



**BrakeRite** EHB  
ELECTRIC / HYDRAULIC  
TOWED VEHICLE BRAKE  
ACTUATOR

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## 1.0 - WARNINGS

### **... WARNINGS ...**

Before using trailer always check:

- 1) Brake fluid level must be maintained between three eighths & three quarters of an inch of filler cap opening.
- 2) Prior to moving coupled units check unit to be certain system is functioning properly (consult owner's manual).
- 3) Prior to moving coupled units check BREAKAWAY PROTECTION. NEVER ATTEMPT TO MOVE/USE THE TRAILER if the Breakaway Battery is TRAILER if the Breakaway Battery is not fully charged.
- 4) DO NOT RELY ON Towed Vehicle Brakes for entire unit braking. The Towed Vehicle Brake is only to supplement the Braking System on the Towing Vehicle, NOT TO STOP THE ENTIRE UNIT.
- 5) ALWAYS operate unit within prudent parameters and obey all laws.

## 2.0 - SYSTEM DESCRIPTION

The BrakeRite Electric / Hydraulic Brake (EHB) System is an electric over hydraulic braking system using electric power from the towing vehicle electrical system. As the brake pedal of the towing vehicle is depressed and the brake lights come on, the BrakeRite EHB system is activated and the towed vehicle brakes are applied. The electronic control package inside the BrakeRite EHB is turned on by the signal used to control pressure as sent from the in-cab electronic brake controller (sold separately). This pressure is maintained on the towed vehicle brakes until the towing vehicle brake pedal is totally released. It is very important that the driver NOT RIDE THE BRAKE PEDAL as this causes constant drag on the towed vehicle brakes and will cause the towed vehicle brakes to prematurely wear or overheat and may also cause the BrakeRite EHB unit to overheat. (The actual pressure control process is the result of an electric motor driven piston pump and electronically controlled pressure relief valve, which are the heart of the system.)

**2.1** - Brake pressure is controlled by the use of a standard in-cab *electronic brake controller*. Use of the electronic brake controller allows the operator to select the desired towed vehicle brake performance from the driver's position plus allowing *manual override* if the driver wishes to apply only the towed vehicle brakes. If the towing vehicle is already being used for a towed vehicle with electric brakes, the BrakeRite EHB can be *plugged* into the standard six or seven pin electrical connector (if the controller has been wired correctly)

**2.2** - A breakaway kit (sold separately), to be mounted on the trailer, is also required to supply electrical power in the event that the towed vehicle becomes *uncoupled* from the towing vehicle. This kit consists of battery, battery case with mounting bracket, and a breakaway switch. There is a cable attached to the breakaway switch that is also connected to the towing vehicle during use. In the event of an unplanned *un-coupling* the cable actuates the breakaway switch causing the towed vehicle brakes to apply.

**2.3** - Because this system relies on electrical power to produce the towed vehicle braking forces the electrical power source is very critical. The system has been designed to operate at 12 volts DC and has been factory set to operate at that level. Due to the current draw of the pump motor, power leads must be at least fourteen gauge copper automotive wire and the control leads eighteen gauge. Undersized electrical wiring will result in line losses and directly effect the function of the BrakeRite EHB .

**2.4** - The BrakeRiteEHB includes a Charge Protection circuit that is included to prevent a *surge charge* causing damage to the battery. A blocking diode has also been included in the circuit to prevent the towing vehicle from drawing power from the breakaway battery vehicle. This kit consists of battery, battery case with mounting bracket, and a breakaway switch. There is a cable attached to the breakaway switch that is also connected to the towing vehicle during use. In the event of an unplanned *un-coupling* the cable actuates the breakaway switch causing the towed vehicle brakes to apply.

### 3.0 – INSTALLATION

3.1 - Mounting location of the BrakeRite EHB unit is at the discretion of the installer, however things such as accessibility for service, protection from damage, and minimizing the length of hydraulic lines are factors to be considered. The BrakeRite EHB unit has two sets of mounting holes; one set is located on the bottom of the unit (4 - 1/4 20UNC x .63 Dp.), while the other set is located on the back. (3 - 5/16 18UNC x .63 Dp.)

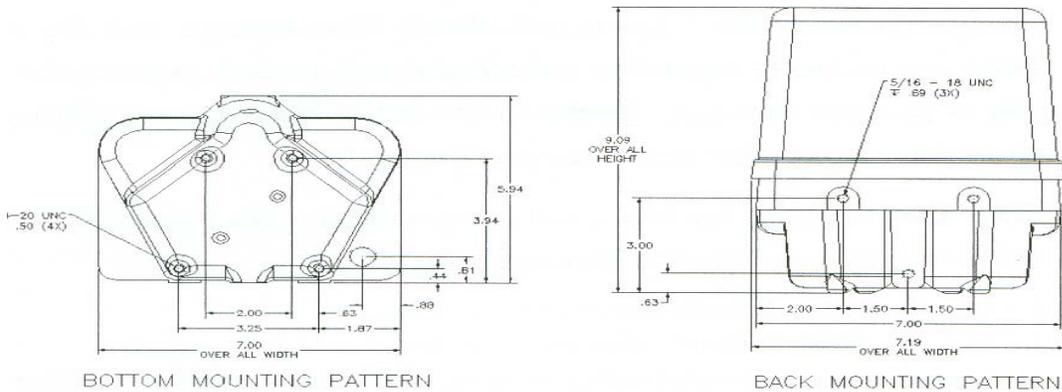


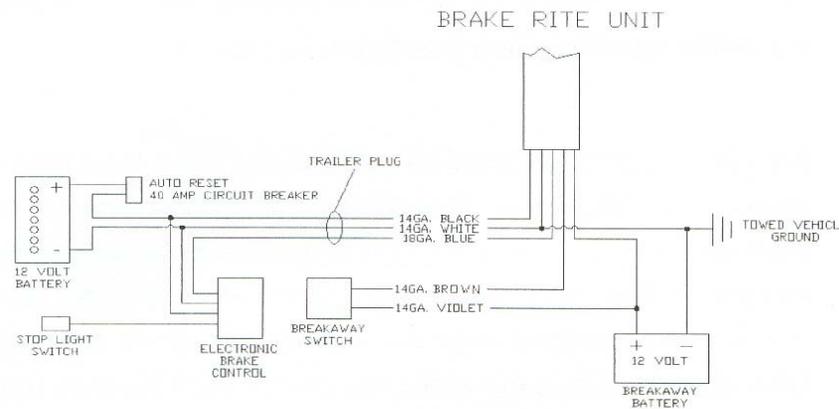
FIGURE A

3.1 (cont) - The BrakeRite EHB has a 1/8 NPTF brake port on the lower front area of the unit and a 1/8thNPTF male with #3 (3/16) female inverted tube seat adapter. Install the brass port connector to the unit, DO NOT USE Teflon pipe tape or some other type of thread dope. A brass to aluminum thread connection, when properly mated and installed DOES NOT require a sealant. Route steel line to the wheels) and connect using proper fittings and flexible tubing per the instruction of the braking device manufacturer (disc brake I drum and shoe). Use caution that the steel lines are properly mounted (attached), and routed in protected areas to prevent damage. Kinks in the brake lines can restrict brake fluid flow and cause poor brake response.

**3.2** - Connecting the electrical connections. (See figure B). There are five wires exiting the BrakeRite EHB:

- 1- 14Gauge White, 12Volts Negative (System Ground).
- 1- 14Gauge Black, 12 Volt Positive (System Power from Towing Vehicle)
- 1 - 18Gauge Blue, Electronic Brake Control Wire (from Electric Brake Controller)
- 1 - 14Gauge Brown, Breakaway Switch
- 1- 14GaugeViolet,12VoltPositive(to Breakaway Battery)

The wires exiting the BrakeRite EHB are approximately 12-inches long to allow for flexibility in mounting the unit. However, extensions will need to be added to assure proper wire routing and connection (Consult figure B, page 9, for proper wire connections).



**FIGURE B**

**3.3** - After all lines have been installed, connected, and properly tightened and the electrical connections have been completed, Fill the reservoir with CLEAN / NEW DOT III BRAKE FLUID. NEVER reuse brake fluid that has been salvaged or removed from another unit. Contaminated or dirty brake fluid can cause premature wear on the brake system and components and may result in system failure. Do not over fill the reservoir; fill within 3/8-inch of the filler opening. There are two (2) reservoir filler caps on the BrakeRite EHB. Either opening may be used for filling and/or checking fluid (see figure C, page 14)

**3.4** -It is essential to bleed all air from the brake lines prior to operation. To Bleed the BrakeRite EHB system remove the pin from the breakaway switch. This will activate the BrakeRite EHB System. In turn open the bleeder screw at each brake assembly one at a time starting with the axle furthest from the BrakeRite EHB System. Upon the initial opening of each bleeder screw air should be discharged from the screw. Allow some amount of fluid to flow from the screw after the air has been released to assure all air is bled from the system. To prevent brake fluid from spilling on the ground or on the equipment, a length of quarter inch diameter polyethylene tubing can be slipped over the bleeder screw and routed to a container for collection.

## **4.0 – OPERATION**

**4.1** - When coupling the TOWED VEHICLE to the TOWING VEHICLE always ensure that the two vehicles are properly coupled in accordance with the vehicle manufacturers' instructions. ALL coupling devices and procedures shall conform to State and Federal regulations.

**4.2** – After installation of the electrical plug on the towed vehicle, into the electrical connector on the towing vehicle, check to en-sure that proper electrical connection has been made. There are two checks to ensure that proper connection has been made. The first is visual as most Electronic Brake Controllers have an indicator light. This light will show green if the electrical connection is proper. If the light does not illuminate there are problems in the connection. As increased brake settings are made on the controller this light changes from GREEN to RED, when the towing vehicle brake pedal is depressed, depending on the intensity of the settings. The second requires starting the towing vehicle and moving the towed vehicle with a foot on the brake pedal. Apply slight pressure to the brake pedal to cause the brake lights and the BrakeRite EHB unit to energize. The towed vehicle brakes should engage with a braking force governed by the in-cab brake controller settings. If no towed vehicle braking force is observed, increase the in-cab controller settings until a slight drag by the towed vehicle is felt.

**4.3 – If NO BRAKING IS INDICATED FROM THE TOWED VEHICLE BRAKES discontinue operation immediately and review the installation and instructions in the preceding section. Also review the trouble shooting section.**

After the coupled unit system has been verified to ensure proper performance, it is desirable to take the coupled unit to a large empty parking lot to become familiar with the braking action of the coupled unit. Each vehicle has unique characteristics just as each driver has different driving habits. Take time to familiarize yourself with the response and handling of the coupled units while braking, using various settings on the in-cab brake controller. Likewise each driver, for a set of coupled units, will not always like the handling and response created by the settings of another driver. Therefore, each individual must be familiar with the controller settings to achieve the most desirable results.

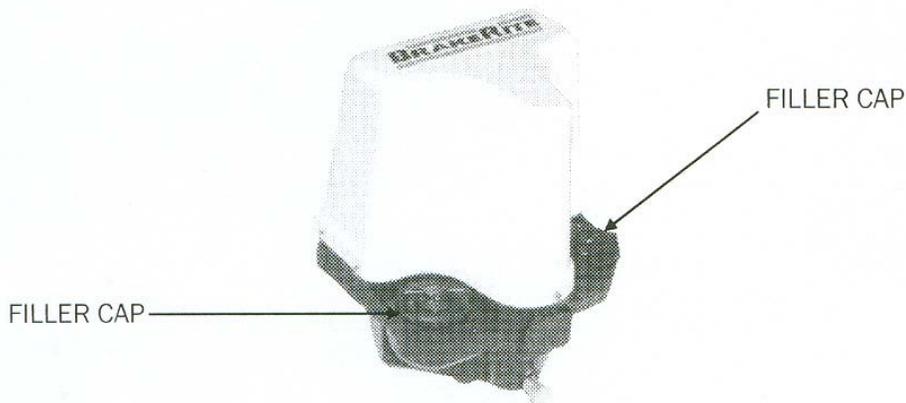
**4.4** – Settings of the in-cab electronic brake controller are adjusted by the driver. When set properly, the braking force of the towed vehicle is not required to provide braking force for the towing vehicle. Towed vehicle brakes are meant to assist the towing vehicle and not to provide all braking for the coupled unit. However, it is necessary that sufficient braking is performed by the towed vehicle so that the brakes of the towing vehicle are not required to provide braking force for the towed vehicle. Depending upon road conditions, variations in the controller setting will be needed. When driving on wet or slippery surfaces it is desirable to do more braking with the towed vehicle brakes to prevent the possibility of a jack-knife situation. By maintaining sufficient braking on the towed vehicle, sway or a tendency for the towed vehicle to push the towing vehicle is eliminated.

## **5.0 - SERVICE AND MAINTAINANCE**

**5.1** – Periodically check all wiring, the plug connector, steel brake lines and hoses for the entire BrakeRite EHB System to ensure there are no abraded or bare wires or damaged areas. During inspections ensure that a line or wire will not drag or catch on objects during operation.

Each time the vehicles are coupled, check the breakaway battery to verify it is charged. Activate the breakaway switch by "pulling" the switch cable causing the brake system to activate. If the towed vehicle has been parked for a prolonged period of time, it is advisable to charge the breakaway battery prior to operation using the battery manufacturers recommended charging procedure. If the battery is allowed to discharge in a cooled environment there is the possibility of freezing.

Check fluid level each time the vehicle is used. Maintain a fluid level of from three eighths to one half inch below filler opening. The unit has two filler openings, either one may be used for checking and/or adding the fluid (see figure C, below). Use caution to prevent the admission of dirt and/or contaminants into the fluid reservoir. When adding fluid, always use new, clean DOT III brake fluid. Never reuse brake fluid that has been salvaged.



**FIGURE C**

## 5.0 - SERVICE AND MAINTAINANCE (cont)

<b>5.2 - Trouble Shooting</b>	
<u>Issue</u>	<u>Solution</u>
<b>No LED lights on in-cab brake controller when brake pedal is applied.</b>	<b>Indicates "open circuit" between the towing and towed vehicle-inspect circuit connections per figure B, page 9.</b>
<b>Unit takes too long to come up to pressure</b>	<b>Bleed brake lines, check brake fluid levels, check electrical connections</b>
<b>Too much braking on empty trailer</b>	<b>Reduce setting on in-cab brake controller</b>
<b>Too much braking on loaded trailer</b>	<b>Reduce setting on in-cab brake controller</b>
<b>Not enough braking</b>	<b>Increase setting on in-cab controller, bleed brake lines, check brake fluid levels</b>

### 5.3 – Replacement Parts.

The BrakeRite EHB comes from the factory with a tamper seal on the cover. The warranty on the BrakeRite EHB is voided if the cover seal is broken. Contact Titan Distribution, Inc. at 800-832-8781 for information on where to obtain replacement parts such as breakaway switches, breakaway battery plug connectors and filler caps. If the BrakeRite EHB requires repair and IS covered by warranty, follow the instructions on page 19, section 6.5.

## **6.0 – WARRANTY**

**6.1 - Eligibility.** You are eligible for the benefits of this limited warranty if you are the original end-use purchaser of this BrakeRite EHB and if the unit has been used only on the vehicle in which it was first installed.

**6.2 - What Is Covered.** Titan Distribution, Inc. warrants this product to be free from defects in material and workmanship for 18 months after the date of manufacture or one year from the date of retail sale, whichever occurs first, when properly installed, used and maintained.

**6.3 - What Is Not Covered.** The warranty does not apply to damage or loss caused by any of the following circumstances or conditions:

**6.3.1.** Freight damage

**6.3.2** Misapplication, misuse, modification, or failure to follow the directions or observe cautions and warnings on installation, wiring, operation, application, inspection or maintenance specified in any Titan specification sheet, instruction and installation manual;

**6.3.3.** Using parts, accessories or components not specified in Titan's specification sheet, instruction and installation manual or approved by Titan Distribution in writing.

**6.4 - Conditions and Limitations.** Titan Distribution's liability and purchaser's remedy are expressly limited, at Titan's sole option, to the repair or replacement of the defective product.

For the warranty to apply, Titan Distribution must receive notice of the alleged defect within 30 days of i) the alleged defect or ii) the expiration of the warranty period whichever is earlier. Any claim not made within this period shall conclusively be deemed void.

Titan Distribution reserves the right to request that the product be returned to Titan Distribution, intact and postage prepaid, prior to processing a warranty claim. Titan Distribution shall not be liable for loss of use of the unit, or any other incidental or consequential costs, expenses or damages incurred by the purchaser.

Some states do not allow the exclusion or limitation of implied warranties, incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights, which vary from state to state.

**6.5 - To Receive Benefits Under This Warranty.**

Contact Titan Distribution at the address or phone number below to obtain an authorization for return. below to obtain an authorization for return.

Titan Distribution, Inc.  
Attention Warranty Dept.  
2345 East Market Street  
Des Moines, IA 50317  
800-832-8781

The product must be returned, shipping costs prepaid, insured to the factory for evaluation. The following information should be available when contacting the factory and must accompany the return, legibly prepared:

- i) name, address and telephone number of purchaser,
- iii) model and serial number of the unit,
- iv) name and address of the dealer where the unit was purchased,
- v) description of the alleged defect.

These terms and conditions represent the entire Titan Distribution BrakeRite ERB warranty, and no terms or conditions in any way adding to, modifying or otherwise altering the provisions stated herein shall bind Titan Distribution unless in writing signed by Titan Distribution.

**IMPROTANT SAFTEY NOTICE**

Appropriate installation, maintenance, and repair procedures are essential for the safe, reliable operation of vehicle brakes, as well as the safety of the individual doing the work. This booklet provides general information in this regard.

There are numerous variations in procedures, techniques, tools, and parts for servicing brakes, as well as in the skill of the individual doing the work. This booklet cannot possibly anticipate all such variations and provide advice and caution as to each. Accordingly, anyone who undertakes to install, maintain, or repair a vehicle brake system or brake system components, must first establish that they neither compromise their personal safety nor the vehicle integrity by their choice of methods, tools or parts.