



Upgrading Aeris to SmartSense

DETAILS:

These instructions assume that the trailer already has a fully functional, basic Aeris Inflation System installed.

OVERVIEW: The Aeris SmartSense system requires a dedicated ¼" airline run for each wheel end. The airline connects from one of four labeled ports in the control box manifold to the designated wheelend/axle entry point. Because of this requirement, each existing airline must be cut at a point prior to the axle entry. Then the line may be spliced using a "one-to-one" DOT, brass, push-connect fitting to a length of tubing that will reach the control box manifold port. The spliced airline must be long enough to be routed back to the SmartSense control box and inserted into the corresponding port (i.e. port labeled RR would be routed to the Right Rear wheelend).

1. Replace the existing control box with the SmartSense control box:

NOTE! Trailer air supply lines must be disconnected from the tractor prior to beginning this upgrade.

- a. Release pressure from the Aeris system by shutting off the control box inlet valve and depressing the valve core on the regulator inside the control box (for about 5 seconds.) This will discharge all pressure in the Aeris airlines.
- b. Remove the airline from the outlet fitting of the control box.
- c. Turn on the air inlet valve to the control box to bleed down the trailer's pressure tank to the point where air flow has stopped.
- d. Disconnect the airline from the entry side of the control box.
- e. Remove the existing control box from the bracket by removing the three bolts/nuts.
- f. Using new bolts, nuts & seal washers, attach the SmartSense control box to the bracket. Note that the rubber-bonded seal washers are located inside the control box, under the heads of the 5/16" bolts.

2. Install new airlines from control box to axle entry points: Splice each airline, one at a time:

- a. Remove the existing 'tees' from airlines and any protective coverings, such as a split-seam wire loom. Discard the pieces of tubing that are not attached to the axle.

NOTE! Working with one airline at a time will prevent confusion as to which wheel end is connected and where it should be connected in the SmartSense control box.

- b. After choosing a wheel end, cut the airline (that exits the axle) at a point where the DOT union splice can be readily secured using tie wraps.
- c. Cut the tubing with a tubing cutter to produce a clean, square cut.
- d. Push one of the DOT unions firmly onto the tubing.
- e. To complete the tubing run back to the SmartSense control box, insert the end (freshly cut) of the new roll of tubing firmly into the other end of the union. Route the tubing so that it can be easily secured to the trailer's undercarriage and will not rub.
- f. Estimate how long the tubing must be to go through the grommet on the bottom of the control box and into the correct port of the manifold. Cut the tubing, making a clean, square cut.

NOTE! Each port on the manifold corresponds to a specific wheel end. The ports are labeled per wheel end: LR = Left Rear, LF = Left Front, etc., where 'left' is driver's side and 'right' is passenger side (or curb-side). See Fig. 1 and Fig. 2

- g. Push the tubing through the grommet and firmly into the correct port connector.
- h. Repeat this procedure for each wheel end.
- i. Replace any wire loom tubing protection, being sure to securely fasten the tubing runs to the trailer's frame other secure location on the trailer suspension.



Figure 1



Figure 2

- j. Reconnect the ¼" tubing from the trailer pressure tank to the inlet of the control box and turn on the valve. Make a fresh cut on the tubing before inserting.
- k. Reconnect the trailer air supply lines from the tractor to restore pressure to the trailer air tank.

NOTE! disconnect power to trailer before wiring the SmartSense control box!

- l. Push the power cable into the cable gland on the bottom of the control box. Strip back the insulation and crimp on the spade receptacles. Push the receptacles onto the lugs on the circuit board. BE SURE to observe the color codes! The wire should be routed behind the regulator from the cable gland entry point to the board.
- m. Tighten the nut on the cable gland, but, first be sure to leave a 'drip loop' inside the control box.

3. Install the new SmartSense Driver Warning Light:

NOTE! ensure power to the trailer is disconnected!

- a. Remove the existing warning light
- b. Install the new warning light using new screws. Be sure to observe and connect the power and ground wires to the correct terminals on the new warning light. The wires are color coded. 'Black' is the +12 power line and 'white' is the ground.

4. Testing:

- a. Connect power to the trailer. **NOTE:** The LEDs on the circuit board in the control box light up the same as the LEDs in the Driver Warning Lamp.
- b. Upon power-up, the LEDs in the Driver Warning Lamp (and control box) should flash 3 times and then go out.
- c. If some of the LEDs continue to flash after the power-up sequence, it indicates the tires on that wheel end are taking air. The blinking should stop after the tires are at the correct pressure.