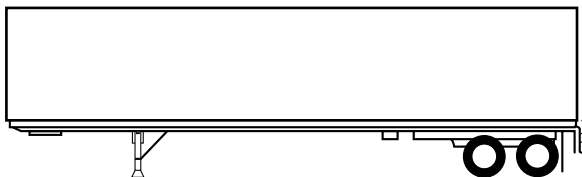


Air-Weigh

The Accurate On-Board Electronic Scale™



TRAILER SCALE

Installation and Operations Manual

June 2001

Air-Weigh

The Accurate On-Board Electronic Scale™

Limited Warranty

Your Hi-Tech Transport Electronics™ product is warranted against defects in material or workmanship for one year from the date of the original purchase. Any Hi-Tech Transport Electronics product, which, because of a manufacturing mistake or malfunction, proves to be defective within the one year warranty period, will be repaired or replaced at Hi-Tech Transport Electronics' option, and at no charge to you, provided it is returned to Hi-Tech Transport Electronics with proof of purchase.

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. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above warranty does not apply in those states. This warranty gives you specific legal rights and you may also have other rights, which vary state to state.

Hi-Tech Transport Electronics shall have no responsibility for overload fines received while using this product.

For repairs or replacement, please return the defective part of your Hi-Tech Transport Electronics product with proof of purchase to: Hi-Tech Transport Electronics, Customer Support Department, 1730 Willow Creek Circle, Eugene, Oregon 97402, USA. Returns require an Return Material Authorization (RMA) number. Call (888) 459-3247 for an RMA number.

If the warranty period has expired, or other terms of the warranty are not met, mail the unit to us as indicated above. A service charge will be made according to the repairs needed, and the unit will be returned to you C.O.D.

Hi-Tech Transport Electronics, Inc.

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

www.Air-Weigh.com

Patents #5,478,974; #623,635; #4,832,141

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Customer Support: Monday – Friday • 8AM – 5PM Pacific Time

Toll Free: (888) 459-3247 Outside US: (541) 343-7884

SYSTEM PARTS

Part#	Description	Trailer ComLink Kit qty.			
		w/o ABS	w/ ABS	w/ Dual Leveling Valves w/o ABS	w/ Dual Leveling Valves w/ABS
000-5702-002	Trailer Scale Kit, AW5700 w/ABS T-Breakout	-	X	-	-
000-5704-012	Trailer Scale Kit, AW5700, w/ABS T-Breakout, Dual Leveling Valve Processor	-	-	-	X
000-5702-012	Trailer Scale Kit, AW5700, w/out ABS T-Breakout	X	-	-	-
000-5704-002	Trailer ABS Scale Kit, AW5700, w/out ABS T-Breakout, Dual Leveling Valve Processor	-	-	X	-
010-8023-000	Cable, AW5700, Trailer, Power, Blunt Cut, 35'	1	-	1	-
010-8904-001	Trailer ABS T-Breakout Connector, with Brake Light and ABS Fail	-	1	-	1
010-8908-000	Cable, AW5700, Trailer, Power, ABS T-Breakout, 25'	-	1	-	1
010-9106-002	Sensor Assembly, AW5700, 5V w/3/8" Brass Fittings and 25' cable	1	1	2	2
131-4021-000	Screw, TEK Screw sheet metal, hex washer head, 10 x 1 1/2 self-drilling	2	2	2	2
131-4022-000	Screw, TEK Hex washer head, 10x1/2, self drilling	4	4	4	4
131-4065-002	Bolt, N/C 1/4-20x1.5	2	2	2	2
132-4070-001	Locknuts 1/4-20	2	2	2	2
133-5002-001	Washer, flat 1/4 - 5/16 ID x 3/4 OD x 1/16 thick zinc	2	2	2	2
139-4055-002	Conn, lug, .375", 16-14 AWG Solder-N-Seal eye	3	-	3	-
145-4552-001	Nylon ties, black 7-inch	25	25	25	25
149-0011-000	Clamp, cable nylon, 3/8 IDx1/2 wide	4	4	4	4
901-0002-005	Manual, ComLink with electronic Air-Gauge, installation and operation	1	1	1	1
164-0005-000	Decal, Trailer, Nose-Mount	1	1	1	1
164-0006-000	Decal, Trailer, Side-Mount, weight	1	1	1	1
164-0007-000	Decal, Trailer, Side-Mount, pressure	1	1	1	1
Optional					
010-0012-000	Mounting Bracket, AW5700, ComLink, Left Side Mount				

Specifications

Width: 7 inches, **Length:** 3.75 inches, **Height:** 2 inches, **Weight:** 22 oz.

Temperature range -40 to 85° C (-40 to 150° F)

Input voltage range: 7–24 VDC, WireLink current output limit: 2 Amps

ComLink is weathertight (Immersion to IP67) for mounting in any location.

OVERVIEW

The ComLink with electronic air gauge and weight indicator is a trailer-mounted device that displays suspension air pressure or weight readings on an LED display.

Trailer ComLink Scale Kit—The Trailer Kit consists of the Trailer ComLink processing unit, the air suspension pressure Sensor Assembly, and the ComLink-to-power source cable. One Trailer Kit is installed on each trailing suspension in order to process weight data for each of the weight supporting suspensions in the vehicle. One ComLink provides weight data for all axles controlled by a single height control valve. A Trailer ComLink specified with Dual Leveling Valve sensor processing displays the average pressure or weight of an axle group equipped with left and right height control valves.

The ComLink scale LED display shows the weight in pounds or kilograms and can be switched between either as desired. When the scale is set for pounds, the LED display shows the weight in 100 pound increments, with a decimal to the left of the hundreds digit (e.g., 29.4 = 29,400 lbs). When the scale is set for kilograms, the LED display shows the weight in 100 kilogram increments, with a decimal to the left of the hundreds digit (e.g., 15.5 = 15,500 kilograms).

Error codes are displayed on the PSI/Weight LED display as Exx, where xx is a two-digit numerical error code. See Troubleshooting section for Error Code information.

OPERATIONS

The Air-Weigh Trailer Scale operates in one of two indicator modes:

1. Weight mode (after calibration) is identified by a number, usually “3” in the MODE digit on the Trailer Scale. In this mode, the Scale displays on-ground weight supported by the suspension. Weight is indicated in 100 pound increments, so a reading of “33.4” represents 33,400 pounds (or kilograms). Weight mode requires the unit to be calibrated to the suspension, normally accomplished with an Air-Weigh 5700 Tractor Scale. Also, many trailer manufacturers are able to provide pre-calibrated Trailer Scales that operate in weight mode without a tractor scale. Once a Trailer Scale is calibrated, it will display on-ground weight even if the tractor is not equipped with a scale.
2. Electronic Air Gauge (default mode) is identified by a “P” displayed in the MODE digit on the Trailer Scale. In this mode, the Scale displays air pressure in the air suspension, to the nearest 1/10th of a PSI unit. A reading of “55.6” on the Trailer Scale while in air-pressure mode represents 55.6 PSI in the suspension.

Operating Decals

Your Trailer Scale Kit is supplied with three Operation Decals, two of which should be mounted on your trailer. Thoroughly clean the trailer surface before mounting the decals. Each has mounting instructions printed on the back.

The Decal, Trailer, Nose-Mount (164-0005-000) should be mounted near the power cable connections and glad-hands on the trailer nose. One of the other two decals should be mounted on the side of the trailer, near the Trailer Scale. If your Trailer Scale is to be calibrated to display actual weight, then you should mount the Decal, Trailer, Side-Mount, Weight (164-0006-000). If your Trailer Scale is going to operate in its default mode as an electronic air gauge and will display air pressure, then you should mount the Decal, Trailer, Side-Mount, Pressure. So you have a reference for future use, use a permanent marker to write the air pressure displayed on the decal when you are loaded to your legal limit.

General Operation Considerations

For the most accurate and repeatable results with the Air-Weigh Trailer Scale, ensure that:

1. The trailer is on flat and level ground, and that the suspension is not affected by uneven or steeply sloping terrain.
2. The trailer brakes must be released. When the brakes are engaged, a load is applied to the suspension and will result in inaccurate readings.
3. If the suspension is equipped with a dump valve, dump the air momentarily and allow the suspension to re-inflate before observing the scale reading.
4. The suspension is properly set at factory-specified ride-height, that the height-control valve is functioning properly, and that the linkage to the height-control valve is secure.

Weight Mode Operation

To operate the Air-Weigh Trailer Scale in weight mode, simply observe the weight display and multiply the number by 100 pounds to convert to an on-ground weight. When the trailer is equipped with lift or tag axles, ensure that the axles are in the position that the unit was calibrated in. This is normally in the “up” position, but may vary based on how the auxiliary axle is fitted. Consult with Air-Weigh’s Customer Support Department for questions on operating a trailer with lift axles.

Air Gauge Operation

Operation in the pressure mode is identical to using a dial gauge. The operator will need to identify the appropriate pressure reading for the desired weight. It may be useful to record several pressure readings and the corresponding axle weights. Normally, the operator will need to determine the air pressure reading for the maximum legal weight for the suspension configuration. Use the decals included in the kit to record weights and pressures:



DISPLAY	AXLE WEIGHT
_____ . = _____	_____ lb/kg
_____ . = _____	_____ lb/kg
_____ . = _____	_____ lb/kg
_____ . = _____	_____ lb/kg
_____ . = _____	_____ lb/kg
_____ . = _____	_____ lb/kg

This Air-Weigh Trailer Scale operates as a very accurate air gauge to indicate weight on the trailer suspension. It displays actual air pressure of the trailer suspension in 1/10th PSI increments. (P 58.3 = 58.3 PSI)
 To calibrate the scale to actual weight, use a permanent marker to write actual fully loaded weight and the PSI display on the chart. Other weights and pressures may also be recorded on the chart for future reference. For most accurate weight, trailer brakes should be released and suspension fully inflated to ride height. Adjust slider or load until Air-Weigh Scale indicates legal pressure/weight limit.

(541) 343-7884 Air-Weigh.com Made in USA
 P/N 164-0007-000

INSTALLATION

Mounting Instructions

A reversible steel mounting bracket is included with the Trailer Scale. Locate the mounting bracket to your best advantage. Install ComLink so it is visible by the driver during loading. The mounting bracket may be reversed for flush-mount applications, or not used when mounting ComLink to a vertical surface.



Fig. 1: Typical Trailer Installation without bracket



Fig. 2: Typical Trailer Installation using bracket



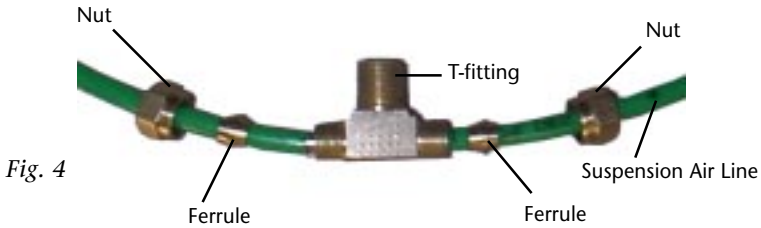
Fig. 3: Optional Mounting Bracket (010-0012-000)

Installing Air Pressure Sensor

1. Locate the suspension air lines. The best location to mount the sensor is between any two air bags where the sensor will not contact any metal.
2. Remove any paint on the air line and wipe clean. Cut the air line.

Installation

- Slide the brass ferrules and nuts onto the air line and insert the T-fitting into the lines. Tighten the compression nuts. (See fig. 4)



- Connect both ComLink power and sensor cables along the umbilical connection if the trailer is equipped with sliding suspension. Be sure to use enough cable for proper suspension sliding. Secure cable to trailer wiring harness with wire ties to prevent vibration and damage. Be sure the connector locking tab is securely snapped in place. (See fig. 5)



- NOTE: Do not install sensor directly onto airspring or where sensor body is electrically grounded. Grounding of sensor body will result in fluctuating weight and/or pressure readings. Insulate sensor from frame rail or wire-tie sensor so it does not touch metal. Secure the ComLink cable from vibration using wire ties. (See fig. 6)

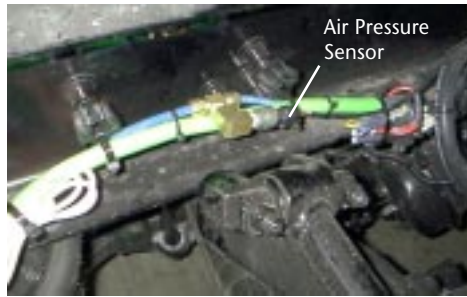


Fig. 6: Air Pressure Sensor Completed Installation

Connecting Power To ComLink Trailer Module

There are two methods of connecting the wiring to your ComLink Trailer Module: Junction Box or with the ABS T-Breakout Connector (for most trailers with ABS systems).

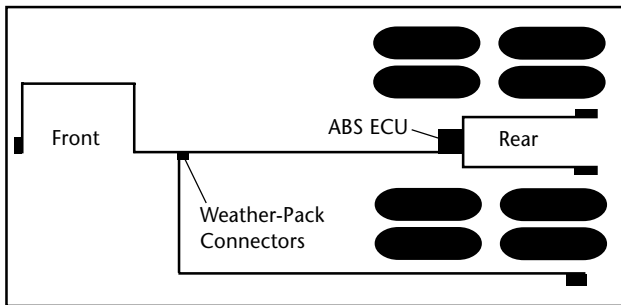


Fig 7: Typical Trailer Wiring

Installing the ABS T-Breakout Connector

Air-Weigh has developed a solderless Trailer ABS T-Breakout Connector for quick and easy connections to power and ground. This connection (#000-8904-001) does not interrupt power to the ABS ECU, and does not require splicing or soldering of wires.

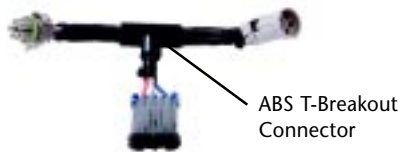
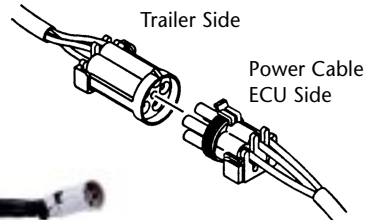
This harness meets or exceeds TTMA, SAE and TMC wiring standards. Most ABS-equipped trailers specify the use of a 5-pin Weather-Pack connector to supply power, ground and brake signals to the ABS ECU.

Installation

1. Locate the ABS ECU. Trace the ABS ECU power cable to its connection to the trailer wiring harness.
2. Unplug the 5-pin Weather-Pack connection between the ABS ECU power cable and the trailer wiring harness.
3. Connect the ABS power cable and the trailer wiring harness to the ABS T-Breakout Connector. Ensure the locking tabs are locked securely.
4. Connect the ComLink cable to the ABS T-Breakout Connector. Route both the ComLink power and sensor cables through the umbilical connection if the trailer is equipped with sliding suspension. Be sure to use enough cable for proper sliding. Secure cable to the trailer wiring harness with wire ties to prevent vibration and damage.



Fig. 8

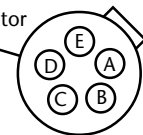


ComLink Connector Cable



Weather-Pack Connector Pinout Specifications

- A: Brake Light (Red)
- B: +12V (Blue)
- C: Unused (White/Green)
- D: Warning Lamp (White/Yellow)
- E: Ground (White)



Junction Box Method

1. Locate the trailer Junction Box. Trace the J-560 to where it breaks into a Junction Box. Remove cover of Junction Box to expose wiring array.
2. Connect Air-Weigh's RED power wire to the Junction Box's Blue Aux. Wire (primary) or the Brown or Black Marker light wires (secondary).
3. Connect Air-Weigh's BLACK (negative) wire to the Junction Box's White Ground wire, or any other good Ground source. If the trailer is equipped with ABS, connect the Air-Weigh GREEN wire to the side mounted ABS fault lamp circuit. If the trailer is NOT equipped with ABS, cut the Air-Weigh GREEN wire off — it is not needed in this application.

Connecting WireLink Output

The ComLink is equipped with one WireLink output control channel, used in conjunction with the AW5700 Tractor scale kit. This brown wire is controlled by the WireLink input on the Tractor ComLink, and can provide up to two (2) amps of switchable accessory current. When not used, wire-tie the brown wire to the sensor and power cables to secure. If used, refer to AW5700 Tractor Scale Kit Installation and Operations Manual.



Fig. 9

TROUBLESHOOTING

LED Error Codes

All 7-segment LED indicators are of the form **E 0X** where **X** is one of the following:

E0X: Problem

- E00: EEPROM won't initialize.
- E01: Watchdog won't reset.
- E02: Upper program memory error.
- E03: RAM error at start of reprogramming.
- E04: ROM error at start of reprogramming
- E05: Incorrect version at start of reprogramming.

Blink Codes

The ComLink displays diagnostic codes to identify its status. It will indicate error conditions by blinking an error code on its LED light. The message is similiar to Morse code. The LED will flash a “dash” (–) with a 1.5 second red or green light. It will flash a “dot” (•) with a brief 0.2-second red (◐) or green light (◑). All error messages consist of a set of four flashes.

Trailer Blink Codes

Normal Operating Codes

Code	Mode
Solid Green	Idle.
•••••••• Flashing Green	One or more inputs on the tractor have been activated.

Error Codes

Code	Cause	Solution
Solid Red	Trailer is sensing an ABS fault.	Start trailer ABS troubleshooting procedures.
◐◐◐— Flashing red	Input voltage is too low.	Check power source and connections to the ComLink.
◐◐—◐ Flashing red	ComLink internal voltage is too low or too high.	Remove and replace the ComLink.

—○○○
Flashing red

Tractor cannot read the trailer's transmission.

Connect trailer to different tractor unit ensuring that the ComLink is working correctly and start troubleshooting the tractor unit.

● — ● —
Flashing green

No communication with the tractor.

Ensure the power circuit for the tractor is active. If no tractor is found, the blink status stops after 3 1/2 minutes.

— — ● ●
Flashing green

Tractor isn't a 1 x 1 device, but reads the trailer's 1x1 communication.

No input commands are being communicated from the tractor, however another tractor WireLink device is reading the trailer's ABS fault lamp status. Stops three minutes after system power up.

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Patents #5,478,974; #623,635; #4,832,141

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