

## Truck Scale Grounding

This Tech Bulletin covers recommended grounding procedures for new and existing installations of Avery Weigh-Tronix truck scales. This grounding scheme is valid for various soil types, including sand and rock bed.

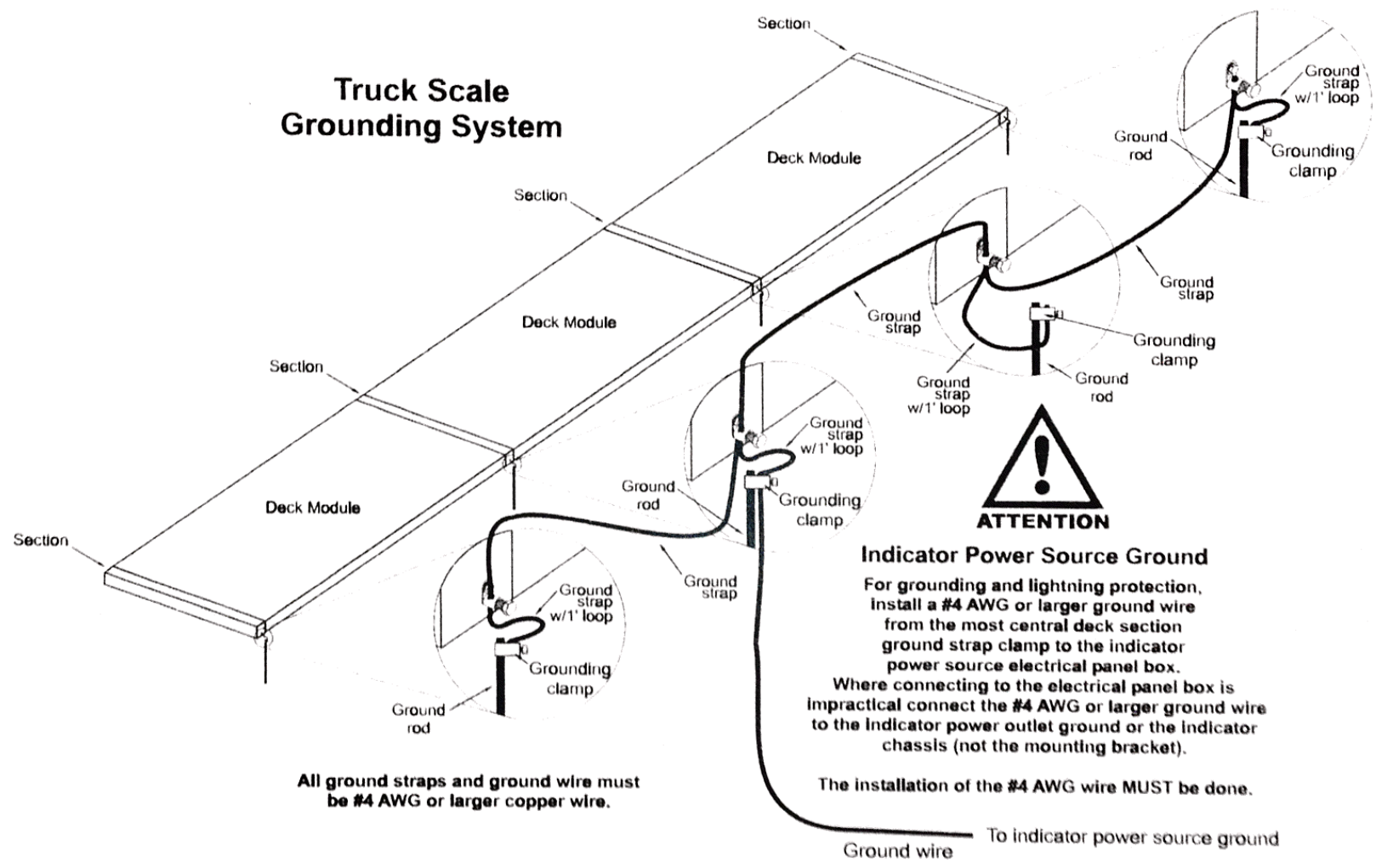
There are several things that can be done to minimize the risk of downtime and repair costs associated with lightning damage.

1. Insure that the electrical system powering the indicator is up to electrical code.
2. Test the wiring at the indicator site with an AC Outlet Circuit Tester. Use AC Outlet Circuit Tester to check for proper live, neutral and earth ground wiring. This device may be purchased at your local hardware store. The following link is an example of this device made by Tripp-Lite: <http://www.tripplite.com/products/static/ct120.cfm>
3. A TESCO lightning suppression device (P/N 48633-0012) is required between the AC power source and the indicator.
4. Insure that the j-box grounding kit (P/N 98050-1241) is installed properly with one kit per j-box on the truck scale.
5. Follow the procedure outlined below to ensure proper protection against lightning. This will help insure that the indicator ground and the deck ground are at the same potential, which is necessary for good lightning protection.
  - A. Insure that a grounding strap clamp (P/N 15831-0016) is installed for every two weight sensors in the system. The paint must be removed from the flat area where the ground strap clamps are installed.
  - B. Run a single #4 AWG copper ground wire (P/N 15308-0015) through each ground strap clamp to the next ground strap clamp. The ground strap should be loosely coupled from ground strap clamp to ground strap clamp to insure weight operation is not affected.
  - C. An 8 foot, 5/8" diameter copper clad ground rod should be installed, one per ground strap clamp, as shown. Approximately six inches of the ground rod should be above ground and the clamps attached near the top of the rod so that the clamps won't corrode due to ground moisture. Please refer to the diagram. **Note:** In areas where rock bed is present, the ground rods need not be used. In these applications attach the ground wire from step E to the most central ground strap clamp.

- D A short length of #4 AWG copper wire should be connected between the ground strap clamp and attached to the ground rod using a ground rod clamp (P/N 15469-0039) with a 1 foot loop between the deck and the ground rod. The loop insures that weight operation is not affected.
- E Connect a #4 AWG or larger copper ground wire from the deck's most central ground rod clamp to the indicator source ground (the indicator source ground is the electrical panel box that provides power to the indicator). The installation of the #4 AWG or larger copper ground wire to the indicator source ground is mandatory. This ground wire keeps the deck ground at the same potential as the indicator ground  
**Note:** Where connecting to the electrical panel box is impractical, connect the #4 AWG or larger ground wire to the indicator power outlet ground or the indicator chassis (not the mounting bracket)
- 6 Avery Weigh-Tronix recommends the use of metal conduit for data lines and AC power lines. Per electrical code data lines and AC power lines are to be routed through separate conduits
- 7 Avery Weigh-Tronix recommends that the #4 AWG or larger copper ground wire from the deck to the indicator source ground be run in the conduit that carries the AC power lines. If you do not have an AC power conduit, then Avery Weigh-Tronix recommends that the ground wire be run in a separate conduit. This is done to avoid corrosion and to prevent electrical induction into the data lines during a lightning strike. The use of 1.5" diameter conduit and large radius bends of less than 90 degrees is recommended for easy cable routing. **NOTE: This ground wire must not be routed in the same conduit that carries the data lines. For example the home run cable, printer communication cable, or the SensorComm interface cable.**
- 8 The truck scale must be inspected periodically to insure that all connections are tight and that there is no corrosion to the wire or wire clamps. Poor connections and corroded wires must be fixed or replaced.
- 9 Some sites have been constructed with a massive ground grid system. In this situation, the most central ground strap clamp may be grounded to the massive ground and the indicator source ground connected to the massive ground
- 10 If you have any questions please contact the Avery Weigh-Tronix Customer Service Department. 1-800-458-7062

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**Truck Scale Grounding System**



**All ground straps and ground wire must be #4 AWG or larger copper wire.**

**ATTENTION**  
**Indicator Power Source Ground**  
 For grounding and lightning protection, install a #4 AWG or larger ground wire from the most central deck section ground strap clamp to the indicator power source electrical panel box. Where connecting to the electrical panel box is impractical connect the #4 AWG or larger ground wire to the indicator power outlet ground or the indicator chassis (not the mounting bracket).  
 The installation of the #4 AWG wire **MUST** be done.