

QuickLoad Installation Guide



Mack Camelback Suspensions

Welded Drive Brackets

Air-Weigh Customer Support: 888-459-3247

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Scale Overview

The Air-Weigh QuickLoad Scale for vocational vehicles with the Mack Camelback suspension includes a dashboard-mounted QuickLoad display, power harness, a deflection sensor with mounting hardware for the Camelback suspension, and sensor cables.

This Installation Guide provides all the instructions needed to install the deflection sensor on the Camelback suspension.

Follow the installing procedures in this guide exactly for the most accurate weighing.

The **User Guide**, included with the scale kit, provides the complete scale calibration and operation procedures.

Overview: Sensor Installation

The following overview steps are to be applied to the Camelback Suspension Sensor Installation:

- Mark the center of the trunnion tube.
- Mount bracket assembly on the trunnion tube.
- Connect the cables
- Route the extension cable through the firewall and connect it to the QuickLoad Scale Sensor Port A.
- Mount the sensor to the bracket.
- Check for sensor readings in range.
- Mount the cover over the sensor and brackets.

Tools Required

The list below contains the tools (customer supplied) to properly install the deflection sensor on the Mack Camelback Suspension.

- Sander/grinder
- 40-grit medium sandpaper
- Chalk or permanent marker
- 22mm combination wrench
- Torque wrench, 20 – 120 ft-lb
- 22mm socket and 3/8-inch socket handle
- Enamel spray paint
- Tape measure
- C clamps
- ARC or MIG welder
- 5/16 socket or flathead screwdriver

Note: Heavy calibration must be done using maximum vehicle loads. See QuickLoad Calibrations and Operations manual, for additional information on calibration.

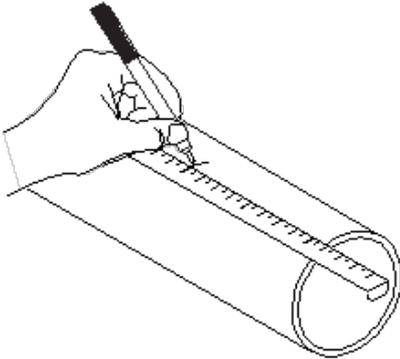
Cables to the sensor, and any other Air-Weigh wiring, must be separated by a minimum of 12 inches, or properly shielded, from exhaust piping.

Do not move vehicle until the alignment tool is removed.

Do not calibrate sensor following installation until the vehicle has been in operation for one week or 800 miles, whichever comes first. This serves as a break-in period.

Installing the Sensor Bracket on the Camelback Suspension

Preparing the Camelback Suspension



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.

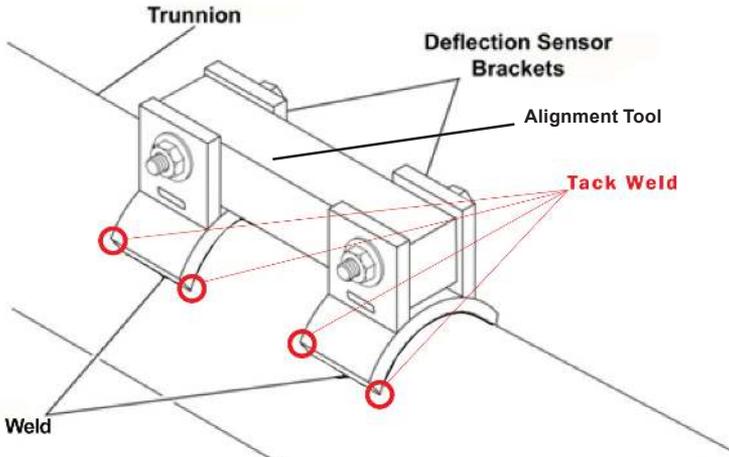


Sanding the Trunnion Tube

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.

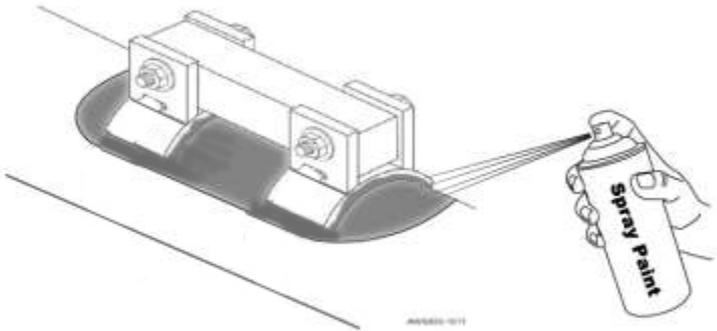


Placing the Brackets on the Trunnion Tube

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 bracket 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. Once the paint is dry, we recommend that you paint all exposed metal a second time.



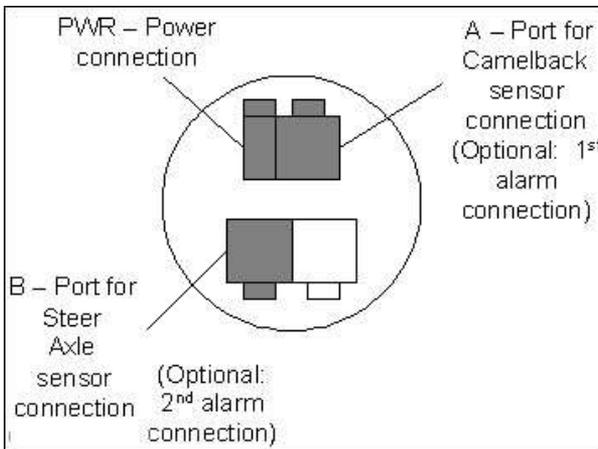
Spray Painting the Bracket

Installing the Display and Cables

Routing the Sensor Extension Cable

1. Starting from where you mounted the bracket, route the drive axle extension cable along the axle and the frame, and then through the cab firewall to where you will install the in-cab display on the dash. If 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. The drive axle sensor extension cable will be connected to Sensor Port A on the back of the QuickLoad display once the display is installed.
3. Coil and secure the drive axle extension cable approximately every foot along the frame of the truck using zip ties. Leave the ties loosely attached, as you will tighten them later in the install process.

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

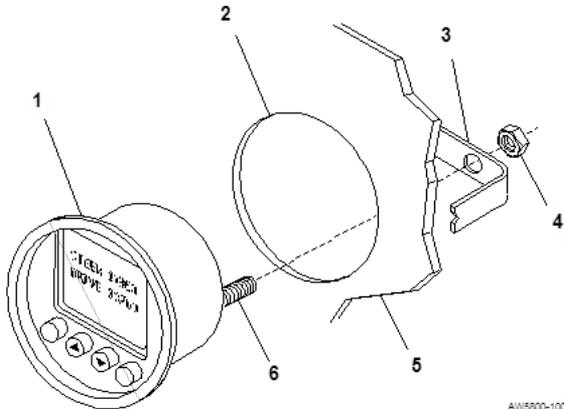


Drive Axle Connections

Preparing the Cab Display for Installation

The Optional Universal Mounting Pod can be used for installations where there is no space in the dash to mount the scale display.

1. Select a location for the display (1) on the dash panel (5) with at least 3" of clearance behind the dash panel (5) for the unit and its connections. A higher dash position provides better visibility.
2. Using a hole saw, cut a 2-1/8" hole (2) in the dash where you will mount the display.
3. Remove the hex nuts (4) from the studs (6) on the back of the display (1) to release the mounting bracket (3).



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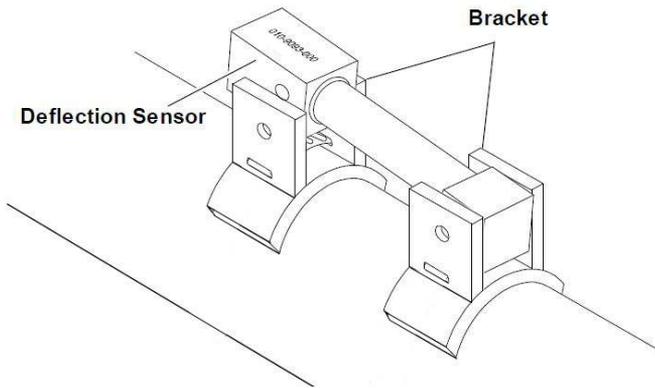
Display Preparation and Installation

Installing the Cab Display

1. Position the display (1) in the hole so that it appears level on the dash.
2. Reinstall the mounting bracket (3) on the back of the display (1) and secure with two nuts (4) on the display studs (6). Tighten the nuts (4) and secure the display (1) to the dash using 6 in-lbs. of torque. Do not over-tighten the mounting bracket nuts (4).
3. Connect the drive axle extension cable to the display in the dash to Port A.

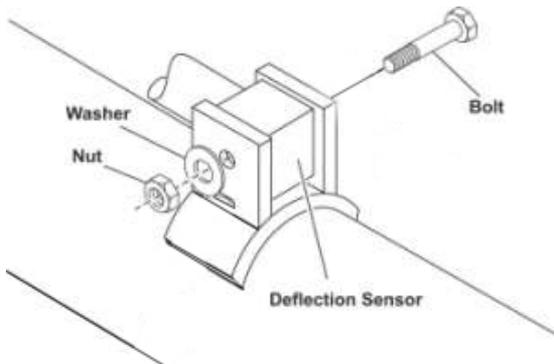
Deflection Sensor Installation

1. Insert the deflection sensor into the brackets with its cable extending toward the side of the vehicle where you routed the sensor extension cable to the firewall. The engraved lettering on the sensor should face up.
2. Align the deflection sensor with the bracket holes.



Inserting the Sensor

3. Slide the bolt through the bracket holes so that the bolthead is secured in the manufactured bolthead holder.



Inserting Bolt and Washers into Sensor and Bracket

Securing Cables and Reassembling the Dash

1. Coil and secure any excess wire using zip ties.
2. Tighten all zip ties and trim.
3. Reassemble the dash assembly after the sensor has been installed and sensor cables are connected. Ensure all connections are tight.

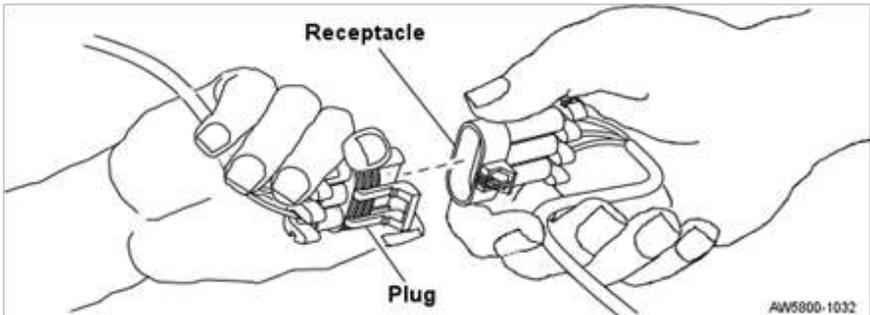
Setting the A/D values

At this point, you have installed all of the QuickLoad system components. You will next adjust the deflection sensor to read weight correctly by setting its 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 QuickLoad Scale or the Deflection Sensor Test box (P/N 1001). If using the QuickLoad Scale, the scale must be installed and powered, and the Deflection Sensor Extension Cable must be installed.

Assembling the Electrical Connector

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 (P/N 1001). Ensure the locking tabs on the connector plug engage completely.



Assembling the Electrical Connector

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.

2. Tighten both nuts and use a torque wrench to torque to 60 ft-lbs.
3. Verify the A/D reading using the display in the cab (start the ignition to power on the display), or the deflection sensor test box. 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.

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:

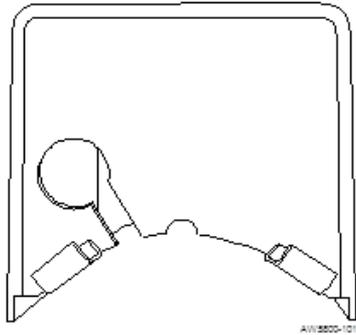
1. Loosen the nuts on both ends of the sensor
2. At the plastic nut where the cable enters the sensor, exert **UPWARD** pressure with your fingers until the A/D reading is between 750 and 1250. Continue to apply pressure to maintain the desired A/D reading during the torque procedures in step 3.
3. Tighten 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 in-cab QuickLoad display, not from the A/D Box. If A/D readings are not within range, repeat the **Adjusting the A/D reading steps.**

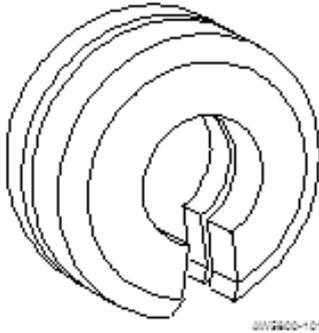
Cover Installation

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



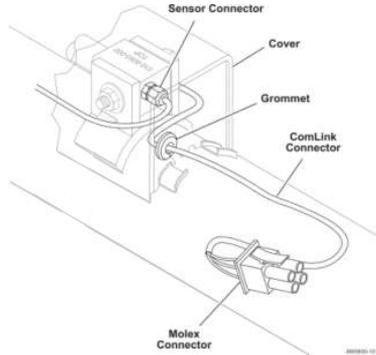
Cable Opening in Cover

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



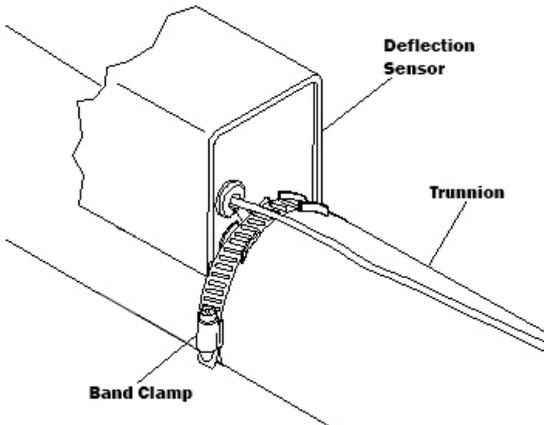
Notching the Grommet

- 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

- 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.

Notes

Limited Warranty

For product failures due to material or manufacturing defects, Air-Weigh will replace or repair all components for up to 3 years from shipment date to the end-user Air-Weigh customer. These three-year components include: Displays, ComLinks, Sensors, Power Cables, Sensor Assemblies, Sensor Harnesses, and all other associated external components. Air-Weigh assumes no responsibility for administering warranty claims directly with any third party end users.

The responsibility of Air-Weigh under this warranty is limited to the repair, replacement, or credit of the defective part or assembly.

This warranty does not cover incidental or consequential damage to persons or property caused by use, abuse, misuse, or failure to comply with installation or operating instructions. This limited warranty does not apply to any product that has failed due to accident, abuse, alteration, installation not consistent with printed installation instructions, improper maintenance, improper operation, or as a result of system integration or installation not explicitly approved in writing by Air-Weigh.

Air-Weigh and its resellers shall have no responsibility or liability for damages if the purchaser or any other person alters the vehicle incorporating Air-Weigh products. This limited warranty shall not apply to any product that has been repaired or altered by anyone not employed by Air-Weigh or not operated in accordance with the manufacturer's printed material delivered with this product.

Air-Weigh hereby expressly disclaims any and all implied warranties of any type, kind of nature whatsoever, and particularly any implied warranty of merchantability or fitness for a particular purpose not expressly stated by Air-Weigh in its printed material delivered with its products.

Some states do not allow the exclusion or limitation of incidental or consequential damages. If such laws apply, the limitations or exclusions contained in the terms and conditions of this Warranty may not apply. This warranty gives you specific legal rights and you may also have other rights, which vary state to state.

May be covered by U.S. Patent Nos. 5478974, 5780782, 7478001
Foreign Patent Nos. 260494, 677998, 2122766

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Procedure For Warranty Claims

ALL customers should first contact Air-Weigh Customer Support 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 Support 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 Support Department
1730 Willow Creek Circle, Suite 100
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 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 Air-Weigh customer's expense and returned freight collect.

Air Weigh

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