AIR-WEIGH
AIR AND MECHANICAL SUSPENSION SCALES

Installation Guide

For Trucks and Tractors

Spring Steer Suspensions

Welded Steer Brackets

Air-Weigh Customer Success: 888-459-3247

PN 901-0191-000 R0 **5/12/25**

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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.

Overview

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

See the User Guide to calibrate your scale after installation.

Tools Required

- Sander/grinder
- 40-grit medium sandpaper
- Chalk or permanent marker
- MIG or ARC welder
- For ARC welder: E7018 welding electrodes OR
- For MIG welder: E70S-3 or E71T-1 welding wire
- Two C clamps
- Flat-blade screwdriver
- Torque wrench, 120 ft lbs
- 22mm socket and 5/16 socket
- Enamel spray paint, any color
- Tape measure

Optional Tools

- Deflection sensor test box, p/n 1001

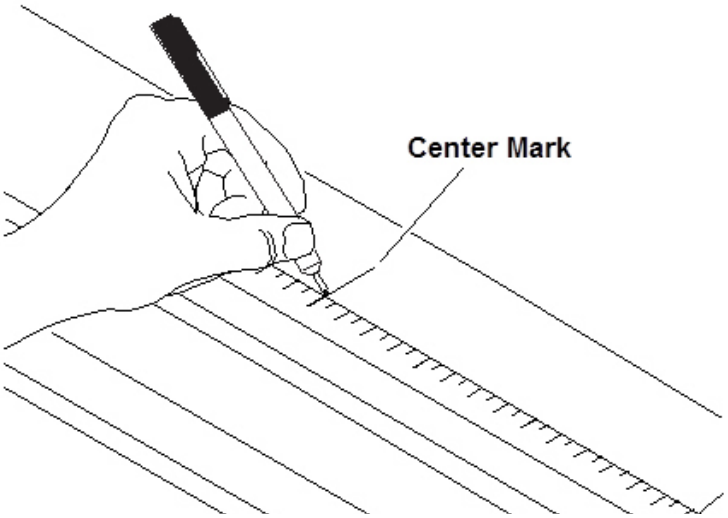
Air-Weigh takes no responsibility for damage or failure of the steer axle due to improper welding or failure to follow these instructions.

Before calibrating, note that there is a required break-in period Break-in periods are dependent on a number of factors, including but not limited to: work environment the scale is subject to; road conditions; vehicle conditions; normal wear and tear. This can cause the break-in period to vary from 100 miles to 800 miles. See Setting the A/D Values further in this manual for more information.

Installing the Steer Axle Sensor Bracket

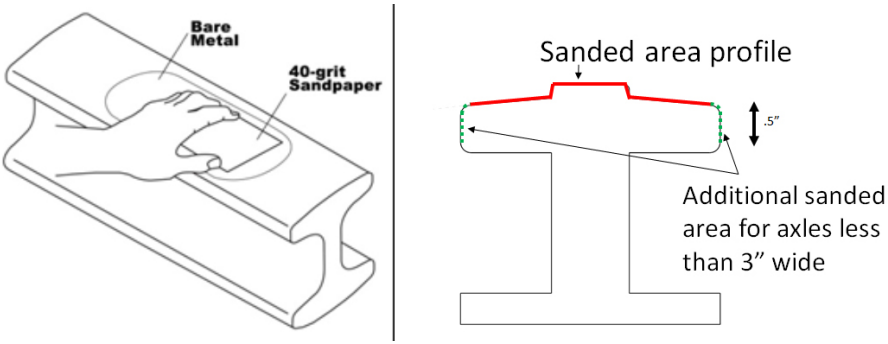
Preparing the Steer Axle Sensor Brackets

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.

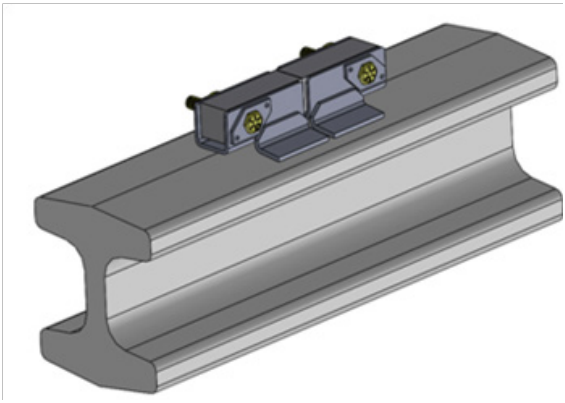
Note: Make sure that the main body of the bracket does not touch the axle. Only the feet of the bracket should touch the axle. Using a flashlight to check is recommended.

Axle with only foot pads touching

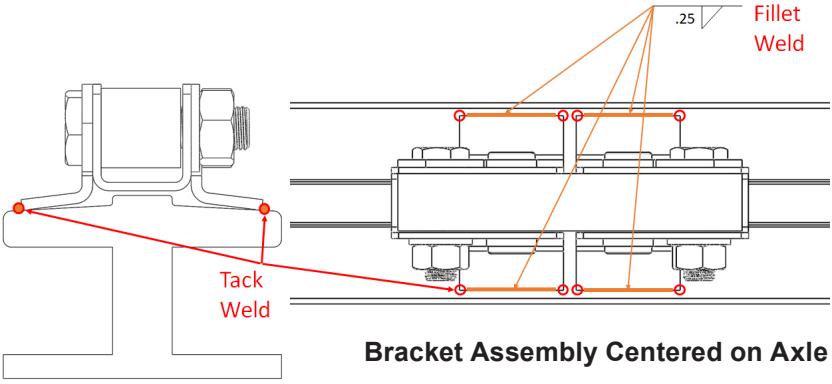
Welding the Bracket

Note: Air-Weigh takes no responsibility for damage or failure of the steer axle due to improper welding.

1. Place the bracket assembly at the center of the axle. Use C-clamps (NOT PICTURED) to hold the bracket in place. Make sure you leave the alignment tool in the bracket assembly while welding.



Bracket Assembly Centered on Axle



Bracket Assembly Centered on Axle

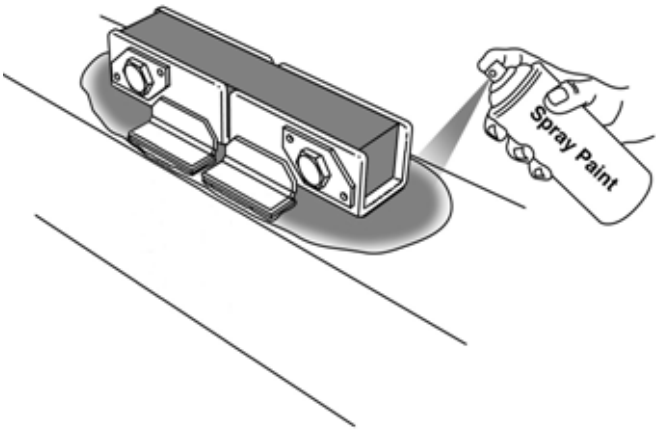
Note: Do not operate the vehicle while the alignment tool is still in place.

3. Fillet weld a full bead on the front and back edges of each bracket piece, as per ANSI/AWS 2.4-79, AWS A5.4, AWS A5.9 and AWS A5.22 standards. Do NOT weld the sides of the bracket, only the edges indicated below. Air-Weigh recommends that you use equipment similar to Miller Shopmaster 300 AC/DC; AMP/VOLT setting of 22; wire speed of 3.5; and a welding argon gas mixture of 75/25. MIG welding should use 309 stainless wire. MIG welding will use the same settings as the Miller Shopmaster noted above.

Adding a Protective Spray Paint Coating

To prevent steer axle corrosion, we recommend you spray paint around the base of the bracket.

1. Using an 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.



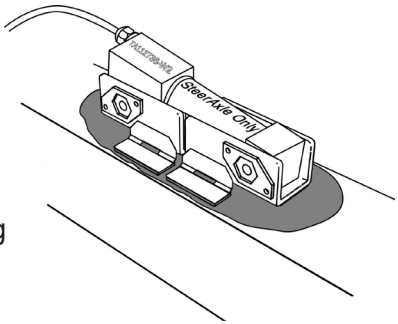
Spray Paint Coating

Installing and Adjusting the Steer Axle Sensor

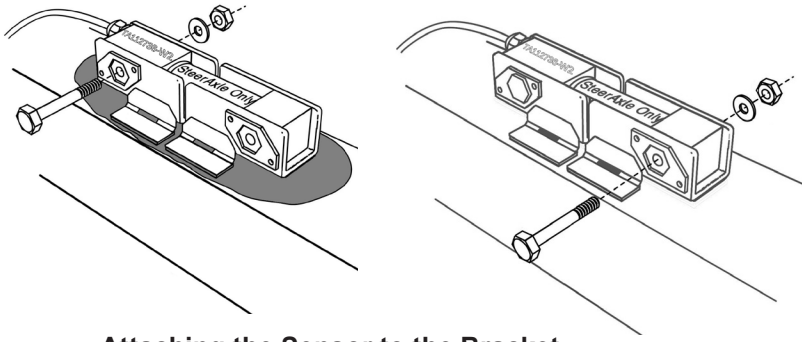
NOTE: Wait for the welds to completely cool before installing the sensor.

Installing the Deflection Sensor

1. Remove the alignment tool from the bracket. 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 has been routed to the firewall. Make sure the engraved lettering on the sensor faces up.
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.



Attaching the Sensor to the Bracket

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.

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.

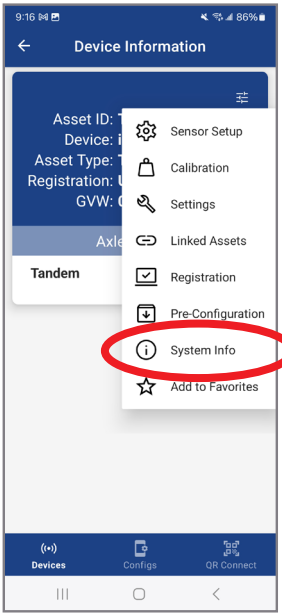
This step will require the use of either the Air-Weigh App or the Deflection Sensor Test box (P/N 1001). If using the app, the scale must be installed and powered, and the Deflection Sensor Extension Cable must be installed.

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 app (start the ignition to power on 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.

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.

How to View Scale Diagnostics in App

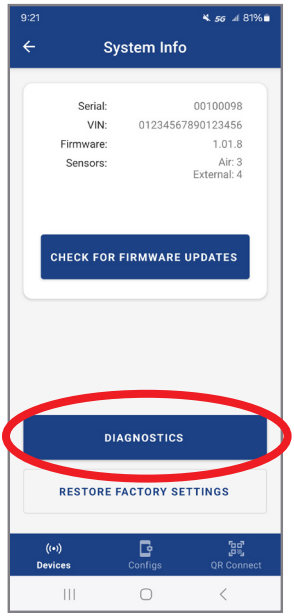


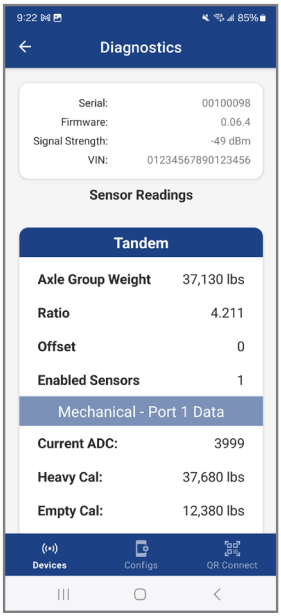
If the reading is within range (750-1250), continue to instructions for the **Final Sensor Torque.** If the reading is not within range, follow the instructions to adjust the A/D readings below.

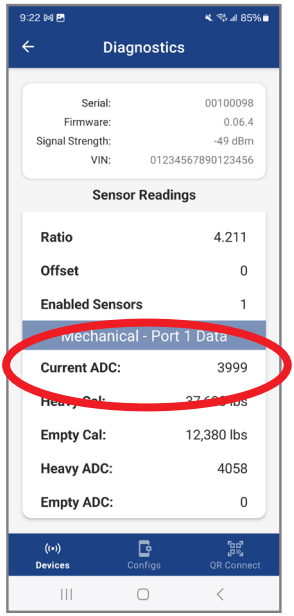
Open app, then select device from device dashboard. Open the main menu and select ‘System Info’ from the options.

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.







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.

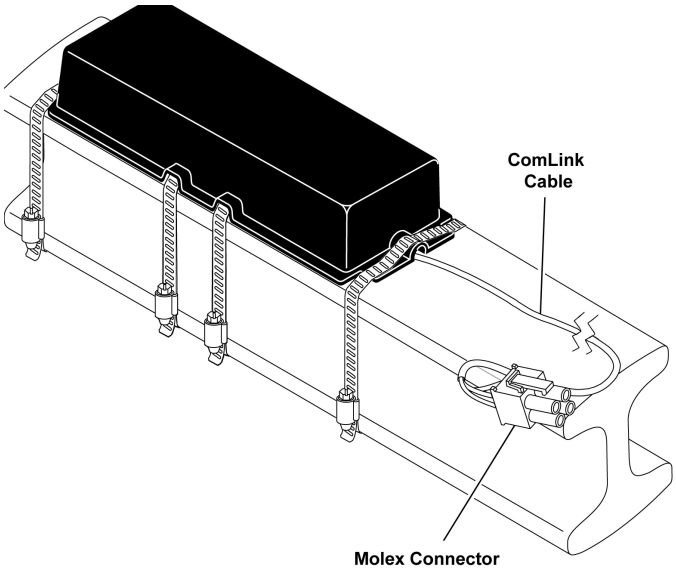
We recommend having the Loaded Vehicle taken across the scale for a weight check-up after 100-800 miles. This mileage varies with the Use Case. If your vehicle is for severe duty and off-road, construction sites, etc., the break-in will be shorter. Conversely, if the vehicle is used in an over-the-road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

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

Notes:

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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