

Installation Instructions

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

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Purpose and applications

The brake pressure reducer is an accessory for the BrakeMaster supplemental braking system, or for other towed vehicle braking systems which use **pressurized air** to brake the towed vehicle.

The reducer will decrease the amount of pressure exerted on the towed vehicle's brake pedal.

The brake pressure reducer is required for: 1) all towed vehicles without power brakes; and 2) all towed vehicles with 'active' (or, 'continuous power assist') brake systems.

Several hybrid vehicles, such as the Ford Escape hybrid and the Mercury Mariner hybrid, are equipped with 'active'

brake systems, as well as the H3 Hummer. These vehicles, and others with 'active' braking systems, are designed so that even when the vehicle is set to 'tow' mode, the braking system is still active, thus requiring minimal pressure to engage the brakes. If the reducer is not installed, the towed vehicle will brake with excessive force when the supplemental braking system is activated, causing severe tire and/or brake system damage.

In addition to the required applications, the reducer may also be used to lower braking pressure in the towed vehicle, to the vehicle owner's preference.

Installation

Before installing the reducer...

...first install the BrakeMaster system, according to the installation instructions. (The most current instructions are available at www.roadmasterinc.com. Select 'Tech Support,' then 'Installation Instructions and Miscellaneous Documents.')



WARNING

Read all instructions before installing or operating the BrakeMaster system. Failure to understand how to install or operate BrakeMaster could result in property damage, personal injury or even death.

If a break away system is present...

...the brake pressure reducer **must** be installed at any point along the air line **after** the "air out" compression fitting on the BrakeAway air reservoir, and **before** the quick coupler in the passenger compartment.



WARNING

Install the brake pressure reducer AFTER the break away system. If the reducer is installed before the break away, the towed vehicle will not brake with maximum pressure during a break away – braking distance will be substantially greater.

Failure to follow these instructions may cause property damage, personal injury or even death.

If a break away system is not present...

...the brake pressure reducer may be installed in the motorhome or the towed vehicle. For motorhome installation, the reducer is typically attached to the frame of the motorhome, and connected to the BrakeMaster air line, at any point **after** the initial air line connection and **before** the female quick coupler. (For BrakeMaster 9000 and 9060 systems, the initial air line connection is the proportioning valve; for BrakeMaster 9100 and 9160 systems, the initial air line connection is either the relay valve or the air booster.)

The reducer may also be installed in the towed vehicle. It may be attached to the air line at any point **before** the quick coupler in the passenger compartment.

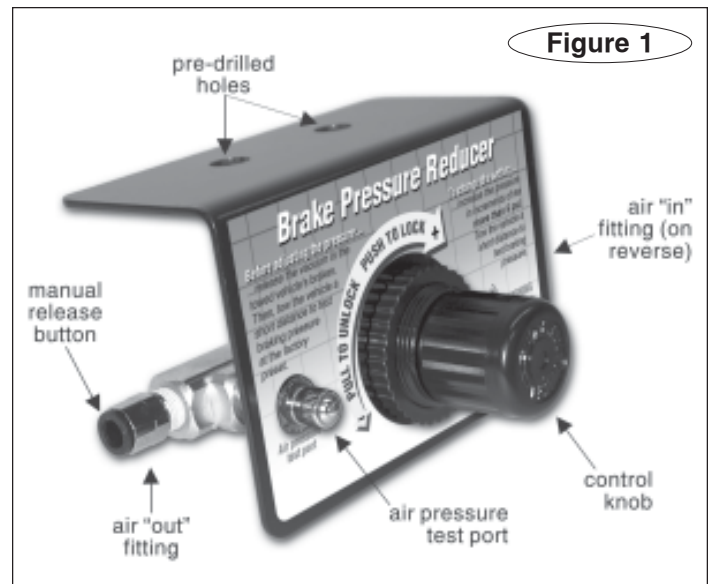
1. Determine the best location to attach the bracket, based on the following:

- Chose a mounting surface of sufficient strength to hold the bracket and reducer firmly in place.
- The bracket and reducer must not interfere with the movement or proper operation of any chassis or engine component.
- The reducer must be mounted to allow easy access to both the control knob (Figure 1) and the air pressure test port (Figure 1).

2. Attach the reducer to the air line (either before or after you attach the bracket, whichever is more convenient) – at the mounting location you have chosen, cut the air line and trim both ends (if necessary), until they are smooth and straight.

Push the end of the air line coming from the proportioning valve (for BrakeMaster 9000 and 9060), or the relay valve

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or air booster (for BrakeMaster 9100 or 9160) into the “in” fitting on the reducer (The fittings are labeled on the back.), until it can go no farther. Push the end of the air line going toward the towed vehicle’s driver seat into the “out” fitting on the reducer, until it can go no farther.

(If you inadvertently attach one end of the air line to the wrong fitting, depress the manual release button – Figure 1

– and pull the line out.)

3. Attach the bracket – at the mounting location you have chosen, use the two pre-drilled holes in the bracket (Figure 1) as templates to mark and drill two 3/8" holes.

Use the provided 3/8" bolts and lock nuts to attach the bracket.

Adjusting the air pressure

1. Before adjusting the air pressure, first tow the vehicle a short distance to determine if the factory preset of 15 psi will provide adequate braking pressure.

CAUTION

Always deplete the stored vacuum in the towed vehicle’s power brake system before towing – pump the brake pedal several times.

Depending on the make and model of the towed vehicle, it may be necessary to pump the brake pedal repeatedly to deplete the vacuum.

If the vacuum is not released, the supplemental braking system will apply excessive braking force when it is activated, which will cause severe tire and/or brake system damage to the towed vehicle.

2. Two people – one at the motorhome (to apply the brakes) and one at the brake pressure reducer – are required. At the brake pressure reducer, unscrew the cap from the air pressure test port (Figure 1), and insert the stem of a tire pressure gauge into the port.

Then, turn the motorhome engine on, and leave it running. Apply the motorhome brakes and hold the brake pedal down, until the air line is pressurized. Continue to hold the brake pedal down.

3. Pull out on the control knob (Figure 1) to unlock it. Turn the control knob clockwise to increase the braking pressure,

or counterclockwise to decrease the braking pressure.

For the initial installation, braking pressure is typically adjusted higher. If this is the case, increase the pressure in increments of no more than 5 psi.

4. When the needle on the tire pressure gauge matches the pressure setting you have chosen, push the control knob down to lock it in place. Remove the tire pressure gauge and replace the cap on the air pressure test port.

Tow the vehicle a short distance to test the braking pressure. Adjust the pressure again, if necessary, until the BrakeMaster air cylinder applies sufficient force to the towed vehicle’s brake pedal. (See “What is the correct psi setting?”, below.)

CAUTION

Increase the pressure in increments of no more than 5 psi, and test the braking pressure after each increase by towing the vehicle a short distance.

Severe tire and/or brake system damage, as well as other consequential, non-warranty damage may occur if the pressure is set too high.

Once the pressure has been adjusted to a specific vehicle, no further adjustment is necessary for that vehicle. For every subsequent vehicle, adjust the pressure as needed, as described above.

What is the correct psi setting?

The brake pressure reducer has been pre-set to 15 psi. This setting is a median range for vehicles with ‘active’ brake systems, and for vehicles without power brakes.

If the reducer is used on other vehicles, to adjust the braking force to the owner’s preference, this setting may be too low.

If the psi setting is too low...

...the LED monitor light in the motorhome will not illuminate when the motorhome brakes are applied. Also, the braking distance for the motorhome-towed vehicle tandem will be the same or very similar, with or without the supplemental braking system.

If this is the case, adjust the psi setting to a higher value, as described above.

If the psi setting is too high...

A sharp pull at the motorhome may indicate that the brake

pressure is set too high. (The degree to which the towed vehicle’s brakes will affect the motorhome will vary, depending on the size and weight of the motorhome in comparison to the size and weight of the towed vehicle.)

Other indications include excessive brake dust on the wheels of the towed vehicle, or an unusual odor coming from the towed vehicle’s brakes.

If the brake pressure is set too high, adjust the psi setting to a lower value, as described above.



WARNING

Do not lower the brake pressure setting to the point that it negates the benefit of the supplemental braking system. Insufficient brake pressure will lengthen stopping distance, and may also cause a loss of vehicular control.

Failure to follow these instructions may cause property damage, personal injury or even death.



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