

Air-Weigh®

Self-Weighing Truck and Trailer Scales™



LoadMaxx™ Scale Installation Guide for Vocational Vehicles with Mack® Camelback Suspensions

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I. SCALE OVERVIEW

The Air-Weigh® Scale for vocational vehicles with the Mack® Camelback suspension includes a dashboard-mounted display, a LoadMaxx™ ComLink™ module, mounting cables, a deflection sensor with mounting hardware for the steer axle, and a second deflection sensor with mounting hardware for the Camelback suspension.

This **Installation Guide** (p/n: 901-0102-000) provides all the instructions needed to install a deflection sensor on the steer axle and a second deflection sensor on the Camelback suspension.

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

The **User Guide** (p/n: 901-0116-000), included with the scale kit, provides the complete scale calibration and operation procedures.



Figure 1. Major Components Location

1. Installation Overview

The installation of an Air-Weigh LoadMaxx Scale on a vocational vehicle with the Mack® Camelback Suspension includes installations in three major areas:

- Electronics Components: Dash-Mounted Display, ComLink module, Power Cables and Sensor Extension Cables
- Deflection Sensor for the Steer Axle
- Deflection Sensor for the Camelback Suspension

2. Overview for the Sensor Installation for the Steer Axle

The following overview steps are to be applied to the Steer Axle Sensor Installation.

- Mark the center of the axle and prepare it for gluing.
- Apply glue to the bottom of the bracket assembly.
- Mount bracket assembly on the axle and secure with band clamps.
- Tighten the band clamps and allow the glue to cure.
- Apply epoxy paint over glue and axle seams and allow drying.
- Mount the deflection sensor and connector mounting tab on the brackets.
- Route the extension cable through the firewall and connect it to the ComLink module.
- Check for sensor readings in range.
- Connect the extension cable to the sensor electrical connector on the mounting tab.
- Mount the cover over the sensor and brackets and secure with band clamps.

3. Overview for the Sensor Installation for the Mack® Camelback Suspension

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

- Mark the center of the trunnion tube and prepare it for glue.
- Apply glue to the bottom of the bracket assembly.
- Mount bracket assembly on the trunnion tube with band clamps.
- Tighten the band clamps and let the glue cure.
- Mount the sensor and mounting tab to the brackets.
- Connect the cables and mount to the tab.
- Route the extension cable through the firewall.
- Check for sensor readings in range.
- Mount the cover over the sensor and brackets.



CAUTION

Do not move vehicle until the alignment tool is removed.



CAUTION

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.

NOTE

Heavy calibration must be done using maximum vehicle loads. See document 901-0116-000 for additional information on calibration.

II. INSTALLATION COMPONENTS

Table 1. Bill of Materials for Kit 2A5817Q9G5A0A0A

PART NUMBER	DESCRIPTION	QTY
010-0063-00X	HARDWARE KIT, AW5901	1
010-0091-00X	STEER AXLE BRACKET KIT, DEFLECTION SENSOR, BONDED	1
010-0021-001	ADHESIVE APPLICATION CONVERTER	1
110-0080-000	TAB, SS, CONN MOUNT, DEFLECTION SENSOR	1
111-0001-000	BRACKET ASSEMBLY, DEFLECTION SENSOR, BONDED	1
120-0066-000	COVER ASSEMBLY, DEFLECTION SENSOR W/"CAUTION"	1
133-0009-000	WASHER, FLAT, 0.375 ID, PFC 9, THK,USS, STL, Y ZN PL	4
139-0016-000	CLAMP, BAND, 2 – 7 IN DIA, 23 IN LONG	5
145-0007-000	CABLE TIE, 0.30 X 24 IN, NYLON, BLK UV	6
145-4552-001	NYLON TIE, 7 in., T-50, NYLON, BLK	2
350-0035-000	PREPARATION PADS, ISOPROPYL ALCOHOL (SEE CAUTION)	6
350-0038-XXX	LOCTITE® H8700	1
350-0039-000	STATIC MIXER NOZZLE, 6 in	1
380-0004-001	SPLIT LOOM, 0.50 ft, 6 in	0.09
010-9093-XXX	DEFLECTION SENSOR	2
010-0088-002	BRKT KIT,DEFL SENSOR,CAMELBACK	1
110-0073-001	ALIGNMENT TOOL, DEFL SNSR	1
110-0080-000	TAB,SS,CONN MOUNT,DFL SNSR	1
111-0006-001	COVER, ASSY, DFL SNSR ROUND AXLE, SHEET METAL	1
114-0003-000	BRACKET, DFL SNSR, ROUND AXLE, MACHINED CASTING	2
131-0037-001	SCR-MACH,.375-24x2.50 HEX HD, STL, GR 8, Y ZN PL	2
132-0014-000	NUT-HEX, .375-24, GRD 8, Y ZN PL	2
133-0009-000	WASHER-FLT, .375 ID, PFC 9, THK, USS, STL, Y ZN PL	4

139-0013-000	WASHER, LOCKING, EXT THRD, #10, 410 SS	4
145-4552-001	NYLON TIE, 7", T-50, NYLON, BLK	2
146-0020-000	GROMMET, BUNA-N, 3/8" ID 7/8" OD 5/8" PANEL HOLE	1
350-0035-000	IPA, PREP PADS	6
350-0038-001	LOCTITE H8700 50ML BONDING ADHESIVE	1
350-0039-001	STATIC MXR 6" NOZZLE, LOCTITE 50ML	1
380-0004-001	SPLIT LOOM,0.50,FT	0
014-2000-028	CABLE, AW5901, SENSOR EXTENSION, 20 FT.	1
014-4000-028	CABLE, AW5901, SENSOR EXTENSION, 40 FT.	1
016-0500-036	CABLE, AW5901, TRUCK INTERFACE	1
050-5800-XXX	TRUCK SCALE DISPLAY	1
050-5901-XXX	TRUCK SCALE COMLINK, LOADMAXX	1
164-0020-000	DECAL, CAB, AIR-WEIGH EQUIPPED TRUCK BADGE	1
164-2001-001	DECAL, CAB, "AIR-WEIGH ON BOARD TRUCK SCALES"	2
901-0041-000	CARD,QUICKSTART,AW5800,GENERIC	1
901-0054-000	CARD, AW5800, OPERATIONS, CALIBRATION	1
901-0100-000	INSERT, LOADMAXX, INSTALL GUIDELINES	1
901-0108-000	INSERT, CALIBRATION DATA COLLECTION SHEET	1
901-0116-000	MANUAL, LOADMAXX, OPERATIONS, TRUCK, DEFL SENSOR	1
901-0118-000	CARD, SENSOR CONFIG, AW5800, STRAIGHT TRUCKS	1
901-0102-000	MANUAL, INSTALLATION,DEF SEN, CAMELBACK BRACKETS	1

X = Variable Number

 **WARNING**

Isopropyl alcohol may cause mild irritation on contact with the skin as well as eye irritation. Immediately flush the affected areas with plenty of water, followed by washing with soap and water. Clothing contaminated with isopropyl alcohol should be removed immediately. Isopropyl alcohol should only be used in properly ventilated areas. Do not use in a confined space. Keep away from flames and other flammable materials.

 **CAUTION**

Adhesive expires within one month (or three months if refrigerated) of scale ship date.

III. TOOLS REQUIRED (CUSTOMER SUPPLIED)

1. Required Tools

The list below contains the tools (customer supplied) to properly install the deflection sensors on the steer axle and on the Hendrickson Suspension.

- Sander/grinder
- 40-grit medium sandpaper
- Chalk or permanent marker
- Flat blade screwdriver
- 9/16-inch combination wrench
- Torque wrench, 20 – 80 ft-lb
- 9/16-inch socket and 3/8-inch socket handle
- Caulking gun
- Epoxy paint
- Tape measure

2. Optional

- 50 ml manual dispenser, Loctite™, p/n: 98472 LB 10985 (customer provided)
- Deflection Sensor Test Device, p/n: 1000

IV. INSTALLING THE LOADMAXX

The installation of an Air-Weigh LoadMaxx Scale on a vocational vehicle with a Mack® Camelback Suspension includes installing in three major areas:

- Electronics Components: Display, ComLink module, Power Interface Cable and Sensor Extension Cables
- Deflection Sensor on steer axle
- Deflection Sensors for Mack® Camelback suspension

As an alternative to mounting the display in the dash, the optional pod mounting kit, p/n 010-0089-000, may be used.

1. Installing the Cab Display

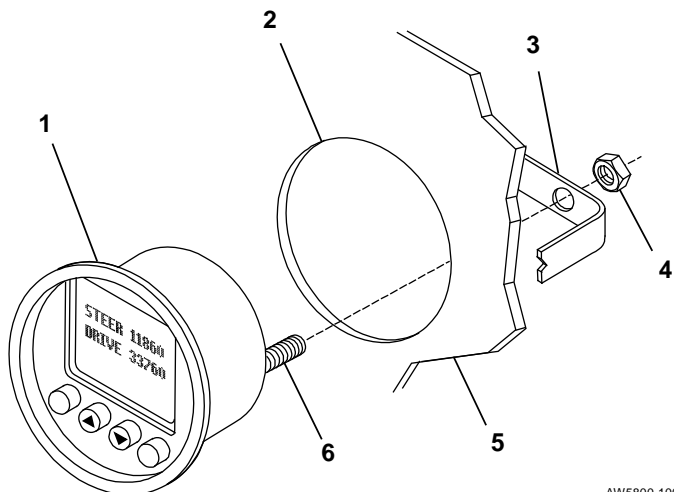
A. Preparing the Cab Display for Installation

Numbers called out in Section IV refer to Figure 2, unless otherwise stated.

1. Select a location for the display (1) on the dash panel (5) with at least 3 inch clearance behind the dash panel (5) for the unit and its connections. A higher dash position provides better visibility.
2. Cut a 2 1/8 inch hole (2) in the dash at that location.
3. Remove the hex nuts (4) from the studs (6) on the back of the display (1) to release the mounting bracket (3).

B. 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).**



AW5800-1001

Figure 2. Installing the Display

2. Mounting the ComLink Behind Dash

A. Installing the ComLink

Select a location behind the dash for the ComLink module, ensuring there is adequate access to the scale and the electrical connections.

The ComLink module should be oriented with the connectors facing downward and installed by any one of the following methods, using the hardware provided:

1. Use wire ties through the holes in the ComLink module mounting ears to secure it to any appropriate wire harness behind the dash.
- OR -
2. Find a flat location where the ComLink module can be attached using the 2-sided adhesive tape already in position on the back of the ComLink module. Remove all dust, grease or debris from the flat location, using the supplied alcohol pad. Remove one or both of the red strips from the back of the ComLink module, exposing the adhesive tape. Place the ComLink

module against the cleaned flat area and push it hard enough to ensure adhesion. For best results, push the ComLink module into place using steady force, being careful not to crack the case. Using this method will make the ComLink module more difficult to remove.

- OR -

3. Use self-tapping screws to secure the ComLink module to its location.

3. Connecting the ComLink Power Interface Cable

A. Connecting the ComLink module to Power

The ComLink Power Interface Cable connects the Air-Weigh System to the vehicle's electrical system, to the display, and to the alarm output of a customer-provided warning device.

Table 2. Wiring Harness Hookup

Power and Ground Table	
White Wire	Vehicle Chassis Ground
Blue/Black Wire with In-Line Fuse	12VDC or 24VDC Ignition Hot Power
Gray Wire/Brown Wire	Alarm output 1 and 2(same voltage as vehicle power)
Black Wires	Alarm ground Return 1 and 2

1. Connect the **white** wire to chassis **ground**.
2. Connect **blue/black wire with inline fuse** to the positive (+) or "hot" side of the 12 VDC or 24 VDC ignition-on power source. **DO NOT connect directly to battery.**
3. Connect the 10-pin plug of the power interface cable to the ComLink module.

4. Connect both the 2-pin and the 4-pin plugs of the power interface cable to the display.
5. When using an alarm, connect the **alarm output wire and the ground return wire** to the desired device (buzzer, horn, light, etc.).

B. Routing the Sensor Extension Cables

The Sensor Extension Cables should be connected to the ComLink module after routing along chassis.

1. Route the 2 Sensor Extension Cables, p/n 014-2000-028 (for the Steer axle sensor) and p/n 014-4000-028 (for the Drive axle sensor), along their respective axles and the frame, and then through the cab firewall. There will be one 40 ft. cable for the Drive axle, and one 20 ft. cable for the Steer axle. Leave enough length for sensor connections. Air-Weigh recommends routing along an existing wire harness.



CAUTION

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

2. Secure the cables loosely to the suspension using nylon ties. Nylon ties will be tightened later.
3. Connect to the ComLink module in the dash. Connect the Drive sensor extension cable to Port A. Connect the Steer sensor extension cable into Port B.

C. Secure Cables and Reassemble the Dash

1. Excess wire and harness should be coiled and secured using nylon cable ties.
2. Turn the ignition key **ON** and perform a final system check.

3. Reassemble the dash assembly after all sensors have been installed and sensor cables are connected. Ensure all connections are tight.

NOTE

The scale will only display accurate weights after it has been completely calibrated to a certified platform scale, by entering empty and loaded axle weights into the Air-Weigh Scale. *Enter empty weights only when the vehicle is empty! Enter loaded weights only when the vehicle is loaded!*

See LoadMaxx Calibration and Operations Manual, p/n 901-0116-000, for complete instructions.

NOTE

If the scale system includes the optional printer, the printer wiring is made up of three cables; see Printer Installation Instructions, p/n 901-0105-000, in your Printer Kit package.

One cable connects to the Printer Port on the ComLink and using a connector hole in the dash. Another cable connects to the printer. The third cable joins these two together. This 2-part cable assembly between the printer and the dash is designed for easily disconnecting from the dash. Store the printer and its cables in a clean, dry place when not in use.

V. INSTALLING THE STEER AXLE SENSOR

You must have the ComLink module and display installed and powered to be able to check A/D readings using the DIAGNOSTICS menu in the display. Alternately, you can also use the optional Deflection Sensor Test Device to obtain measurements directly at the sensor.



CAUTION

Do not move the vehicle until after removing the alignment tool.

1. Installing the Steer Axle Deflection Sensors

A. Preparing the Steer Axle and Sensor Brackets

1. Locate and mark the center of the steer axle. See Figure 3.

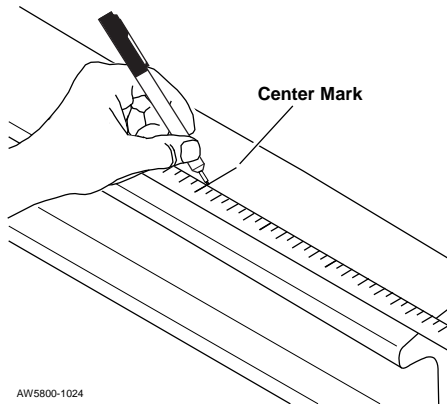


Figure 3. Marking the Center of the Steer Axle

2. Using a permanent marker, mark the top of the steer axle 3 in. on both sides of the center mark. The overall measurement is 6 in. Clean the entire marked-off area using two (2) of the supplied alcohol pads (p/n: 350-0035-000). See Figure 4.

- Using 40-grit medium sandpaper, sand the marked off area until it is free of paint and other residues. See Figure 4.

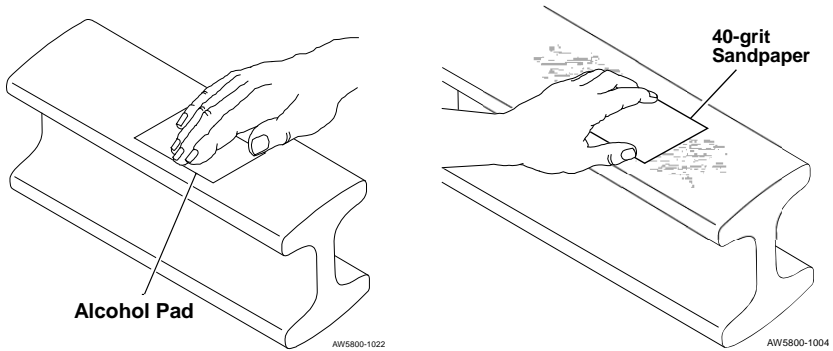


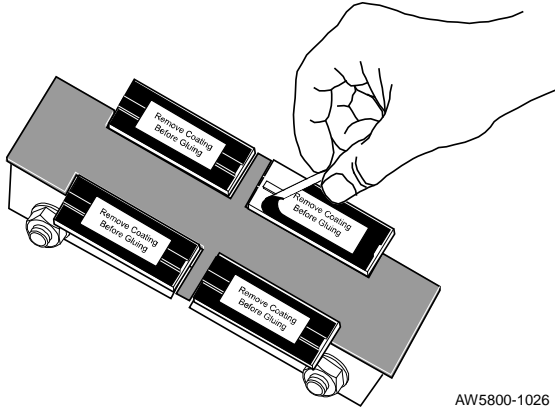
Figure 4. Cleaning and Sanding the Steer Axle



CAUTION

The steer axle must be cleaned *before* and *after* sanding the marked surface area and before installing the bracket with glue. Failure to clean the steer axle could result in the glue not adhering to the steer axle and the bracket.

- Re-clean the sanded area on the steer axle using one of the supplied alcohol pads (p/n: 350-0035-000). See Figure 4.
- Re-mark the center of the steer axle. See Figure 3.
- Remove the protective coating strips from the bottom of the bracket assembly. See Figure 5.

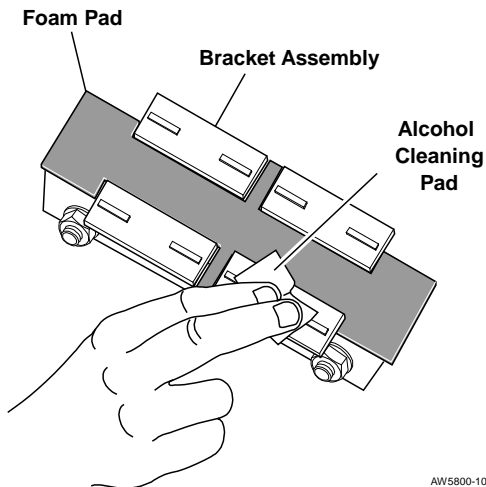


AW5800-1026

Figure 5. Removing the Protective Coating Strips

NOTE

Do not remove the protective foam pad on the bottom of the bracket attached to the bracket assembly.



AW5800-1025

Figure 6. Cleaning the Bottom of the Bracket Assembly

7. Clean the underside of the bracket assembly (p/n: 111-0001-000) with one (1) of the supplied isopropyl alcohol pads (p/n: 350-0035-000). See Figure 6.

B. Assembling the Glue Kit

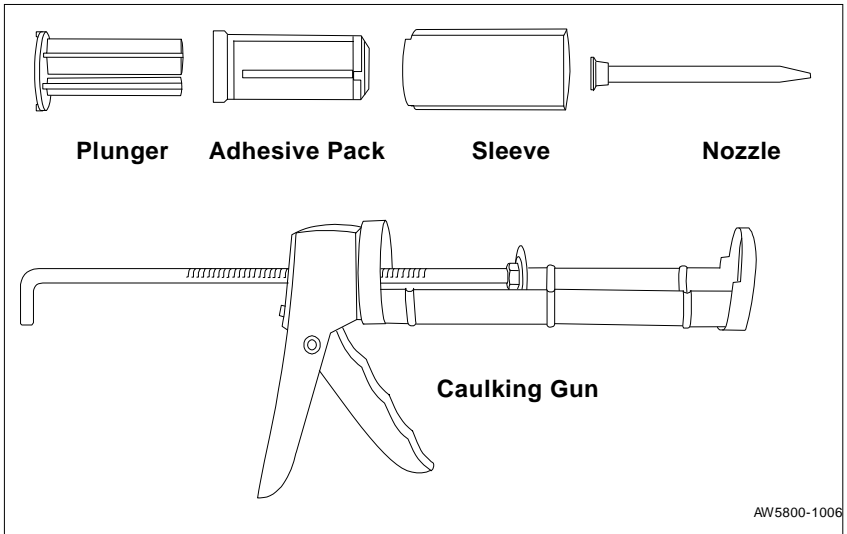


Figure 7. Glue Kit

Use the following steps to assemble the glue kit. See Figure 7.

1. Twist tab off glue cartridge.
2. Slide glue adhesive pack into sleeve. Align correctly because one side has a larger diameter.
3. Insert the blue plunger into the glue adhesive pack. Align correctly because one side has a larger diameter.
4. Insert nozzle into glue cartridge. Twist to secure. Insert glue cartridge into caulking gun.
5. Press trigger and dispense and discard a small amount of adhesive ensuring both sides of the

duo-pak glue cartridge are flowing freely. See Figure 8. Trim end of nozzle to allow better flow, if necessary.

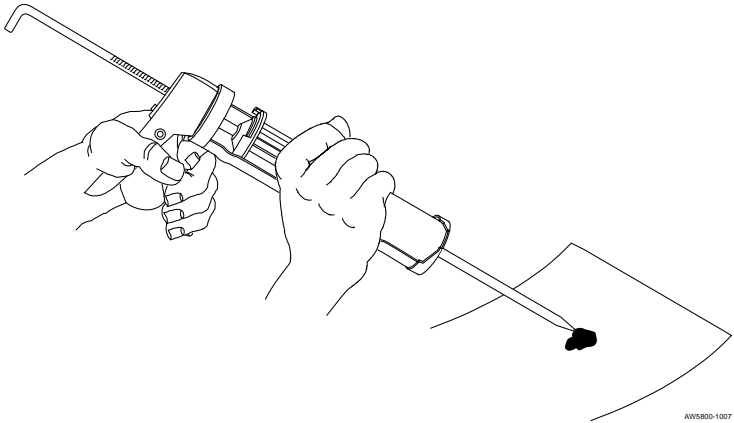


Figure 8. Clearing Duo-pak Adhesive

C. Applying the Adhesive

The working time for the glue at 73°F is approximately 10 minutes. Follow glue manufacturer's instructions.

1. Apply the adhesive **liberally** to the side wings on the bottom of the bracket assembly. See Figure 9.

NOTE

Do not remove the foam pad attached to the bottom of the sensor brackets.

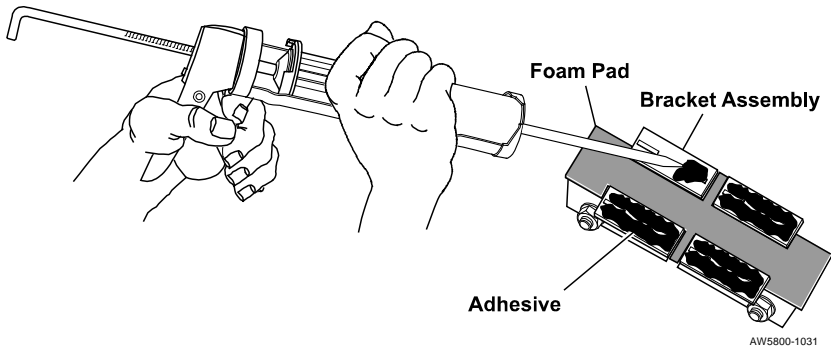


Figure 9. Applying Adhesive to the Bottom of the Bracket Assembly

D. Mounting the Brackets on the Steer Axle

1. Use the following steps to attach the mounting bracket to the steer axle.

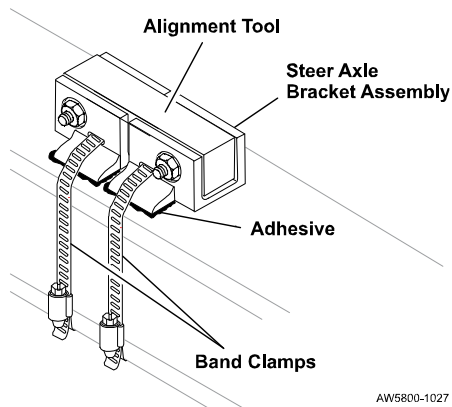


Figure 10. Placing Brackets on the Steer Axle

2. Place the mounting bracket assembly on the top center of steer axle.
3. Ensure the center of the bracket assembly aligns with the center mark previously made on the steer axle.

4. Place a band clamp (p/n: 139-0016-000) through the slot in the bottom of each bracket and wrap the band clamp around steer axle. See Figure 10.
5. Using a flat blade screwdriver, tighten the band clamps securely in place ensuring the mounting brackets remain parallel to the steer axle length.
6. 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. Retighten the band clamps.
7. Allow time for the adhesive to cure. Refer to Table 3 for fixture and cure times. The deflection sensor may be installed after fixture time, per step V.2, immediately below.

Table 3. Fixture and Cure Times for Adhesive

Ambient Temperature	Fixture Time	Cure Time
32° F (0° C)	12 Hours	24 Hours
54° F (12° C)	3 Hours	6 Hours
72° F (22° C)	2 Hours	4 Hours



CAUTION

Do not cure adhesive at temperatures exceeding 190°F (88°C).

After the adhesive has cured, apply Epoxy Paint to all the glue and axle seams and allow drying. The glue and axle seams must be painted with epoxy paint only after cure time.

Do not move the vehicle until the adhesive has cured and the alignment tool removed.

2. Deflection Sensor Installation

Proceed with the installation of the deflection sensor onto the steer axle after the adhesive has cured.

1. Remove the alignment tool from the brackets. It should fit loosely. Retain the two 3/8 bolts (p/n: 131-0037-001) and 3/8 nuts (p/n: 132-0014-000) for re-use during installation of the Deflection Sensor.
2. Clean the bracket channels with an alcohol pad.

A. Inserting the Sensor into the Bracket

1. Clean the sensor ends (p/n: 010-9093-XXX) with the remaining alcohol pad.
2. Insert the steer axle sensor with its cable extending towards the side of the vehicle where the sensor extension cable has been routed to the firewall. The "TOP" lettering on the sensor should face UP. See Figure 11.

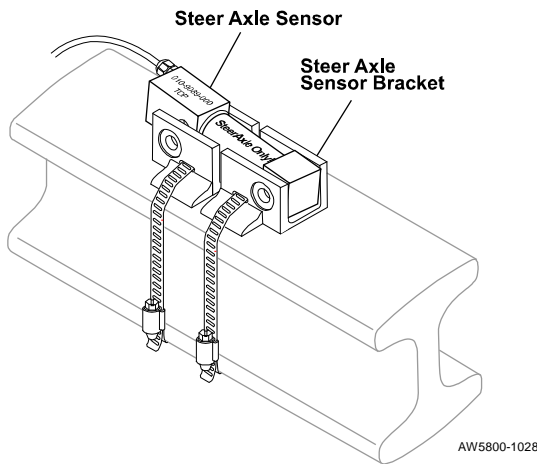


Figure 11. Inserting the Sensor into the Bracket

3. Align the steer axle sensor with the holes in the steer axle bracket assembly.

4. Insert one bolt and washer through the bracket hole on the sensor end with the word “TOP” on it. See Figure 12.

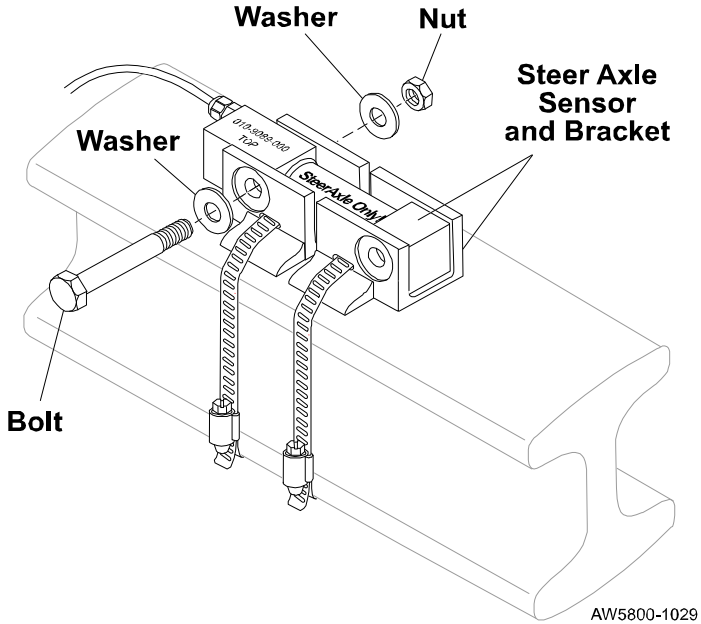


Figure 12. Assembling the Sensor and the Sensor Bracket

5. Insert the second bolt through the connector assembly bracket tab (p/n 110-0080-000), then through the 3/8-inch ID flat washer.
6. Slide the bolt through the bracket hole.
7. Ensure tongue and tab extends around the end of the sensor. See Figure 13. Place a hex nut (p/n: 132-0014-000) on each bolt and hand tighten.

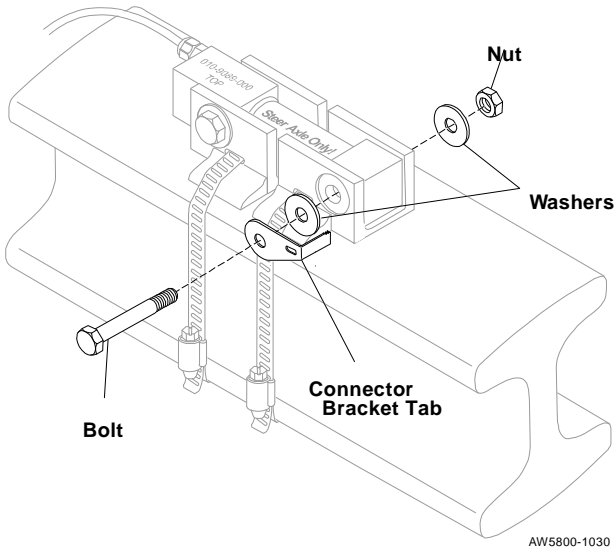


Figure 13. Installing the Connect Bracket

3. Setting the Sensor A/D Values

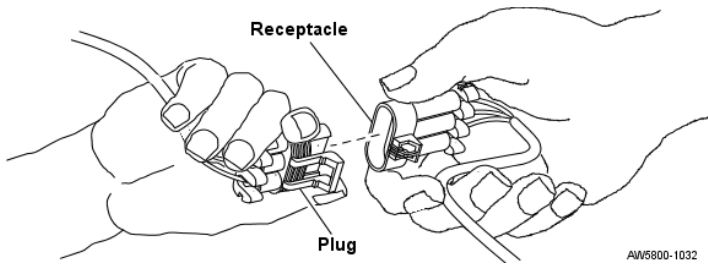


Figure 14. Assembling the Electrical Connector

A. Assembling the Connectors

Insert the Deflection Sensor connector plug into the Sensor Extension Cable connector,

- OR -

Connect to the p/n 1000 Deflection Sensor Test Device.

Ensure the locking tabs on the connector plug and connector receptacle engage completely. See Figure 14.



CAUTION

When tightening the sensor mounting bolts, ALWAYS use a torque wrench to check the torque on the nut, not the bolt head.

NOTE

The cab mounted display and the ComLink panel must be installed, with deflection sensor connected and powered up – or use the Deflection Sensor Test Device – prior to checking the AD readings for these next steps. Refer to Section IV for installation instructions of the dash display and the ComLink panel. Then continue with the deflection sensor installation.

NOTE

A/D refers to the analog-to-digital conversion of the sensor reading.

B. Tightening the Nuts on the Sensor Assembly

1. Tighten the nut on the cable end of the sensor and use a torque wrench to torque to 25 ft-lbs. Torque will be increased in a later step.
2. Tighten the nut on the non-cable end of the sensor and use a torque wrench to torque to 25 ft-lbs. Torque will be increased in a later step.

Verify the A/D reading at this time using the display in the cab (the ComLink module must be connected to the Sensor and display, and powered up) or using the Deflection Sensor Test Device. If within range (750 – 1250), proceed to Step E.1. Otherwise, proceed as below:

C. A/D Reading is BELOW 750

If the A/D reading is **below 750** or there is no A/D reading at all, follow these steps to exert a pre-load on the sensor.

1. Loosen the nut on **the non-cable end** of the sensor.
2. Exert upward pressure lightly with your fingers (or a screwdriver, if necessary) under **the non-cable end** of the sensor until an appropriate A/D reading is reached, for example:

750 TO 1250

3. Tighten the nut on **the non-cable end** of sensor and torque to 25 ft-lbs. If the A/D readings are still within proper range, proceed to Step E.1.

D. A/D Reading is ABOVE 1250

If the A/D reading is **above 1250**, follow these steps to exert a pre-load on the sensor.

1. Loosen the nut on **the non-cable end** of the sensor.
2. Exert downward pressure lightly with your fingers on **the non-cable end** of the sensor until an appropriate A/D reading is reached. Tighten nut and torque to 25 ft-lbs.
3. Check A/D reading; if they are below 750 repeat Step C: 1 – 3 (above). If they are above 1250, repeat Step D: 1 – 3. If within range proceed to Step E.1.

E. Final Sensor Torque

1. Tighten the nut on the cable end of the sensor and torque to 50 ft-lbs.
2. Tighten the nut on the non-cable end of the sensor and torque to 50 ft-lbs.

Perform a final check of A/D values. If not within range, repeat Steps C or D.

If using the Deflection Sensor Test Device, disconnect the test fixture and connect deflection sensor cable to sensor extension cable to form a connector assembly. Proceed with next step of installation.

F. Attaching Connector Assembly to the Bracket Tab

1. Slide the connector assembly onto the connector bracket tab mounted on the deflection sensor bracket, by inserting the tab into the grooves on the bottom side of the connector receptacle. See Figure 13. Ensure the connector assembly slides completely on the mounting tab.
2. Route the cable coming out of the receptacle portion of the connector assembly so it can be used for a driver's side hookup or a passenger side hookup. See Step G for a driver's side hookup and Step H for a passenger's side hookup.

NOTE

Ensure there is enough slack in the Sensor Extension cable between the axle and the frame to allow for axle movement.

G. Driver's Side Sensor Orientation

1. Facing towards the rear of the vehicle, route the cable from the connector assembly so it runs to the right of the steer axle sensor assembly. See Figure 15.

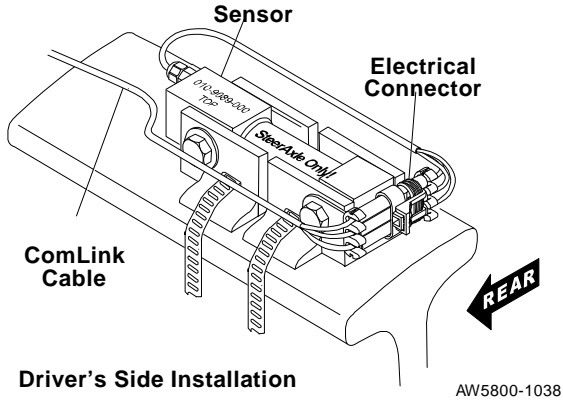


Figure 15. Placing the ComLink Cable for a Driver's Side Hookup

H. Passenger Side Sensor Orientation

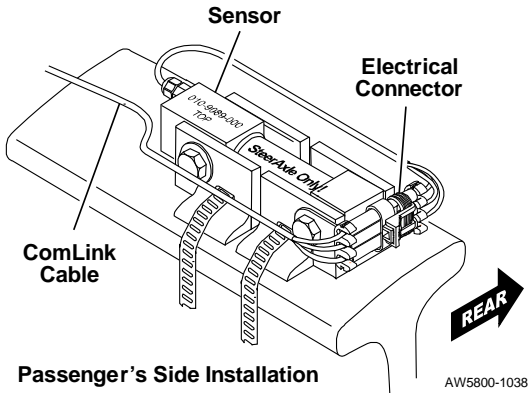


Figure 16. Placing the ComLink Cable for Passenger's Side Hookup

1. Facing towards the rear of the vehicle, route the cable from the connector assembly so it runs to the left of the steer axle sensor assembly. See Figure 16.

I. Installing the Cover

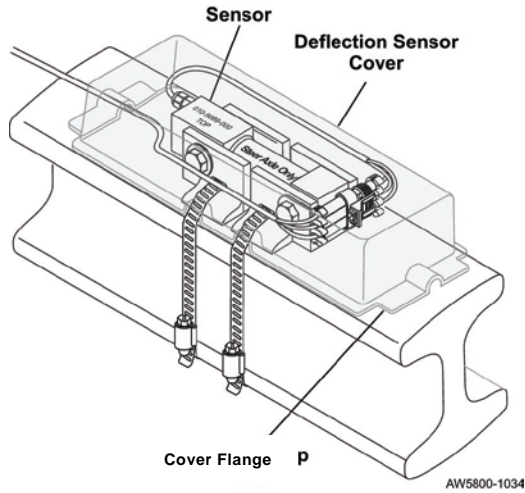


Figure 17. Placing the Cover Over the Deflection Sensor Assembly

1. Mount the cover on top of the sensor and sensor brackets so that the sensor cable is completely under the cover. The bracket band clamps should emerge from the cover's side ports. See Figure 17.
2. The sensor extension cable should emerge from the cover's end port on the side that you will be routing the cable to the firewall.
3. Very loosely install band clamps (p/n: 139-0016-000) 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. See Figure 18.
4. Installation of the Steer Deflection Sensor is complete. Figure 19 shows covered sensor with sensor cable extending towards the ComLink module.

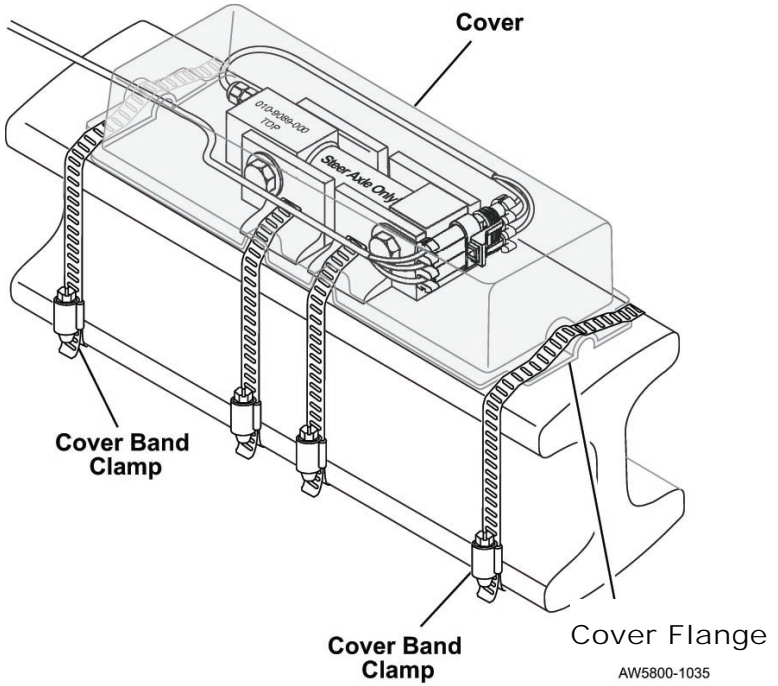


Figure 18. Attaching Band Clamps to Cover

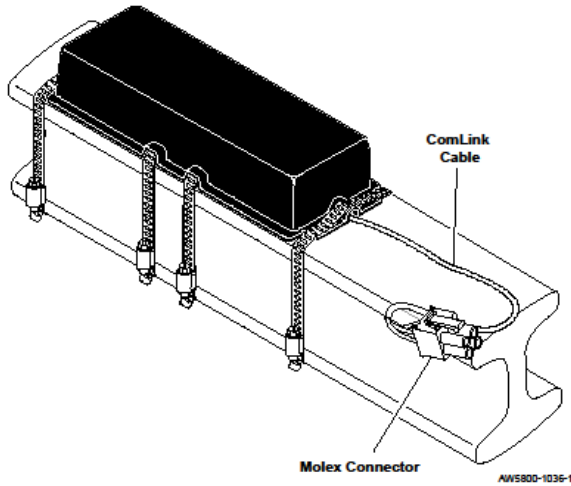


Figure 19. Cover with Sensor Extension Cable

5. Routing the sensor cable: Run the drive sensor extension cable along the rear of the axle towards the side of the truck (driver's side or passenger's side), securing with a band clamp (p/n: 139-0016-000). Place split loom (p/n: 380-0004-001) over the band clamp where it crosses over the cable. Secure the cable to the band clamp with nylon ties (p/n: 145-4552-001). See Figure 20. Use additional 24" nylon ties (p/n: 145-0007-000) as required to secure the cable to the steer axle.

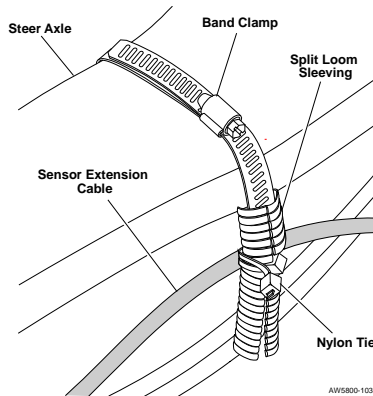


Figure 20. Securing the Sensor Extension Cable



CAUTION

Following sensor installation, do not calibrate until after the vehicle has been in normal operation for a week or 800 miles, whichever comes first. This allows for a break-in period for the sensor.

Do not operate the vehicle with the alignment tool in place.

NOTE

Heavy calibration must be done using maximum vehicle loads. See document 901-0116-000 for additional information on calibration.

VI. INSTALLING THE SENSORS ON THE CAMELBACK SUSPENSION

1. Preparing the Camelback Suspension

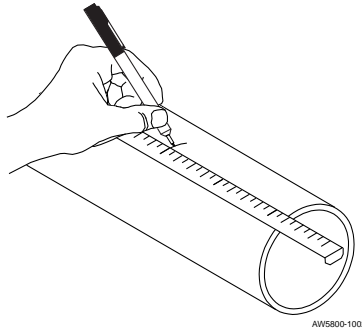


Figure 21. Marking Center of Trunnion Tube

- A. Locate and mark the top center of the trunnion tube. See Figure 21.



Figure 22. Cleaning Trunnion Tube with Alcohol Wipes

- B. Using chalk or permanent marker, mark the top of the trunnion tube 2-3/8 in. (60.32 mm) on both sides of the center mark. The overall measurement is 4-3/4 in. (120.60 mm). Clean the entire marked-off area using two (2) of the supplied alcohol pads (P/N 350-0035-000). (p/n: 350-0035-000. See Figure 22.



CAUTION

The axle must be cleaned *before* and *after* sanding the marked surface area and before installing the bracket with glue. Failure to clean the axle could result in the glue not adhering to the axle and the bracket.

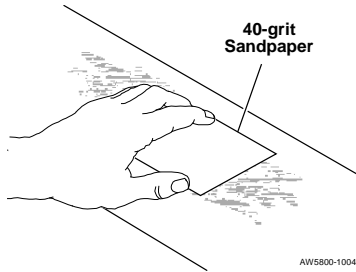


Figure 23. Sanding Trunnion Tube

- C. Using 40-grit medium sandpaper, sand the marked off area until it is free of paint and other residues. See Figure 23.
- D. Clean the sanded area using two (2) of the supplied alcohol pads (P/N 350-0035-000). See Figure 22.

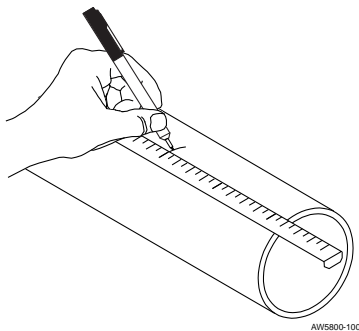


Figure 24

- E. Re-mark the center of the trunnion tube. See Figure 24.

2. Preparing the Brackets

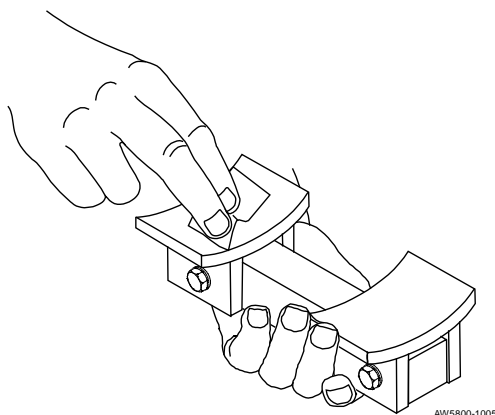


Figure 25. Cleaning Bracket Assembly

- A. Clean the underside of the bracket assembly (p/n: 010-0088-002) with (1) of the supplied alcohol pads (p/n: 350-0035-000). See Figure 25.
- B. Ensure that the bracket assembly bolts are only loosely fastened to the nuts, so that the alignment tool (110-0073-000) has a slight amount of free play.

3. Applying the adhesive

- A. The working time of the glue at 73°F is about 10 minutes.
- B. Assemble the Glue Kit. See **VI.5.B Assembling the Glue Kit**, page 19.

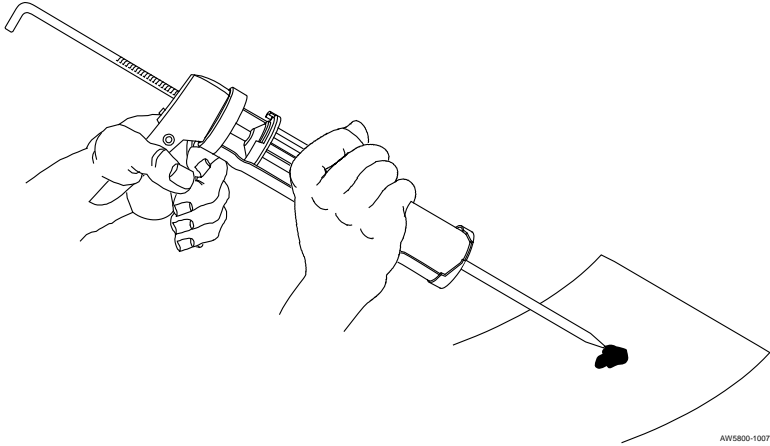


Figure 26. Clearing Duo-pak Adhesive

- C. Remove the cap from the cartridge. Press trigger and dispense and discard a small amount of adhesive to ensure both sides of the duo-pak glue cartridge are flowing freely and evenly. See Figure 26. Trim end of nozzle to allow better flow, if necessary.

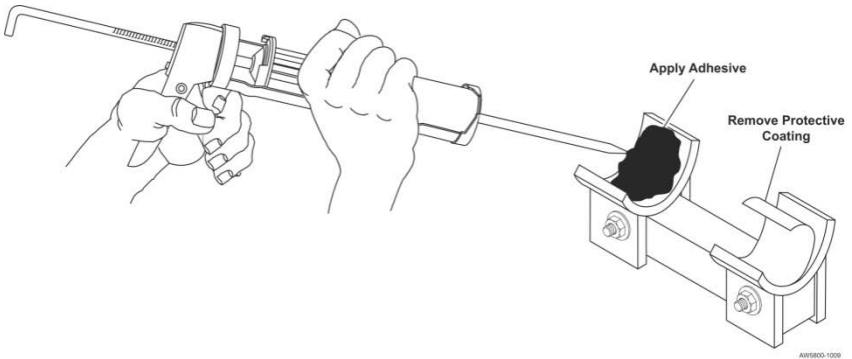


Figure 27. Applying Adhesive to Mounting Bracket

- D. Attach the mixing nozzle (350-0039-XXX). Following the adhesive manufacturer's instructions, apply the adhesive **liberally** to the bottom of the bracket assembly. See Figure 27.

- E. Remove and properly dispose of the mixing nozzle when finished, and replace the cap on the adhesive cartridge.

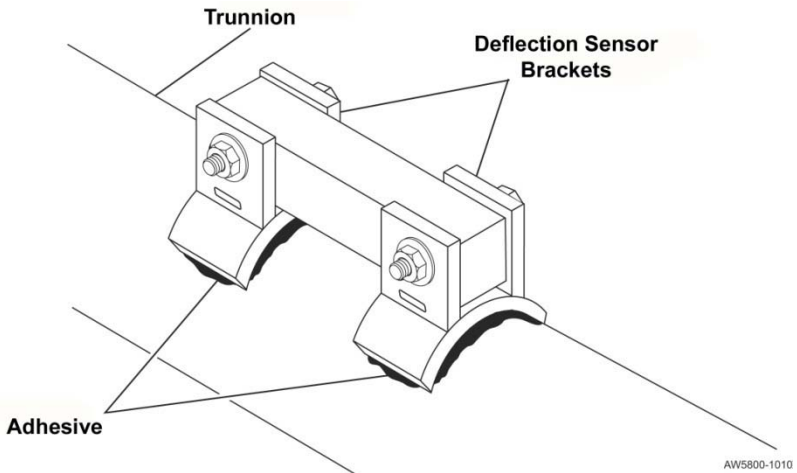


Figure 28. Placing Brackets on Trunnion Tube

4. Mounting Brackets on Axle

Use the following steps to attach the mounting bracket to the trunnion tube. See Figure 28.

- A. Place the mounting bracket assembly in the top center of the trunnion tube.
- B. Ensure the center mark on the alignment tool lines up with the center mark on the trunnion tube.
- C. Place a band clamp (p/n: 139-0016-000) through the slot in the bottom of each bracket and wrap band clamp around trunnion tube. See Figure 29, next page.
- D. Using a flat blade screwdriver, tighten the band clamps securely in place ensuring the mounting brackets remain parallel to the trunnion tube length.
- E. Ensure the alignment tool still has some play in the mounting brackets.

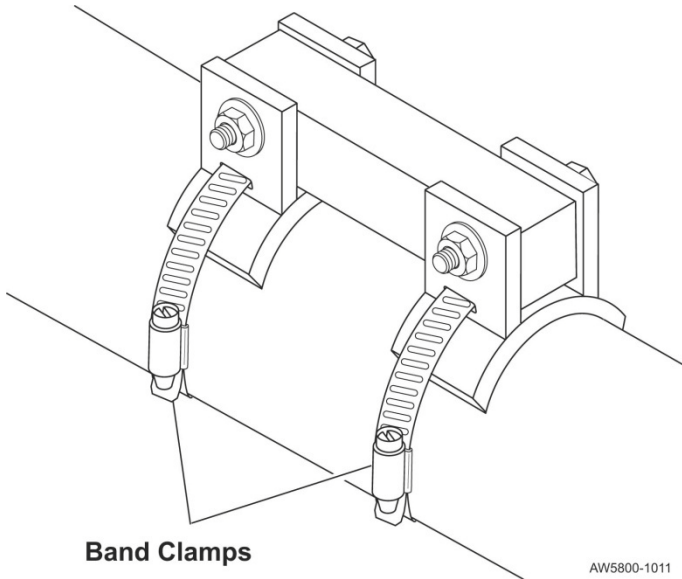


Figure 29. Attaching Band Clamps

- F. Band clamps should be very tight. If necessary, to keep the bracket assembly parallel to the trunnion tube, loosen the band clamps and readjust the bracket assembly.
- G. Retighten the band clamps.
- H. Temporarily remove the nut (P/N 132-0014-000) from one of the bolts (P/N 131-0037-001) and remove the bolt from the bracket assembly.
- I. Ensure the unfastened side of the alignment tool lifts easily out of the mounting bracket.
- J. If the alignment tool binds, loosen one or both of the band clamps so the brackets can be realigned and the alignment tool has free play.
- K. Reset the alignment tool and replace the bolt into the bracket assembly and loosely attach the nut to the bolt.
- L. Allow time for the adhesive to cure. Refer to Table 4, next page, for curing times.

- M. After the adhesive has cured, apply Epoxy Paint to the glue and axle seam and let dry.

Table 4. Adhesive Fixture Times

Ambient Temperature	Fixture Time
32° F (0° C)	6 Hours
54° F (12° C)	3 Hours
72° F (22° C)	2 Hours

Cure time is 24 hours.



Do not move the vehicle until the adhesive is cured and the alignment tool is removed.

5. Deflection Sensor Installation

After the adhesive has cured, the installation of the Deflection Sensor on the Camelback Suspension should now be completed.

- A. Remove the alignment tool from the brackets. It should fit loosely. Retain the two 3/8 bolts (P/N131-0037-001) and 3/8 nuts (P/N132-0014-000) for re-use during installation of the deflection sensor.
- B. Clean the bracket channels with one of the alcohol pads.
- C. **Sensor insertion:** Clean the deflection sensor (P/N 010-9089-000) ends with the remaining alcohol pad.
- D. 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 **TOP** lettering on the sensor should face **up**. See Figure 30, next page.

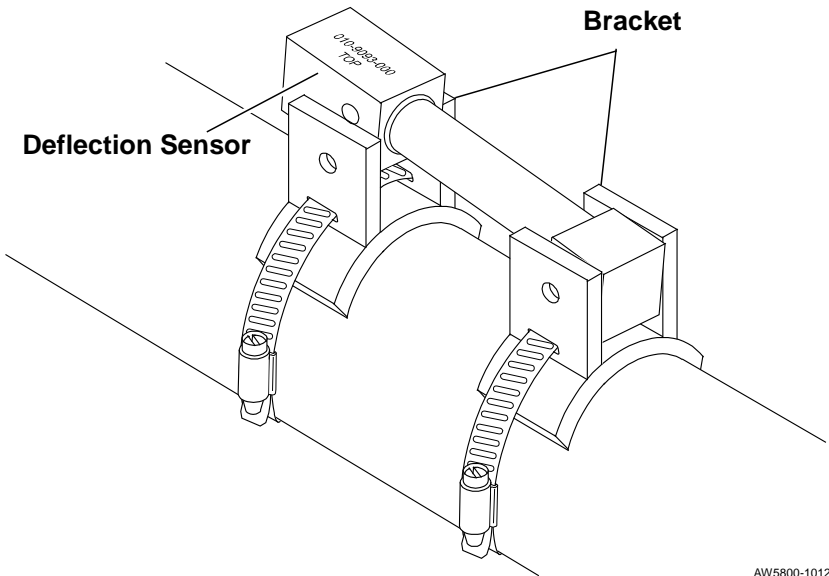


Figure 30. Inserting the Sensor

- E. Align the deflection sensor with the bracket holes. See Figure 30.
- F. Place a 3/8" ID flat washer (p/n: 133-0009-000) on one of the 3/8" x 2 1/4" bolts (p/n: 131-0037-001) saved in Step VI.5.A.
- G. Slide the bolt through the bracket holes nearest the sensor cable, from the front of the vehicle to the rear. See Figure 31.

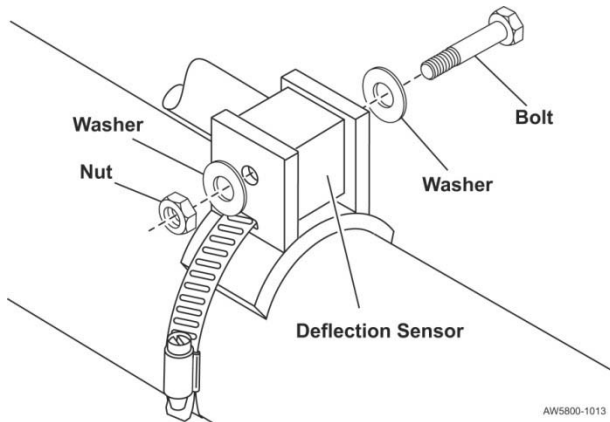


Figure 31. Inserting Bolt and Washers into Sensor and Bracket

- H. Place the connector assembly bracket tab (P/N 110-0080-000) on the second bolt followed by a washer. Ensure the tongue and tab extends around the end of the sensor. See Figure 32.
- I. Slide the second bolt through the bracket holes farthest from the sensor cable, from the front of the vehicle to the rear.

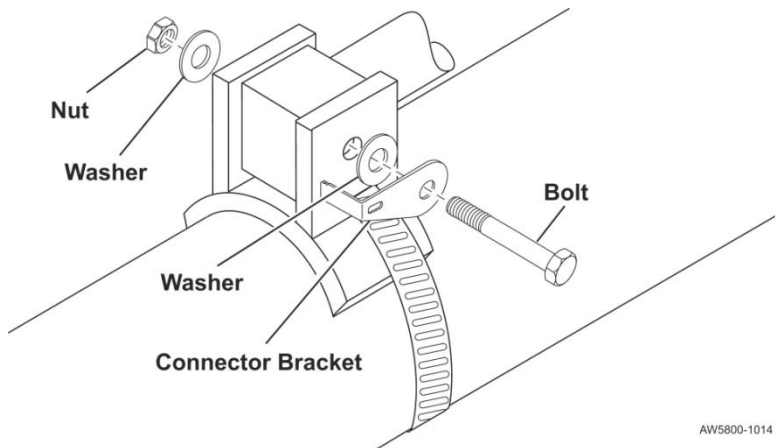


Figure 32. Inserting Connector Assembly Bracket Tab

- J. Place a washer and a hex nut on each bolt and hand-tighten.



When tightening the sensor mounting bolts, ALWAYS use a torque wrench to check the torque on the nut, not the bolt head.



The next steps require the use of either the Scale Display in the cab or the Deflection Sensor Test Device (p/n: 1000). If using the Scale Display in the cab, the LoadMaxx Truck Scale must be powered and the Deflection Sensor Extension Cable must be installed. See *Installing the sensor extension cable* on page 45.



A/D refers to the analog-to-digital conversion of the sensor reading.

6. Setting the Sensor A/D Values

Insert the Deflection Sensor connector plug into the Sensor Extension Cable connector,

- OR -

Connect to the p/n 1000 Deflection Sensor Test Device.

Ensure the locking tabs on the connector plug and connector receptacle engage completely.

A. Tightening the Nuts on the Sensor Assembly

1. Tighten the nut on the cable end of the sensor and torque to 25-ft lbs (34 Nm). Torque will be increased in a later step.
2. Tighten the nut on the non-cable end of the sensor and torque to 25 ft-lb (34 Nm). Torque will be increased in a later step.

Verify the A/D reading at this time using the display in the cab (the ComLink module must be connected to the Sensor and display, and powered up) or using the Deflection Sensor Test Device. If within range (750 – 1250), proceed to Step D. Otherwise, proceed as below:

B. A/D Reading is BELOW 750

If the A/D reading is **below 750** or there is no A/D reading at all, follow these steps to exert a pre-load on the sensor.

1. Loosen the nut on **the non-cable end** of the sensor.
2. Exert upward pressure lightly with your fingers (or a screwdriver, if necessary) under the **non-cable end** of the sensor until an appropriate A/D reading is reached, for example:

DRIVE: 750 TO 1250

3. Tighten the nut on **the non-cable end** of sensor and torque to 25 ft-lbs (34 Nm). If the A/D readings are still within proper range, proceed to Step D.

C. A/D Reading is ABOVE 1250

If the A/D reading is **above 1250**, follow these steps to exert a pre-load on the sensor.

1. Loosen the nut on **the non-cable end** of the sensor.
2. Exert downward pressure lightly with your fingers on **the non-cable end** of the sensor until an appropriate

A/D reading is reached. Tighten nut and torque to 25 ft-lbs (34 Nm).

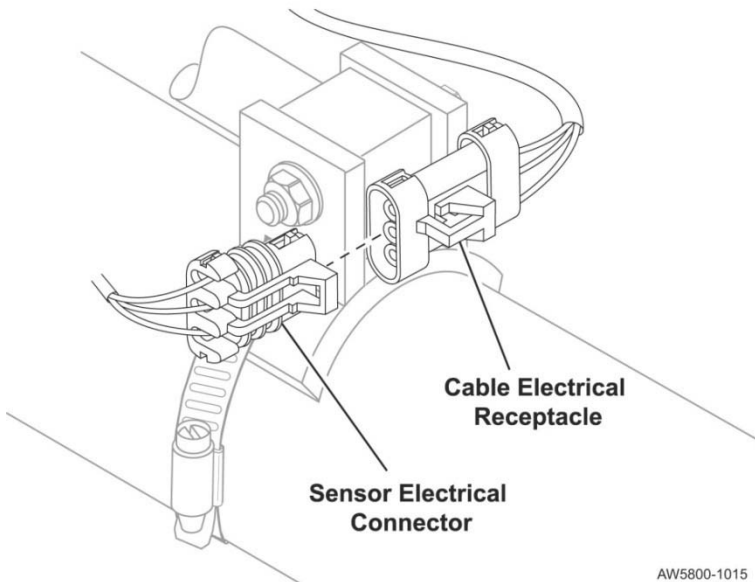
3. Check A/D reading; if they are below 750 repeat Step B: 1 – 3 (above). If they are above 1250, repeat Step C: 1 – 3. If within range proceed to Step D.

D. Final Sensor Torque

1. Tighten the nut on the cable end of the sensor and torque to 50 ft-lbs.
2. Tighten the nut on the non-cable end of the sensor and torque to 50 ft-lbs.

Perform a final check of A/D values. If not within range, repeat Steps B or C.

If using the Deflection Sensor Test Device, disconnect the test fixture. Proceed with the next step of the installation.

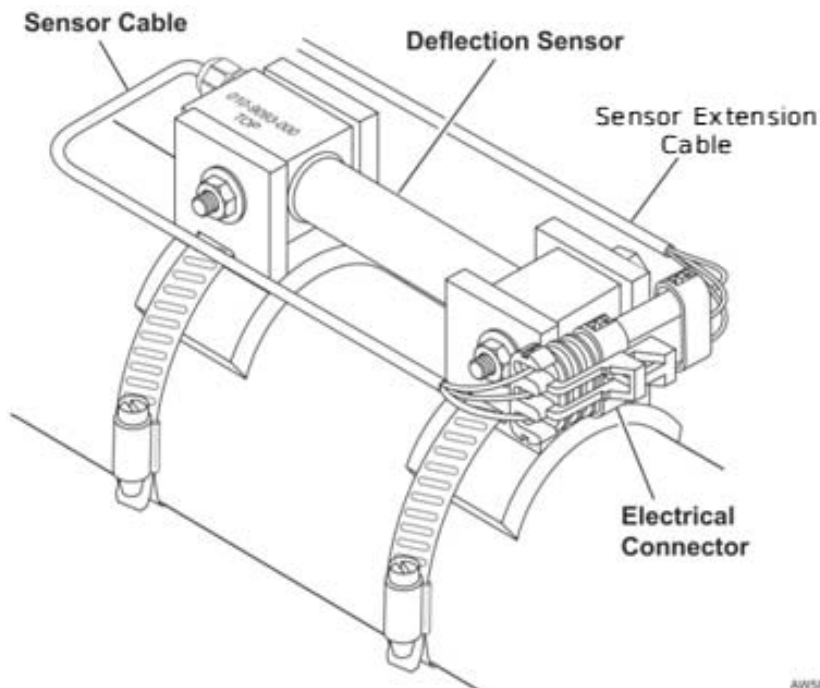


AW5800-1015

Figure 33. Assembling the Electrical Connectors

7. Installing the sensor extension cable

- A. Connect the sensor connector to the 15' sensor extension cable (014-1500-028) to form a connector assembly. See Figure 33.



AW5800-1016

Figure 34. Routing the Sensor Cable

- B. Mount the connector assembly on the connector assembly bracket tab by inserting the tab in the grooves on the sensor extension cable connector. The connector grooves are on the side opposite the installed connector position assurance tab. See Figure 34.
- C. Route the sensor extension cable through the cab firewall, along the frame and across the trunnion tube to where the deflection sensor will be installed. **Do not use cable clamps to secure the sensor extension cable. Use nylon wire ties.**

- D. Connect the sensor extension cable to the LoadMaxx port A.

NOTE

For more information about sensor port connections, see Important Installation Instructions: Installing Sensor(s) for this kit (P/N 901-0118-000), included in the Truck Scale documents package.

8. Cover installation

- A. Locate the opening in the end of the cover. The opening is used for the sensor cable to go through. See Figure 35.

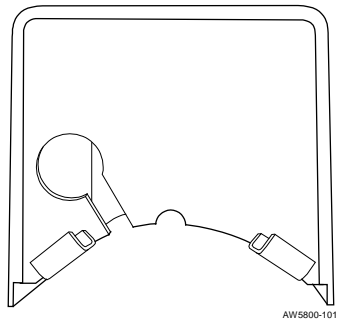


Figure 35. Cable Opening in Cover

- B. Cut a notch in the supplied grommet (P/N 146-0014-000) and place it on the sensor cable. See Figure 36.

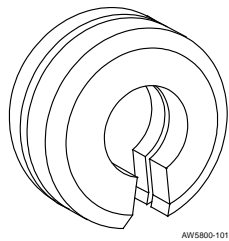


Figure 36. Notching the Grommet

- C. Slide the sensor cable/grommet combination into the cover hole with the Molex connector of the sensor cable on the outside of the cover. See Figure 37.

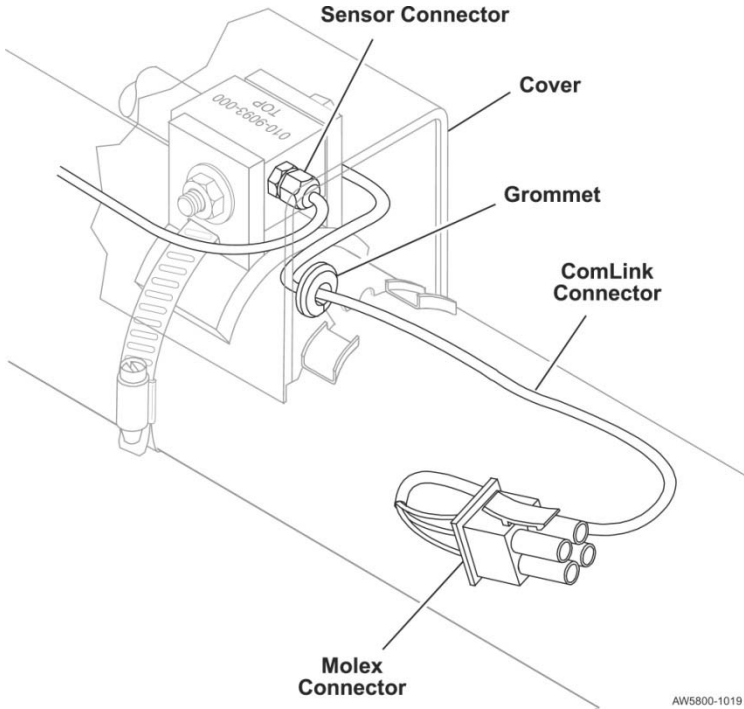


Figure 37. Placing the Cable and Grommet into Cover

- D. Set the Deflection Sensor Cover over the sensor on the trunnion tube. See Figure 38.

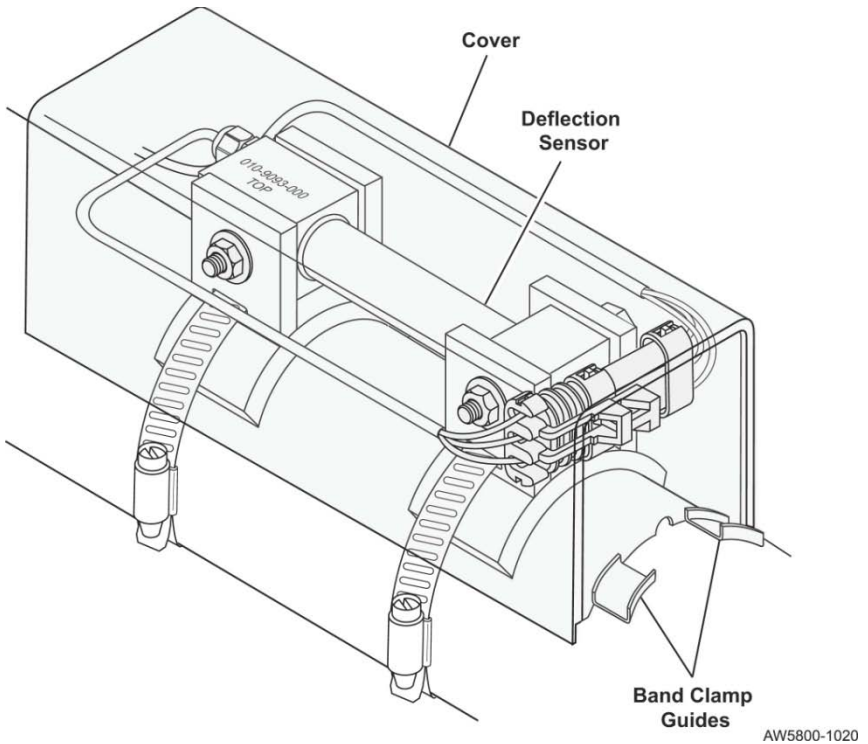
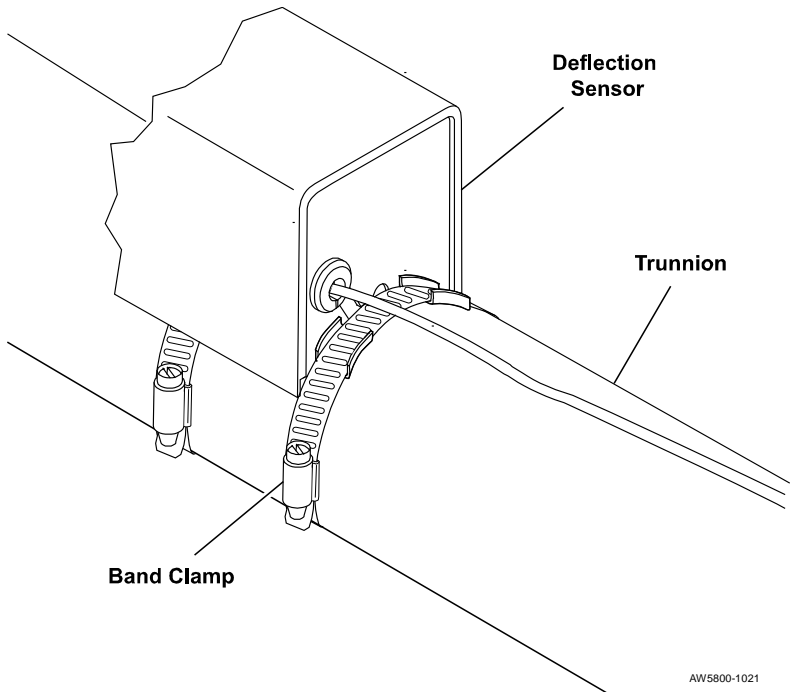


Figure 38. Placing Cover Over Deflection Sensor

- E. Very loosely install band clamps (P/N 139-0016-000) around the trunnion tube on both sides of the Deflection Sensor. Ensure that the band clamp on the driver side circles the trunnion tube and NOT the sensor deflection cable. See Figure 39.
- F. Mount the cover on top of the sensor and sensor brackets so that the sensor cable is completely under the cover. The bracket band clamps should emerge from the cover's side (Figure 38). The sensor extension cable should emerge from the cover's end port on the side that you will be routing the cable to the firewall. See Figure 39.



AW5800-1021

Figure 39. Clamping Cover to Trunnion Tube

- G. Slip each band clamp over the flange on the ends of the cover and tighten in place. See Figure 39.
- H. Route the sensor cable across the trunnion tube to the frame of the vehicle and up to the dash and LoadMaxx Truck Scale. Do not use clamps on sensor cable. Secure all cables using nylon ties.

Your Air-Weigh scale installation is now complete.



CAUTION

Following sensor installation, do not calibrate until after the vehicle has been in normal operation for a week or 800 miles, whichever comes first. This allows for a break-in period for the sensor.

Do not operate the vehicle with the alignment tool in place.

NOTE

Heavy calibration must be done using maximum vehicle loads. See document 901-0116-000 for additional information on calibration.

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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1. For a warranty claim of an Air-Weigh product, customers should get the part number, serial number, and failure description of the failed item and call Air-Weigh Customer Support. Air-Weigh will replace or repair units that have failed due to workmanship, at the discretion of Air-Weigh. In the event that Air-Weigh requests to examine product prior to disposition, or for repairs or replacements, Air-Weigh requires a Return Material Authorization (RMA) number to be issued before the item is returned. Customers should contact Air-Weigh's Customer Support Department at (888) 459-3247 for an RMA number. Please reference this RMA number in all correspondence.
2. Claimed items shall be shipped freight pre-paid to: Air-Weigh, Customer Support Department, 1730 Willow Creek Circle, Eugene, Oregon 97402, USA. The Air-Weigh RMA number shall appear on the outside of the return packaging.
3. 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.
4. Air-Weigh Accounting will process a credit memo and notify the Air-Weigh customer by email or fax. The Air-Weigh customer will process a corresponding debit memo and notify Air-Weigh Accounting.
5. 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.

Notes:

Notes:

Notes:



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