mount the RANGER console where it can be seen clearly and is within reach. Do not place in a location where it interferes with seeing other information, controls, or the field. Looking at the screen for too long while operating the vehicle can cause a crash.</td>
</tr>
<tr>
<td><strong>Attaching the Battery</strong> - Avoid contact with cables that carry high current. Connect RANGER power cables to a stable 12 V power supply.</td>
</tr>
<tr>
<td><strong>Operating RANGER</strong> - To avoid serious injury or death be prepared to respond to field conditions. Do not become distracted by other tasks. Always pay attention to the task of driving the vehicle and stay seated while the vehicle is in motion.</td>
</tr>
</tbody>
</table>
Kit Contents

Unpack your RANGER kit and identify the parts as shown.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Qty</th>
<th>Description</th>
<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>802-0111-01</td>
<td>1</td>
<td>Console</td>
<td><img src="image1.jpg" alt="Console" /></td>
</tr>
<tr>
<td>150-1013-000#</td>
<td>1</td>
<td>Antenna, 1575.42 MHz</td>
<td><img src="image2.jpg" alt="Antenna" /></td>
</tr>
<tr>
<td>604-0019-000#</td>
<td>1</td>
<td>Console mounting (suction cup) hardware</td>
<td><img src="image3.jpg" alt="Console Mounting" /></td>
</tr>
<tr>
<td>675-1123-000#</td>
<td>4</td>
<td>Screw, machine, 8-32, 7/16&quot;</td>
<td><img src="image4.jpg" alt="Screw" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attach mounting ball to back of console</td>
<td></td>
</tr>
<tr>
<td>051-0167-000#</td>
<td>1</td>
<td>Main power (power/ground speed) cable</td>
<td><img src="image5.jpg" alt="Main Power Cable" /></td>
</tr>
<tr>
<td>054-0100-000#</td>
<td>1</td>
<td>Power (cigarette lighter) adapter cable</td>
<td><img src="image6.jpg" alt="Power Adapter" /></td>
</tr>
<tr>
<td>601-0003-005#</td>
<td>1</td>
<td>Disk, zinc, 3-3/8&quot; diameter, 3/16&quot; thick</td>
<td><img src="image7.jpg" alt="Disk" /></td>
</tr>
<tr>
<td>683-0001-008#</td>
<td>1</td>
<td>Foam pad, circular, 3&quot; diameter, 0.045&quot; thick</td>
<td><img src="image8.jpg" alt="Foam Pad" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(antenna mounting hardware)</td>
<td></td>
</tr>
</tbody>
</table>
Installing RANGER

Note: Proper installation is critical for safe and optimal RANGER operation.

The following sections represent typical installation order; however, install components in your preferred order.

Mounting the Antenna

Mount the antenna in a location that will optimize its performance—typically along the left/right centerline of the vehicle as high and as far forward as possible (usually along the leading edge of the vehicle cab). Do not place the antenna within two feet of a transmitting radio antenna (such as a two-way or business band radio).

To mount the antenna:

1. Clean and dry the vehicle surface where you will attach the antenna mounting plate.
2. Remove the paper backing from one side of the adhesive disk then affix the disk to the bottom of the antenna mounting plate.
3. Remove the other paper backing from the adhesive disk (see top right).
4. Position the mounting plate in your preferred location then press down hard for proper adhesion.
5. Place the magnetic mounted antenna on the plate, making sure the antenna is on the left/right centerline of the vehicle (see bottom right).

Routing the Antenna Cable

When routing the antenna cable:

- Make sure the RANGER console is powered off before attaching the cables.
- DO NOT bend the cable to a radius of less than 6”.
- DO NOT route the cable within 12” of radio wires, power generator wires, a heat source, or moving parts.
- Coil excess cable in a protected location and secure the installation with tie straps.

To route the antenna cable:

1. Route the cable through a cab opening where rubber protection exists that will protect the cable (see top right).
2. Attach the other end of the antenna cable to the console (see bottom right).
## Connecting the Console to a Power Source

Connect the console to your preferred power source using one of the two options below.

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Connect to 12 V Power Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Connect one end of the main power cable to the console.</td>
</tr>
<tr>
<td>2.</td>
<td>Connect the other end of the main power cable to the power adapter cable.</td>
</tr>
<tr>
<td>3.</td>
<td>Plug the cigarette lighter plug of the power adapter cable into the cigarette lighter port or available 12 V power port in your cab.</td>
</tr>
<tr>
<td>4.</td>
<td>Coil excess cable in a protected location then secure the installation with tie straps.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option 2</th>
<th>Connect to Compatible Rate Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Connect one end of the main power cable to the console.</td>
</tr>
<tr>
<td>2.</td>
<td>Connect the other end of the main power cable to a compatible rate controller speed sensor port.</td>
</tr>
</tbody>
</table>

*Note: The main power cable is compatible with rate controllers that require a Dickey John speed sensor connection. An optional cable is available from Outback Guidance to allow connection to rate controllers that require a Raven speed sensor connection.*

3. Coil excess cable in a protected location then secure the installation with tie straps.
Mounting the Console

Before mounting the console, determine an appropriate mounting location. Typically, you mount the console above and behind the center of the steering wheel just below your line of sight. The simplest installation is on the front glass of the cab, but you can vacuum mount the console to any non-porous (metal) surface.

**WARNING:** Do not mount the console in a location where it interferes with seeing other information, controls, or the field. Looking at the screen for too long while operating the vehicle can cause a crash.

To mount the console:

1. Using the four machine screws, attach the RAM ball mount securely to the back of the RANGER console.

2. Using the two self-tapping screws, install the RAM pedestal to the vacuum cup. Tighten the screws securely.

3. Attach the RAM pedestal to the RAM ball on the back of the RANGER console.

4. Thoroughly clean the inside cab window surface directly in front of the steering wheel.

5. Press the vacuum mount to the window and twist the actuator until it clicks over center to create adhesion to the glass.

6. Loosen the RAM mount and adjust the console to the proper viewing angle.

**CAUTION** Do not leave the console unattended for extended periods of time. If possible, remove the console from the glass when it is not in use. Continued exposure to the elements (such as direct sunlight) may damage the suction cup. To extend the life of the suction cup clean it periodically per manufacturer’s instructions.
Using Ranger the First Time

With RANGER installed, you are ready to start using it in your field. This section describes:

- Powering up RANGER and verifying you have a GPS signal
- Setting basic configuration parameters
- Driving an A=B line

Powering RANGER and Verifying Your GPS Signal

The RANGER power switch is on right side of the console (circled at right).

- Flip the switch to ON to power up RANGER.
- Flip the switch to OFF to power down RANGER.

Upon power up and with your antenna having a clear view of the sky, RANGER automatically begins acquiring a GPS signal. When RANGER has acquired a GPS signal the yellow (GPS) LED illuminates. When RANGER acquires a more accurate differentially-corrected (DGPS) signal, the green LED illuminates. This startup process may take several minutes.

The green DGPS LED must be illuminated for RANGER to provide guidance.

Setting the Swath Width

Before using RANGER in your field, you may need to change some of the default settings—typically the swath width. For details on all settings, visit handsfreefarm.com and download the RANGER User Guide.

To set the swath width:

1. Press MENU. The menu appears with Brightness selected (the selected item is preceded by ‘>’).
2. Press the down arrow to select Swath Width.
3. Press ENTER to display the swath width value with the hundreds place selected (underlined editable value).
4. Press the up/down arrows to change the selected value.
5. Press ENTER or MENU to select the next place to the right or left, respectively.
6. Press the up/down arrows to change the selected value.
7. Repeat steps 5 and 6 to change any other places.
8. Press ENTER until the hundredths place is selected, then press it again to return to the menu.
9. Press MENU to close the menu.
Driving an A=B Line

An A=B line is an imaginary line that passes through two points to define the first pass. All other passes are uniformly spaced on both sides of the first pass. Once an A=B line is established, RANGER generates an invisible array of equally spaced swath lines in multiples of the swath width parallel to and emanating from both sides of the A=B line (see figure at right) and provides guidance along any line you steer the tractor to.

To drive an A=B line:

1. Position the vehicle at the beginning of the first pass.
2. Press Straight. Set New AB Pt is selected (preceded by ‘>').
   *Note: If this is the first time using RANGER or if you have erased memory, only 'Set New AB Pt' appears and is selected. Otherwise, ‘Use Previous' appears above ‘Set New AB Pt' and is selected. Press the down arrow to select ‘Set New AB Pt'.
3. With Set New AB Pt selected, press ENTER.
4. Press the ENTER button to mark Point A.
5. Drive the first pass, then at the end of the pass press ENTER to mark Point B. Upon marking Point B, RANGER automatically begins guiding and the screen indicates you are on pass 0 (zero).
6. The steering guide indicates if you are centered on your pass (vertical yellow LEDs) or if you need to steer left or right to become centered on your pass (red LEDs on left = steer to left; green LEDs on right = steer to right). The crosstrack bar indicates the pass is a certain distance left (red LEDs on left) or right (green LEDs on right) of your vehicle. As you steer toward your pass, fewer crosstrack LEDs are illuminated and when you are centered on your pass the center crosstrack LED is illuminated.
7. At the end of the current pass turn around. RANGER auto-detects the next pass and begins guiding.
8. When you have finished your field, press STOP Guidance.