

Installation Instructions

ActuLink ABS Module - ABS-MOD-400



For more information on the installation and operation of Tuson's towable ABS system, consult the installation and operations manuals for the ActuLink ABS Actuator and the DirecLink NE ABS model.



Tuson RV Brakes, LLC
475 Bunker Court
Vernon Hills, IL 60061
800-968-8766

www.direclink.com

May 2011

ActuLink ABS Module Installation Instructions

Mounting the ActuLink ABS Module

The mounting guidelines listed below should be followed:

- Ensure the selected location is accessible for service and for brake line and wiring installation.
- The ActuLink ABS Module must be mounted in a location where it will be protected from damage from trailer load and road debris.
- The ActuLink ABS Module is weather sealed and water resistant, but should not be mounted in a location that will be submerged in water.
- The ActuLink ABS Module should be mounted in proximity to the towable axles.



Warning!

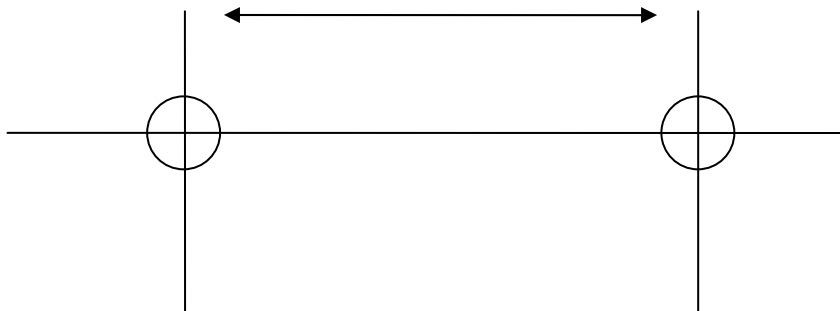
DO NOT SPRAY HIGH PRESSURE WATER ON THE ActuLink ABS Module. The ActuLink ABS Module is a weather sealed, water resistant unit. But, it is not designed to withstand direct, high pressure spray from a power washer.

The ActuLink ABS Module should be mounted using the two existing mounting holes with two 3/8" bolts. The mounting holes in the ActuLink ABS Module are 1" deep and the template below can be used to properly position and drill the holes in the surface to be used for mounting. It is recommended that lock washers be used and you must securely tighten the mounting bolts to prevent damage to the module or to the attached brake lines from excessive vibration.

You can **NOT** drill holes in the ActuLink ABS Module for any reason. Drilling holes or puncturing the unit VOIDS YOUR WARRANTY.

ABS Module Bottom Mounting Holes Drill Template

(screws: 3/8" - 24 x 1")
2 holes, 3/8" dia, 68mm (2.677") apart



Installation of Hydraulic Lines

The ActuLink ABS Module has 6 brass 1/8" NPTF male fittings with #3 (3/16") female inverted flare tube seat adapters (for 1/8" brake line). These fittings are all clearly labeled and it is critical that the proper hydraulic line is connected to the proper location on the ActuLink ABS Module.

On one side of the ActuLink ABS Module, there are two fittings: one is labeled PIN (pressure input) and the other is labeled RET (return line). This side of the ActuLink ABS Module should be positioned to face toward the ActuLink ABS actuator and it is critical that the pressure output of the ActuLink ABS actuator is connected to the pressure input of the ActuLink ABS Module. It is equally critical that the return line of the ActuLink ABS actuator is connected to the return line of the ActuLink ABS Module.

On the opposite side the ActuLink ABS Module, there are four fittings: Each is labeled with a number (1,2,3,4). These numbers correspond with a specific brake caliper with which it must be connected. These connections are as follows:

Fitting 1: Driver's side front brake caliper	Fitting 3: Passenger's side rear brake caliper
Fitting 2: Driver's side rear brake caliper	Fitting 4: Passenger's side front brake caliper

It is critical that each of these lines be properly connected as outlined above. If any line is improperly connected, the ABS system will not work properly.

DO NOT use Teflon pipe tape or other type of thread dope when connecting brake tubing or hose. **You must hold the ActuLink brass fitting securely in place with the appropriate size wrench when tightening the brake line fitting to the ActuLink ABS Module. Failure to secure the brass fitting may cause damage to the brake line fitting.** When installing steel tubing, use care to avoid sharp kinks or bends, which can restrict brake fluid flow causing poor brake response. Double flare the ends of the steel tubing to ensure tight leak proof connections. All steel hydraulic lines should be anchored at two foot intervals to prevent vibration and chafing. Rubber hydraulic hose should be used at points where flexing may occur. Be sure hydraulic hose is positioned so it does not rub against any surface during trailering. Anchor ends of tubing to minimize stress. Follow the instructions of your brake manufacturer when connecting the brake lines to the brake caliper.

Connecting ABS Module to Wheel Speed Sensors

The ActuLink ABS Module wire harness has four (4) connectors for ABS Wheel Speed Sensors. These connectors are color coded and the proper color must be attached to the proper wheel speed sensor as outlined below:

Cable #1	Purple: Driver Side Front Wheel
Cable #2	Gray: Driver Side Rear Wheel
Cable #3	Tan: Passenger Side Rear Wheel
Cable #4	Pink: Passenger Side Front Wheel

It is critical that the wheel speed sensor cables are connected as outlined above or the entire towable ABS system will not function properly.

Note: For triple axle trailers, the center wheels do not have wheel speed sensors and the center wheel brakes are connected with a tee to the front wheel hydraulic lines for spring suspension trailers or to the rear wheel hydraulic lines for torsion suspension trailers.



Warning!

Prior to welding or electrostatic painting on the trailer, disconnect the wiring harness and hydraulic lines from the ActuLink actuator and ABS Module. Failure to do so may cause damage to the actuator and/or the ABS Module's electronics which will void the warranty.

Installing Wheel Speed Sensors

It is critical that the gap between the end of the wheel speed sensor and the teeth of the tone ring are in very close proximity (no greater than 0.040" / 1mm). There are two types of mounting hardware available for mounting wheel speed sensors: 1) Tuson's spring loaded bracket, 2) hollow bolt (which may be an integral part of the brake caliper mounting bracket or may be a separate bolt that is installed in an opening in the brake caliper mounting bracket) with a spring clip. Tuson's spring loaded mount comes with shims that are 0.040" / 1mm thick. Without the shims, the sensor will come into contact with the teeth of the tone ring. Therefore, the shims should be added, one at a time, until the sensor is no longer in contact with the teeth on the tone ring when the rotor is fully installed (with the spindle nut properly installed and pinned with a cotter pin) At that point, rotate the rotor completely to ensure the sensor does not come into contact with the tone ring and that the gap is no greater than 0.040" / 1 mm. With non-spring loaded mounts, a 0.040" / 1mm feeler gauge should be used to obtain the proper gap. Place the feeler gauge between the teeth of the tone ring and the sensor and slide the sensor toward the teeth until it makes contact with the feeler gauge. When the feeler gauge is removed, the barrel spring clip in the sensor mount will hold the sensor in place.

Note: When using the hollow bolt with spring clip to mount the wheel speed sensors, the sensors should not slide easily within the hollow bolt as the spring clip must hold it very firmly in place. It should take significant force to move the sensor inward toward the teeth. If the sensor moves easily, that is an indication to replace the spring clip with a new one. If this is not done, the sensor will eventually move from the tone ring teeth and will stop capturing data which will diminish the performance or disable the ABS system.

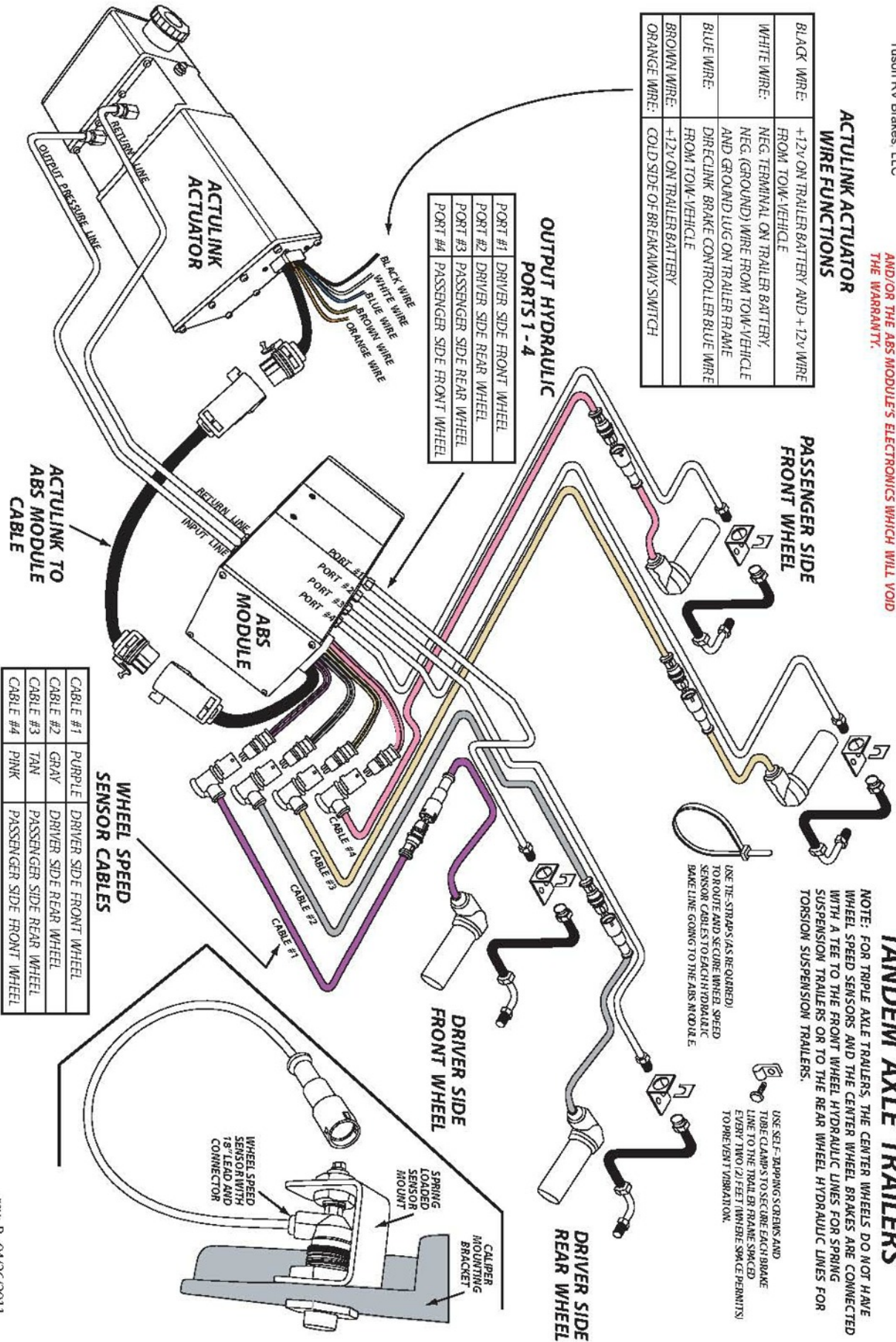
WARNING: PRIOR TO WELDING OR ELECTROSTATIC PAINTING ON THE TRAILER, DISCONNECT THE WIRING HARNESS AND HYDRAULIC LINES FROM THE ACTUATOR AND ABS MODULE. FAILURE TO DO SO MAY CAUSE DAMAGE TO THE ACTUATOR AND/OR THE ABS MODULE'S ELECTRONICS WHICH WILL VOID THE WARRANTY.

ACTU LINK ACTUATOR WIRE FUNCTIONS

BLACK WIRE:	+12V ON TRAILER BATTERY AND +12V WIRE FROM TOW-VEHICLE
WHITE WIRE:	NEG. TERMINAL ON TRAILER BATTERY, NEG. (GROUND) WIRE FROM TOW-VEHICLE AND GROUND LUG ON TRAILER FRAME
BLUE WIRE:	DIRECT LINK BRAKE CONTROLLER BLUE WIRE FROM TOW-VEHICLE
BROWN WIRE:	+12V ON TRAILER BATTERY
ORANGE WIRE:	COLD SIDE OF BREAKAWAY SWITCH

OUTPUT HYDRAULIC PORTS 1-4

PORT #1	DRIVER SIDE FRONT WHEEL
PORT #2	DRIVER SIDE REAR WHEEL
PORT #3	PASSENGER SIDE REAR WHEEL
PORT #4	PASSENGER SIDE FRONT WHEEL



PASSENGER SIDE REAR WHEEL

PASSENGER SIDE FRONT WHEEL

TRAILER ABS INSTALLATION DIAGRAM FOR TANDEM AXLE TRAILERS

NOTE: FOR TRIPLE AXLE TRAILERS, THE CENTER WHEELS DO NOT HAVE WHEEL SPEED SENSORS AND THE CENTER WHEEL BRAKES ARE CONNECTED WITH A TEE TO THE FRONT WHEEL HYDRAULIC LINES FOR SPRING SUSPENSION TRAILERS OR TO THE REAR WHEEL HYDRAULIC LINES FOR TORSION SUSPENSION TRAILERS.

USE THE STRAPS (AS REQUIRED) TO ROUTE AND SECURE WHEEL SPEED SENSOR CABLES TO EACH HYDRAULIC BRAKE LINE GOING TO THE ABS MODULE.

USE SELF-TAPPING SCREWS AND TUBE CLAMPS TO SECURE EACH BRAKE LINE TO THE TRAILER FRAME SPACED EVERY TWO (2) FEET (WHERE SPACE PERMITS) TO PREVENT VIBRATION.

WHEEL SPEED SENSOR CABLES

CABLE #1	PURPLE	DRIVER SIDE FRONT WHEEL
CABLE #2	GRAY	DRIVER SIDE REAR WHEEL
CABLE #3	TAN	PASSENGER SIDE REAR WHEEL
CABLE #4	PINK	PASSENGER SIDE FRONT WHEEL