AIR-WEIGH
AIR AND MECHANICAL SUSPENSION SCALES

# Installation Guide

# For Trucks and Tractors

## Mack Camelback Suspensions

***Drive Brackets***

**Air-Weigh Customer Success: 888-459-3247**

**PN 901-0193-000 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

## Overview

There are three major components of the scale that you will install, listed as follows:

- Deflection sensor extension cables
- Deflection sensor
- Deflection sensor brackets for the Camelback drive axle suspension
- Air-Weigh app installed on compatible smart device for viewing A/D readings.

**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.**

Please see the **User Guide**, at www.Air-Weigh.com, to calibrate your scale after installation.

# Tools Required

You will need the following tools to install deflection sensors on the steer and drive axles.

- 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-lb
- 22mm socket and 5/16-inch socket
- Enamel spray paint, any color
- Tape measure
- Air-Weigh app installed on compatible smart device for viewing A/D readings.

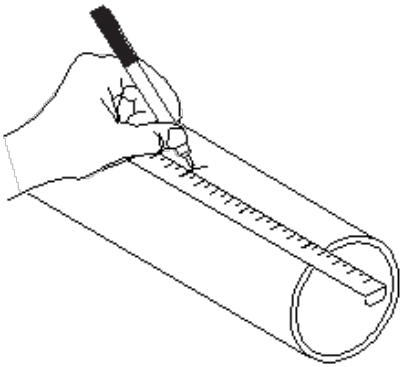
## Optional Tools

Deflection sensor test box (P/N 1001)

# Installing the Drive Axle Sensor Bracket

## Preparing the Camelback Suspension

1. Locate and mark the top center of the trunnion tube.



**Marking Center of Trunnion Tube**

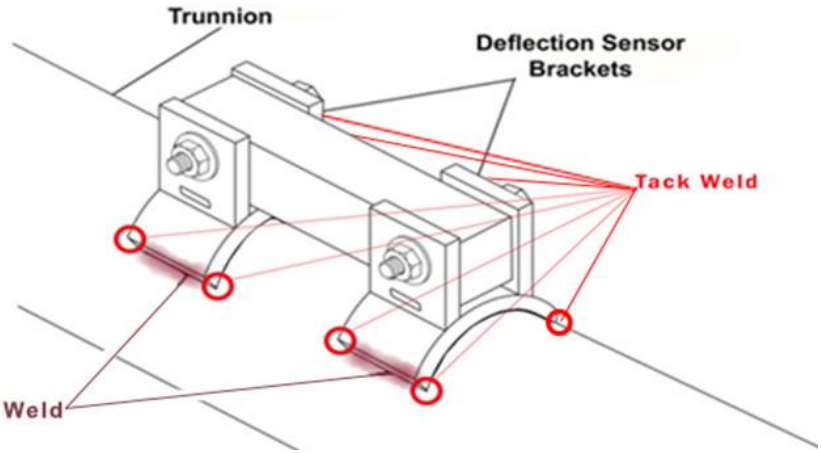
2. Using chalk or permanent marker, mark the top of the trunnion tube 3-3/8 in. (85.725mm) on both sides of the center mark. The overall measurement is 6-3/4 in. (171.45 mm).
3. Using a grinder or 40-grit medium sandpaper, sand the marked off area until it is free of paint and other residues.

**Sanding the Trunnion Tube**

4. Clean the sanded area.
5. Re-mark the center of the trunnion tube.

## Welding the Bracket

1. Place the mounting bracket assembly on the top center of the trunnion tube. Mark the center on the alignment tool and ensure it lines up with the center mark on the trunnion tube.
2. Use C clamps to hold the bracket in place. Make sure you leave the alignment tool in the bracket assembly while welding.

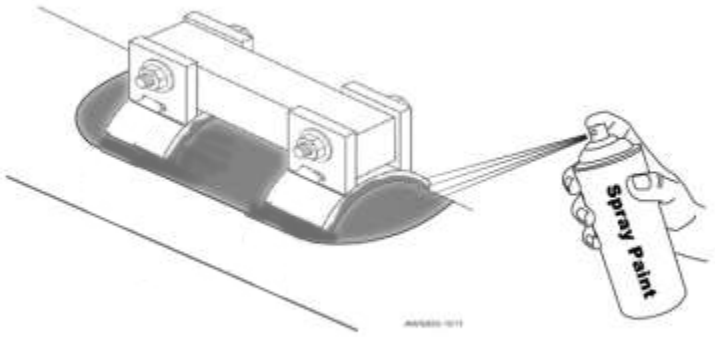



**Placing the Brackets on the Trunnion Tube**

3. Tack weld all 8 corners of the base of the bracket.
4. Fillet weld a full bead on the edges of each bracket piece.
5. Allow the weld and the bracket to completely cool.

## Adding a Protective Spray Paint Coating

1. To prevent the drive axle brackets from delaminating due to corrosion, we recommend you spray paint around the base of the brackets.
2. Using any enamel-based spray paint, paint around the base of the bracket. Paint all bare metal around the bracket completely.
3. We recommend 3 coats of paint. Follow the instructions of your specific spray paint when coating.




**Spray Painting the Bracket**

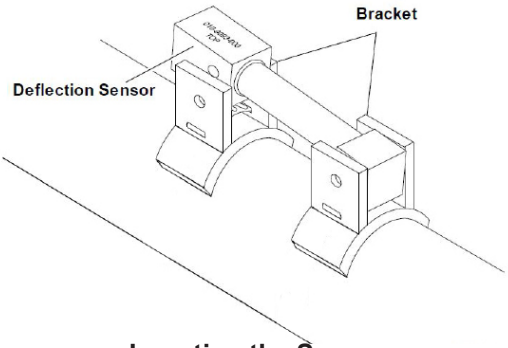
# Routing Cables

1. Route the 20’ steer extension cable and the 40’ drive extension cable along their respective axles and the frame, and then through the cab firewall. Leave enough length for sensor connections. If at all possible, route along an existing wire harness. Be careful to avoid routing along pieces of the frame that may move or cause wiring to rub.
2. Secure the cables loosely to the suspension using zip ties.

**NOTE: Keep all cables a minimum of 12” from exhaust piping or properly shield cables.**

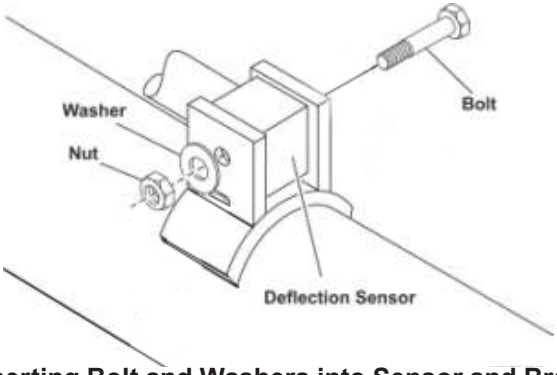
# Installing and Adjusting the Drive Axle Sensor

1. Remove the alignment tool from the brackets. Retain the nuts and bolts.
2. Insert the deflection sensor into the brackets with its cable extending toward the side of the vehicle where you'll route the sensor extension cable to the firewall. The engraved lettering on the sensor should face up.
3. Align the deflection sensor with the bracket holes.




**Inserting the Sensor**

4. Slide the bolts through the bracket holes so that the boltheads are secured in the manufactured bolthead holders.




**Inserting Bolt and Washers into Sensor and Bracket**

# Setting the A/D Values

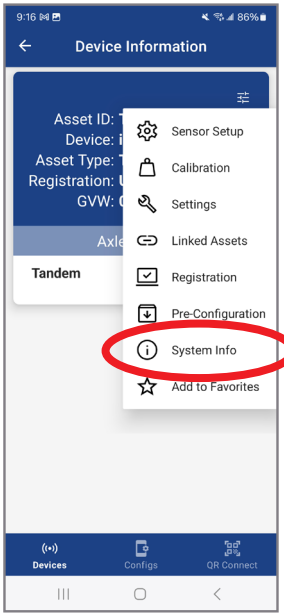
At this point, you have installed all of the system components. You will next adjust the steer axle deflection sensor to read weight correctly by setting the A/D values. A/D refers to the analog-to-digital conversion of the sensor reading.

This step will require the use of either the Air-Weigh app or the Deflection Sensor Test box (P/N 1001). If using the 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 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.**

# How to View Scale Diagnostics in App

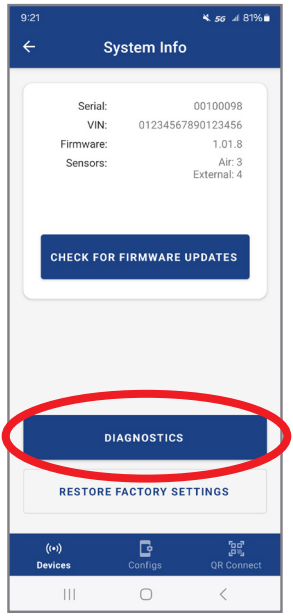


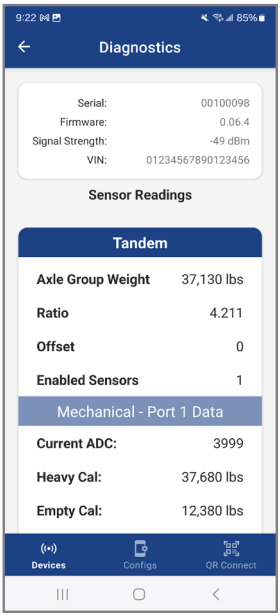

If the reading is within range (750-1250), continue to instructions for the **Final Sensor Torque.** If the reading is not within range, follow the instructions to adjust the A/D readings below.

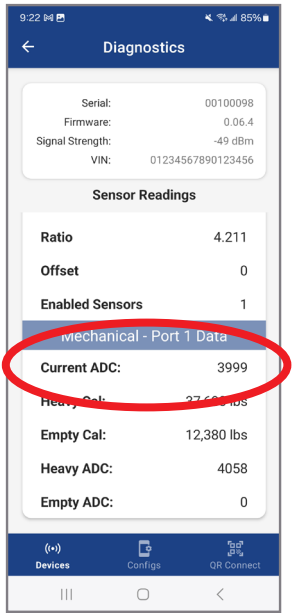
Open app, then select device from device dashboard. Open the main menu and select ‘System Info’ from the options.

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.**

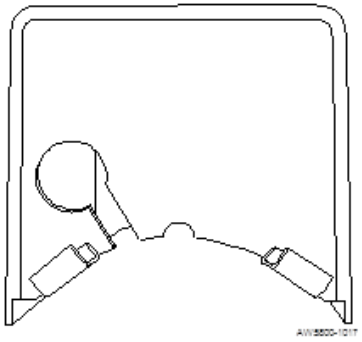
**We recommend having the Loaded Vehicle taken across the scale for a weight check-up after 100-800 miles. This mileage varies with the Use Case. If your vehicle is for severe duty and off-road, construction sites, etc., the break-in will be shorter. Conversely, if the vehicle is used in an over-the-road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

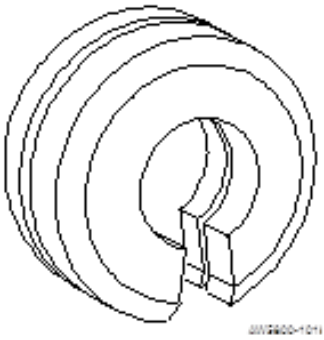
# Drive Axle Cover Installation

1. Locate the opening in the end of the cover. The opening is used for the sensor cable to go through.



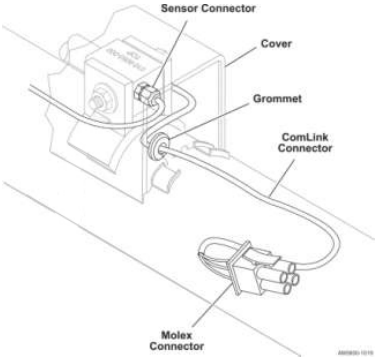
**Cable Opening in Cover**

2. Cut a notch in the supplied grommet and place it on the sensor cable.



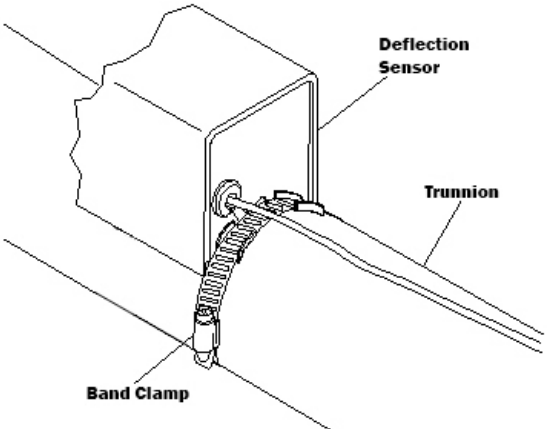
**Notching the Grommet**

3. Slide the sensor cable/grommet combination into the cover hole with the Molex connector of the sensor cable on the outside of the cover and set the Deflection Sensor Cover over the sensor on the trunnion tube.




**Placing the Cable and Grommet into Cover**

4. Slip each band clamp over the flange on the ends of the cover and tighten in place.




**Clamping the Cover to the Trunnion Tube**

**Your Air-Weigh scale 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.

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