AIR-WEIGH
AIR AND MECHANICAL SUSPENSION SCALES

Installation Guide

For Trucks and Tractors

Spring Steer Suspensions

Glued Steer Brackets

Air-Weigh Customer Success: 888-459-3247

PN 901-0190-000 R0 **5/13/25**

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Please note: Every effort has been made to ensure that the information in this manual is accurate. Air-Weigh is not responsible for printing or clerical errors that occurred during time of publication.

About Installation

The Air-Weigh steer axle deflection sensor is a component of several tractor and truck scale kits. When it is properly installed, it allows the user to determine the weight carried on a steer axle with mechanical suspension.

This installation guide gives instructions for steer axle deflection sensor installations for vehicles that have mechanical suspension in combination with air drive suspension.

See the manuals included with your kit for complete scale installation, calibration and operation instructions. You will need to have your Air-Weigh app installed on a compatible device, or a deflection sensor test box to complete this installation.

Follow the installation procedures in this guide exactly for the most accurate weighing. This guide assumes that you have already installed the Air-Weigh app, or that you have access to a deflection sensor test box (P/N 1001), in order to adjust the sensor to appropriate A/D readings.

See the User Guide to calibrate your scale after installation

Before calibrating, note that there is a required break-in period. First verify that your A/D readings are set in the required range. See Setting the A/D Values for more information.

Note: Before beginning gluing steps for installation, pick a location for the vehicle where it can remain for 24 hours. Do NOT move the vehicle until the glue has cured and the alignment tool has been removed.

Glue cartridges and mixer nozzles are single-use only. Do not use for multiple installations.

Tools Required

You will need to supply the following tools to install deflection sensors on the steer axle.

- Sander/grinder
- 40-grit medium sandpaper
- Chalk or permanent marker
- Flat-blade screwdriver
- Torque wrench
- 22 mm socket
- Caulking gun
- Enamel spray paint, any color
- Tape measure

Optional Tools

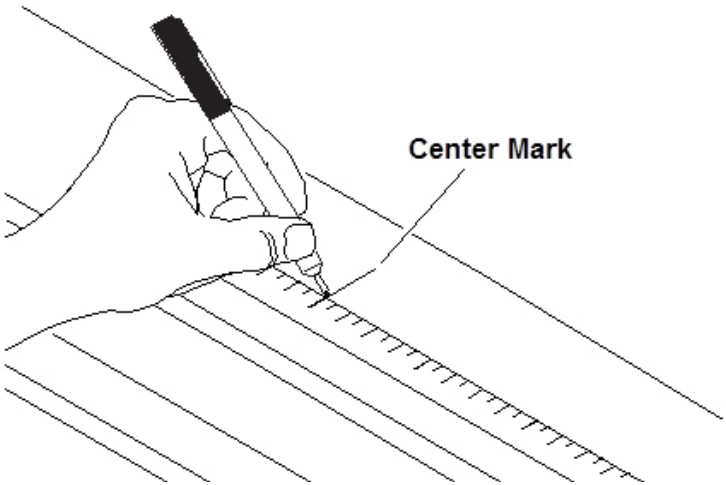
- 50 ml manual dispenser for glue
- Deflection sensor test box, p/n: 1001

Installing the Steer Axle Sensor Bracket

Note: The following steps MUST be completed before assembling the glue kit. Glue has a working time of 6-10 minutes and curing begins the moment the two compounds are mixed.

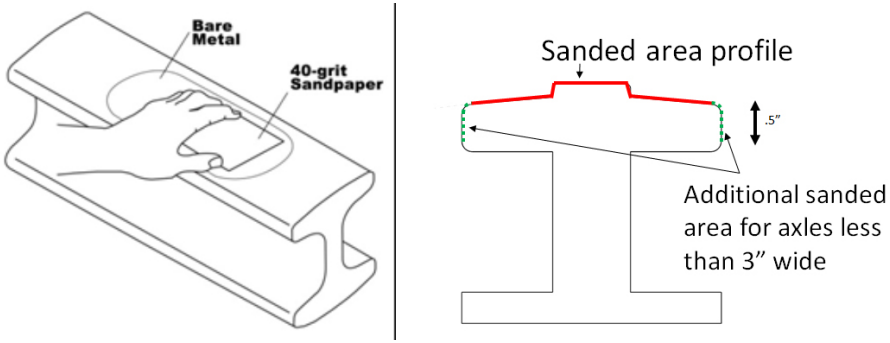
Preparing the Steer Axle Sensor Brackets

1. Locate and mark the center of the steer axle.



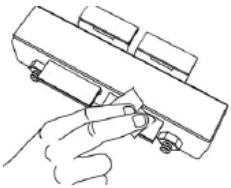
Marking the Center of the Steer Axle

2. Using chalk or a permanent marker, mark the top of the steer axle 3” on either side of the center mark (6” in total). Clean this area. If the axle is heavily caked with dirt or grease, use Brakleen to clean thoroughly.
3. Using 40-grit medium sandpaper or a grinder, sand the 6” area until nothing remains but bare metal. We recommend that you partially sand down the mold line as well. If using a steer axle that is narrower than 3”, extend the sanded area down the front and back of the axle by 1/2” below the top of the axle.



Sanding the Steer Axle

4. Re-mark the center of the steer axle.
5. Verify that the bracket contact pads fit into the sanded area and that no axle paint is left under the pads. If there is any paint touching the brackets, sand until it has been removed.
6. Once you have prepared the axle, place the bracket assembly onto the axle to ensure that it fits properly. All four bracket mounting pads should sit firmly on the axle without rocking in any direction. If the bracket rocks, sand or grind off any excess axle material until the bracket fits properly.
7. Clean the underside of the bracket assembly with one of the supplied isopropyl alcohol pads.



Note: Make sure that the main body of the bracket does not touch the axle. Only the feet of the bracket should touch the axle. Using a flashlight to check is recommended.

Axle with only foot pads touching

Glue Best Practices and Safety Information

- Air-Weigh highly recommends the use of personal protective equipment such as gloves, eye shields, and breathing masks.
- Working time of glue, once mixed, is 6-10 minutes. **All surface and equipment preparation should be completed before use.**
- Upon arrival at facility, refrigerate glue. Remove from refrigerator approximately 1 hour before use.
- Purging the glue before nozzle is attached and afterwards is **EXTREMELY** important to ensure proper mixing
- Glue cartridges and mixer nozzles are single use only. Because of the limited working time, glue cannot be used for multiple installations.
- Glue fully cures in 24 hours. Air-Weigh recommends that you do not move, load, or unload the vehicle until that time. If this is not an option, you must wait at least 3 hours before moving the vehicle to allow the glue to cure enough.
- Be sure to **remove alignment tool** before moving vehicle.
- When gluing brackets, avoid rocking or lifting the bracket after placing it on the axle. Doing so will cause the glue to cure incorrectly, resulting in a weak bond. Slide to reposition - do not lift.

For more safety and technical information from the manufacturer, see the LORD data sheets:

http://www.lord.com/sites/default/files/Documents/SafetyDataSheet/LORD_406.pdf

https://www.lord.com/sites/default/files/Documents/TechnicalDataSheet/DS3882_LORD400Series.pdf

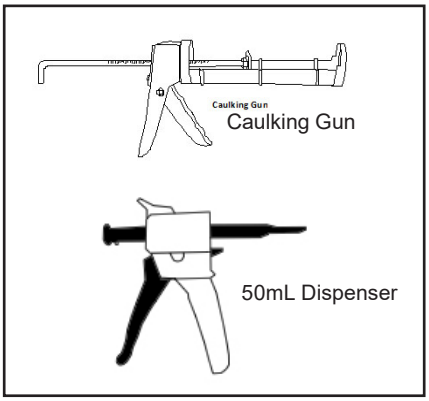
Appearance	Off-white to Tan Paste
Working Time, min @ 75°F (24°C	6 - 10
Time to Handling Strength, min @ 75°F (24°C) 50 psi Shear	12 - 17
Full Cure Time, hr @ 75°F (24°C)	24
Mixed Appearance	Green

Assembling the Glue Kit

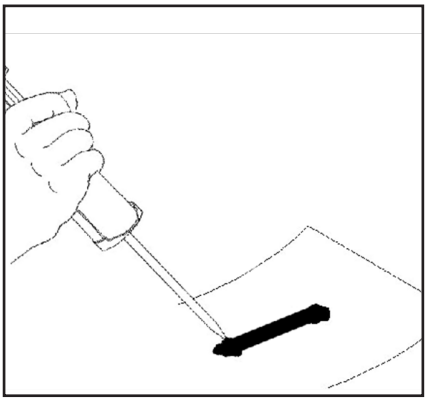
Use the following steps to assemble the glue kit:

Note: Glue has a working time of approximately 6-10 minutes. Be sure that all surface preparation and other prep work is complete before assembling glue kit.

1. Ensure that glue is at room temperature prior to use. If refrigerated, let stand for one hour at room temperature. Place cartridge, nozzle end up, to ensure that any air rises to the top.
2. Remove plastic tab from bottom and slide glue pack into sleeve. Be sure to align correctly; one side has a larger diameter. Cartridge will clip in to place via the tabs on the sleeve and cartridge.
3. Insert sleeve with glue cartridge into dispenser and then insert plunger. Remove twist off cap from glue pack.
4. Before attaching a mix nozzle, slowly press the plunger into the cartridge to make sure material is flowing freely out of **both** sides of the cartridge and that there is no blockage.
5. Attach nozzle to glue cartridge. Twist to secure.
6. Before gluing, bleed off a 3” bead of glue to ensure that both sides of the glue cartridge are flowing freely. Trim end of nozzle to allow better flow, if necessary.



Dispenser Examples (not included)

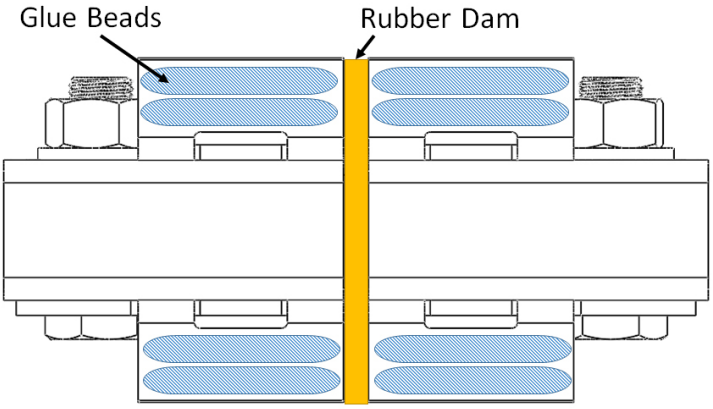


3” Bead of Glue

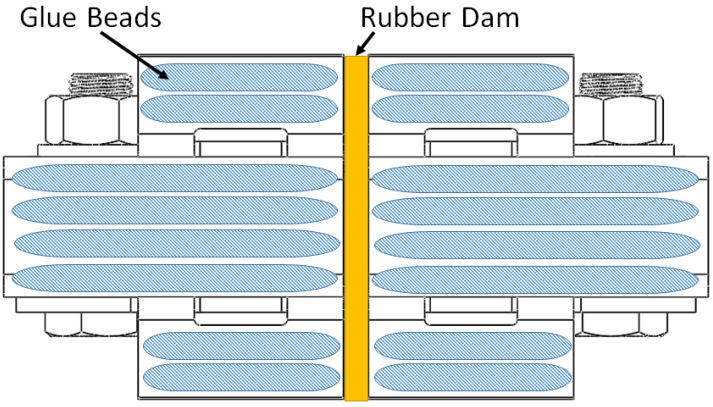
Applying the Glue

Note: Typical shelf life is nine months when stored below 80 degrees in original, unopened container. If glue is past its expiration date, please contact Air-Weigh for a replacement. Storage temperatures of 40-50 degrees are recommended. If stored cold, allow product to return to room temperature before using. Do NOT use glue if it is older than the expiration date printed on the side of the tube. Curing begins immediately once glue and accelerator are mixed. Complete cure requires 24 hours at room temperature. Mating surfaces must be held in contact during the entire curing process.

1. If the weather is below 60 degrees Fahrenheit (15.5 Celsius), we recommend that you warm the prepared axle area before gluing the bracket. Heat the prepared area of the axle using a heat gun, heat wrap or blanket, or a magnetic Katz heater until it is about room temperature (70 Fahrenheit or 20 Celsius). Do NOT use a blowtorch or other heating method to heat the axle, as this may cause warping and damage. When the axle is heated to room temperature, proceed to step 2.
2. Hand-tighten the bolts securing the alignment tool to the bracket as much as possible to prevent improper spacing.
3. Ensure that the rubber dam between the bracket halves is in place and do not remove it. Apply the glue **in parallel lines** to the bottom of the bracket assembly. Avoid zig-zag pattern.



Adhesive application for steer axles <u>more</u> than 3” wide.



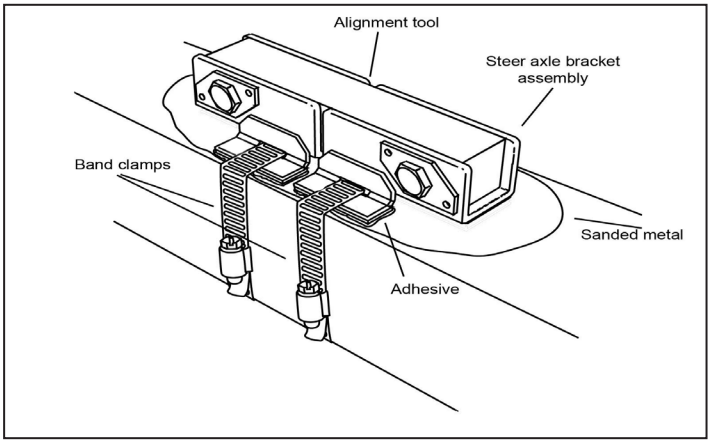
Adhesive application for steer axles <u>less</u> than 3” wide.

Securing the Bracket to the Steer Axle

1. Place the bracket on the axle. Make sure the center of the bracket assembly aligns with the center mark you made earlier. Use zip ties to keep bracket in place.
2. Place a band clamp through the slot at the base of each bracket and wrap the clamp around the steer axle.
3. Tighten the band clamps securely in one place. Make sure the mounting brackets remain exactly parallel to the steer axle. Band clamps should be very tight. If necessary, to keep the bracket assembly parallel to the steer axle, loosen the band clamps and readjust the bracket assembly. **Avoid lifting the assembly off of the axle, as this will affect the cure time and severely weaken the bond.** Re-tighten the band clamps.

Do not install the deflection sensor until the glue has fully cured.

4. **Optional:** Use a heat gun, heat wrap or heat blanket, or magnetic Katz heater to accelerate the curing process of the glue. Do NOT cure glue at temperatures exceeding 190 degrees Fahrenheit (88 degrees Celsius).



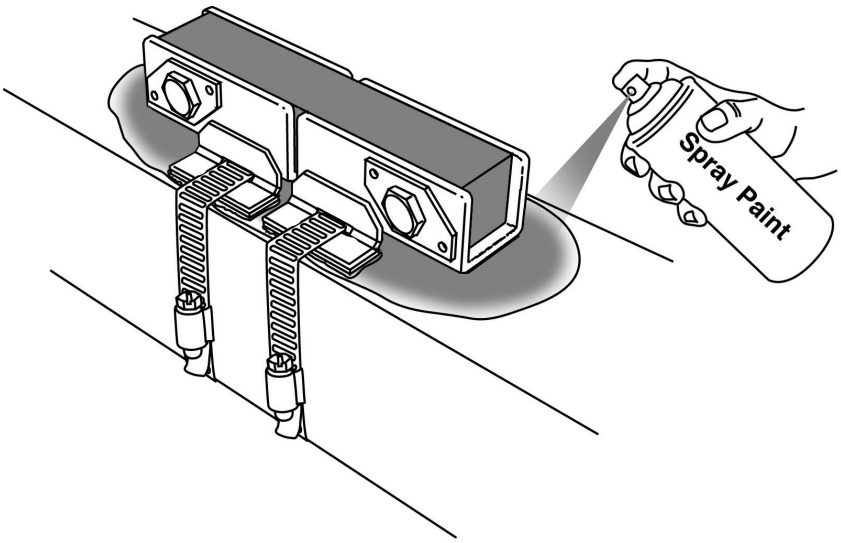
Securing the Bracket to the Steer Axle

Note: Do NOT move the vehicle until the glue has cured and the alignment tool has been removed.

Adding a Protective Spray Paint Coating

To prevent steer axle corrosion, we recommend you spray paint around the base of the bracket. **Do not paint until the glue has fully cured.**

1. Using any enamel-based spray paint, paint around the base of the bracket and over the welded section. Paint all bare metal around the bracket completely.
2. We recommend 3 coats of paint. Follow the instructions of your specific spray paint when coating.



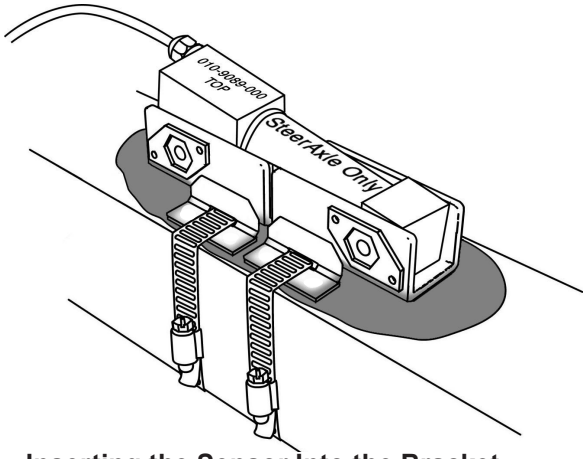
Spray Paint Coating

Installing and Adjusting the Steer Axle Sensor

NOTE: Wait for the glue to completely cure before installing the sensor.

Installing the Deflection Sensor

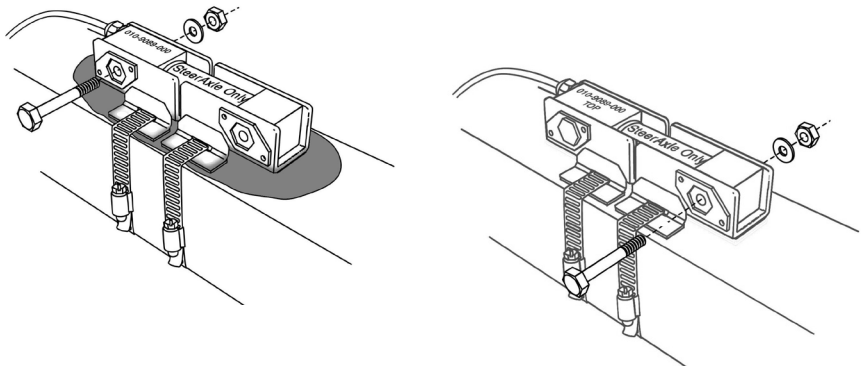
1. Remove the alignment tool from the brackets. Retain the nuts and bolts.
2. Insert the steer axle sensor with its cable extending toward the side of the vehicle where the sensor extension cable will be routed to the firewall. Make sure the engraved lettering faces up.



Inserting the Sensor Into the Bracket

3. Align the steer axle sensor with the holes in the steer axle bracket assembly.
4. Insert one bolt through the bracket hole on the sensor end with the engraved lettering on it so that the bolthead is secured in the manufactured bolthead holder. Place a washer and a nut at the end of the bolt and hand-tighten the nut. Add Loctite, or equivalent, to the bolts to prevent loosening and corrosion.

5. Insert the second bolt through the second bracket hole so that the bolthead is secured in the manufactured bolthead holder. Hand-tighten the nut. Add Loctite, or equivalent, to the bolts to prevent loosening and corrosion.



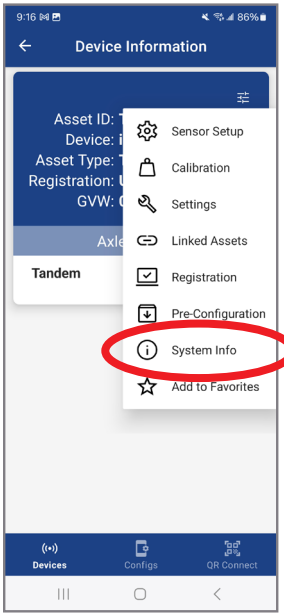
Securing the Sensor to the Bracket

Routing the Sensor Extension Cable

1. Connect the scale sensor interface cable to the sensor extension cable.
2. Route the sensor extension cable along the frame of the vehicle toward the location where the sensor bracket is installed. If possible, route along an existing wiring harness.
3. Secure the cable loosely to the frame using zip ties

Note: Make sure there is enough slack in the sensor extension cable to allow for axle movement. Do not tighten or trim zip ties until the full installation is complete.

How to View Scale Diagnostics in App

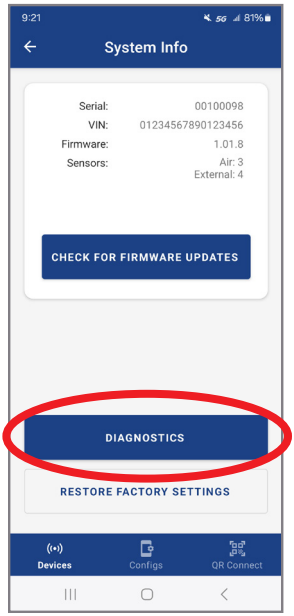


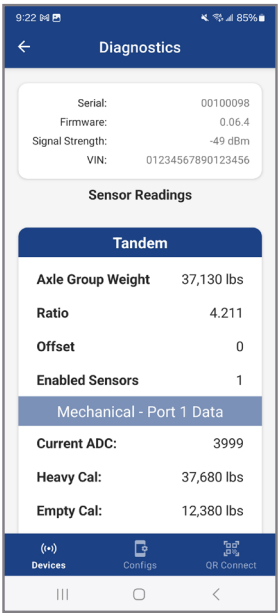
If the reading is within range (750-1250), continue to instructions for the **Final Sensor Torque.** If the reading is not within range, follow the instructions to adjust the A/D readings below.

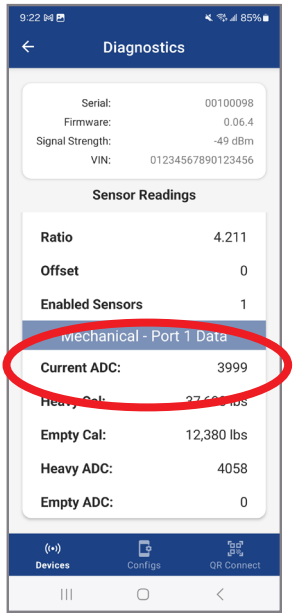
Open app, then select device from device dashboard. Open the main menu and select ‘System Info’ from the options.

On the ‘System Info’ screen, the serial number, VIN, Firmware version, and sensors are displayed. Select ‘Diagnostics’ to view scale diagnostics.

Live AD reading is ‘Current ADC’ field.







Setting the A/D Values

At this point, you have installed all of the system components. You will next adjust the steer axle deflection sensor to read weight correctly by setting the A/D values. A/D refers to the analog-to-digital conversion of the sensor reading.

This step will require the use of either the Air-Weigh app or the Deflection Sensor Test box (P/N 1001). If using the Air-Weigh app, the scale must be installed and powered, and the Deflection Sensor Extension Cable must be installed.

1. To assemble the connectors, insert the deflection sensor connector plug into the sensor extension cable connector or connect to the deflection sensor test box. Ensure the locking tabs on the connector plug engage completely.
2. Tighten both nuts and use a torque wrench to torque to 60ft-lbs.
3. Verify the A/D reading using the Air-Weigh app (start the ignition to power the scale), or use the deflection sensor test box.

Note: When tightening the bolts, ALWAYS torque the nut, NOT the bolt head. The bolt head should be in the bolt head holder, which is built into the bracket.

Adjusting the A/D Reading

If the A/D reading is above 1250, follow these instructions:

1. Loosen the nuts on both ends of the sensor.
2. At the plastic nut where the cable enters the sensor, exert **DOWNWARD** pressure with your fingers until the A/D reading is between 750 and 1250. Continue to apply pressure to maintain the desired A/D reading during the torque procedures in step 3.
3. Tighten the nut on the cable end of the sensor and torque to 60 ft/lbs. **Continue to apply pressure with your finger to the plastic nut during torquing in order to maintain the desired A/D reading.** If the A/D readings are still within the 750 to 1250 range after the nuts on both sides of the sensor have been torque to 60 ft/lbs, continue to instructions for the **Final Sensor Torque.**

If the A/D reading is below 750, or there is no A/D reading at all, follow the steps below:

1. Loosen the nuts on both ends of the sensor.
2. At the plastic nut where the cable enters the sensor, exert **UPWARD** pressure with your fingers until the A/D reading is between 750 and 1250. Continue to apply pressure to maintain the desired A/D reading during the torque procedures in step 3.
3. Tighten the nut on the cable end of the sensor and torqued to 60 ft/lbs. **Continue to apply pressure with your finger to the plastic nut during torquing in order to maintain the desired A/D reading.** If the A/D readings are still within the 750 to 1250 range after the nuts on both sides of the sensor have been torqued to 60 ft/lbs, continue to instructions for the **Final Sensor Torque**.

Final Sensor Torque

1. Torque both nuts to **120 ft/lbs**.
2. Perform a final check to A/D values using the readings from the app, not from the A/D Box. If A/D readings are not within range, repeat the **Adjusting the A/D reading steps.**

After the system is inspected, Calibrate your Scale per the related Calibration Guide.

The Deflection Sensor has a break-in Period to allow the sensor to adjust to the working environment and the use of the vehicle it is installed on.

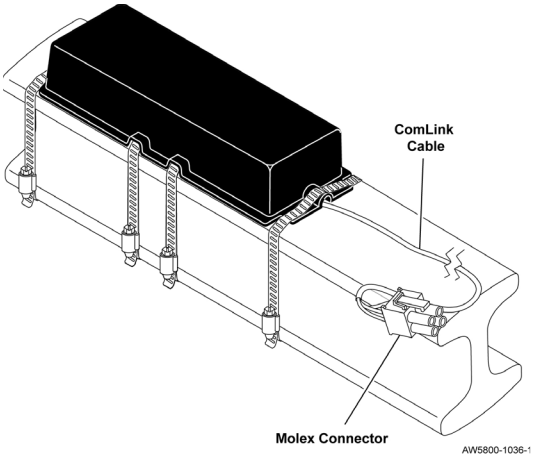
We recommend having the Loaded Vehicle taken across the scale for a weight check-up after 100-800 miles. This mileage varies with the Use Case. If your vehicle is for severe duty and off-road, construction sites, etc., the break-in will be shorter. Conversely, if the vehicle is used in an over-the-road application, the break-in period will be slightly longer.

Compare the weight displayed by the system with the weight indicated on the ticket. If the displayed weight is within 3% of the value on the ticket, you are good to proceed.

If the weight falls outside this parameter, re-enter the Heavy Calibration and re-check the AD Values to ensure that they are within the Tension Parameters (750-1200). If they are not, re-tension the Sensor and restart the break-in period.

Steer Axle Cover Installation

1. Mount the cover over the sensor and the brackets so that the sensor cable is completely under the cover. The sensor extension cable should emerge from the cover's end port on whichever side you choose to route the cable. Ensure that the cable has free play and is not pinched by the axle cover.
2. Very loosely install band clamps around the steer axle on both ends of the deflection sensor cover. Ensure that the band clamp on each side circles both the steer axle and the cover flange.
3 Secure the sensor cable to the axle using zip ties. Run the sensor extension cable along the rear of the axle towards either side of the truck, securing with a band clamp. Use additional 24" zip ties as required to secure the cable to the steer axle.



Cover with Sensor Extension Cable

Your steer axle deflection sensor installation is now complete.

Additional Resources

Air-Weigh is proud to provide multiple online sources for installation guides, user guides, calibration guides, and videos for our products. Please scan the QR codes to visit our website for more detailed information.

Installation Guides

Calibration Guides

User Guides

Best Practices

Contact our Customer Success Department:

Monday through Friday,
8AM - 4PM Pacific, excluding holidays.

Phone:
1-888-459-3247

Email:
support@air-weigh.com

Website:
Live chat on www.air-weigh.com

Limited Warranty

Air-Weigh warrants (the “Limited Warranty”) that the Products will be free from defects in material and workmanship under normal use and service with proper maintenance for the following time periods:

(a) for new Scale kits, the Limited Warranty period will be 3 years;

(b) for new parts and accessories sold separately, the Limited Warranty period will be 1 year; and

(c) for repaired or refurbished items, including repaired or refurbished Scale kits and repaired or refurbished parts and accessories sold separately, the Limited Warranty period will be 90 days.

If any Product is determined to not conform to this Limited Warranty during its applicable Limited Warranty period, Air-Weigh will, at its exclusive option, either repair or replace the Product.

Limitations of Limited Warranty. Air-Weigh will have no obligation under the Limited Warranty with respect to any product if (a) Buyer fails to notify Air-Weigh in writing during the warranty period of a non-conformity, or (b) Buyer or any other person, entity, or governmental authority uses, misuses, or neglects the product in a manner inconsistent with the product’s specifications or directions for use or maintenance, modifies the product or improperly installs, handles, or maintains the product.

No Repair or Modification of the products. Except as explicitly authorized or in a separate written agreement with Air-Weigh, Buyer will not service, repair, modify, alter, replace, reverse engineer, or otherwise change any of the products.

Disclaimer of All Other Warranties. EXCEPT FOR THE LIMITED WARRANTIES SET OUT ABOVE, NEITHER AIR-WEIGH NOR ANY PERSON OR ENTITY ON AIR-WEIGH’S BEHALF HAS MADE OR MAKES FOR BUYER’S BENEFIT ANY EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY WHATSOEVER, INCLUDING ANY WARRANTIES OF: (i) MERCHANTABILITY; (ii) FITNESS FOR A PARTICULAR PURPOSE; (iii) TITLE; OR (iv) NON-INFRINGEMENT; WHETHER ARISING BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. BUYER ACKNOWLEDGES THAT IT HAS NOT RELIED ON ANY OTHER REPRESENTATION OR WARRANTY MADE BY AIR-WEIGH, OR ANY OTHER PERSON OR ENTITY ON AIR-WEIGH’S BEHALF.

Limitation of Liability.

IN NO EVENT WILL AIR-WEIGH BE LIABLE FOR CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, PUNITIVE, OR ENHANCED DAMAGES, LOST PROFITS OR REVENUES, OR DIMINUTION IN VALUE, ARISING OUT OF OR RELATING TO ANY BREACH OF THESE TERMS, REGARDLESS OF WHETHER OR NOT THE DAMAGES WERE FORESEEABLE, WHETHER OR NOT AIR-WEIGH WAS ADVISED OF THE POSSIBILITY OF THE DAMAGES, OR THE LEGAL OR EQUITABLE THEORY (CONTRACT, TORT, OR OTHERWISE) ON WHICH THE CLAIM IS BASED.

IN NO CASE WILL AIR-WEIGH’S AGGREGATE LIABILITY ARISING OUT OF OR RELATED TO THESE TERMS, WHETHER ARISING OUT OF OR RELATED TO BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), OR OTHERWISE, EXCEED THE TOTAL OF THE AMOUNTS PAID TO AIR-WEIGH FOR THE PRODUCTS.

THE FOREGOING LIMITATIONS APPLY EVEN IF BUYER’S REMEDIES UNDER THESE TERMS FAIL OF THEIR ESSENTIAL PURPOSE.

Procedure For Warranty Claims

ALL customers should first contact Air-Weigh Customer Success Department at (888) 459-3247 for questions regarding the use, operation, repair or return of any Air-Weigh product.

In the event Air-Weigh requests to examine the product prior to disposition OR for repair or replacement, Air-Weigh requires a Return Material Authorization (RMA) number be issued before the item is returned. Customer Success will issue the RMA number. Please reference this RMA number in all correspondence.

Claimed items shall be shipped freight pre-paid to:
Air-Weigh
Customer Success Department
1720 Willow Creek Circle, Suite 510
Eugene, Oregon 97402, USA

The Air-Weigh RMA number **must** appear on the outside of the return packaging. Air-Weigh shall examine returned material within 30 days after receipt, or sooner if mutually agreed upon. If Air-Weigh determines that the part or assembly was defective in material or workmanship and within the warranty period, Air-Weigh will repair or replace the part or assembly and return freight pre-paid. In the event Air-Weigh determines that the part or assembly cannot be repaired or replaced and is within the warranty period, a credit not to exceed the purchase price will be issued to the Air-Weigh customer.

For our customers using purchase orders Air-Weigh will process a credit memo and notify the customer by email or fax. The customer will process a corresponding debit memo and notify Air-Weigh accordingly.

If the part or assembly received by Air-Weigh does not meet the requirements of the warranty program set forth above, at the Air-Weigh customer's request the part or assembly will either be discarded, returned freight collect, or repaired or replaced at the Air-Weigh customer's expense and returned freight collect.

AIR-WEIGH

AIR AND MECHANICAL SUSPENSION SCALES

1720 Willow Creek Circle • Eugene, OR 97402-9152 USA
P.O. Box 24308 • Eugene, OR 97402-0437 USA

Telephone (888) 459-3444
Customer Success Department (888) 459-3247 • Fax (541) 431-3121

www.Air-Weigh.com

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