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Terminology

System-Level Product

- **TrailerTail® 4x4** – Four-sided fuel savings aerodynamics device.
- **TrailerTail® Trident** – Three-sided fuel savings aerodynamics device.
- **AutoDeploy®** – Add-on device that deploys the TrailerTail at highway speeds to maximize fuel savings.
- **Automatic** – Add-on device that deploys and retracts the TrailerTail to maximize fuel savings and minimize damage.

Technology

- **BAT RF®** – A wireless communication protocol for a variety of STEMCO devices.

Devices/Components

- **TrailerTail®** – Fuel saving aerodynamics device
- **TracBAT RF® Aero™** – Wheel mounted device that wirelessly broadcasts mileage, speed and direction of vehicle.
- **TailBAT RF™ Control Unit** – Logic based microprocessor that responds to inputs and controls outputs. One function is to listen to TracBAT RF Aero devices and respond by sending output power to various components.

Install/Diagnostic Tools

- **HandBAT RF®** – A portable device that aids with initialization, diagnostics and basic operation of a variety of STEMCO products and devices.
Installation of the AutoDeploy® system will require the following tools:

- 25–50 ft wire snake
- Rivet gun for 1/4” rivets
- Power drill
- 1/4” drill bit
- 17/64” drill bit
- 5/8” drill bit
- Thin nylon rope
- Wire strippers (18-22 ga.)
- Wire connection crimpers
- Tape measure
- Impact gun with 7/16” socket
- Vice-grip plier clamp
- 7/16” wrench
- 1/2” wrench
- 9/16” wrench
- 3/8” wrench
- 3/4” wrench
Pre-Installation

1. Install TrailerTail

STEMCO recommends installing the TrailerTail prior to installing the AutoDeploy system.

2. Latch Installation

Attach Electronic Latches

a. Insert (4x) Ornit rivets from the outside of the Lateral Panel.
b. Rivet the electronic latch to the inside of the Lateral Panel.

3. Panel & Trailer Preparation

Lateral Panel Grommet Cutout

a. Make a small 2” x 2” cutout where the latch cable will enter the trailer frame. The cutout should be approximately 41” from the bottom of the TrailerTail.

*The cutout may be moved up or down at most 6” to avoid a door hinge.*

b. Drill a hole 4” horizontally from the grommet cutout with a 1/4” drill bit.

*TrailerTails with custom cut lateral panels will have the grommet cutout and hole pre-drilled.*

Drill Holes in Trailer Frame

a. Using a center punch, mark the trailer frame in the center of the 2” x 2” cutout and centered horizontally on the frame. This mark will help keep the drill bit from wandering.
b. Drill a 5/8” hole in the frame. STEMCO recommends using a sheet metal hole saw.
c. Use a grommet bracket as a template to drill the rivet mounting hole for the bracket.

*Do not rivet grommet bracket until specified.*
TracBAT RF Aero Programming

1. Install TracBAT RF Aero
   Install the TracBAT RF Aero using the install instructions that came with the device.

2. Setting Up TracBAT RF Aero
   Select **Update SE TracBat**
   ![HandBAT RF®](image)

3. Set Desired Units
   a. Select **Type**
   b. Use the arrow keys to cycle through the units.
      - rev*
      - mi (default)
      - km
      - revtrip*
      - mtrip
      - kmtrip
   * TracBat RF Aero devices cannot be programmed with rev or revtrip selected.

4. Set Trailer Mileage (optional)
   a. Select **Preset**
   b. Use the arrow keys to set the preset mileage to the trailer mileage.

![Update SE TracBat](image)
5. Set Revolutions Per Mile
   a. Select **Revs**
   b. Use the arrow keys to set the proper tire revolutions per Type (mi, km, mitrip, kmtrip). This value is available in the tire manufacturer's data sheet.

<table>
<thead>
<tr>
<th>Update SE TracBat</th>
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<tbody>
<tr>
<td>Read Range: R=1</td>
</tr>
<tr>
<td>Type: mi</td>
</tr>
<tr>
<td>Preset: 0000000</td>
</tr>
<tr>
<td>Revs: 500</td>
</tr>
<tr>
<td>Program</td>
</tr>
</tbody>
</table>

6. Program TracBAT RF Aero
   Select **Program**

<table>
<thead>
<tr>
<th>Update SE TracBat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Range: R=1</td>
</tr>
<tr>
<td>Type: mi</td>
</tr>
<tr>
<td>Preset: 0000000</td>
</tr>
<tr>
<td>Revs: 500</td>
</tr>
<tr>
<td>Program</td>
</tr>
</tbody>
</table>

7. TracBAT RF Aero Programmed
   If the TracBAT RF Aero was programmed successfully, the trailer's mileage will display on the TracBAT RF Aero screen.

   If the TracBAT RF Aero programming fails, repeat programming with a higher read range on the HandBAT RF.
AutoDeploy Installation

TailBAT RF Control Unit

1. Position TailBAT RF Control Unit
   Use a tape measure to position the TailBAT RF control unit. It should be centered on the width of the trailer and approximately 26 ft from the rear doors. STEMCO recommends using the I-beam located on or near the side marker lights.
   You may need to move the TailBAT RF forward or backward up to 2 ft to avoid I-beam obstructions.

2. Align and Affix Bracket
   a. Center the bracket on the width of the trailer.
   b. Use the roll of the TailBAT RF base bracket to attach one side of the bracket to an I-beam.
   c. Place the clamp plate on the other side of the I-beam and use the provided 1/4” bolts, washers and lock nuts to secure the clamp plate, base bracket and TailBAT RF control unit to the I-beam.
   You may need to adjust the location to avoid possible obstructions.

WARNING: Do not overtighten.
Warning Light Bracket

1. Position and Secure Warning Light Bracket
   a. Position the light on the trailer’s front driver-side corner, 48” above the base of the trailer.
   b. Match drill the 17/64” holes and rivet the bracket to the trailer using (4x) Ornit rivets.

2. Route Warning Light Wire to Junction Box
   a. Route the warning light wire to the junction box using up to 3 wire clamps.
      *The wire should be taught and not be able to vibrate or rub against other components.*
   b. Place the AutoDeploy Instruction Diagram decal on the front of the trailer in the bottom right corner.
Main Wire Harness Routing to Front of Trailer

1. **Wire Routing**
   a. Plug in the 12-pin connector into the TailBAT RF control unit.
   b. Route both the power cable (3-wire cable with no connector) and the latch wires to the side of trailer and secure to I-beam.
   c. Route only the power cable to the Junction Box at the front of the trailer using an available underbody channel.
   d. Use zip-ties along the underbody channel as needed to secure the wires.

2. **Junction Box Connections**
   a. Route power cable and warning light wire into junction box.
   b. Cut excess wire from both the warning light wire and the power cable. 
      
      Approximately 8" of wire should remain for completing connections.
   c. Using a butt connector, connect the red wire from the power cable to the red wire of the warning light wire.
   d. Terminate the blue and both black wires with eye terminals.
   e. Connect the blue wire to the appropriate constant power pin.
   f. Connect both black wires to the ground terminal.
   g. Close up access to the junction box.
Main Wire Harness Routing to Rear of Trailer

1. Route Latch Wires to Rear of Trailer
   a. Tape the shorter latch wire to the longer latch wire.
   b. Route the two latch connectors to the rear of the trailer along an underbody channel.

STEMCO Advice

When using fish tape, secure the connector to the pulling cable.
AutoDeploy Installation

Main Wire Harness Routing to Rear of Trailer

2. Separate and Route Wires to Near and Far Side
   a. Route the shorter latch wire to the near side of the trailer and the longer latch wire to the far side.
   b. Use zip-ties to secure the wires to the trailer frame.

3. Route Wire Up Through Frame Post
   a. Send a nylon pulling rope from the 5/8" hole drilled earlier to the bottom of the post.
   b. Use the nylon pulling rope to pull the latch cable through the post. Make sure you do not tear the cable insulation on any sharp corners. You may need to feed from the bottom as you pull from the top.

   Make sure wiring does not go through any sharp or bare metal holes. Use grommets or caulk to protect wire from bare metal.

4. Assemble Grommet and Grommet Bracket on Wire
   a. Slide JST connector through back of plastic grommet bracket.
   b. Slide the grommet bracket so that approximately 3 feet of wire is exposed.
   c. Press the wire into the slit grommet. Push the grommet into the grommet bracket until both lips of the grommet sit flush against the grommet bracket. The fitment of the grommet is designed to be a tight seal.

   Failure to seat grommet fully in bracket may increase risk of wire damage.

   d. Rivet the grommet bracket to the post.
Main Wire Harness Routing on Lateral Panel

1. **Connect Harness to Latches**
   - a. Slide the heat shrink tubing over and past the connector.
   - b. Plug the wire harness into the latch.
   - c. Slide heat shrink back over connector.
   - d. Evenly apply heat over the length of the heat shrink tubing until it molds tightly to the connector.

   *If connector is damaged, replace latch wire. Do not use damaged connector. See [ATD001905] Install Manual - AutoDeploy, Latch Wire Replacement.*

2. **Attach Latch Wires to Panel**
   - a. Place the wire clamps around the wire and rivet to the pre-drilled lateral panel holes to secure the cable. Make sure the rivet enters from the wire clamp side.

   *If the holes are not pre-drilled, use a 17/64" drill bit to drill the holes in the approximate locations shown below.*

   - b. The cable between the clamps should be taut and not have room to move and damage itself, except at the hinge joint between the panel and trailer frame.
Main Wire Harness Routing on Lateral Panel

3. **Open and Close Trailer Tail to Test Wire Excess at Grommet**
   
   Leave approximately 3” of excess cable near the grommet. Test the excess by fully opening the trailer door and checking for cable binding.

   *Feed excess wire into grommet, or pull extra wire out as needed.*

4. **Secure Wire Slack on Underside of Trailer**
   
   Secure any cable slack on the underside of the trailer. Zip-tie the cables in a loop behind the tail lights inside the housing. Any movement can cause the wire jacket to wear and cause a short.
AutoDeploy Post-Install Checklist

This section outlines the components to inspect immediately after every AutoDeploy installation.

1. Electrical System Verification
   a. Test system by following the AutoDeploy system wireless test on page 17.
   b. If a HandBAT RF is not available perform the Tool-Less Self-Test on page 20.
   c. If the system is not functional or if either test is unsuccessful, refer to [ATD004122] AutoDeploy with TracBAT RF, Field Service Manual to perform diagnostics.
   d. The HandBAT RF is available from STEMCO.

2. Wiring - Lateral Panel
   a. There is enough slack in the wire at the area where the wire enters the trailer frame to open the trailer door.
   b. The wire should not be taut nor droop down by more than a couple of inches when the door is latched to the side of the trailer.

3. Wiring - Trailer
   **Best Practices**
   a. All wire is tightly secured to the trailer and not capable of sliding through clamps.
   b. Wiring does not go through any sharp or bare metal holes.
   c. Use grommets or caulk to protect wire from bare metal.
   d. Wiring in J-Box is tight and not allowed to vibrate against sharp edges.

4. Heat Shrink Connections
   Latch connector has heat shrink uniformly applied.
AutoDeploy Post-Install Checklist

5. **TracBAT RF Aero Programmed**

Check that the TracBAT RF Aero device was set with the proper tire revolutions per type (mi, km, mitrip, kmtrip). Once set, the trailer’s mileage will be visible.

*If the TracBAT RF Aero device shows seven dashes, the device is not programmed.*
AutoDeploy System Wireless Test

This section outlines a procedure to verify functionality of the Warning Light, electronic latches, and TailBAT RF control unit using the HandBAT RF.

1. **Plug-in Power**
   Plug power into the J-Box. AUX/blue line power is needed.

2. **Close Both Sides of TrailerTail**
   Close both sides of the TrailerTail.
   Verify the driver notification light turns on.

3. **Main Menu**
   Select **Read Devices**

   ![HandBAT RF®](image)
AutoDeploy Electrical System Verification

4. Select Device
   a. Select TailBat
   
   b. If multiple TailBAT RF control units are in range, pressing "Enter" when Read Again is highlighted will randomly select a new TailBAT RF control unit to read.

   The "R=5" indicates the signal range. If there are multiple AutoDeploy equipped TrailerTails in the vicinity, it may be helpful to reduce the range to ensure proper communication with the desired device.

   The indicator light on the TailBAT RF control unit will flash blue three times to signal a communication link after "Enter" is pressed.

5. Verify Mode
   a. Verify that the Mode is set to AutoDeploy.
   
   b. If Mode is not set to AutoDeploy, proceed to Mode Change on page 26 to change the mode.
6. Run Self-Test
   a. Select Run Self Test

   b. The following screens will appear upon successful latch testing.

   1. TailBat
      TailBat 0007919/28_7
      Run Self Test
      ■, ■, ■, Done
      Testing Light

   2. TailBat
      TailBat 0007919/28_7
      Run Self Test
      ■, ■, ■, Done
      Power Up Latch

   3. TailBat
      TailBat 0007919/28_7
      Run Self Test
      ■, ■, ■, Done
      Opening Latch

   4. TailBat
      TailBat 0007919/28_7
      Run Self Test
      ■, ■, ■, ■, ■, ■, ■, ■, Done
      Self Test Done

7. Self-Test Complete
   The HandBAT RF will show
      No Problems Detected
   upon successful completion of the test.

   Verify the Trailer Tail is open.
Troubleshooting - AutoDeploy System Wireless Test

1. Help Button
   The HandBAT RF "Help" button can be pressed at any time for more information.

2. Pairing
   If you’re having trouble pairing with the desired TailBAT RF control unit, the signal range may be too large. Reduce the range to increase likelihood of pairing with the desired device.

3. No TracBAT RF Aero Bound
   This may be an issue with the configuration. Refer to Binding on page 22 for more information.

4. Self-Test Error
   If there is an error reported after running the self-test, repeat the test to confirm the error and then refer to the diagnostic manual to troubleshoot.

Tool-less Self-Test

This section outlines a procedure to verify functionality of the Warning Light, electronic latches, and TailBAT RF control unit without a HandBAT RF device.

1. Plug-in Power
   Plug power into the J-Box. AUX/blue line power is needed.

2. Open Roadside of TrailerTail
   Open the roadside of the TrailerTail and close the curbside. Verify that the driver notification light is off.
Electrical System Verification

Tool-less Self-Test

3. Reverse State of TrailerTail
   Open the curbside of the TrailerTail and close the roadside. Verify the driver notification light is off.

4. Close Both Sides of TrailerTail
   Close both sides of the TrailerTail. Verify the driver notification light turns on.

5. Check TailBAT RF Control Unit Status
   The TracBAT RF Aero device should be stationary and placed on a solid surface. Verify the TailBAT RF control unit light is solid red or flashing green.

6. Test TailBAT RF Functionality
   a. Place the TracBAT RF Aero device in a drill (with drill head horizontal) and spin at the max speed for a minimum of 60 seconds. Verify the TailBAT RF control unit light turns white and the TrailerTail opens.
   b. Cease spinning the drill. Verify the TailBAT RF control unit light returns to flashing green within 20 seconds.
   c. If TrailerTail does not open or light does not return to flashing green, refer to diagnostic manual for troubleshooting.
There are three methods to bind a TailBAT RF control unit to a TracBAT RF Aero device.

**Method 1: Self-Binding**

This section describes how the TailBAT RF control unit automatically binds to an installed TracBAT RF Aero device. This is the recommended method for binding on new installs.

The TailBAT RF control unit continuously listens to signals transmitted from TracBAT RF Aero devices. The TailBAT RF control unit will automatically self-bind with the first TracBAT RF Aero device it senses at highway speeds. Forward direction is also set at this time. Once bound to a TracBAT RF Aero device, the TailBAT RF control unit will remain bound to that device unless rebinding occurs.

Rebinding only occurs when there is no communication with the bound TracBAT RF Aero device for more than 5 minutes and it senses a new TracBAT RF Aero device at highway speeds. The new device is now bound to the TailBAT RF control unit.

**Method 2: Binding with HandBAT RF**

This section outlines the procedure to bind the TailBAT RF control unit to the TracBAT RF Aero device using the HandBAT RF.

1. **Plug-in Power**
   
   Plug power into the J-Box. AUX/blue line power is needed.

2. **Main Menu**

   Select **Read Devices**

   ![Read Devices Menu](image)

   **Main**
   
   Read Devices
   Previous Reads
   Configuration
   Update SE TracBat
   11/27 11:59pm

   ![HandBAT RF Control Unit](image)
Method 2: Binding with HandBAT RF

3. Select Device
   a. Select TailBat
   b. If multiple TailBAT RF control units are in range, pressing "Enter" when Read Again is highlighted will randomly select a new TailBAT RF control unit to read.

   The "R=5" indicates the signal range. If there are multiple AutoDeploy equipped TrailerTails in the vicinity, it may be helpful to reduce the range to ensure proper communication with the desired device.

   The indicator light on the TailBAT RF control unit will flash blue three times to signal a communication link after "Enter" is pressed.

4. Bind to TracBAT RF Aero
   Select Bind to TracBat

5. Match Serial Numbers
   a. Verify the serial number (first seven digits) of the TracBAT RF Aero device matches that shown on screen. If the serial numbers do not match, select Read Again.

   You may need to reduce the HandBAT RF range to eliminate other TracBAT RF Aero devices from being paired.

   The serial number is etched on to the transparent protective cover of the TracBAT RF Aero device. The first seven digits should match those shown on the HandBAT RF. The four smaller digits etched underneath are the manufacturing date (WWYY).

   b. Press the "left" or "right" arrow on the HandBAT RF to bind. The arrow direction pressed determines the forward direction of the trailer.

   If the incorrect rotation direction is set, the system will correct itself once vehicle speed reaches 15 mph (24 kph).
Method 2: Binding with HandBAT RF

6. Binding Successful
   a. The TracBAT RF Aero is successfully bound to the TailBAT RF control unit.
   b. If binding is unsuccessful, the HandBAT RF will display “Command Not Sent!” Press the “left” or “right” arrow on the HandBAT RF to attempt binding again. If binding continues to be unsuccessful, contact STEMCO Customer Support.

Method 3: Binding with Drill

This section outlines a procedure to bind the TailBAT RF control unit to the TracBAT RF Aero manually using a drill.

1. Plug-in Power
   Plug power into the J-Box. AUX/blue line power is needed.

2. Verify Device is Stale
   a. The TailBAT RF control unit must be stale to allow binding using this method. This will be indicated by a solid red light on the TailBAT RF control unit.

   A new or unbound TailBAT RF control unit will be stale when powered.

   b. If the device is not stale, the TailBAT RF control unit must not communicate with its bound TracBAT RF Aero device for at least 5 minutes while powered.

   TracBAT RF signals may travel up to one mile which may make a loss of communication difficult. STEMCO recommends using an alternative binding method for previously bound TailBAT RF control units.
Method 3: Binding with Drill

3. Spin TracBAT RF Aero
   Place TracBAT RF Aero in drill (with drill head horizontal) and spin at the max speed for a minimum of 60 seconds. Verify the light turns white. The TrailerTail should open.

4. Wait 3 Minutes
   Leave TailBAT RF control unit powered for a minimum of 3 minutes to ensure binding is saved in memory.

5. Cycle TailBAT RF Control Unit Power
   Verify the light flashes green on power-up. If the light is solid red, repeat steps for manual binding. Refer to the diagnostic manual for troubleshooting if the light is any other color.
Control Unit Mode Change

This section outlines a procedure to change the mode of the TailBAT RF control unit for different products.

1. **Plug-in Power**
   Plug power into the J-Box. AUX/blue line power is needed.

2. **Main Menu**
   Select **Read Devices**

3. **Mode Configure**
   Select **Mode Configure**

4. **Confirm Mode Configure**
   Select **Yes**
Control Unit Mode Change

5. **Change Mode**
   Select the product that this TailBAT RF control unit will be used with.

![Mode Configure?](image)
- Change to AutoDeploy
- Change to Automatic

6. **Mode Change Complete**
   The control unit will restart and cycle through a number of colors. Press any key to return to main info screen.

![Mode Change Complete](image)
- TailBat 0007919/28_7
  Mode= AutoDeploy
  Mode change complete
  Press any key
Spare Parts List

Refer to the AutoDeploy & ZeroTouch Components section of the [ATD002975] TrailerTail Spare Parts Catalog for a list of spare parts.
Certifications

FCC (USA)

This unit complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC ID: SRA-ATD003160

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying Rf exposure compliance. Should you need any additional assistance with any problems or issues please contact STEMCO Customer Service at (800) 527-8492.

Industry Canada

Contains/Contient IC: 7413A-ATD003160

NOTICE: This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

vis: Cet appareil est conforme avec Industrie Canada RSS standard exempts de licence (s). Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.