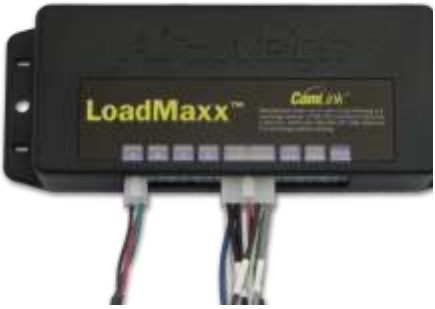
Air-Weigh®

Self-Weighing Truck and Trailer Scales™



LoadMaxx™ On-Board Scales

TRACTOR SCALE SYSTEM

Calibration and Operations Manual

for Tractors with a Hydraulic Lift

MODEL 5809

PN: 901-0121-000 R4

Table of Contents

MODEL NUMBER NOTE

This guide is intended for use with the sensor configuration represented by model number 5809.

Configuration	Lift	Trailer
5809	Hydraulic	Drop & Hook: Trailer weight is available when a trailer equipped with a calibrated Air-Weigh scale is attached to the tractor.

NOTE

In the LoadMaxx Cab Display menus for the 5809 configuration, the word "DRIVE" and its abbreviations, such as "DRV," refer to the hydraulic lift system, which is over the tractor drive axles.

Therefore this manual also occasionally refers to the hydraulic lift as drive axles or axle group.

I. LOADMAXX TRACTOR SCALE SYSTEM OVERVIEW

The LoadMaxx on-board scale converts tractor and trailer suspension loads or hydraulic lift load to an accurate on-ground weight. Once calibrated correctly, as described in this manual, the scale will display accurate weights for any load.

The scale will display the actual on-ground weight for the hydraulic lift axle group to within 300 pounds (140 kgs), given a stable hydraulic system. For the hydraulic lift, an axle group is defined as the set of axles supporting the lift.

For any trailer air suspensions, an axle group is similarly 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 eight 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”.

- ***For best accuracy, calibrate and weigh on a level surface.***

- ***To calibrate or weigh the hydraulic lift, you must lift the front of the trailer slightly to pressurize the hydraulic system. Briefly release the PTO pressure to stabilize the hydraulic pressure. Select an easily repeatable weighing position where the trailer body is raised 6-12 inches.***

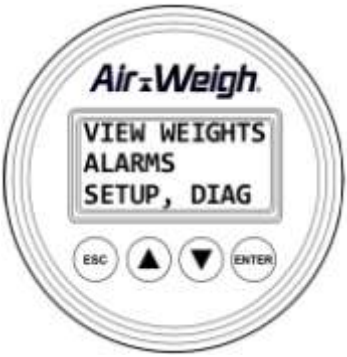
- ***If calibrating a trailer, release the trailer brakes, to release suspension binding. Calibrating or observing spring or air suspension weight readings with the brakes engaged will result in inaccuracy***.

- ***Air-Weigh recommends that the suspension of a vehicle equipped with air-suspension dump valves be momentarily exhausted and re-inflated before calibrating or weighing. 5-10 seconds of air dump is normally sufficient. 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 the Air-Weigh Trailer Scale transmits weight data over the vehicle’s existing 7-wire cord (J-560). This is a true drop and hook application.

I.A. Scale Display Overview

Before using your Air-Weigh Tractor Scale, it is necessary to calibrate it. Before starting that process it's a good idea to become familiar with the Scale Display.
Below is a definition of the use of each button. The function and use of these buttons remain the same throughout all operations of the scale.



I.B. Front Panel Buttons

1. When the Scale Display backlight is off, the first button push turns on the backlight, with no other effect.
2. Depressing the ESC key (with the backlight lit) changes the Weights Display to the Main Menu, depicted above. It changes all other menus and displays to the previous screen. If you are entering a number, depressing the ESC key clears the numeric entry without changing the scale's value.
3. The cursor location on the 5800 is indicated by the blinking line. In the Scale Display images below, an orange highlight indicates the cursor location.
4. To change the cursor location, or to set a numeric value, depress the up or down arrow keys ▲ or ▼.
5. The instruction "Select [some menu item]" will appear frequently in the text that follows. To select a menu item, depress the ENTER key after setting the cursor to the specified line, that is, after making the specified line start blinking.
6. To enter a numeric value, depress the ENTER key after setting the value to the desired number.

II. CALIBRATION

There are two methods of calibrating the LoadMaxx Tractor Scale. The usual 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. You can also calibrate Air-Weigh Trailer Scales through the same menu sequence, by using the Tractor Scale Display keypad.

When selecting this calibration method, you MUST 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 hydraulic lift systems or suspensions 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 (the usual method, or alternatively, direct ratio and offset entry) to calibrate the scale.

Once calibrated, if a lift or suspension 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.

II.A. 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**
- **Front of the trailer raised slightly to pressurize the hydraulic system.**

Once the LoadMaxx Tractor Scale is calibrated, it is not necessary to re-calibrate unless the suspension or hydraulic lift system 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 Section IV.B for PIN information.

II.B. 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.

Air-Weigh recommends 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 is not important; however, both EMPTY and HEAVY weights 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.

Visit our YouTube channel to view our online installation and calibration videos: http://www.youtube.com/user/AirWeigh

II.D. MANUAL CALIBRATION PROCEDURE

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.

The following two pages give step-by-step procedures for entering the EMPTY and HEAVY calibrations, respectively.

II.D.1. CALIBRATING EMPTY WEIGHTS

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT,SETUP, leading to next menu.
3. Select SYSTEM SETUP, leading to next menu.
4. Select CALIBRATION, leading to next menu.
5. Select MANUAL CALIBRATION, leading to next menu.

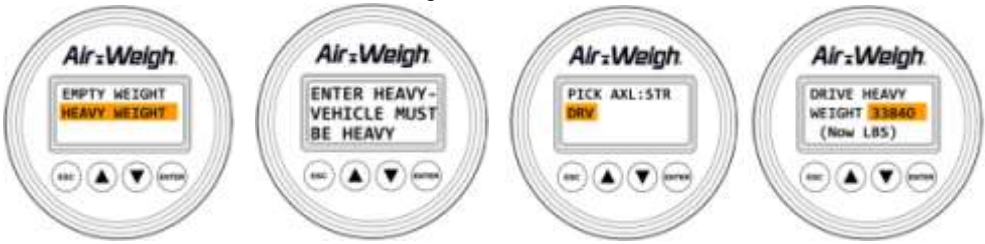
6. Select EMPTY WEIGHT, leading to next menu.
7. The screen pauses for three seconds with the display, “ENTER EMPTY – VEHICLE MUST BE EMPTY” before proceeding automatically to the next menu.
8. On the PICK AXL menu, select one of the offered axle groups: STR (Steer), DRV (Drive), TRL (if only one trailer) or TRA (Trailer A if more than one trailer) and TB (Trailer B). The display may also allow choice from C (Trailer C) up to G (Trailer G). **Select DRV for the hydraulic lift.**

   If PIN is needed for access, enter it at this time.
   (See Section IV.C for PIN setup instructions)

9. Using the up/down arrows <▲▼>, scroll to the proper empty weight identified from a certified scale ticket, then depress <ENTER>. The screen will briefly show Accepted to indicate its acceptance of the Empty Weight.
10. If one or more trailers are attached, repeat the above steps for the for the trailer(s). Press <ESC> to return to the PICK AXL menu and choose another axle for entering its Empty Weight calibration.
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.

II.D.2. CALIBRATING HEAVY WEIGHTS

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT,SETUP, leading to next menu.
3. Select SYSTEM SETUP, leading to next menu.
4. Select CALIBRATION, leading to next menu.
5. Select MANUAL CALIBRATION, leading to next menu.
6. Select HEAVY WEIGHT, leading to next menu.



7. The screen pauses for three seconds with the display, “ENTER HEAVY – VEHICLE MUST BE HEAVY” before proceeding automatically to the next menu.
8. On the PICK AXL menu, select one of the offered axle groups: STR (Steer), DRV (Drive), TRL (if only one trailer) or TRA (Trailer A if more than one trailer) and TB (Trailer B). The display may also allow choice from C (Trailer C) up to G (Trailer G). **Select DRV for the hydraulic lift.**

   If PIN is needed for access, enter it at this time.
   (See Section IV.C for PIN setup instructions)

9. Using the up/down arrows <▲▼>, scroll to the proper empty weight identified from a certified scale ticket, then depress <ENTER>. The screen will briefly show Accepted to indicate its acceptance of the Heavy Weight.
10. If one or more trailers are attached, repeat the above steps for the for the trailer(s). Press <ESC> to return to the PICK AXL menu and choose another axle for entering its Heavy Weight calibration.
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.

II.E. Calibration by Direct Entry of RATIO and OFFSET

To use this method, you must first obtain the RATIO and OFFSET values from another LoadMaxx Tractor Scale on a tractor with an identical hydraulic lift system, which already has been correctly calibrated. Then you can directly enter these values into the Tractor Scale you wish to calibrate.

For further details, refer to Product Application Note Calibration by Direct Entry of RATIO and OFFSET Values, Air-Weigh P/N 903-0115-000.

III. 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. If equipped with a trailer scale and a trailer dump valve, release trailer brakes. Dump air in trailer suspension for 5 – 10 seconds, then re-inflate to factory-specified ride height.
3. 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.

IV. FUNCTIONAL OPERATIONS

IV.A. Weight Displays

The Weight Displays show the weights for all axle groups, the GVW (Gross Vehicle Weight), and the NET (Net Vehicle Payload). You can reach the DRIVE Weight Display by depressing the <ESC> button repeatedly until it appears, or alternatively by selecting VIEW WEIGHTS on the Main Menu and depressing the <ENTER> button.

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

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

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, pushing Enter stops the alarm unless PIN protection is active. See “Alarm Function,” above, for full details.

If no alarm is active, you can zero the NET on the GVW screen by pressing <ENTER> twice while that screen is displayed. The first time, the Net Weight flashes slowly. The second time, it goes to zero. The amount of each addition to, or subtraction from, the GVW will then be added to or subtracted from the Net Weight, allowing you to see how much weight has been loaded or unloaded.

IV.B. 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 Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT,SETUP, leading to the next menu.
3. Select SYSTEM SETUP, leading to the next menu.
4. Select SYS CONFIG, leading to the next menu.
5. Select DISPLY SETUP, leading to the next menu.
6. Select SHOW / HIDE, leading to the next menu.
7. Select SHOW HELP, leading to the next menu.
8. Select HIDE HELP to turn off the How-To-Weigh instructions. Press <ESC> repeatedly to return to the main menu.

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

IV.C. 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. Select PRINT,SETUP, leading to the next menu.
2. Select SYSTEM SETUP, leading to the next menu.
3. Select SYS CONFIG, leading to the next menu.
4. Select SET PIN #, leading to the next menu.

   If PIN is needed for access, enter it at this time.

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

The new PIN is now entered into the scale. To change the PIN later, repeat these steps and change the setting. Setting the PIN to zero will reset the scale's PIN to its original status of No PIN Needed.

Note that once you gain PIN access by entering the PIN correctly, you will retain that access until the scale has a power cycle.

IV.D. 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.

You can delay the period between each overweight and the subsequent activation of the alarm, by up to sixty seconds. Similarly, you can delay the period between the return to not overweight, and the alarm's

deactivation, by up to sixty seconds. These delays can prove useful in moderating alarm responses to weight oscillations, such as those occurring during travel. For details, see Product Application Note Installing and Programming Overweight Alarms, P/N 903-0122-000.

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.

IV.D.1. Alarm Function Programming Procedure

IV.D.1.a. ALARM WEIGHTS

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select ALARMS, leading to the next menu.

   If PIN is needed for access, enter it at this time.
   (See Section IV.C for PIN setup instructions)

3. Select SET ALARMS, leading to the next menu.
4. Select ALARM 1, leading to the next menu.
5. Select one of GVW, NET ALM 1, TRCTR ALRMS1, or TRLER ALRMS1, leading to the next menu.
6. Depending on the previous step,
   - select from GVW ALARM and NET ALARM;
   - or from STEER ALARM and DRIVE ALARM;
   - or from TRLR WARN 1 and TRLR ALARM 1. (If there are multiple trailers, it will be necessary to select from TRAILER A, TRAILER B, TRAILER C, etc.)
7. Select WARN WT 1 or ALARM WT 1 for the chosen alarm.
8. Using the up/down arrows <▲▼> scroll to the desired warning or alarm weight, then depress <ENTER>.
9. Press <ESC> as needed to start setting any additional desired alarms. Press <ESC> repeatedly to return to previous menu or the main menu. Repeat this procedure for ALARM 2 if used.

IV.D.1.b. TURNING THE ALARM FEATURE ON OR OFF

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select ALARMS, leading to the next menu.

   If PIN is needed for access, enter it at this time.

(See Section IV.C for PIN setup instructions)

3. The bottom line gives the state of the alarm feature, "(Now ON)" or "(Now OFF)." Select TURN ON/OFF to change this state to its opposite.

   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).

IV.D.2. Using Alarm 2 For Steer Axle Underweight

You can change the function of Alarm 2 from its default use as a second overweight alarm. Instead, you can use it to activate when the on-the-ground weight at the steer axle tires is less than 25% of the on-the-ground weight at the drive axle tires. However, this function is not used on hydraulic lift systems, because they do not measure steer axle weight.

IV.E. LANGUAGES

The LoadMaxx offers a choice of language display:
1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT,SETUP, leading to the next menu.
3. Select SYSTEM SETUP, leading to the next menu.
4. Select SYS CONFIG, leading to the next menu.
5. Select LANGUAGE, , leading to the next menu.
6. Press the <▲▼> buttons to select the desired language, then depress <ENTER>.

IV.F. 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 Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT,SETUP, leading to the next menu.
3. Select SYSTEM SETUP, leading to the next menu.
4. Select SYS CONFIG, leading to the next menu.
5. Select DISPLY SETUP, leading to the next menu.
6. Select BACKLIGHT, leading to the next menu.

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.

IV.G. LARGE CHARACTER DISPLAY

The Air-Weigh LoadMaxx Tractor Scale can display weights on either three lines, with twelve characters per line as shown here on the left, or with larger characters, on two lines, with eight characters per line, as shown here on the right.

Only the Weights Displays can appear as large characters on two lines. On this display, axle group names are represented by their first letters:

S = STEER
D = DRIVE

T = TRAILER (if one semi trailer, or full trailer)

F = FRONT TRAILER (full trailer)
R = REAR TRAILER (full trailer)

G = Gross Vehicle Weight (GVW)
N = Net Payload (NET)

A = TRAILER A (if two trailers)
B = TRAILER B (if two trailers)

All other screens always appear as three line displays.

To change between two line and three line displays:

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT,SETUP, leading to the next menu.
3. Select SYSTEM SETUP, leading to the next menu.
4. Select SYS CONFIG, leading to the next menu.
5. Select DISPLY SETUP, leading to the next menu.
6. Select WEIGHT SETUP, leading to the next menu.
7. Select 2 OR 3 LINES, leading to the next menu. At the bottom of the menu the current choice is shown as (Now 2 LINE) or (Now 3 LINE). At this point you can choose between the two line display with larger characters, or the three line display.
8. Press the <▲▼> buttons to select the desired display configuration, 2 LINE DISP or 3 LINE DISP, and press <ENTER>.

V. QUICK REFERENCE MENU DIRECTORY

LoadMaxx Scale System

CALIBRATION REQUIRED
BEFORE USE

WEIGHTS
ALARMS
PRINT, SETUP
*(shows only **SETUP** if data stream)*
PRINT MENU *(if no data stream)*
SYSTEM SETUP
CALIBRATION
SYS CONFIG
SET PIN#
DIAGNOSTICS

WEIGHT
Displays first 3 axle weights
(Next axle weights if any)
<▼> for GVW/Net Payload
Or
TRAILER NET PAYLOAD
(Models 5858, 5859 only)

ALARMS
SET ALARMS (*Requires PIN#.)*
ALARM 1 (*or* ALARM 2 *if not using STR 20% GVW*)
GVW, NET ALM1 (or ALM 2)
GVW ALARM
WARN WT 1 (or 2)
ALRM WT 1
NET ALARM
WARN WT 1
ALRM WT 1
TRCTR ALRMS1
STEER ALARM
WARN WT 1
ALRM WT 1
DRIVE ALARM
WARN WT 1
ALRM WT 1
TRLER ALRMS1
WARN WT 1
ALRM WT 1
ALARM CNTROLS
STR 20% GVW
ALARM LOGIC
ALARM DELAYS
TURN ON/OFF

PRINT, SETUP
*(shows only **SETUP** if data stream)*
PRINT MENU *(if no data stream)*
PRINT REPORT
DATE / TIME
REPRT COPIES
SYSTEM SETUP
CALIBRATION (*Requires PIN#. Each axle suspension must be calibrated separately.)*
ADJUST CALIB
MANUAL CALIB
EMPTY WEIGHT
HEAVY WEIGHT
ENTER RATIO
CALIB RATIO
CALIB OFFSET
SYS CONFIG
DISPLAY SETUP
WEIGHT SETUP
LBS/KGS
2 OR 3 LINES
FILTER FREQ
SHOW/HIDE
SHOW GVW
SHOW STEER
SHOW HELP
BACKLIGHT
SCALE TYPE (*Requires PIN#)*
MODEL NUMBER
(Changes sensor configuration.)
DATA/REPORT
MORE OPTIONS
CAN PROTOCOL
INCLINOMETR
LANGUAGE
SET PIN #

DIAGNOSTICS
SYSTEM STATUS
ALARMS
ALARM WEIGHTS
TEST ALARM (TRACTOR)
COMLINKS
A/D READINGS
CALIB DATA
USER DATA<A/D>
USER DATA<WEIGHTS>
COMLINK ID

VI. MENU OPERATIONS AND DEFINITIONS

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

WEIGHTS DISPLAYS
See Section IV.A.

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

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

ALARMS
See Section IV.D.

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 Section II.

SYS CONFIG
See the SYS CONFIG MENU subsection, below.

SET PIN #
See Section IV.C.

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 MENU

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.

2 OR 3 LINES
Causes the Weight Displays to appear in large or normal characters. See Section IV.G.

FILTER FREQ
Allows filtering out weight measurement spikes and oscillations. Refer to Product Application Note Filtering Out Weight Spikes, P/N 903-0135-000, for more information on this subject.

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

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.

SCALE TYPE MENU

MODEL NUMBER
Used to change the LoadMaxx Truck Scale configuration; for instance, when adding an additional sensor at a later date. This Guide is intended only for Model **5809**. 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 Ticket reports. DATA STREAM and OBM STREAM (On Board Mass stream) configure the port to output vehicle weights to another electronics device, approximately twice per second.

For DATA STREAM, refer to Product Application Note LoadMaxx Weights Output Data Stream on its RS232 Port, P/N 903-0084-000. For OBM STREAM, refer to Product Application Note LoadMaxx On Board Mass Output Data Stream on its RS232 Port, P/N 903-0143-000. Consult Air-Weigh Support for more information on this subject.

When either DATA STREAM or OBM 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 or direct connect trailer suspension sensor 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 Section IV.B, How-To-Weigh Instructions, above.

DIAGNOSTICS MENU

SYSTM STATUS
Use this menu to obtain the Scale Display's system status, including weight units (Lbs or Kgs), error status, the Scale Display's software version numbers and its serial number, and inclinometer diagnostics. Use the up/down arrows <▲▼> to scroll between the three SYSTEM STATUS 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 both Truck ComLink alarms 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 the 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.

VII. 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 Main Menu appears, with VIEW WEIGHTS blinking.
- Press the down arrow <▼> 2 times until PRINT, SETUP begins blinking, then depress <ENTER>.
- Press the down arrow <▼> 2 times until DIAGNOSTICS begins blinking, then depress <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 the chart below for all fault code problems and solutions.

Troubleshooting Chart		
Code	**Problem Description**	**Solution**
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.

VII.A. INCORRECT WEIGHT READINGS

If both empty and heavy 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.

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT,SETUP, leading to the next menu.
3. Select DIAGNOSTICS, leading to the next menu.
4. Select COMLINKS, leading to the next menu.
5. Select A/D READINGS, leading to the STR A/D reading.
6. Press the <▲▼> buttons to select the desired axle group A/D reading. A reading of 409 indicates a sensor fault, sensor cable unplugged or severed, no sensor, etc.

VIII. 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.

IX. 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.

X. Index of Application Notes

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

903-0071-000 – Collecting and Entering Calibration

903-0073-000 – 5800, Calculating Axle Weights on a Platform Scale

903-0075-000 – J1587 Weight Messages for Users

903-0077-000 – Operating Voltages and Current for 5800 Series Products

903-0084-000 – LoadMaxx Weights Output Data Stream on its RS232 Port

903-0085-000 – Obtaining good tractor / trailer scale communications

903-0095-000 – LoadMaxx J1939 Message Protocol Interface Specification

901-0104-000 – Air-Weigh LoadMaxx / Inclinometer Option (Americas / Australia)

901-0104-001 – Air-Weigh LoadMaxx / Inclinometer Option (Europe / Africa)

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

903-0107-000 – Application Note, CANopen Broadcast, LoadMaxx

901-0110-000 –Installation Guide for Tractors with a Hydraulic Drive

903-0115-000 – Calibration by Direct Entry of RATIO and OFFSET Values

903-0122-000 – Installing And Programming Overweight Alarms

903-0135-000 – Filtering or Smoothing Rapid Weight Changes

903-0143-000 – LoadMaxx On Board Mass Output Data Stream on its RS232 Port

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, 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.

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, 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.

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.

Air-Weigh

1730 Willow Creek Circle • Eugene, Oregon 97402-9152 USA
P.O.Box 24308 • Eugene, Oregon 97402-0437 USA

Telephone (541) 343-7884 • Order Desk (888) 459-3444
Customer Support (888) 459-3247 • FAX (541) 431-3121
Hours of Operation: Mon-Fri, 7am – 5pm, Pacific Time
www.Air-Weigh.com

Installation data

See Diagnostics Menu sections, pages 22 – 23, 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 _____

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 /▼▼▼ ▼▼ _____

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 /▼▼▼ ▼ _____

Drive axle warning 2 weight
DIAG / ALARMS / WTS /▼▼▼ ▼▼▼ _____

Drive axle alarm 2 weight
DIAG / ALARMS / WTS /▼▼▼ ▼▼▼ _____

GVW alarm 2 weight
DIAG / A'S / WTS /▼▼▼ ▼▼▼ ▼ _____

GVW warning 2 weight
DIAG / A'S / WTS /▼▼▼ ▼▼▼ ▼ _____

Net alarm 2 weight
DIAG / A'S / WTS /▼▼▼ ▼▼▼ ▼▼ _____

Net warning 2 weight
DIAG / A'S / WTS /▼▼▼ ▼▼▼ ▼▼ _____

Notes

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