

part number 8600 – for any supplemental braking system which uses air pressure to brake the towed vehicle, including the BrakeMaster series

Installation Instructions

All specifications are subject to change without notice.

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Step One Install the air reservoir

1. First, choose a location for the air reservoir (Figure 1). The air reservoir is mounted in the towed vehicle, most often in the engine compartment, but it may be attached anywhere within four feet of the existing air lines (from the motorhome and to the air cylinder), and where the drain valve (Figure 1) at the bottom of the reservoir is easily accessible.

Choose a location that meets the following conditions:

- Two air lines will be attached to the reservoir in a later step. One end will be attached to the existing air line routed from the motorhome; the other end will be attached to the existing air line routed to the BrakeMaster air cylinder (or, if used with another manufacturer's supplemental braking system, to the device used to depress the towed vehicle's brake pedal).

These air lines cannot be closer than two feet to any heat source, such as the engine or exhaust system, which might damage the air line.

- The air reservoir must be mounted away from any moving parts, so that the air reservoir will not be damaged by, or interfere with, the proper operation of any components.

- Choose a location that will allow the bottom of the air reservoir to be mounted lower than the top, so that any accumulated water can be drained from the tank. The reservoir cylinder does not have to be perfectly straight up and down, but the drain valve must be the lowest part of the reservoir.

- The reservoir will be attached with two of the supplied $\frac{1}{4}$ " x 1" hex bolts and nuts. Choose a location that will

allow you sufficient access to tighten the hex nuts from the other side.

Note: because the air reservoir will be charged with compressed air, it cannot be mounted inside the passenger compartment of the vehicle.

2. Once you have chosen a location for the air reservoir, fold the two rubber clamps (Figure 1) over the cylinder. Press the ends of each clamp together, until the pre-drilled holes align.

Test-fit the reservoir and slide the clamps up or down the cylinder, if necessary, until the pre-drilled holes are both over a surface where the hex bolts and nuts will hold each clamp in place. Mark the center of each hole for drilling, and set the reservoir aside.

Before drilling, make certain you will not damage any components on the other side. Then, drill a $\frac{1}{4}$ " hole through the two points you have marked.

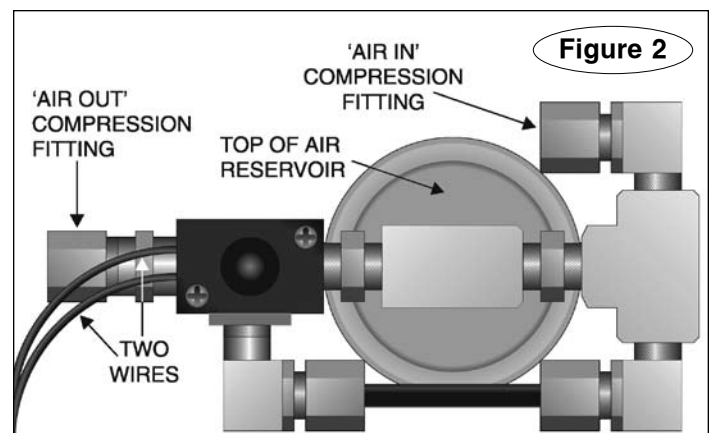
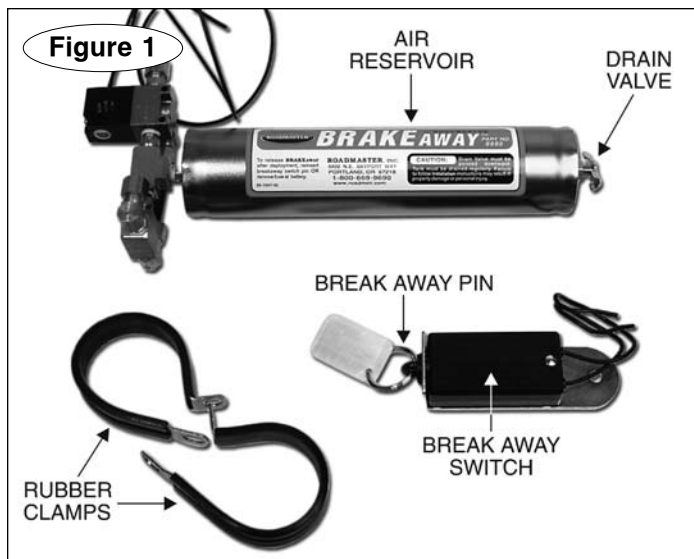
Before attaching the clamps, rotate the top of the reservoir so that the two wires at the solenoid valve (Figure 2), as well as the two brass air compression fittings (Figure 2), will be easily accessible.

Position the reservoir and clamps over the two holes, and secure the reservoir in place with one of the $\frac{1}{4}$ " x 1" hex bolts and nuts at each clamp.

Step Two Mount the break away switch

1. Mount the break away switch (Figure 1) at the front of the vehicle, on the driver's side. Choose an area you can easily reach, with a surface of sufficient strength to hold the switch firmly in place, so that the break away pin (Figure 1) will pull freely from the switch. Mount the switch in a horizontal position, with the break away pin facing toward the motorhome.

Ensure that the break away pin can be pulled freely
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away from the towed vehicle without any obstructions.

WARNING

Do not attach the break away switch to the tow bar or the tow bar bracket. If the tow bar or bracket fails, the break away switch will separate with it, preventing the break away system from activating. If the towed vehicle separates, the brakes will not be applied, which may cause property damage, personal injury or even death.

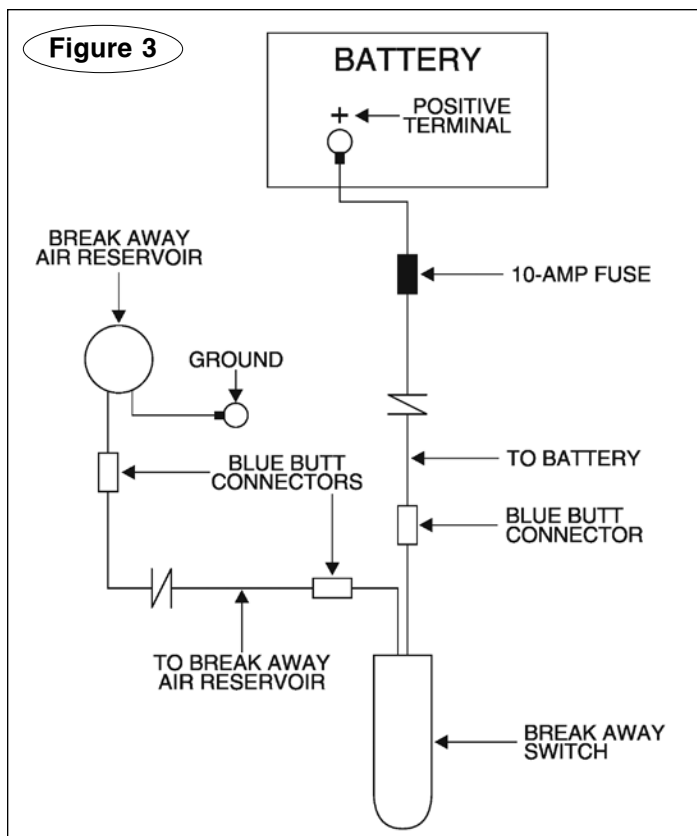
Step Three Connect the wiring

1. Using one of the blue butt connectors, attach one end of the supplied length of 14-gauge black wire to the end of either one of the two wires extending from the break away switch. (If necessary, strip 1/4" to 3/8" of insulation from the ends of the wires before connecting them).

Next, route the wire to the positive terminal on the towed vehicle's battery (Figure 3), avoiding moving parts, sharp edges or "hot" components such as the engine or exhaust system. Where appropriate, use one or more of the included wire ties to secure the wire in place.

2. Cut the wire and strip 1/4" to 3/8" of insulation from the end of the wire. Crimp either end of the supplied yellow 10-amp fuse onto the end of the wire. Strip 1/4" to 3/8" of insulation from one end of the remaining length of wire; crimp the other end of the fuse onto the wire.

3. If necessary, cut the wire again, leaving no more than six inches, and strip 1/4" to 3/8" of insulation from the end of the wire. Crimp the larger (3/8") ring terminal onto the



end of the wire, and attach the ring terminal to the positive terminal on the towed vehicle's battery.

CAUTION

In order to prevent damage from a short circuit, the 10-amp fuse must be within six inches of the positive terminal. If the 10-amp fuse is farther than six inches, a short circuit may cause significant damage to the towed vehicle's electrical system, an electrical fire, or other consequential, non-warranty damage.

4. Now, connect the remaining wire at the break away switch to either one of the two wires extending from the top of the solenoid valve on the air reservoir (Figures 2 and 3). If necessary, use the remaining length of 14-gauge black wire to reach the top of the solenoid valve. As before, strip the ends of the wires before connecting them with the supplied blue butt connectors.

Where appropriate, use one or more of the included wire ties to secure the wire in place.

5. Crimp the smaller (#10) ring terminal onto the end of the remaining wire extending from the top of the solenoid valve, and attach the ring terminal to any good chassis ground. (If necessary, use another butt connector, and any remaining 14-gauge black wire, to extend the length of the ground wire).

Step Four Install the air lines

1. At the top of the break away air reservoir (Figure 2), attach one end of the included air line to the brass "air in" compression fitting – first, if necessary, trim the end of the air line, to make a smooth and straight cut. Then slide the compression nut and the ferrule (Figure 4) over the air line. Position the ferrule 1/4" from the end of the air line.

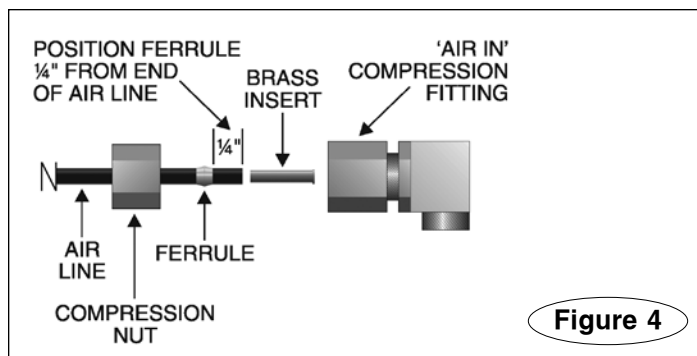
Next, slide one of the brass inserts (Figure 4) into the end of the line.

Note: if the brass inserts are omitted, the fittings will not be airtight.

Now, push the air line into the compression fitting as far as it can go. Then push the ferrule into the compression fitting, and tighten the compression nut onto the fitting.

Note: if the compression nut is overtightened, the fitting will not be airtight. After completing the installation, check all the fittings for air leaks – see "Test the system."

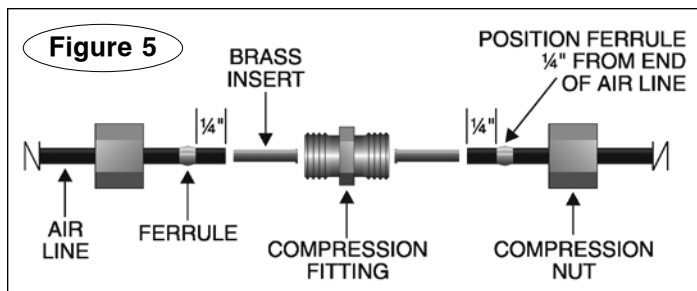
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2. Next, trim the air line from the “air in” compression fitting and attach it to the existing air line routed from the motorhome.

If necessary, use one of the compression fittings and two of the compression nuts, ferrules and brass inserts, as shown in Figure 5, to attach the air line.



Do not kink the air line as you attach it, or bend it to the extent that it crimps or creases. Where appropriate, use wire ties to secure the air line in place.

CAUTION

Do not position the air line closer than two feet from any heat source. The heat will soften the plastic, which will cause the air line to rupture.

If the air line is ruptured, the supplemental braking system will not function.

Do not kink the air line, or bend it to the extent that it crimps or creases – air pressure will be substantially reduced, or blocked entirely, at the kink in the line.

If the air pressure is reduced, the supplemental braking system will not function, or may only function intermittently.

3. Now, attach one end of the remaining length of air line to the “air out” compression fitting at the top of the air reservoir (Figure 2). Use the same method described in step 1 (above) to attach the air line.

4. Trim the air line from the “air out” compression fitting and attach it to the existing air line routed to the BrakeMaster air cylinder (or, if used with another manufacturer’s supplemental braking system, to the device used to depress the towed vehicle’s brake pedal).

If necessary, use one of the compression fittings and two of the compression nuts, ferrules and brass inserts, as shown in Figure 5, to attach the air line.

Step Four Test the system

Note: both the motorhome and the towed vehicle must be stationary for the system test, with the motorhome engine on and the parking brake released. (If necessary, chock one of the motorhome wheels.)

1. Test for air leaks – according to the manufacturer’s instructions, connect and pressurize the supplemental braking system. Then, have an assistant apply the motorhome brakes and continue to hold the brake pedal down.

Cover each of the four connections at the air reservoir and air lines with a leak check solution.

CAUTION

The air system now contains pressurized air, which may cause severe eye or ear injury if it is inadvertently released. Wear appropriate eye and ear protection before adjusting the air system connections and fittings.

Tighten any fittings, if necessary, and repeat until all connections are airtight.

2. Test for proper operation – first, charge the BrakeAway air reservoir...

For BrakeMaster systems on motorhomes with hydraulic brakes: with the motorhome engine on, allow the air compressor to run until it shuts off. Then, apply the motorhome brakes and hold the brake pedal down.

For BrakeMaster systems on motorhomes with air or air over hydraulic brakes: with the motorhome engine on, the air compressor completely charged and the parking brake released, depress the brake pedal for 15 seconds – apply firm pressure.

WARNING

The break away air reservoir must be charged, as described above, every time the motorhome and towed vehicle are connected. If the air reservoir is not charged, the break away system will not apply braking pressure if the towed vehicle separates from the motorhome, which may cause property damage, personal injury or even death.

3. Remove the break away pin (Figure 1) at the front of the break away switch.

The air cylinder and pedal clamp will extend, confirming the proper operation of the break away system. To retract the air cylinder and pedal clamp, reconnect the break away pin.

Before towing, charge the break away air reservoir, as described above.

Cautions and warnings

Additional BrakeAway operating instructions for BrakeMaster systems are contained in the owner’s manual. The most current version is available online, at www.roadmasterinc.com, under ‘Tech Support.’

Regardless of the braking system used, the following cautions and warnings must be followed –

WARNING

When using the break away system, always make certain that the following conditions are met:

- Connect the break away cable by clipping the included steel cable to the break away pin (Figure 1) on the break away switch. Clip the other end of the cable to the rear of the motorhome, close to the center.

Connecting the cable toward either side of the motorhome may cause the break away pin to be pulled when the motorhome turns, activating the break away

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system.

- Be sure there are no obstructions which would prevent the cable from pulling freely away from the break away switch. Do not wrap the cable around anything – doing so could keep the cable from pulling the break away pin, preventing the system from activating in a break away.
- The break away air reservoir must be charged, as described on page three, every time the motorhome and towed vehicle are connected. If the air reservoir is not charged, the break away system will not apply breaking pressure if the towed vehicle separates from the motorhome.
- The break away air reservoir must be drained periodically – unscrew the drain valve (Figure 1) and remove it, allow any accumulated water to drain completely, and replace the drain valve.

If the air reservoir is not drained periodically, water vapor will be forced through the air lines, which may corrode the metal components of the supplemental braking system, as well as cause other consequential, non-warranty damage.

- Make certain the cable is the correct length...
 - The cable must be long enough to prevent the break away pin from being pulled out during normal towing – make certain there is enough slack to allow for sharp turns. If the cable is not long enough, the break away system will activate even though the towed vehicle has not detached.
 - The break away cable must be longer than the safety cables. This will prevent the break away system from activating if a component of the towing system has separated, but the towed vehicle is still held by the safety cables.
 - Make certain that the cable is not too long – it should not hang down to the extent it may catch on obstructions, or drag on the ground. This much slack could allow the cable to be pulled inadvertently, activating the break away system.
 - If you have a telescoping tow bar, allow enough slack for the tow bar arms to be fully extended.
 - Leave the break away pin in place, even when the vehicle is not being towed. The break away system will be activated if the pin is removed, which will drain the towed vehicle's battery.

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



Towing and Suspension Solutions

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