



*Self-Weighing Truck and Trailer Scales™*



## *LoadMaxx On-Board Scales* **TRACTOR SCALE SYSTEM**

# **Installation, Calibration and Operations Manual**

**Please Read Before Installing**

PN: 901-0099-000 R3



## Limited Warranty

For product failures due to material or manufacturing defects, Air-Weigh will replace or repair all air suspension components for up to 3 years from shipment date to the end-user Air-Weigh customer. These three-year components include: Displays, ComLinks, Air Sensors, Power Cables, Air Sensor Assemblies, Air 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.

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## ***Procedure for Warranty Claims***

1. In the event 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. Contact 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.



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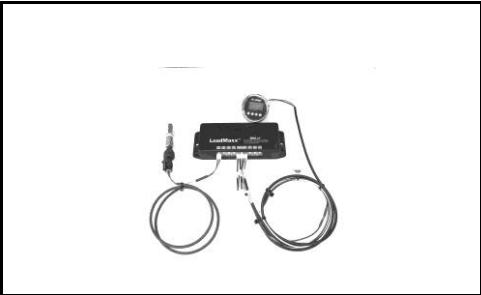
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# AIR-WEIGH TRACTOR SCALE KIT

LoadMaxx Tractor Scale Kit, 2A5800B1A0A0A0A, Air Pressure Drive, Calculated Steer, APP3



Includes all items listed below:

Hardware Kit, AW5801, Truck

PN 010-0063-000



Sensor Assembly, Air Pressure, 5V, 1/4" Push-On Brass Fitting

PN 010-9008-00x

x – denotes a variable number



Cable, AW5901, Truck Interface, ComLink, J1708 Display Private, 5'

PN 016-0500-036



<p>Cable, AW5901, Sensor, 3'</p> <p>PN 014-xx00-012 x – denotes a variable number</p>	
<p>Card, Sensor Config, AW5800, BOM level</p> <p>PN 901-0039-000</p>	
<p>Doc and Label Kit, AW5900 Truck</p> <p>Includes:</p> <p>PN 901-0099-000</p>	
<p>Tractor Scale Display, AW5800</p> <p>PN 050-5800-00x x – denotes a variable number</p>	
<p>Tractor Scale ComLink, AW5901</p> <p>PN 050-5901-00x x – denotes a variable number</p>	

## OVERVIEW

### Specifications

#### Display

Diameter 2.44 inches, Height 3.10 inches

Weight: 3.6 oz.

Operating Temperature range 0° to 50°C (32° to 122°F)

Input voltage: supplied by LoadMaxx ComLink

#### Tractor ComLink (5901)

Length 2.84 inches, Width 5.2 inches, Height 1.12 inches

Weight: 4.7 oz.

Operating Temperature range -40° to 85°C (-40° to 185°F)

Input voltage: 9.5V to 32V

Alarm output circuit limit : 1.0 amps

#### Weigh Reading Accuracy:

Axle with air sensor or deflection sensor: +/- 300 lbs per axle group

Vehicle with Deflection Sensors: +/- 2% of Gross Vehicle Weight

## LOADMAXX TRACTOR SCALE SYSTEM OVERVIEW

The LoadMaxx on-board scale converts tractor and trailer suspension loads to an accurate on-ground weight. By comparing empty and loaded axle group weights with empty and loaded suspension pressures, the scale can be calibrated to display accurate weights for any air suspension load.

The scale will display the actual on-ground weight of each axle group to within 300 pounds (140 kgs.) An axle group is defined by the Height Control Valves (HCV), or leveling valves, on the air suspension. For instance, a tandem drive axle suspension typically has only one HCV, so the two drive axles are referred to as a single axle group and the weight displayed will be for the total tandem weight.

The LoadMaxx scale display can show up to nine axle groups on one tractor/trailer combination. Once the LoadMaxx is calibrated for weight, it is not necessary to recalibrate unless the suspension characteristics change. For details see "Troubleshooting".



- ***It is important to calibrate the scale system with the tractor and trailer brakes released to release suspension binding. Calibrating or observing weight readings with the brakes engaged will result in inaccuracy.***
- ***Air-Weigh recommends calibration and weighing be performed on a level surface with the vehicle adequately chocked to prevent rolling.***
- ***When equipped with air-suspension dump valves, it is recommended that the suspension be momentarily exhausted (5-10 seconds of air dump is normally sufficient) and re-inflated before calibrating or weighing. This will improve repeatability and accuracy.***

Any tractor equipped with a LoadMaxx Tractor Scale will automatically display trailer weight data from Air-Weigh equipped trailers. No re-calibration or trailer ID entry is required. No special tractor-trailer connection is necessary, because trailer weight data is transmitted over the vehicle's existing 7-wire cord (J-560) without any interference. This is a true drop and hook application.

## INSTALLATION

### Route Air Line from Suspension

(Optional; if Tractor Suspension gauge already exists in dash skip to Installing Air Pressure Sensors)

1. Route a 1/4 inch air line from the airbag suspension to the dash.
2. Use a 1/4 inch brass street-T at the top of a convenient drive axle suspension air bag to access air pressure. If you choose to connect in the middle of an existing air line between air bags, remove any paint on the air line and wipe clean before cutting the air line.

**NOTE: Avoid connecting on the supply side of the system.**

3. Route the air line along other wire and air line harnesses into the dash. Do not damage the air line.

### Routing Air Line for 5850 – 5856 Dedicated Tractor/Trailer Scale

(Optional: if Trailer Suspension gauge already exists in dash skip to Installing Air Pressure Sensors)

1. Remove existing air line connection from one trailer air bag. Install street –T (150-4081-000) into the airbag. Install fitting (150-4083-000) into side of street-T and connect to air line (380-0050-000). Reinstall original air line and fitting connection to top of street-T.
2. Run air line to front of trailer. Secure with wire-ties.
3. Drill hole for trailer bulkhead fitting at a convenient point where the existing airlines attach to trailer. Install bulkhead fitting (152-0001-000). Connect air line to rear of bulkhead fitting with (150-4083-000) brass fitting. Attach female coupling (150-4092-000) to face of bulkhead fitting. This fitting **MUST** be connected to the trailer to keep air in the suspension system.
4. Drill hole for tractor bulkhead fitting (152-0001-000) and mount where existing air lines attach to tractor. Connect one end of the coiled air line (380-0053-000) into face of bulkhead fitting.

5. Install brass fitting (150-4083-000) into rear of bulkhead fitting. Run air line (380-0050-000) from brass fitting in rear of tractor bulkhead up into dash to within 3' of comlink location. Secure with wire-ties.
6. Connect sensor assembly (reference Installing Air Pressure Sensor(s), below) to end of air line in dash. Using sensor cable, connect sensor to appropriate port in comlink (Sensor B, or C if dual leveling valves).
7. Attach fitting (150-4091-000) to one end of coiled air line and couple to fitting (150-4092-000) at front of trailer.

### **Installing Air Pressure Sensor(s)**

***Note: Avoid dropping the sensors, as this will cause them to fail immediately or shorten the lifespan.***

There are two methods of installing the sensor connectors to the suspension air line under the dash; by T-ing off an existing suspension air gauge line or by terminating the air line in the nickel plated brass fitting supplied by Air-Weigh. Your Air-Weigh kit includes 2 different air line diameter selections – 5/32", and 1/4".

To T-off the existing air line, additional fittings will need to be purchased by the customer. Air-Weigh only supplies the connectors needed for a terminated connection.

1. Connect the sensor to the fitting and tighten to about 25 foot-pounds torque.
2. Push the end of the air line(s) into the fitting and ensure it is firmly secured.

***NOTE: While the air line can be removed from the fitting by retracting the o-ring while gently pulling the air line out, repeated removal and replacement will weaken the seal.***

### **Installing Deflection Sensor(s)**

**When installing kits with deflection sensors refer to manual 901-0059-000 for instructions.**

## KIT CONFIGURATION SENSOR ASSIGNMENT

Number See Kit Part Number for Model Number	Sensor Installed on this Suspension	Sensor Type AP = Air Pressure Sensor DS = Deflection Sensor HY = Hydraulic Sensor LC = Load Cell	ComLink Sensor Cable Input Jack
5800	Drive	AP	Sensor A
5801	Drive, Dual Height Control Valves	AP, AP	Sensors A & B
5803	Drive, Hide Steer	AP	Sensor A
5805	Drive	AP	Sensor A
	Steer	AP	Sensor B
5806	Drive, Dual Height Control Valves or other dual sensors	AP	Sensor A
		AP	Sensor B
	Steer	AP	Sensor C
5807	Drive	AP	Sensor A
	Steer	DS	Sensor B
5808	Drive, Dual Height Control Valves or other dual sensors	AP	Sensor A
		AP	Sensor B
	Steer	DS	Sensor C
5809	Drive, Hide Steer	LC	Sensor A
5810	Drive, Dual Deflection Sensors or other dual sensors, Hide Steer	DS	Sensor A
		DS	Sensor B
5814	Drive, Dual Deflection Sensors or other dual sensors	DS	Sensor A
		DS	Sensor B
	Steer	DS	Sensor C
5815	Drive, Dual Height Control Valves or other dual sensors	AP	Sensor A
		AP	Sensor B
	Steer, Dual Height Control Valves or other dual sensors	AP	Sensor C
		AP	Sensor D
5816	Drive, Dual Height Control Valves or other dual sensors, Hide Steer	AP	Sensor A
		AP	Sensor B
5817	Drive	DS	Sensor A
	Steer	DS	Sensor B
5818	Drive, Dual Deflection Sensors or other dual sensors	DS	Sensor A
		DS	Sensor B
	Steer, Dual Height Control Valves or other dual sensors	AP	Sensor C
		AP	Sensor D
5820	Drive, Load Cell	LC	Sensor A
	<not used>	N/A	Sensor B
	Steer, Dual Deflection Sensors	DS, DS	Sensor C & D
5821	Drive	AP	Sensor A
	<not used>	N/A	Sensor B
	Steer, Dual Height Control Valves or other dual sensors	AP	Sensor C
		AP	Sensor D
5822 DRIV 1 & DRIV 2	Drive	AP	Sensor A
	Steer	DS	Sensor B
5823 DRIV 1 & DRIV 2	Drive, Dual Height Control Valves or other dual sensors	AP	Sensor A
		AP	Sensor B
	Steer	DS	Sensor C
5824	Drive, Dual Deflection Sensors or other dual sensors	DS	Sensor A
		DS	Sensor B
	Steer	AP	Sensor C
5825	Drive, Dual Height Control Valves or other dual sensors	AP	Sensor A
		AP	Sensor B
	Steer, Dual Deflection Sensors	DS, DS	Sensor C & D

KIT CONFIGURATION SENSOR ASSIGNMENT, cont'd

Model Number See Kit Part Number for Model Number	Sensor Installed on this Suspension	Sensor Type AP = Air Pressure Sensor DS = Deflection Sensor HY = Hydraulic Sensor	ComLink Sensor Cable Input Jack
5826 DRIV 1 & DRIV 2	Drive	AP	Sensor A
	Steer	AP	Sensor B
5827 DRIV 1 & DRIV 2	Drive, Dual Height Control Valves or other dual sensors	AP	Sensor A
		AP	Sensor B
	Steer	AP	Sensor C
5828	Drive	AP	Sensor A
	Steer, Dual Deflection Sensors	DS, DS	Sensor C & D
5829	Drive, Dual Deflection Sensors	DS, DS	Sensor A & B
	Steer, Dual Deflection Sensors	DS, DS	Sensor C & D
Truck Payload 5830	Truck Payload Hydraulic Ram	HY	Sensor A or B
	Truck Payload Suspension	AP	Sensor B or A
Trailer Direct, Dolly 5831	Drive	DS	Sensor A
	Steer	DS	Sensor B
	Dolly, front axle(s)	AP	Sensor C
	Dolly, rear axle(s)	AP	Sensor D
Trailer Direct 5832	Drive	DS	Sensor A
	Trailer	AP	Sensor B
Trailer Direct 5840	Drive	AP	Sensor A
	Trailer	AP	Sensor B
	Trailer – B-Train	AP	Sensor C
Trailer Direct 5841	Drive	AP	Sensor A
	Trailer	AP	Sensor B
	Trailer – B-Train	AP	Sensor C
Trailer Direct 5842	Drive	AP	Sensor A
	Steer	AP	Sensor B
	Trailer	AP	Sensor C
	Trailer – B-Train	AP	Sensor D
Trailer Direct 5843	Drive	AP	Sensor A
	Steer	AP	Sensor B
	Trailer	AP	Sensor C
	Trailer – B-Train	AP	Sensor D
Trailer Direct 5844	Drive, Dual Height Control Valves, Hide Steer	AP	Sensor A
		AP	Sensor B
	Trailer	AP	Sensor C
	Trailer – B-Train	AP	Sensor D
Trailer Direct 5845	Drive, Dual Height Control Valves	AP, AP	Sensor A & B
	Trailer	AP	Sensor C
	Trailer – B-Train	AP	Sensor D
Trailer Direct 5846	Drive, Dual Deflection Sensors	DS, DS	Sensor A & B
	Trailer	AP	Sensor C
	Trailer – B-Train	AP	Sensor D
Trailer Direct 5850	Drive, Hide Steer	AP	Sensor A
	Trailer	AP	Sensor B
Trailer Direct 5851	Drive	AP	Sensor A
	Trailer	AP	Sensor B
Trailer Direct 5852	Drive	AP	Sensor A
	Steer	AP	Sensor B
	Trailer	AP	Sensor C
Trailer Direct 5853	Drive	AP	Sensor A
	Steer	DS	Sensor B
	Trailer	AP	Sensor C

## KIT CONFIGURATION SENSOR ASSIGNMENT, cont'd

Model Number See Kit Part Number for Model Number	Sensor Installed on this Suspension	Sensor Type AP = Air Pressure Sensor DS = Deflection Sensor HY = Hydraulic Sensor	ComLink Sensor Cable Input Jack
Trailer Direct 5854	Drive, Dual Height Control Valves, Hide Steer	AP, AP	Sensor A & B
	Trailer	AP	Sensor C
Trailer Direct 5855	Drive, Dual Height Control Valves	AP, AP	Sensor A & B
	Trailer	AP	Sensor C
Trailer Direct 5856	Drive, Dual Height Control Valves	AP, AP	Sensor A & B
	Steer	AP	Sensor C
	Trailer	AP	Sensor D
Trailer Direct 5857	Drive, Dual Height Control Valves	AP, AP	Sensor A & B
	Steer	DS	Sensor C
	Trailer	AP	Sensor D
Trailer Direct 5858	Trailer Payload Hydraulic Ram	HY	Sensor A or B
	Trailer Payload Suspension	AP	Sensor B or A
Trailer Direct 5860	Drive, Dual Height Control Valves	AP, AP	Sensor A & B
	Trailer, Dual Height Control Valves	AP, AP	Sensor C & D
Truck Payload 5861	Drive, Dual Height Deflection Sensors or other dual sensors	DS	Sensor A
		DS	Sensor B
	Steer	HY	Sensor C
Trailer Direct – GVW, NET only 5862	Steer	LC	Sensor A
	Drive	LC	Sensor B
	Trailer	LC	Sensor C
Trailer Direct 5863	Drive	LC	Sensor A
	Steer	DS	Sensor B
	Trailer	AP	Sensor C
5878 No FSK	Drive, Dual Height Control Valves	AP, AP	Sensor A & B
	Steer	DS	Sensor C

### Cutting 2-1/8-Inch Hole In Dash and Mounting the Display Gauge

1. Select a location for the scale on the dash panel with at least 3" clearance behind the dash for the unit and its connections. A higher dash position provides better visibility.
2. Make a 2-1/8-inch (2.06") hole at that location. A hole template is in the kit.
3. Remove the nuts at the back of the scale to release the mounting bracket.
4. Position the display gauge in the hole so it appears level in the dash.
5. Replace the mounting bracket on the back of the display, and replace the bracket nuts. Tighten the nuts adequately to secure the display (about 6 inch-pounds torque). Do not over tighten the dash panel or the bracket nuts.

**NOTE: Do not connect the wiring harness to the scale or ComLink at this time.**

## Connecting the ComLink Wiring Harness

The ComLink wiring harness connects the Air-Weigh system to the vehicle's power and ground circuits, the ComLink to the display gauge, and the alarm output to a customer-provided warning device. Those wires with connectors can only be connected to devices in one order, because the connectors are all different.

For wiring, see the table below. The blue and white wires need to be connected to power. (Do not wire them directly to the battery.) The gray and brown alarm wires are only connected to the alarm/warning device. Use the ground return wires on the harness to complete the alarm circuit.

**Power and Ground Table**

White wire	System chassis ground
Blue/Black wire with in-line fuse	12V or 24V ignition hot power
Gray wire/Brown wire	Alarm Output 1 and 2
Black wires	Alarm Ground Return 1 and 2

1. Connect wiring harness power and ground to vehicle power and ground circuits. See power and ground table above. Ignition hot power from the fuse panel is ideal. Do not wire directly to the battery.
2. Connect the 10-pin plug of the wiring harness to the ComLink.
3. Connect the 2-pin plug and the 4-pin plug of the wiring harness to the display gauge.
4. Connect the 4-pin sensor cable(s) to the ComLink Sensor Inputs A, B, C, or D, as described in the System Description and Part List that came with your Air-Weigh scale kit.
5. If you choose to connect an alarm, connect the alarm output wire to any self-grounded alarm device (buzzer, horn, light, etc.). Use the black WARN RETURN wires for grounding the device.
6. Turn on key for system self-test. If system does not successfully complete the self-test, see Troubleshooting Section at back of this manual.

## Mount ComLink Behind Dash

1. Select a location behind the dash for the LoadMaxx ComLink, ensuring adequate access to the scale, electrical connections, and air lines.
2. The LoadMaxx ComLink should be oriented with the connectors facing downward, and may be installed by any of the following methods:

- a. Use wire ties through the holes in the ComLink's mounting ears to secure it to any appropriate wire harness behind the dash.
- b. Find a flat location where ComLink can be attached using the 2-sided adhesive tape already in position on the back of the ComLink. Remove any dust, grease or debris from the flat location. Remove one or both of the red strips from the back of the ComLink, exposing a powerful adhesive. Place the ComLink against the cleaned flat area and push it hard enough to ensure adhesion. For best results, push the Tractor ComLink into place using 15 PSI or more, being careful not to crack its case. Using this method will make it more difficult to remove.
- c. Use self-tapping screws or bolts through the mounting holes.

Now that the ComLink has been mounted, once again turn on the key and self-test the system.

#### **Secure Cables and Air Lines. Re-assemble the dash.**

1. Excess wire and harness should be coiled and wire tied.
2. Wires, air lines, and sensor assemblies should be wire tied to other secure harnesses to prevent damage due to vibration.
3. Re-assemble the dash.
4. Turn-on the key and perform a final system check. Note that the scale will not display accurate weights until it has been completely calibrated to a certified platform scale by entering empty and loaded axle weights into the Air-Weigh scale.

***Note: If your scale system includes the optional printer, the printer cable is in two parts. One part connects to the Printer Port on the ComLink and leads to a connector hole in the dash (see Printer installation instructions in your Printer Kit package). The other part of the cable connects from the printer to the dash connector. This 2-part cable is so you can easily disconnect the printer and store it in a clean, dry place when not in use.***



## Scale Display Overview

With the installation complete, the next step in setting up your Air-Weigh Tractor Scale is to calibrate it. Before starting that process it's a good idea to become familiar with the Panel Display on the front of your scale. Below is a definition of what each button is used for. The function and use of these buttons remain the same throughout all operations of the scale.



### Front Panel Buttons

1. ESC — press <ESC> to go to the menu system when displaying weights, or to go to the previous menu selection when within the menu system. Pressing <ESC> before pressing <ENTER> during data entry will make the scale revert to its previous entry like an Undo function. Then pressing <ESC> a second time will return to the previous menu selection.
2. ARROW UP — press <▲> to select a menu option immediately above the flashing selection and to scroll the display to a higher number. Holding <▲> increases the scrolling rate when entering numbers.
3. ARROW DOWN — press <▼> to select a menu option immediately below the flashing selection and to scroll the display to a lower number. Holding <▼> increases the scrolling rate when entering numbers.
4. ENTER — pressing <ENTER> selects the flashing menu item. It is also used to enter weights during calibration.

## CALIBRATION

There are two methods of calibrating the LoadMaxx Tractor Scale. The traditional method is by entering the EMPTY weights into the scale system when the vehicle is empty and entering the HEAVY weights into the scale system when the vehicle is fully loaded. It's recommended to have a full tank of fuel when calibrating weights to obtain the best drive

weight ratio. You can also calibrate Air-Weigh Trailer Scales in the same manner by using the Tractor Scale keypad.

When selecting this calibration method it is imperative to enter empty weights when the vehicle is empty and heavy weights when the vehicle is loaded heavy. Failing to do so will result in inaccurate weight readings.

Alternatively, for those with identical suspensions and 5<sup>th</sup> wheel locations on several vehicles, it may be more convenient to enter the RATIO and OFFSET calibration data directly, if these are known. Use only one of these methods to calibrate the scale.

Once calibrated, if a suspension's weight is always incorrect by the same amount on the empty and heavy weights, it is easy to adjust the scale to correct it by using the ADJUST function (See page 24).

### **Preliminary Considerations**

The accuracy of the LoadMaxx Tractor Scale depends on the accuracy of the certified scale used to calibrate or check-weigh. Ensure that the in-ground scale is reliable, recently certified and in good repair. It is preferable to obtain all weight tickets from the same certified scale. This ensures comparative accuracy. Segmented scales, those that provide individual axle group weights, are preferred. When segmented scales are not available, take extra precaution in calculating weights.

For the best calibration results, the tractor and trailer should be:

- **Parked on level ground**
- **Full tank of fuel**
- **Tractor brakes released**
- **Engine running**
- **If possible, deflate the suspension for 5 to 10 seconds, and then re-inflate to factory-specified ride height**

Once the LoadMaxx Tractor Scale is calibrated, it is not necessary to re-calibrate unless the suspension characteristics change.

Assigning a PIN number during the system set-up process will protect the calibration procedure from tampering. Normally a PIN number is not assigned until AFTER the scale has been calibrated. Air-Weigh Trailer

Scales also have a PIN lock-out to prevent tampering when the trailer is parked, however any Air-Weigh equipped tractor will still have access to the Trailer Scale's calibration function through the in-cab truck scale. See page 27 for PIN information.

### **5th Wheel Location Details**

If your truck scale system uses the Air-Weigh "calculated steer weight" method, the steer axle weight is determined by the amount of air pressure in the drive suspension and the position of the 5th wheel. In that case, the 5th wheel must be in the same position to weigh as it was when calibrated. The kit includes 5th wheel decals to remind the driver where the calibration/weighing position is located.

The 5th wheel location affects the accuracy only of **calculated** steer axle weights. The drive axle weights will always be accurate.

Once you have positioned the 5th wheel in the notch that is used most often, apply these decals when you are about to calibrate the Air-Weigh truck scale. Be sure the surface is clean and free of any grease, so the decals will stick permanently.

One decal should be on the 5th wheel slider assembly and the other should be on the frame mounting with the points of the triangles together when calibrating and weighing.

### **Separate left and right side Height Control Valves**

For tractor and trailer suspensions with dual Height Control Valves (air suspension with both right and left height control valves on the same axle group), tractor or trailer scale kits with dual sensor processors must be specified when ordering.

### **Air-suspension Steer**

For tractor suspensions that have an air-suspension steer, tractor kits with a sensor for the steer suspension must be specified when ordering. These kits do not use the "calculated steer weight" method, and will be accurate when the 5th wheel is moved. Single and dual Height Control Valve kits are available.

## CALIBRATING THE TRACTOR SCALE OVERVIEW

For Manual Calibration the EMPTY and HEAVY axle weights must be entered by the user. When calibrating using this method the EMPTY weights **must** be entered while the vehicle is empty, and the HEAVY weights **must** be entered while the vehicle is fully loaded. Failure to calibrate scales when vehicle is actually empty and when it has a true heavy load will result in inaccurate weights. It is recommended that both empty and full weights be taken on the same reliable, certified scale, preferably a segmented scale that will provide axle weights. The order of calibration — EMPTY or HEAVY — is not important; however, both EMPTY and HEAVY must be properly entered before the weight display is accurate. Once the calibration procedure is properly completed one time, the EMPTY or HEAVY weights can be updated or re-calibrated individually.

***NOTE: Here's a fast and easy way to calibrate a tractor scale. With a fully loaded trailer, go to a reliable, certified scale and weigh the steer axle and the drive axles separately. Move the vehicle to a level spot close by where you can coast to a stop without the brakes and not roll. Briefly exhaust the air suspension for 5 or 10-seconds, and then re-inflate the suspension to factory ride-height. Enter your heavy axle weights into the Air-Weigh scale according to the calibration procedure. Now, drop the trailer in a convenient spot and return the bobtail tractor to the scale to re-weigh the steer and drive axles. Return to your level parking spot, no brakes, re-inflate the suspension, and then enter the empty axle weights into the Air-Weigh scale.***

***Once you've entered both heavy and empty axle weights, the scale should be displaying the actual on-the-ground weight to within 300 lbs. Double check the loaded weights when you've hooked up the trailer again.***

### Manual Calibration Procedure

***NOTE: Remember, EMPTY or HEAVY weight calibrations can be entered in any order, but the HEAVY weights must be entered while the trailer is loaded, and the EMPTY weights must be entered while the trailer is EMPTY. Additionally, the scale must have both EMPTY and HEAVY weights entered before calibration is complete and accurate weights are displayed.***

## CALIBRATING EMPTY WEIGHTS

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.
4. CALIBRATION is now blinking. Press <ENTER>.
5. Press the down arrow <▼> 1 time until MANUAL CALIB begins blinking. Press <ENTER>.
6. EMPTY WEIGHT is now blinking. Press <ENTER>.
7. The screen pauses for three seconds with the display, “ENTER EMPTY – VEHICLE MUST BE EMPTY”
8. The screen requests you to pick the axle suspension you wish to calibrate (“PICK AXL”). At first, STR(Steer) is blinking, and DRV(Drive) is also shown. Other axle groups that may be shown are TRL(if only one trailer), TRLR A(Trailer A) and TRLR B (Trailer B), TRLR C(Trailer C), TRLR D(Trailer D), TRLR E(Trailer E), TRLR F(Trailer F) and TRLR G(Trailer G).
9. Use the down arrow <▼> to select the axle whose suspension you wish to calibrate. When it is blinking, press <ENTER>.  
***If PIN is needed for access, enter it at this time.***  
***(See page 27 for PIN setup instructions)***
10. Using the up/down arrows <▲▼>, scroll to the proper empty weight identified from a certified scale ticket. Press <ENTER>. Press <ESC> to return to axle screen and choose another axle to calibrate. Press <ESC> repeatedly to return to the main menu.
11. Some older tractor and trailer software versions will not allow trailer weight calibration through the tractor scale if the trailer scale has a PIN#. These must be programmed through the trailer scale or the PIN temporarily disabled to allow access through the tractor scale.

## HEAVY WEIGHTS

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.

4. CALIBRATION is now blinking. Press <ENTER>.
5. Press the down arrow <▼> 1 time until MANUAL CALIB begins blinking. Press <ENTER>.
6. Press the down arrow <▼> 1 time until HEAVY WEIGHT begins blinking. Press <ENTER>.
7. The screen pauses for three seconds with the display, "ENTER HEAVY WEIGHTS – VEHICLE MUST BE FULL"
8. The screen requests you to pick the axle suspension you wish to calibrate ("PICK AXL"). At first, STR (Steer) is blinking, and DRV (Drive) is also shown. Other axle groups that may be shown are TRL(if only one trailer), TRLR A(Trailer A) and TRLR B (Trailer B), TRLR C(Trailer C), TRLR D(Trailer D), TRLR E(Trailer E), TRLR F(Trailer F) and TRLR G(Trailer G).
9. Use the down arrow <▼> to select the axle whose suspension you wish to calibrate. When it is blinking, press <ENTER>.

***If PIN is needed for access, enter it at this time.  
(See page 27 for PIN setup instructions)***

10. Using the up/down arrows <▲▼>, scroll to the proper heavy weight identified from a certified scale ticket. Press <ENTER>. Press <ESC> to return to axle screen and choose another axle to calibrate. Press <ESC> repeatedly to return to the main menu.
11. Some older tractor and trailer software versions will not allow trailer weight calibration through the tractor scale if the trailer scale has a PIN #. These must be programmed through the trailer scale or the PIN temporarily disabled to allow access through the tractor scale. If weights will not change when calibrating, check for PIN in trailer scale.

### **Calibration by Direct Entry of RATIO and OFFSET Values**

To use this method, you must first obtain the RATIO and OFFSET values from another LoadMaxx Tractor Scale on a tractor with identical suspension and 5th wheel position that already has been correctly calibrated. Then you can directly enter these values into the Tractor Scale you wish to calibrate.

### **OBTAIN THE RATIO AND OFFSET**

1. Press <ESC> one or more times until the "top menu" appears, with VIEW WEIGHTS blinking.

2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 2 times until DIAGNOSTICS begins blinking. Press <ENTER>.
4. Press the down arrow <▼> 2 times until COMLINKS begins blinking. Press <ENTER>.
5. Press the down arrow <▼> 1 time until CALIB DATA begins blinking. Press <ENTER>.
6. Press the down arrow <▼> 2 times until the screen shows STR SYS DATA. Write down the axle name (Steer), the RATIO number, which will have a decimal point, and the OFFSET number, which may be negative (preceded by a minus sign) or positive.
7. Press the down arrow <▼> 3 times until the screen shows DRV SYS DATA. Write down the axle name (Drive), the RATIO number, and the OFFSET number, as in the preceding step.
8. For each additional suspension, including trailer suspensions if desired, press the down arrow <▼> 3 more times until the screen shows [Axle] SYS DATA. Write down the axle name, the RATIO number, and the OFFSET number, as in the preceding step.

## **ENTER THE RATIO AND OFFSET**

1. Press <ESC> one or more times until the "top menu" appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.
4. CALIBRATION is now blinking. Press <ENTER>.
5. Press the down arrow <▼> 2 times until ENTER RATIO begins blinking. Press <ENTER>.
6. CALIB RATIO is now blinking. Press <ENTER>.
7. The screen pauses with the display, "USE CAUTION! PUSH ENTER TO CONTINUE." Press <ENTER>.
8. The screen requests you to pick the axle suspension you wish to calibrate ("PICK AXL"). At first, STR(Steer) is blinking, and DRV(Drive) is also shown. Other axle groups that may be shown are TRL(if only one trailer), TRLR A(Trailer A) and TRLR B (Trailer B), TRLR C(Trailer C), TRLR D(Trailer D), TRLR E(Trailer E), TRLR F(Trailer F) and TRLR G(Trailer G).

9. Use the down arrow <▼> to select the axle whose suspension you wish to calibrate. When it is blinking, press <ENTER>.

***A “Manufacturer’s PIN” is needed for direct ratio / offset entry. Contact Air-Weigh Support for more information.***

10. Using the up/down arrows <▲▼> scroll to the proper ratio, obtained as described in the previous section, but without the decimal point. For example, enter 24097 if the ratio is 24.097. Press <ENTER>.
11. The screen pauses for two seconds with the display, “ENTER DECIML.” Using the up/down arrows <▲▼>, move the decimal point to the location in the ratio matching the number you wish to enter. Press <ENTER>.
12. The screen changes automatically to allow direct entry of the Offset. Using the up/down arrows <▲▼> scroll to the proper Offset, obtained as described in the previous section. Press <ENTER>.
13. Press <ESC> repeatedly to return to the main menu.

At this stage the ‘Direct Ratio and Offset Entry’ set-up is complete. The next step is to confirm that the correct calibration is entered into your scale. Follow the steps given in OBTAIN THE RATIO AND OFFSET, above, to confirm that the scale accepted these values correctly.

Finally, perform a *check-weigh* with a reliable ground scale to compare weights. In some cases, optional tires, wheels, and axle systems may cause the scale’s initial accuracy to be unacceptable. In this case the calibration and weight display can be adjusted to match a reliable certified scale using the ADJUST CALIB function in the CALIBRATE menu. ADJUST should only be used if the empty and heavy weights are off by the same amount. If the difference is more than 300 lbs (140kgs), you may want to fine-tune the calibration using the ADJUST feature. Follow the adjust weights work sheet below to identify amount of weight needing to be adjusted.

NOTE: If the weight needs to be adjusted more than +/-1,500 lbs (680 kgs), then the Manual Calibration must be performed.



## Adjust Weights Worksheet

(Ground Scale Weight)	_____	(A)
(AW Displayed Weight)	- _____	(B) (Subtract B from A. C is the Adjustment weight)
Adjusting Weight	= _____	(C) (It's OK if a negative appears)

### Adjust Weights

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.
4. CALIBRATION is now blinking. Press <ENTER>.
5. ADJUST CALIB is now blinking. Press <ENTER>.
6. The screen pauses for three seconds with the display, “ADJUST IF WT ALWAYS OFF BY SAME AMT.”
7. The screen requests you to pick the axle suspension you wish to calibrate (“PICK AXL”). At first, STR(Steer) is blinking, and DRV(Drive) is also shown. Other axle groups that may be shown are TRL(if only one trailer), TRLR A(Trailer A) and TRLR B (Trailer B), TRLR C(Trailer C), TRLR D(Trailer D), TRLR E(Trailer E), TRLR F(Trailer F) and TRLR G(Trailer G).
8. Use the down arrow <▼> to select the axle whose suspension you wish to adjust. When it is blinking, press <ENTER>.

***If PIN is needed for access, enter it at this time.  
(See page 27 for PIN setup instructions)***

9. Using the up/down arrows <▲▼> scroll to the proper adjustment identified from the adjust weights worksheet on previous page. Press <ENTER>.
10. After a brief pause, the Weight Gauge will display the adjusted weight.
11. Screen will flash, “Accepted please wait”.
12. Press <ESC> repeatedly to return to the main menu.

## OPERATIONS

Once calibrated, your Air-Weigh LoadMaxx Tractor Scale is ready to display weights in 20lb (20kg) increments, and be accurate to within 300lbs (140kgs) of a certified ground scale. Continued accuracy is established by following a few simple rules before taking weight readings:

1. Park the tractor and trailer on a level surface.
2. Release tractor brakes to relieve any binding in the tractor suspension.

***Chock wheels to ensure vehicle doesn't roll.***

3. If equipped with a dump valve, dump air in tractor suspension for 5 – 10 seconds, then re-inflate to factory-specified ride height.
4. Accurate weight is displayed when numbers stop blinking.

It may take a few loads to learn how to weigh accurately, but with a little practice you should be able to weigh within 100 lbs. on a regular basis. With Air-Weigh scales installed on the tractor and trailer suspensions, your entire vehicle becomes the scale. When you want to weigh, remember that you need to weigh the vehicle the same way every time.

## FUNCTIONAL OPERATIONS

### HOW-TO-WEIGH instructions

HOW-TO-WEIGH instructions are displayed on the tractor scale in rotation with the actual weight screen. To turn off these instructions permanently:

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.



4. Press the down arrow <▼> 1 time until SYS CONFIG begins blinking. Press <ENTER>.
5. DISPLY SETUP is now blinking. Press <ENTER>.
6. Press the down arrow <▼> 1 time until SHOW / HIDE begins blinking. Press <ENTER>.
7. Press the down arrow <▼> 2 times until SHOW HELP begins blinking. Press <ENTER>.
8. HIDE HELP turns off the How-To-Weigh instructions. SHOW HELP turns them on. Press the down arrow <▼> until the desired selection begins blinking. Press <ENTER>.
9. Press <ESC> repeatedly to return to the main menu.

***Note: You can turn off the How-To-Weigh instructions temporarily, until the next time you turn the truck off and on, by pushing either of the up/down arrows <▲ ▼> when the instructions are visible.***

### **Creating a PIN**

When the trailer scale PIN is set to 0, the operator will not need to enter a PIN to access the PROGRAM menu functions. Setting a PIN into the LoadMaxx Tractor Scale will eliminate tampering with that scale's CALIBRATION, SCALE TYPE, and PIN settings. After calibration, fleets with both tractor and trailer scales should develop a fleet PIN policy to protect the calibration settings from tampering.

To set a PIN:

1. Press <ESC> one or more times until the "top menu" appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.
4. Press the down arrow <▼> 2 times until SET PIN # begins blinking. Press <ENTER>.

***If PIN is needed for access, enter it at this time.  
A "0" entry will result in no PIN number***

5. Using the up/down arrows <▲ ▼> scroll to the desired PIN. Press <ENTER>.
6. Press <ESC> repeatedly to return to main menu.

The new PIN is now entered into the scale. To later establish a new PIN, go back through these instructions and change the setting. Setting the PIN back to ZERO will reset the scale to its original status of NO PIN needed.

## **Alarm Function**

The Air-Weigh LoadMaxx Tractor Scale has two 12V-24V 1.0 amp output alarms. To use the alarm feature, attach the gray or brown alarm output wire stemming from the Tractor ComLink harness to a user-supplied alarm. Wires are marked WARN 1 and WARN 2. Route the ground wire/s for the alarm/s to the WARN GROUND wire/s at the Tractor ComLink harness. Alarms will activate when a programmed *warning weight* or *alarm weight* limit is reached. The limits activating this feature are set by the user. The user may also select Alarm 2 to activate when the STEER weight is less than 20% of the GVW.

*Warning weight* output is pulsing voltage, while *alarm weight* output is continuous voltage.

To deactivate and reset an active *warning* or *alarm weight* alarm, simply press the Enter button <ENTER> once while one of the weight displays for tractor, trailer or GVW/NET screen is displayed on the scale display screen. *If the scale is not PIN-protected*, this will stop power from flowing to the alarm output wire. Once the displayed weight readings fall below the programmed alarm settings, the alarm function resets. The alarm feature is now ready for the next load.

## **Alarm Function Programming Procedure**

### **ALARM WEIGHTS**

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 1 time until ALARMS begins blinking. Press <ENTER>.

***If PIN is needed for access, enter it at this time.  
(See page 27 for PIN setup instructions)***

3. SET ALARMS is now blinking. Press <ENTER>.
4. ALARM 1 and STR 20% GVW are displayed, with ALARM 1 blinking. Additionally, ALARM 2 is displayed if the STR 20% GVW option is not active. Press <ENTER>.

5. GVW, NET ALM 1 is now blinking. Press <ENTER> to select one of these, or press the down arrow <▼> 1 time until TRCTR ALRMS1 begins blinking, or press the down arrow <▼> 2 times until TRLER ALRMS1 begins blinking. Press <ENTER>.
6. Depending on the previous step,
  - select from GVW ALARM and NET ALARM;
  - or from STEER ALARM, DRIVE ALARM;
  - or WARN 1 and ALARM 1. (If there are multiple trailers, it will be necessary to select from TRAILER A, TRAILER B, TRAILER C, etc.)
7. Use the up/down arrows <▲▼> to select alarm group. Press <ENTER>.
8. WARN WEIGHT is now blinking. Press <ENTER> to select.
9. Using the up/down arrows <▲▼> scroll to the desired warning weight. Press <ENTER>.
10. Press <ESC> one time to return to alarm selection screen.
11. Press<▼> one time until ALARM WEIGHT is blinking. Press <ENTER>
12. Using the up/down arrows <▲▼> scroll to the desired alarm weight. Press <ENTER>. Press <ESC> repeatedly to return to previous menu or the main menu. Repeat this procedure for ALARM 2 if used.

#### **TURNING ON THE ALARM FEATURE**

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 1 time until ALARMS begins blinking. Press <ENTER>.

***If PIN is needed for access, enter it at this time.  
(See page 27 for PIN setup instructions)***

3. Press the down arrow <▼> 1 time until TURN ON/OFF begins blinking. The next line gives the state of the alarm feature, “(Now ON)” or “(Now OFF).” Press <ENTER> to change this state.

Turning the alarm feature completely off requires going back to the TURN ON/OFF portion of the ALARMS menu and changing the (Now ON) back to a (Now OFF) (reference TURNING ON THE ALARM FEATURE, above). This completely disables the alarm.

**NOTE: Remember, to deactivate and reset an active warning or alarm weight, simply press the Enter button <ENTER> once while alarms are active, while weights are being displayed. To turn the alarm function completely off, go back to the TURN ON/OFF portion of the ALARMS menu and change the (Now ON) back to a (Now OFF).**

## **LANGUAGES**

The LoadMaxx offers a choice of language display:

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.
5. Press the down arrow <▼> 1 time until SYS CONFIG begins blinking. Press <ENTER>.
6. Press the down arrow <▼> 2 times until LANGUAGE begins blinking. Press <ENTER>.
7. Press the <▲▼> buttons to select the desired language is selected. Press <ENTER>.

## **DISPLAY BACKLIGHT AND SET-UP**

Like other gauges, the scale display is “key-on” powered, so it is always operating. Pressing any key will automatically turn on the display backlight. The display screen will automatically drop into its programmed “sleep mode” with the backlight turned off after one to 30-minutes from the last keystroke operation. The factory-set default time is 5 minutes.

To change the amount of time the display is lit

1. Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
2. Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
3. Press the down arrow <▼> 1 time until SYSTEM SETUP begins blinking. Press <ENTER>.
4. Press the down arrow <▼> 1 time until SYS CONFIG begins blinking. Press <ENTER>.
5. DISPLY SETUP is now blinking. Press <ENTER>.

6. Press the down arrow <▼> 2 times until BACKLIGHT begins blinking. Press <ENTER>.
7. Press the <▲▼> buttons to select the desired time period. Press ENTER.

This backlight will automatically dim to the “sleep mode” after the selected operation time period. To turn on the backlight, press any button.

# QUICK REFERENCE MENU DIRECTORY

## LoadMaxx Scale System

<p>CALIBRATION REQUIRED BEFORE USE</p> <p><b>WEIGHTS</b></p> <p><b>ALARMS</b></p> <p><b>PRINT, SETUP</b> (only shows <b>SETUP</b> if data stream)</p> <p>PRINT MENU (if no data stream)</p> <p>SYSTEM SETUP</p> <p>CALIBRATION</p> <p>SYS CONFIG</p> <p>SET PIN#</p> <p>DIAGNOSTICS</p> <p><b>WEIGHT</b></p> <p>Displays first 3 axle weights (Next axle weights if any)</p> <p>&lt;▼&gt; for GVW/Net Payload Or</p> <p>TRAILER NET PAYLOAD (Models 5858, 5859 only)</p> <p><b>ALARMS</b></p> <p>SET ALARMS (Requires PIN#.)</p> <p>ALARM 1 (or ALARM 2 if not using STR 20% GVW)</p> <p>GVW, NET ALM1 (or ALM 2)</p> <p>GVW ALARM</p> <p>WARN WT 1 (or 2)</p> <p>ALRM WT 1</p> <p>NET ALARM</p> <p>WARN WT 1</p> <p>ALRM WT 1</p> <p>TRCTR ALRMS1</p> <p>STEER ALARM</p> <p>WARN WT 1</p> <p>ALRM WT 1</p> <p>DRIVE ALARM</p> <p>WARN WT 1</p> <p>ALRM WT 1</p> <p>TRLER ALRMS1</p> <p>WARN WT 1</p> <p>ALRM WT 1</p> <p>STR 20% GVW</p> <p>USE ALARM 2</p> <p>USE 20% ALRM</p> <p>TURN ON/OFF</p> <hr/> <p>* With models 5822, 5823, 5826, 5827.          † With models listed in the next footnotes.          ‡ With models 5800, 5801, 5803, 5809, 5810, 5816, and those listed in the next footnote.          § With models 5805, 5806, 5807, 5808, 5814, 5815, 5817, 5818, 5820, 5821, 5824, 5825, 5828, 5829.</p>	<p><b>PRINT, SETUP</b> (only shows <b>SETUP</b> if data stream)</p> <p>PRINT MENU (if no data stream)</p> <p>PRINT REPORT</p> <p>DATE / TIME</p> <p>REPRT COPIES</p> <p>SYSTEM SETUP</p> <p>CALIBRATION (Requires PIN#. Each axle suspension must be calibrated separately.)</p> <p>ADJUST CALIB</p> <p>MANUAL CALIB</p> <p>EMPTY WEIGHT</p> <p>HEAVY WEIGHT</p> <p>ENTER RATIO</p> <p>CALIB RATIO</p> <p>CALIB OFFSET</p> <p>SYS CONFIG</p> <p>DISPLAY SETUP</p> <p>WEIGHT SETUP *</p> <p>LBS/KGS</p> <p>DRIVE 1 % *</p> <p>SHOW/HIDE</p> <p>SHOW GVW</p> <p>SHOW STEER</p> <p>SHOW HELP</p> <p>MORE OPTIONS †</p> <p>BACKLIGHT</p> <p>TRL FRT/REAR ‡</p> <p>FIRST DISPLY §</p> <p>SCALE TYPE (Requires PIN#.)</p> <p>MODEL NUMBER (Changes sensor configuration.)</p> <p>DATA/REPORT</p> <p>MORE OPTIONS</p> <p>CAN PROTOCOL</p> <p>INCLINOMETR</p> <p>LANGUAGE</p> <p>SET PIN #</p> <p><b>DIAGNOSTICS</b></p> <p>SYSTEM STATUS</p> <p>ALARMS</p> <p>ALARM WEIGHTS</p> <p>TEST ALARM (TRACTOR)</p> <p>COMLINKS</p> <p>A/D READINGS</p> <p>CALIB DATA</p> <p>USER DATA&lt;A/D&gt;</p> <p>USER DATA&lt;WEIGHTS&gt;</p> <p>COMLINK ID</p>
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## MENU OPERATIONS AND DEFINITIONS


Press the <ESC> button one or more times to reach the Top Menu. Use the <▲> and <▼> buttons to scroll to new selections. Refer to the Quick Reference Menu Directory above for the entire menu structure.

### Weight Display Overview

Use the up/down arrows <▲▼> to scroll between the various weight displays showing tractor, trailer, and GVW/Net weights.

Clear the Net Weight on the GVW screen by pressing <ENTER> twice while GVW and NET are displayed. The first time, the Net Weight flashes slowly. The second time, it goes to zero.

On the other Weight Displays, pushing Enter stops the alarm unless PIN protection is active. See "Alarm Function," above, for full details.

On all Weight Displays, if a particular axle (or GVW or Net) is over the alarm or warning weight, causing an alarm, a bell icon  flashes rapidly between the axle name (or GVW or Net) and its weight.

On all Weight Displays, when a weight is changing, it flashes rapidly until it stabilizes.

### TOP MENU

Press <ESC> to enter the Top Menu from the Weights Display. From all other displays, press <ESC> one or more times to reach the Top Menu.

**WEIGHTS** - Press <ENTER> to observe the first weights screen, showing at least the STEER and DRIVE axle weights, and possibly the TRLR weight. Press the <▼> to scroll to additional weight screens for trailer, GVW, and Net Payload weights.

**ALARMS** – See the ALARM FUNCTION section, page 28.

### PRINT, SETUP MENU

**PRINT MENU** – Print a report or set the printer's date and time. See Product Application Note [Air-Weigh Date Time Printer Installation Instructions](#), P/N 901-0105-000 (Rev 2), available at

<http://www.air-weighscales.com/support/manuals.cfm>, for details. In addition, select REPRT COPIES to set the number of report copies.

## SYSTEM SETUP MENU

**CALIBRATION** – See the CALIBRATION MENU section, above.

**SYS CONFIG** – See the SYS CONFIG MENU subsection, below.

**SET PIN #** – See the CREATING A PIN section, above.

## SYS CONFIG MENU

**DISPLY SETUP** – See the DISPLY SETUP MENU subsection, below.

**SCALE TYPE** – See the SCALE TYPE MENU subsection, below.

## DISPLY SETUP MENU

**WEIGHT SETUP** – For models 5822, 5823, 5826 and 5827, allows access to DRIVE 1 % and LBS/KG. For all other models, only LBS / KG is shown.

**LBS / KGS** – Changes the weight display and data entry modes to pounds or kilograms. Changing this selection will also automatically convert any calibration values previously entered to the new unit of measure.

**DRIVE 1 %** – For models 5822, 5823, 5826 and 5827, allocates the distribution of weight between DRIV1 and DRIV2 on the Weights Display.

**SHOW / HIDE** – See the SHOW / HIDE subsection, below.

**MORE OPTIONS** – For models 5800, 5801, 5803, 5805, 5806, 5807, 5808, 5809, 5810, 5814, 5815, 5816, 5817, 5818, 5820, 5821, 5824, 5825, 5828 and 5829, allows access to TRL FRT/REAR and/or FIRST DISPLY, as well as to BACKLIGHT. For all other models, only BACKLIGHT is shown.

**BACKLIGHT** – Changes the amount of time the display is backlit from last keystroke. Factory default is 5 minutes. Duration can be selected from one to 30 minutes.

**TRL FRT/REAR** – For all models listed under MORE OPTIONS immediately above, allows the Weights Display to show two trailers as TRL A and TRL B or TRAILER, TRL F, and TRL R (“DOLLY”). If DOLLY is selected, TRAILER gives the sum of TRL F (front) and TRL R (rear).

**FIRST DISPLY** – For models 5805, 5806, 5807, 5808, 5814, 5815, 5817, 5818, 5820, 5821, 5824, 5825, 5828 and 5829, the user can select the weights display to appear immediately after power on: the STEER / DRIVE display or the GVW / NET display.

## SCALE TYPE MENU

**MODEL NUMBER** – Used to change the LoadMaxx Truck Scale configuration. For instance, when adding an additional sensor at a later date. See the section on Installing an Air Pressure Sensor for the model numbers that are used at this menu. Note that otherwise identical configurations will have different model numbers depending on whether or not the sensor operates with air pressure. Consult Air-Weigh Customer Support before changing MODEL NUMBER.

**DATA/REPORT** – Changes the printer port configuration. WEIGHT TICKT configures the printer port to print Weight Report reports. DATA STREAM configures the port to output vehicle weights approximately twice per second to another electronics device. Refer to Product Application Note J1587 Weight Messages for Users, P/N 901-0075-000, and consult Air-Weigh Support for more information on this subject. When DATA STREAM is selected menu changes occur:

- In the first level menu screen, PRINT, SETUP will change to SETUP.
- The second level PRINT MENU screen is no longer an option choice.

**MORE OPTIONS** – Provides access to CAN bus options and inclinometer control.

**CAN PROTOCOL** – Used to change the databus protocol between J1939 (the default) and CANopen. Consult Air-Weigh Customer Support before changing CAN PROTOCOL. You must cycle power each time this selection is changed.

**INCLINOMETR** – Used to control an external inclinometer. Refer to Product Application Note Air-Weigh LoadMaxx / Inclinometer Option, P/N 901-0104-001, and consult Air-Weigh Support for more information on this subject.

## SHOW / HIDE MENU

**SHOW GVW** – Causes the GVW / Net screen to be visible or not, depending on whether there is an Air-Weigh Trailer Scale present. SHOW GVW lets the GVW / Net screen be visible even without a trailer. HIDE GVW requires an Air-Weigh Trailer Scale to be present in order to access the GVW / Net screen.

**SHOW STEER** – SHOW STEER causes the Steer Axle to be visible on the first Weights Display. HIDE STEER removes the Steer Axle from the first Weights Display, and also prevents access to the GVW / Net screen. SHOW / HIDE STEER is changed automatically with some changes in the Scale Type (see under SYS CONFIG subsection, above). For example, a 5800 model number is identical with a 5803 model number, except that a 5800 has SHOW STEER and a 5803 defaults to HIDE STEER.

**SHOW HELP** – See the How-To-Weigh Instructions section, above.

## DIAGNOSTICS MENU

**SYSTEM STATUS** - Use this menu to obtain Weight Gauge system status, including weight units (Lbs or Kgs), error status, software version numbers, and serial number. Use the up/down arrows <▲▼> to scroll between the two displays which together show this information.

### DIAGNOSTICS: ALARM WEIGHTS MENU

**ALRM WEIGHTS** – Shows the programmed warning and alarm weights for each axle group, GVW and Net. Values are shown on a different display for each axle group (or GVW or Net). Use the up/down arrows <▲▼> to scroll between the axle groups.

**TEST ALARM** – Causes the Truck ComLink alarm to be actuated for three seconds.

### DIAGNOSTICS: COMLINKS MENU

**A/D READINGS** – Shows the sensor reading for each axle group in A/D (electronic) values, PSI and Bars. Values are shown on a different display for each axle group. Use the up/down arrows <▲▼> to scroll between the axle groups. A reading of 409 indicates a sensor fault, sensor cable unplugged, no sensor, etc. For model numbers with averaged dual sensor readings, 'A/D' will flash. By pressing the <ENTER> button, you will be able to view the individual AD readings.

**CALIB DATA** – Each axle group has values shown on three different displays. The first two are considered User Data, while the third is considered System Data. Use the up/down arrows <▲▼> to scroll between the different displays and axle groups.

The first display per axle group shows the Empty and Heavy A/D values at the time the user entered Empty and Heavy weights, respectively (unless calibration was performed by direct ratio and offset entry). The second display per axle group shows the Empty and Heavy Weights that the user entered (unless calibration was performed by direct ratio and offset entry).

The third display per axle group shows the Ratio and Offset that either the system calculated after user entered Empty and Heavy weights, or the Ratio and Offset that the user entered.

**COMLINK ID** – Shows the software version numbers, model number, and serial number for each axle group with an Air-Weigh scale on the vehicle. Use the up/down arrows <▲▼> to scroll between the axle groups.

## **SYSTEM TROUBLE SHOOTING**

The Air-Weigh LoadMaxx Tractor Scale system is extremely self-sufficient. To operate correctly, power and ground are the only tractor electrical connections needed. Ensure all connectors (male/female) make a good connection and at least 9.5 volts is entering the system. When troubleshooting, initially check for power at the connecting plugs. If the system used to power up, but now doesn't, double-check the circuit being used to power it. If there is no power to the scale, use a voltmeter and test the power and ground circuits using a bracketing method to isolate where power is lost. Once the break in the power circuit is found, make the proper repairs.

All other faults can be identified internally through the DIAGNOSTICS display on the scale display.

- Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.
- Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.
- Press the down arrow <▼> 2 times until DIAGNOSTICS begins blinking. Press <ENTER>.
- With the word STATUS *flashing*, press <ENTER> one more time. If NO ERRORS displays on the screen, the Weight Gauge is functioning normally.

Reference this chart for all fault code problems and solutions.

<b>Troubleshooting Chart</b>		
<b>Code</b>	<b>Problem Description</b>	<b>Solution</b>
BAD EEPROM	EEPROM error	Memory failure. Send to Air-Weigh for repair.
NO TRACTOR	No communications with Truck ComLink	Will appear until ComLink is found. Ensure connections are correct.
NO TRAILER	No communications with Trailer Scale	Will appear until trailer scale is found. Ensure trailer scale is powered.

## **INCORRECT WEIGHT READINGS**

If weights are always off by the same amount, see the subsection ADJUST WEIGHTS in the CALIBRATION section, above.

If weights are otherwise incorrect, including 0 (zero) or unstable, ensure that the sensor is connected to the Truck ComLink or Trailer Scale correctly. You may use the A/D readings to observe sensor faults.

Step 1) Press <ESC> one or more times until the “top menu” appears, with VIEW WEIGHTS blinking.

Step 2) Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking. Press <ENTER>.

Step 3) Press the down arrow <▼> 2 times until DIAGNOSTICS begins blinking. Press <ENTER>.

Step 4) Press the down arrow <▼> 2 times until COMLINKS begins blinking. Press <ENTER>.

Step 5) A/D READINGS is now blinking. Press <ENTER>. A reading of 409 indicates a sensor fault, sensor cable unplugged or severed, no sensor, etc.

## **SUSPENSION TROUBLESHOOTING**

Your Air-Weigh Scale’s accuracy is dependent on your suspensions being in good mechanical repair and in factory-specified adjustment.

Once the scale is installed and functioning properly, the degree of accuracy will be affected by the proper operation and setting of the suspension. Three major suspension factors affect the degree of accuracy and repeatability:

1. Proper setting of ride height.
2. Proper setting of a high quality height control valve (HCV).
3. Proper adjustment of the HCV linkage.

Follow these guidelines to ensure your scale is as accurate and repeatable as possible.

## **Ride Height**

**Symptoms:** Scale readout accuracy varies from certified weight, by varying amounts.

**Solution:** Proper ride height is the most important factor in ensuring accuracy. Ride height is normally defined as the vertical distance from the center of the axle to the bottom of the frame rail. This varies by vehicle and suspension make, so check the proper manual. Most heights are specified +/- 1/8", so the proper setting is critical.

## **Linkage**

**Symptoms:** Scale accuracy varies from a certified weight, usually consistently lower.

**Solution:** Play in the linkage or bushings will detract from scale accuracy since the proper ride height is not always maintained.

## **Height Control Valve**

**Symptoms:** Scale readout is higher or lower than a certified weight, but consistently by the same amount.

**Solution:** Ensure your HCV has minimum dead-band. This is the play in the valve where the ride height changes without actuating the valve. Quality HCVs that demonstrate less than three degrees of total dead-band provide most accurate weight readings. Replace defective valve with either Hadley or Barksdale valves.



## MAINTENANCE

**Scale Display:** The Air-Weigh electronic scale display should be maintenance-free under normal operation. Keep the scale in a protected environment and treat as any electronic component. Gently use a clean, soft cloth, slightly damp with water, to wipe away dust from the display.

**ComLink:** The Air-Weigh ComLink should be maintenance-free under normal operation. Ensure the ComLink is mounted properly and keep the holes free of obstruction.

**Connections:** Periodically spray the 7-pin J-560 sockets and plugs with electrical cleaner. A good electrical connection is vital for proper operation. Make every effort to keep moisture out of the disconnect socket while the system is in operation.

## CUSTOMER SUPPORT

If you cannot correct a problem, or you suspect you have a malfunctioning part, please contact Air-Weigh Customer Support at (888) 459-3247, Monday through Friday, 7 AM–5 PM Pacific Time.

From outside the US and Canada, please call (541) 343-7884.


## J1939 Connections and Communications

Use Air-Weigh cable 014-0300-038 (Cable, AW5901, CAN/J1939, flying lead, 3') to connect the LoadMaxx to the vehicle J1939 bus.

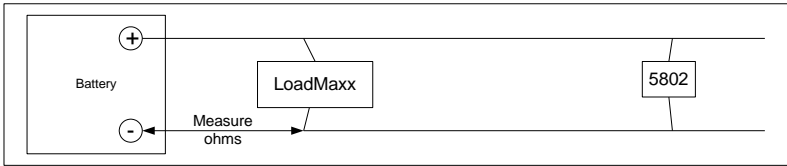
Refer to Product Application Note LoadMaxx J1939 Message Protocol Interface Specification, P/N 901-0095-000, for more information on this subject.

### Obtaining good tractor/trailer scale communications:


To help ensure good tractor scale / trailer scale communications, follow a simple rule in the installation of the LoadMaxx Tractor Scale ComLink. This requires two resistance measurements, one for ground and an identical one for power, before applying the rule.

 **Note:** The schematics shown here are for measurements. Do not wire the LoadMaxx or the 5802 directly to the battery as shown. See "Connecting the ComLink Wiring Harness," page 15, above, for wiring instructions.

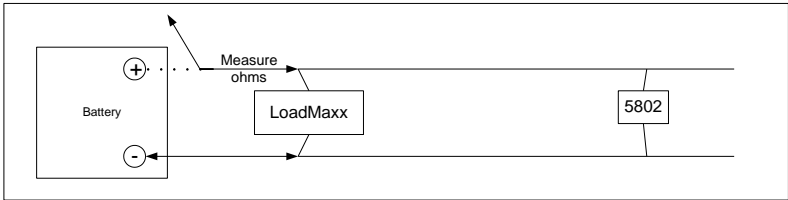
#### The first measurement:



Measure the resistance between the battery negative (-) terminal on the one hand, and the common connection point between the tractor scale and trailer scale ground wires on the other. Measurements should be made using an ohmmeter or multi-meter. If the meter's probes will not reach from the negative (-) terminal to the common connection point, use a wire to extend one of the probes. The wire should be 20AWG or thicker.

 **Caution:** The vehicle and the scale must not be powered when making this measurement. If the scale is still powered when vehicle power is turned off, the cable lead must be removed from the positive (+) terminal of the battery before making any measurements, or the ohmmeter / multi-meter can be damaged.

**The second measurement:**



Measure the resistance between the cable at the battery positive (+) terminal on the one hand, and the common connection point between the tractor scale and trailer scale power wires on the other. Measurements should be made using an ohmmeter or multi-meter. If the meter's probes will not reach from the cable at the battery's positive (+) terminal to the common connection point, use a wire to extend one of the probes. The wire should be 20AWG or thicker.



**Caution:** To avoid damaging the ohmmeter/multi-meter, **the cable lead must be removed from the positive terminal of the battery** before making any measurements.

**The simple rule:**

To help ensure good tractor scale/trailer scale communications, the sum of the two resistance measurements must not exceed 2.7Ω.

Use this worksheet to figure the total resistance by adding the values found in each of the two resistance measurements:

Resistance from battery negative (-) terminal to common		_____ Ω
LoadMaxx/5802 connection		
Resistance from battery positive (+) terminal to common	+	_____ Ω
LoadMaxx/5802 connection		
Sum of resistances	Total:	_____ Ω, must not exceed 2.7Ω

## **Index of Application Notes**

The following Application Notes are available from Air-Weigh Customer Support for additional information on these subjects:

901-0069-000 - Dropping and hooking a 5802 Trailer Scale on a Trailer-Direct system

901-0070-000 - Dropping and hooking a 5802 Trailer Scale on a Two Trailer Direct system

901-0071-000 - Collecting and Entering Calibration

901-0072-000 - 5802 Trailer Scale, Load Distribution and Spread Tandem Axle Air Suspensions

901-0073-000 - 5800, Calculating Axle Weights on a Platform Scale

901-0074-000 - 050-5780-000 Truck Scale Display, Output Data Stream on RS232 Port

901-0075-000 - J1587 Weight Messages for Users

901-0076-000 - Heavy Haul Trailers with Flip Axles/Stingers/Booster Add-ons

901-0077-000 - Operating Voltages and Current for 5800 Series Products

901-0079-000 - Best practices for weighing on Volvo Trucks

901-0082-000 - Power for 5802 on Transcraft trailers

901-0084-000 – 5801Truck Scale ComLink, Output Data Stream on RS232 Port

901-0085-000 – Obtaining good tractor / trailer scale communications

901-0095-000 – LoadMaxx J1939 Message Protocol Interface Specification

901-0104-001 – Air-Weigh LoadMaxx / Inclinator Option

901-0105-000 – Air-Weigh Date Time Printer Installation Instructions

**Notes**

**Installation data**

See Diagnostics Menu sections, pages 36 – 37, to find the following.

Scale Display serial number  
DIAGNOSTICS / SYSTM STATUS / ▼ \_\_\_\_\_

Scale Display software version  
DIAGNOSTICS / SYSTM STATUS / ▼ \_\_\_\_\_

LoadMaxx model number  
DIAGNOSTICS / COMLINKS / ID \_\_\_\_\_

LoadMaxx serial number  
DIAGNOSTICS / COMLINKS / ID \_\_\_\_\_

LoadMaxx software version  
DIAGNOSTICS / COMLINKS / ID \_\_\_\_\_

Steer axle calibration empty A/D  
DIAGNOSTICS / COMLINKS / CALIB \_\_\_\_\_

Steer axle calibration heavy A/D  
DIAGNOSTICS / COMLINKS / CALIB \_\_\_\_\_

Steer axle calibration empty weight  
DIAG / COMLINKS / CALIB / ▼ \_\_\_\_\_

Steer axle calibration heavy weight  
DIAG / COMLINKS / CALIB / ▼ \_\_\_\_\_

Steer axle calibration ratio  
DIAG / COMLINKS / CALIB / ▼ ▼ \_\_\_\_\_

Steer axle calibration offset  
DIAG / COMLINKS / CALIB / ▼ ▼ \_\_\_\_\_

Drive axle calibration empty A/D  
DIAG / COMLINKS / CAL / ▼ ▼ ▼ \_\_\_\_\_

Drive axle calibration heavy A/D  
DIAG / COMLINKS / CAL / ▼ ▼ ▼ \_\_\_\_\_

Drive axle calibration empty weight  
DIAG / COMLINKS / CAL / ▼ ▼ ▼ ▼ \_\_\_\_\_

Drive axle calibration heavy weight  
DIAG / COMLINKS / CAL / ▼ ▼ ▼ ▼ \_\_\_\_\_

- Drive axle calibration ratio  
DIAG / COMLINKS / CAL / ▼▼▼▼▼▼ \_\_\_\_\_
- Drive axle calibration offset  
DIAG / COMLINKS / CAL / ▼▼▼▼▼▼ \_\_\_\_\_
- Steer axle warning 1 weight  
DIAGNOSTICS / ALARMS / WEIGHTS \_\_\_\_\_
- Steer axle alarm 1 weight  
DIAGNOSTICS / ALARMS / WEIGHTS \_\_\_\_\_
- Drive axle warning 1 weight  
DIAG / ALARMS / WEIGHTS / ▼ \_\_\_\_\_
- Drive axle alarm 1 weight  
DIAG / ALARMS / WEIGHTS / ▼ \_\_\_\_\_
- GVW warning 1 weight  
DIAG / ALARMS / WEIGHTS / ▼▼▼▼ \_\_\_\_\_
- GVW alarm 1 weight  
DIAG / ALARMS / WEIGHTS / ▼▼▼▼ \_\_\_\_\_
- Net warning 1 weight  
DIAG / ALARMS / WTS / ▼▼▼▼▼ ▼ \_\_\_\_\_
- Net alarm 1 weight  
DIAG / ALARMS / WTS / ▼▼▼▼▼ ▼ \_\_\_\_\_
- Steer axle warning 2 weight  
DIAG / ALARMS / WTS / ▼▼▼▼▼▼▼ ▼ \_\_\_\_\_
- Steer axle alarm 2 weight  
DIAG / ALARMS / WTS / ▼▼▼▼▼▼▼ ▼ \_\_\_\_\_
- Drive axle warning 2 weight  
DIAG / ALARMS / WTS / ▼▼▼▼▼▼▼▼ ▼ \_\_\_\_\_
- Drive axle alarm 2 weight  
DIAG / ALARMS / WTS / ▼▼▼▼▼▼▼▼ ▼ \_\_\_\_\_
- GVW alarm, warning 2 weight  
DIAG / A'S / WTS / ▼▼▼▼▼▼▼▼ ▼ \_\_\_\_\_
- Net alarm, warning 2 weight  
DIAG / A'S / WTS / ▼▼▼▼▼▼▼▼▼ ▼ \_\_\_\_\_



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