

## Supplemental Braking: The Moment Of Truth

**The use of a supplemental braking system can provide the extra braking power needed to stop a motorhome and towed vehicle combination in everyday and panic situations.**

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Imagine driving down a steep, winding, two-lane road. The early-morning sunshine highlights the beautiful scenery bordering the route. It's a wonderful day to be on a carefree drive to that next destination. Suddenly you round a bend and see the bright red glow of brake lights just ahead. You hit your brakes. Will your 40,000-pound motorhome plus towed vehicle stop in time?

It's a very good question, one that should be considered before the motorhome and towed vehicle combination ever leaves the driveway. Stopping a large motorhome and another 2 tons of rolling weight behind it could prove troublesome if you're relying on the motorhome's brakes alone to do all the work. That's why folks who tow a vehicle behind their motorhome should consider the safety benefits of one of the supplemental braking systems highlighted in this article. However, first a little education about motorhome weights and capacities is in order.

The letters GCWR have caused a great deal of confusion for many coach owners, and perhaps given some of them a false sense of security while towing. Most coach owners know those letters stand for gross combination weight rating and have seen the rating listed on the sticker in newer coaches. They may even know a short definition for the rating, something such as, "The maximum allowable weight of the towing vehicle and the attached towed vehicle including all cargo and passengers."

Unfortunately, for many this is where the confusion begins. They do not realize that the brakes on their coach are rated for operation at the gross vehicle weight rating (GVWR), which is the maximum allowable weight of the fully loaded vehicle including passengers and all cargo — NOT the GCWR. Also, it must be remembered that the GCWR is used to determine how much weight the coach can tow without damaging the frame, suspension, driveline, and other such components of the coach. It is NOT the amount of weight that can be stopped by the coach's brakes alone. At least one motorhome chassis manufacturer states that brakes should be used on trailers and other towed vehicles weighing more than 1,500 pounds. At this time, very few towed vehicles weigh less than 1,500 pounds.

We see semi-truck tractors moving down the highway towing one, two, and sometimes three trailers. These trucks and their powerful engines and efficient gearing have a tremendous towing capacity. However, they do not have a tremendous stopping capacity. Therefore, the trailers have brakes.

There are those who point out that cars and other vehicles towed behind a motorhome are usually not legally

required to have auxiliary brakes, as boat and other types of trailers, often weighing only 1,500 pounds, are required to have. It is possible that this situation exists simply because motorhomes towing cars and trucks did not exist in significant numbers until recently, and they still represent a very low percentage of the number of vehicles on the road.

However, if you or a loved one is involved in an accident because of insufficient braking, it is no longer insignificant. The physical, emotional, and financial pain can be never-ending. And the brakes on a coach won't stop 2,500 pounds of automobile any faster than they would stop 2,500 pounds of anything else if there are no brakes on the apparatus being towed.

I have yet to meet any coach owners who say their motorhome stops too quickly. Putting thousands of pounds of towed vehicle weight behind the coach and not having brakes on that vehicle can only increase stopping distance. Although we all feel that we hook up our towed vehicle correctly and that it will never come off, we know that they sometimes do. Whether this happens because of an improper hookup, equipment failure, or an unknown issue, the need for a breakaway system is obvious.

So then, why do some owners not purchase this "insurance policy with only one premium"? I have heard reasons such as: "I don't even know it's back there when I'm towing it." "The motorhome can tow X-number of pounds and I know that the car doesn't weigh that much." And, "I'll wait until it's required by law."

However, perhaps the scariest response is: "They cost too much." We all have spent many times what a supplemental braking system costs for various accessories for our coaches. The priority should be safety.

The following information was supplied by the various manufacturers of braking systems. As in years past, I found them all to be very eager to educate coach owners not only about the features of their products, but also the responsibilities involved in towing a vehicle. Many of these companies' Web sites include other towing products and, sometimes, even other braking systems.

Obviously, all companies are in the business to make a profit. However, I believe everyone I talked with would rather see a coach owner using any system, even that of a competitor, than to be on the road with no supplemental braking system. They know all too well what can happen when a vehicle can't stop, and they know that they and their families could end up in an accident, through no fault of their own, caused by an improperly equipped coach and towed vehicle.

As more supplemental braking systems become available, they will be featured in future issues of FMC.

Blue Ox	SMI Manufacturing Inc.
BrakeBuddy	SuperSteer
M&G Engineering	ToadStop
Night Shift Auto Inc.	Tow-V-Aire Braking Inc.
Roadmaster Inc.	U.S. Gear By AP Products Inc.

## Blue Ox

The **Luxor** braking system is touted as a "brake in a box"-style braking system. This self-contained brake is placed between the seat and the brake pedal of the towed vehicle. An adjustable clamp on the end of an air cylinder is attached to the brake pedal. A solid-state accelerometer senses inertia during braking and activates the system to apply brake pressure to the towed vehicle. Power for the system comes from the DC accessory power port in the towed vehicle. Initial installation of the Luxor, the included breakaway kit, and the remote indicator light normally takes less than 90 minutes. After that, only three to five minutes are needed to put the system into service, and a couple of minutes to remove it. To assure optimal braking, a normalization process is performed each time the braking system is hooked up. This simple process only requires the pushing of two buttons.

The Luxor system has a manufacturer's suggested retail price of \$1,145 and is covered by a five-year limited warranty.

The **BrakeSafe** system uses air pressure from the air-brake system of the coach to activate an air cylinder in the towed vehicle. A coiled air hose has quick couplers and attaches between the rear of the coach, which must have air brakes, and the front of the towed vehicle. A bracket situated out of the way at the front of the driver's seat in the towed vehicle allows for a quick connection of the air cylinder to the brake pedal. Initial installation for the BrakeSafe and the indicator light in the coach is estimated to take three to four hours. Initial installation of the optional breakaway system requires approximately another hour. As with the Luxor, only three to five minutes are required to hook up the system, and a couple of minutes to unhook it.

The BrakeSafe is covered by a five-year limited warranty and has a manufacturer's suggested retail price of \$795. The optional breakaway kit is \$295.

The **ToadStop I** braking system is installed under the hood of the towed vehicle and uses vacuum and a cable attached to the pedal of the smaller vehicle to apply the brakes. Toad Stop I units are made for gas and for diesel coaches. The vacuum comes from the engine of gasoline-powered motorhomes and from a continuous-run vacuum pump on diesel coaches. An in-dash toggle switch allows manual override of the braking system and also acts as an indicator light for the system. Initial installation takes approximately six to seven hours and allows adjustment for the weight of the towed vehicle. Hookup consists of plugging in a coiled electrical cable and a coiled vacuum hose and can be accomplished in a minute or less. Disconnecting the system is just as simple.

The manufacturer's suggested retail price of the ToadStop I for gasoline engines is \$895. The ToadStop I for diesel engines is priced at \$995. A breakaway kit is included, as is a five-year limited warranty.

To reduce installation time, Blue Ox also offers a universal brake for gasoline and diesel coaches, the ToadStop II. This unit operates the same as the ToadStop I but sits in the trunk or rear seat of the towed vehicle. The

ToadStop II has a built-in vacuum pump and eliminates the need for running the vacuum line between vehicles and installing a pump on diesel engines. The manufacturer's suggested retail price for the ToadStop II is \$995. This unit also includes a breakaway kit and carries a five-year limited warranty.

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### **BrakeBuddy**

Product literature describes the **BrakeBuddy**, created in 1996, as the "original self-contained supplemental braking system." Two models of this system, the Classic and the Vantage, are now available. Initial installation time for either system is estimated to take from 15 to 30 minutes. After installation, setup involves simply placing the unit on the floor of the towed vehicle; attaching it to the brake pedal; and plugging the power cord into the vehicle's DC accessory port. Braking pressure is then set according to the towed vehicle weight and the driver's preference. Setup time is less than three minutes for the Classic and, because these adjustments can be made to the Vantage from inside the coach while driving, about one minute for that model. Disconnect times for both models are less than a minute.

Using terrain-sensing technology to prevent false activations, the BrakeBuddy systems apply the brakes to the towed vehicle when the motorhome brakes are applied and an accelerometer senses vehicle deceleration. The systems are designed so that they do not ride the brakes going down a steep grade or unnecessarily engage on bumpy roads or when crossing railroad tracks. Additional standard features include a breakaway system and an alert system to communicate to the driver that the BrakeBuddy is working properly or if a breakaway situation has occurred. Accessories include a storage bag designed to protect the BrakeBuddy when it is not in use and to make the 12-pound unit even easier to transport. A 12-volt-DC Battery Direct Kit upgrades the towed vehicle's DC accessory port by connecting directly to the battery. Every BrakeBuddy is tested before shipment and includes a 30-day money-back guarantee and a three-year limited warranty on parts and labor. Factory-direct two-year extensions may be purchased. The BrakeBuddy Classic has a manufacturer's suggested retail price of \$1,149, while the Vantage is priced at \$1,399.

BrakeBuddy  
428 Peyton  
Emporia, KS 66801  
(800) 470-2287

## **M&G Engineering**

Introduced in 1987, the **M&G Braking System** utilizes an air-operated cylinder that is placed between the master cylinder and the vacuum booster of the towed vehicle. Air pressure from the air-brake system of the coach, or from a 12-volt-DC air compressor mounted on motorhomes equipped with hydraulic brakes, is applied to this cylinder when the coach brakes are applied. This pushes directly on the master cylinder of the towed vehicle to provide proportionate braking. Only a 1/4-inch air line with a quick-disconnect fitting runs between the two vehicles, so there is nothing to remove and no equipment to store inside the towed vehicle. Initial installation time for a professional is estimated at two to three hours. A first-timer may take up to twice as long. Thanks to the quick-disconnect fitting, the system can be hooked up or disconnected in 30 seconds or less. Coaches equipped with hydraulic brakes do require that the moisture be periodically drained from the air tank mounted on the coach with the 12-volt-DC compressor and proportioning valve. However, no maintenance is normally required on coaches equipped with air brakes.

The M&G Braking System is available for motorhomes with air brakes for a manufacturer's suggested retail price of \$640. For coaches with air-over-hydraulic brakes, the cost is \$770, and for coaches with hydraulic brakes, the cost is \$960. Options include a breakaway protection system for \$195; a \$30 coiled air-line hose; and a wireless alert system priced at \$250. The brake cylinder is covered by a lifetime warranty, while electrical items such as the breakaway switch and the air compressor and pressure switch, when needed, are covered by a one-year warranty. An exchange program is available if the coach owner trades vehicles and the brake system will not transfer.

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Athens, TX 75751  
(800) 817-7698  
(903) 675-2812  
[www.m-gengineering.com](http://www.m-gengineering.com)

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## **Night Shift Auto Inc.**

The **Ready Brake** from Night Shift Auto utilizes the weight of the towed vehicle to provide proportional braking. The Ready Brake installs into the motorhome's hitch receiver and then the tow bar inserts into the Ready Brake receiver. When the brakes of the motorhome are applied, the towed vehicle surges forward, pushing the tow

bar forward in the Ready Brake hitch receiver. As the weight of the pushing towed vehicle overcomes the resistance of a shock absorber and spring inside the system, an arm pulls an aircraft cable routed through the engine compartment of the towed vehicle and attached to the brake pedal, applying the brakes as needed. This is a true mechanical surge system with no electrical equipment that can fail due to loss of power. Initial installation time is estimated at approximately two hours. After that, the system can be hooked up and disconnected in a couple of minutes.

The Ready Brake is covered by a lifetime guarantee and has a manufacturer's suggested retail price of \$305, which includes an in-dash monitoring system. A breakaway protection system is available for \$90. For those just starting to tow or those who need a new tow bar, Night Shift Auto also offers the Ready Brute, an aluminum tow bar rated at 8,000 pounds with an integrated braking system, for \$720.

Night Shift Auto Inc.  
129 N. Kentucky  
Iola, KS 66749  
(800) 933-3372  
[www.readybrake.com](http://www.readybrake.com)

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#### **Roadmaster Inc.**

The **Even Brake** from Roadmaster is described as the "world's only portable, proportional towed car braking system." This system sits in front of the driver's seat in the towed vehicle. When the motorhome brakes are applied, a microprocessor signals a magnetic valve to release air pressure, activating the air cylinder and applying proportionate force to the towed vehicle's brake pedal. Other features include self-diagnostic testing and a three-tiered wireless monitor to keep the driver constantly informed as to system status and braking activity. "Terrain-Sensing Logic" circuitry is designed so the system does not respond to abrupt up-and-down motion caused by speed bumps, potholes, or similar jolts. The system's "Power Save" low-battery protection feature monitors the towed vehicle battery voltage. If battery power drops too low, an LED signal and an LCD alert on the monitor inform the driver. Until the battery is recharged, the power to the Even Brake is stopped, although the system retains emergency braking power for the towed vehicle. Initial installation time, depending upon the vehicles, is approximately one hour. After that, it can be hooked up or disconnected in a minute or two.

The Even Brake, including a breakaway protection system, carries a manufacturer's suggested retail price of \$1,440.37 and is covered by a two-year limited warranty. A second-vehicle kit is available for those who wish to switch the unit between towed vehicles.

Roadmaster also offers the **BrakeMaster**, a unit that uses air pressure to activate an air cylinder to apply the

brakes in the towed vehicle. The BrakeMaster connects to the air or hydraulic braking system of the coach, and uses air pressure to proportionately activate an air cylinder in the passenger compartment of the towed vehicle to apply the brakes. For coaches with hydraulic brakes, an air compressor is included, along with a proportioning valve that opens and closes in response to brake-line pressure. On coaches with air brakes, air from the air brake regulator valve operates the system. A monitor light in the dash of the coach illuminates when the brakes of the towed vehicle are applied. Professional installation is recommended and is estimated to take between five and eight hours on coaches with hydraulic brakes; installation on coaches with air brakes normally takes less time. Like the Even Brake, the BrakeMaster can then be hooked up or disconnected in a minute or two. When on the road, the air compressor tank (coaches with hydraulic brakes only) should be drained periodically, along with the breakaway tank.

The BrakeMaster system for coaches with hydraulic brakes includes the BrakeAway, Roadmaster's breakaway protection device, as standard equipment and is offered at a manufacturer's suggested retail price of \$1,208.04. For those with air or air-over-hydraulic brakes, the complete system is \$818.38, or \$573.63 without the BrakeAway. Second-vehicle kits are also available from Roadmaster for those who switch between towed vehicles. Seat adapters are required for some vehicles and can simplify installation on others. The BrakeMaster is covered by a one-year limited warranty.

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### **SMI Manufacturing Inc.**

**Stay-IN-Play** supplemental brakes apply the brakes of a towed vehicle via a brake-arm-mounted cylinder. Normal activation applies the brakes with 10 to 12 pounds of force, while the "Panic Stop" mode applies progressively more force as the stop continues. Activation of the system requires that the brakes of the coach are being applied and that both vehicles are decelerating. For consistent operation, vacuum is maintained at all times in the power-brake booster of the towed vehicle while it is being towed. Hooking up and disconnecting the system is as simple as turning on or off the toggle switch, as there are no components to be set up or removed. Product literature says, "Just turn it on ... and tow!" An emergency breakaway system is included with the Stay-IN-Play, as is an in-coach "brakes on" signal.

Two models of the Stay-IN-Play are currently available. The FourWire model, which has a manufacturer's suggested retail price of \$849.95, includes a wiring harness from the coach to the towed vehicle, and the activation sensitivity of the system can be controlled from within the motorhome. Initial installation time is

approximately six hours. The Classic Stay-IN-Play has an initial installation time of three hours and contains the G-force sensor in the unit. This unit is completely self-contained and adjusted within the towed vehicle and uses a radio receiver in the front of the coach to provide the "brakes on" signal. The Classic carries a manufacturer's suggested price of \$949.95. A five-year warranty covers all parts and labor on each system.

**Air Force One** is described as delivering "100 percent proportional braking in the towed vehicle based on the coach's brake pedal position." Designed for motorhomes with air brakes, the Air Force One uses a small amount of proportioned air from the air-brake system to create vacuum for the power-brake system of the towed vehicle and operate the brake actuator, resulting in a "mirror" effect between the two vehicles' brake pedals. The operating unit is installed under the hood of the towed vehicle and a 1/4-inch air line is then routed into the passenger area and attached to the brake actuator. The actuator itself is small enough to fit into the palm of one's hand and is semi-permanently attached to the brake arm. Initial installation time takes approximately four hours, but after that setup is as easy as plugging in the jumper between the towed vehicle and motorhome. As with the Stay-IN-Play, there are no components to be set in place or removed. Breakaway protection is included at no additional charge and is provided by a patent-pending process that seals the coach's air supply while simultaneously applying the brakes of the towed vehicle if the two vehicles should separate. This "Total Coach Protection" system can be used with other air-brake systems on the market and is available separately from SMI.

The Air Force One carries a manufacturer's suggested retail price of \$999.95 and is covered by a five-year warranty on all parts and labor.

SMI Manufacturing Inc.  
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Evansville, IN 47728  
(800) 893-3763  
[www.smibrake.com](http://www.smibrake.com)

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## **SuperSteer**

The **SuperStop Fitzall Tow Brake System** is designed to fit almost all coaches and towed vehicles. This air-actuated system can be powered by a motorhome's air-brake system or by a compressor on coaches with hydraulic brakes. The air cylinder assembly attaches to the brake pedal in the towed vehicle and provides proportional braking; as the coach brakes apply, so do those in the towed vehicle. The installation kit includes D.O.T.-rated coil hoses, a quick-disconnect fitting, an air line, and brackets. The system can be installed by a competent do-it-yourselfer or a professional service center. Installation time is estimated to take five to six hours for coaches with air brakes. Installation of the system plus the required compressor on coaches with hydraulic brakes is estimated to take two or three hours more. After that, hookup time is just a couple of

minutes and disconnect time is approximately a minute. The only normal maintenance required is on coaches with hydraulic brakes where water occasionally needs to be drained from the compressor, and the system's air filter needs to be cleaned. The optional SuperStop Brake-A-Way system can be installed in a little more than one hour. A lifetime warranty applies to all mechanical parts of the systems, while electrical parts are covered for one year.

The SuperStop Fitzall Tow Brake System is available for \$449.95. The Brake-A-Way is \$256.23. The kit needed for coaches with hydraulic brakes is an additional \$475.

SuperSteer

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## **ToadStop**

Once the approximately three-hour initial installation of the **ToadStop Qi (QuickInstall)** is accomplished, no other handling of the product or maintenance is required unless the system is moved to another vehicle. This means that there is no hookup time and no disconnect time. The ToadStop Qi uses the coach brake lights to activate the "ProPort Control" attached to the tow bar tongue. Using a vacuum-assisted servo on a "live" power brake pedal, the brakes are activated according to the "push and pull" of the two vehicles while the RV brakes are applied. Braking is designed to always be balanced between the two vehicles for proportional braking without overbraking the towed vehicle. All braking of the towed vehicle is signaled to the driver through a dash-mounted light. A handheld trigger allows testing of the system at any time. The trigger also allows a passenger in the towed vehicle to stop it should the driver become incapacitated. The ToadStop Qi warranty is three years on all braking components.

The ToadStop Qi system, including breakaway, is compatible with diesel- and gas-powered motorhomes and carries a manufacturer's suggested retail price of \$899.99 plus \$20 shipping and handling. The system also is compatible with towed vehicles having continuous power assist brakes, such as the Ford Escape and Mercury Mariner Hybrids, and the Hummer H3.

ToadStop

190 Wilson Blvd. N.

Naples, FL 34120

(800) 478-7883

### **Tow-V-Aire Braking Inc.**

The **Tow-V-Aire** braking system was first developed by an FMCA member who wanted a braking unit for his own use. After seeing his system, friends wanted him to build them one. Over the past 10 years this venture has evolved into an international network of more than 1,000 owners. The Tow-V-Aire is a driver-controlled brake system that uses air pressure from a self-contained unit placed behind the driver's seat in the towed vehicle. When the coach driver applies the brakes in the motorhome, air pressure from the Hadley air compressor operates a stainless-steel cylinder, temporarily attached to the brake pedal in the towed vehicle, to apply the brakes. The coach brake light circuit supplies the signal to the system. During initial installation, an air pressure regulator is set according to the weight of the towed vehicle to control the pressure to that vehicle's brakes. Power for the system is provided by the coach through a cord plugged into matching sockets at the rear of the motorhome and the front of the towed vehicle. Normal installation takes from three to five hours, and the company welcomes calls from the installer, whether that person is a do-it-yourselfer or a professional. To put the unit into service or take it out requires only a minute or two. The only normal maintenance that's required is the occasional draining of moisture from the reservoir tank by opening a T-handle valve.

The total cost of the Tow-V-Aire, including a breakaway system, an indicator light for the motorhome dash, and shipping, is \$745. Standard warranty on new units is three years.

Tow-V-Aire Braking Inc.  
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Lake Placid, FL 33862  
(888) 464-1105  
www.tow-v-aire.com

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### **U.S. Gear By AP Products Inc.**

The all-electric Unified **Tow Brake** utilizes multiple-axis accelerometers that are wired to the brake light switch in the motorhome to provide proportional and progressive braking to the towed vehicle. A hidden solenoid is connected to the brake pedal in the towed vehicle by a concealed push/pull cable, and a vacuum pump is installed in the engine compartment of the towed vehicle for power-assist braking. The Unified Tow Brake is designed to be compatible with all engines and braking systems. Normal installation time of the unit is approximately five to six hours, but only three to four hours on prewired coaches; an installation CD is

included. All components in the towed vehicle are out-of-sight and out of the way, and less than a minute is needed to plug in or disconnect the included wiring harness and breakaway switch. Adjustments and maintenance are not normally required after installation. However, the driver can increase or decrease the amount of braking assistance while driving to compensate for changing road conditions or terrain. The Unified Tow Brake has a one-year product warranty that covers 100 percent of parts, labor, and freight, as well as a 90-day customer satisfaction guarantee.

The manufacturer's suggested retail price of the complete unit, including the breakaway system, an in-cab remote control unit that provides for manual application of the brakes if ever needed, and a systems monitor, is \$1,295. Kits also are available for prewired coaches when changing towed vehicles.

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