

Roadmaster's InvisiBrake

by Steve Froese

Readers who are familiar with my articles are no doubt aware that I have spent the last several columns writing about towing. I fully intended to focus on something else this time around, that is until I came across a new idea from an old friend.

Roadmaster (roadmasterinc.com) has been a world leader in towing products since 1974. Since they've been around almost 40 years, Roadmaster pre-dates most RVers using their products on the road today. They have had plenty of time to hone their craft, and are masters at both keeping traditional solutions current and safe, as well as developing new products and devices using cutting-edge technology.

Roadmaster designs and manufactures tow bars and brackets, dollies, suspension and steering products, as well as supplemental braking systems. They also provide a wide variety of towing related accessories, such as wiring, hitch accessories, locks, and safety cables, to name just a few. Feel free to peruse their website, as I'm sure they'll have the product or accessory perfectly suited to your towing requirement. I could consume a significant amount of space introducing all of Roadmaster's products, but instead I will focus on one of the newest.

In the old days, one could hook up a towed vehicle to an RV using a simple A-frame tow bar or rudimentary tow dolly. Back then, most vehicles were rear-wheel drive, and not as many cars were towable either by tow bar or dolly. Those vehicles often required complex and time consuming driveline disconnection without the benefit of Roadmaster products that make these tasks much simpler and faster. However, one thing that was generally not required was supplemental braking. Even today, some states and provinces don't require braking systems on toads, but many do, and it's always a good idea to be safe. Another thing that some people don't realize is that, safety and laws aside, drivers that are accustomed to living or travelling in an area that doesn't require brakes generally eventually find themselves driving through a state or province that does require them. As towing became more popular, regulatory agencies in some states and provinces realized that in many instances, the unfavorable weight ratio between the towing and towed vehicle should mandate some form of supplemental braking system.

Commercial trailers, travel trailers, boat trailers, and other heavy trailers have utilized brakes for many years. In many cases, so too do lighter trailers such as pop-ups and even tow dollies, although one can still find many non-braking dollies

on the market. Today, most states and provinces require supplemental braking systems on towed vehicles. The braking requirement is not federal, so each jurisdiction develops their own regulations. It's impossible to memorize all the different requirements, and also difficult to even keep track of which areas require brakes at all, although it is prudent to research this information prior to setting out on a trip. The advent of the Internet has made this endeavor relatively easy. The easiest and safest thing to do is to add a supplemental braking system to your towing system. This will keep you safe and legal regardless of where you travel.

The most common form of trailer brake found on smaller and lighter trailers is the surge brake. Tow dollies, small boat trailers, and many pop-up trailers use this method of braking. These systems operate by incorporating a master cylinder inside the hitch attachment, which is not rigidly attached to the trailer tongue. The concept is simple; when the towing vehicle slows down, the trailer wants to continue moving forward and pushes on the trailer ball. The forward motion causes the master cylinder to compress, sending hydraulic fluid to the brake shoes or discs. Surge brakes are simple, and require no brake controller.



Larger trailers, including fifth wheels, use mainly electric brakes. These brakes utilize electromagnets inside the brake drum, and use rising voltage to increase the magnetism, which draws the magnet towards the armature on the brake drum, thus slowing the vehicle. The voltage is determined by either proportional or inertial control inside the brake controller. Brake controllers must be carefully and properly adjusted in order to function correctly. Also, the magnets and armature surfaces must be regularly inspected.

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Since I use a tow dolly equipped with surge brakes, I don't require any additional braking system to be installed in my towed vehicle. However, vehicles loaded on dollies that don't have brakes, and all vehicles towed four down, require supplemental braking systems in most states and provinces. For many years, these products have been available from Roadmaster. This company has several braking solutions, but as mentioned above, this article will focus on the InvisiBrake. Most towed vehicle supplemental braking solutions are big and bulky, and some require air or hydraulic connections to be made directly to the towing vehicle. The InvisiBrake is different, since it is light, compact, and requires no complex connection. Once it's installed, it's basically plug and play. As described on Roadmaster's InvisiBrake web page (<http://roadmasterinc.com/products/braking/invisibrake/index.html>).



“InvisiBrake is a fully-automatic, progressive supplemental braking system that uses the electrical connections already in place on your towed vehicle (the towed vehicle's electrical harness) to brake when you brake the motorhome — the same electrical signal that activates the towed vehicle's brake lights also activates InvisiBrake.”

Simply put, the InvisiBrake requires only the four-wire light harness signal as input, can be inconspicuously mounted almost anywhere in the towed vehicle in any orientation, and doesn't have to be removed from the toad when it is to be driven. As an added bonus, the InvisiBrake even charges the towed vehicle battery so you'll never face the inconvenience of a dead battery when you go to start your towed vehicle.

Although the InvisiBrake is exceedingly simple to use and is basically “set it and forget it” once it's put in, it does require some technical aptitude and planning to install. Without going into extensive technical detail, it is worth my time explaining the basics of how the InvisiBrake works, as it really speaks to how well thought out and designed this product is.

First, a cable is attached to the brake pedal by means of a bracket. The cable is routed around a pulley behind the pedal and then to a small air cylinder hidden under the driver or passenger seats, center console, or dashboard. The air cylinder transforms the air pressure sent by the controller in response to the towing vehicle braking into mechanical energy, resulting in the brake pedal being depressed by the cable.

Once the cable system is installed, it's extremely unobtrusive, as mentioned earlier. This setup replaces large and heavy braking systems as well as the need for them to be placed on the floor of the towed vehicle and adjusted each time the toad is connected to the motorhome.

If the vehicle being rigged utilizes vacuum-assisted power brakes, a vacuum line is then routed from the InvisiBrake controller to the vacuum booster. This allows for power braking on the vehicle in tow in cases where the vacuum booster doesn't have power when the ignition is off.

Next, the breakaway system is installed, which of course causes the toad brakes to automatically apply in the case of vehicle separation. The breakaway switch is connected to the controller by means of two wires, which can generally be easily routed through the firewall. The controller is also wired to the towed vehicle battery or other constant energy source.

The next step requires only that the controller be connected to the towed vehicle four wire lighting harness that plugs into the motorhome.

The final step is to run a single wire from the towed vehicle to the dash of the RV and install the monitor LED. This wire terminates at a bullet connector at the toad. This wire can be easily routed along the RV frame, then up the front of the firewall into the cab. Some motorhomes even have a spare wire running from the area of the trailer harness up to the dash, which makes the job even easier.

As mentioned, the reason I decided to describe the install process was to highlight the ingenuity of the system. As we know, when the towing vehicle brakes, a simple electrical signal is sent through the wiring harness to activate the brake lights. This signal is also routed to the InvisiBrake controller, which converts the voltage to air pressure. The pressure activates the air cylinder, which converts it to mechanical motion, pulling on the cable and depressing the towed vehicle brake pedal. There is a pressure gauge and single dial on the controller, which allows for straightforward visual adjustment, but there is no requirement to connect air or vacuum lines to the towing vehicle or repeatedly install and stow a large and heavy supplemental braking system. Other than the tow bar and lighting, the only connections required between motorhome and toad are a single monitor wire and the breakaway cable.

In a medium bowl beat the egg with biscuit mix, mayo, Tabasco and seasoning. Fold in crab. Pressing firmly, form mixture into walnut-size balls or patties and bake on a greased baking sheet(s) until firm and golden brown. Serve warm. Makes 30 to 35.

Cook's note: mixture can be made ahead and kept cold. ■

More Canny Canapes

- Have a supply of small cheese pizzas on hand. Decorate with bits of vegetables or meat. Bake in the toaster oven and cut in small wedges.
- Unroll crescent roll dough and press perforations to seal. Using two spoons, dot evenly with a can of deviled ham. Roll up, slice into 16 spirals and bake until golden.
- Chop toasted pecans and mix with a jar of pineapple cheese spread. Spread on crackers or in celery slices.
- Cut up pickled herring and thread each piece on a toothpick with a pickled cocktail onion.
- Spread bagel chips with softened cream cheese and top with a tiny dab of black caviar.
- Use an ice pick to make holes in the top of a brick of cream cheese. Spread with salsa or pepper jelly. Surround with crackers or vegetables.
- Put spreads on 1/4-inch thick cucumber rounds instead of high-calorie crackers.
- Drain a can of artichoke hearts, cut in half and drain on paper toweling, cut side down. Top with a mixture of grated cheese, mayo and herbs to taste.
- Nuke a bag of "lite" popcorn and toss with grated Parmesan cheese or an herb mix (such as Sally's Mixed Up Salt, Mrs. Dash or McCormick's Salad Supreme).

About the Author

Janet Groene's book *Cooking Aboard Your RV, 2nd Edition*, is published by McGraw-Hill in English and French. She blogs weekly at www.CampAndRVCook.blogspot.com.

Although this procedure does take some patience and skill, it's really not that difficult if the instructions are followed and the process is carefully planned. The important thing is that the end result is a simple and highly effective supplemental braking system that you will likely forget is even installed, since it doesn't require installation, adjustment, and removal each time you tow your car.

Roadmaster has been travelling the highways along with us for almost half a century. This longevity results in a company with vast knowledge and experience in traditional towing solutions. But Roadmaster also takes emerging technology, customer service, and consumer demand seriously, and I was supremely impressed with the InvisiBrake. If you tow your vehicle flat or on a brakeless dolly, I couldn't recommend a better product. When your campground neighbors notice how much time you save hooking up and disconnecting your toad, you'll be the most popular RVer in the park! ■

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Here are a couple of easy tips for trouble-free operation of your air conditioner's thermostat:

Contrary to popular belief, a thermostat is not an accelerator---your room really won't cool any faster if you drop the thermostat to 60 degrees than it will if you set it at 72.

Set the thermostat at your desired temperature and leave it there. If you turn the thermostat off in the summertime, it's a good idea to leave it off for at least three minutes before turning it back on. This allows the air conditioner's refrigerant cycle to equalize its pressure, creating less stress on the air conditioner's compressor.

Happy trails! ■

Paul and Kerri Elders are freelance writers; visit their website at RVLinker.com.



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