

Limited 1 year Product Warranty

N.S.A. RV Products, Inc. warrants to the original owner only that this product is free from defects in material and workmanship upon original purchase.

The Smart Brake carries with it a 1 year warranty.
The Warranty covers any malfunction of the Pig Tail -7 Way Wiring Harness -Smart Brake Box and internal components -Vacuum Pump

Warranty does not cover any hardware, cables, or the Trailer Brake system. The Guarantee also does not cover damage resulting from tamper, abuse, unreasonable use, mistreatment, negligence, or accidental breakage.

IN NO EVENT WILL NSA RV PRODUCTS, INC. BE LIABLE FOR ANY SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGE RESULTING DIRECTLY FROM POSSESSION, MISUSE OR IMPROPER CARE OF THE SMART BRAKE UNIT.

Return Policy

We have a 30 day money back guarantee that starts on the date of shipment. Items returned after 30 days will be charged a 20% restock fee.

Anyone wishing to return merchandise must first obtain authorization to do so by contacting us at sales@nsarvproducts.com or (620) 365-7714.

When we receive a returned item our QC department will inspect it and a refund amount is determined then issued.

Shipping charges are non-refundable and we do not pay the return shipping fees. Items marked with free shipping will still have the actual shipping cost deducted from a refund.

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Smart Brake Owner's Manual



Included hardware



1 Pigtail



1 Brake Controller



1 7-Way Wiring
Harness
1 Break-A-Way



1 Smart Brake Box



1 Vacuum Pump
1 Vibration Damper pad
2 1/2" to 3/8" reducers



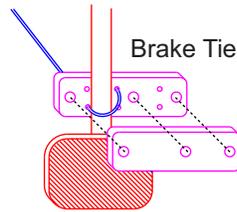
1 Conduit Fitting



1 Brake Tie Clamp

4 Sheet metal self
tapping Screws
4 Lag Screws
2 Cable Conduit Clamps
6 Zip Ties

#5 Once mounted to the firewall, secure the aircraft cable to the brake pedal with the provided brake tie. Mount it like this picture, then cut the excess aircraft cable off with a die grinder or a pair of side cutters.



#6 Mount the 7 way wiring harness at the front of the tow car then securely fasten the break-a-way device, route the provided harness up to the smart brake and plug the harness into the smart brake box. Keep in mind this harness needs to be fastened down to keep it from coming into contact with any moving or heat related objects.

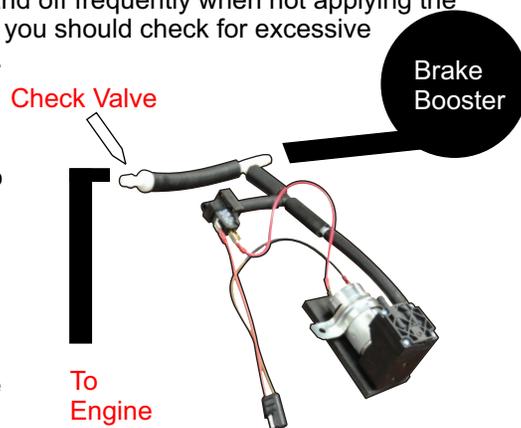
#7 Next, route the loomed and marked battery terminals to the battery post or distribution block, and the vacuum pump wires to the area where the vacuum pump is mounted.

Vacuum Pump Install

The pump provides vacuum pressure to the brake booster. When the vacuum drops below 14 inches while being towed. Locate the hose that runs from the engine intake manifold to the brake booster located on the firewall. This hose will be cut to allow installation of the appropriate plastic T connector. A one way check valve will be placed between the TEE and the intake manifold as to cut the vacuum pump off from the engine. This electrical pump is made to generate a vacuum on the brake booster and not the engine.

The vacuum pump will turn on when the vacuum in the line drops below 14 inches of pressure and turn off when the brake booster is powered up to 14 inches of pressure. Should this pump cycle on and off frequently when not applying the brakes in the towed vehicle, you should check for excessive leaks in the vacuum system.

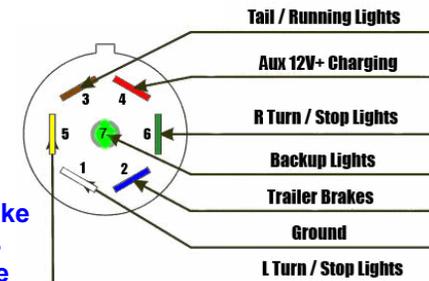
The new Hybrid vehicles are now being equipped with electric Hydro assist, and require power to the ABS system and pressure regulator circuits within the vehicles electrical system. Most hybrids have battery power applied to the hydro assist system with the key in both the off and accessory position.



Motorhome Receptical (Extremely Important)

#1 Most motorhomes are now prewired for trailer brake controllers to a 7 way plug at the rear of the motorhome. This section is for those motorhomes that are not prewired or those that turn on the brake light with an engine brake such as an exhaust or Jake Brake. You must first determine how many wires are actually in the 7 way female plug at the rear of the motorhome and identify what function and pin they are attached to. **Most diesel pusher motorhomes are prewired like this diagram below. Almost all gas engine motorhomes are wired differently so you have to check this out. If you do not make the receptical wires like the diagram below the Smart Brake will not work correctly.**

All motorhome female 7 pin plugs should be wired as shown to the right.



Pin #7 will have to be modified. This will have to be hooked directly to a brake light only. You will find this by hooking it directly to the third brake light or hook this directly to the cold side of the brake pedal switch under the dash or if your motorhome has a separate brake light bulb and amber turn signal bulb hook it directly to the brake wire on the back of the motorhome.

There may be a need to modify the brake light switch in the motorhome by installing a blocking diode to ensure that the exhaust or jake brake does not send a false signal to the smart brake.

Warning: If exhaust brakes or Jake engine brake retarders turn on tail lights and initialize operation of the controller in the motorhome, Damages to the towed car's brakes may result.

Follow the trailer brake manufacturer's installation instructions for the trailer brake controller you are using with the Smart Brake. NSA RV Products Inc. will not be responsible for damages caused by engine retarders activating the trailer brake controller in the motorhome.

System Test

(Important: Do not pull the break-away pin unless the Smart Brake is completely installed. You may run the chance of the motor to unwind the aircraft cable internally in the box. Also do not push the aircraft cable up in the box. This also will unwind the aircraft cable internally.)

When attached to a motorhome the 12 volt vacuum pump in the car should activate when the vacuum is depleted below 14" of pressure in the towed vehicle's system and shut off when the vacuum has been restored to the proper level.

To test the activation of the vacuum pump manually, first attach the pigtail from the motorhome to the front of the tow car. Now, with the motor off, step on the brake pedal in the towed car with the key in the tow position. The vacuum pump should start running. Once the pump gets to 14" of pressure, it will shut off.

To test the system, an operator should be located in the motorhome and in the towed car as well. When the motorhome brakes are applied the brake pedal in the towed car should also apply. (You will notice that the movement of the brake pedal will be slow as there is no stopping inertia, this is expected.) When the brakes are released in the motorhome, the brake pedal in the towed car should return to the full up position. The towed car's brake lights should also shut off. **(In no case should the brake lights remain on in the towed car unless the brake lights are also on in the motorhome. This would result in possible damage to the towed cars braking system.)**

This test must be run several times to ensure that the pedal in the towed vehicle applies and release when the brakes are applied and released in the motorhome.

*Proportion

The amount of braking in the towed vehicle can be adjusted at the operators discretion. The operator can adjust the brake controller from the motorhome seat to change the proportion of braking applied to the towed vehicle.

The progressive braking is done with internal operation of the brake controller used. (Either time based or inertia based.)

Smart Brake Installation Instructions

The Smart Brake is designed to be located in the towed vehicle's engine compartment, underneath the vehicle, or behind the bumper assembly. Only the length of the wire harness the front of the vehicle, battery and vacuum pump will limit the where the smart brake can be installed. Make sure there is enough room for the white box. It measures 11" lg. x 6" w. x 3 1/2" t. In most installs, the desired location will be in the engine compartment away from moving components and heat sources, such as the exhaust. The smart brake will function in all directions and locations. Let your common sense be your guide as the product is not restricted to any one location or vehicle.

#1 Use the provided self tapping screws to mount the smart brake directly to the frame of the towed vehicle or a very secure surface. All of the pulling force is provided within the smart brake box itself by pulling on the aircraft cable.

#2 From the inside of the vehicle, drill a 3/8" hole directly behind the brake pedal through the firewall. **(Be careful when doing this not to drill into anything on the engine side.)** This hole is for the cable conduit to be attached to the firewall.

#3 Now mount the 3/8" black cable conduit fitting in the hole you drilled in the firewall. Take the nuts off to slip the fitting in the firewall and secure it with the provided nuts on the pedal side.

#4 From the mounted smart brake box, route the black cable conduit to the back of the black cable conduit fitting you previously mounted in the firewall. Make sure that there are no sharp bends or hot surfaces that could melt or cause restrictions in the cable conduit. **(The black cable conduit is probably longer than you need it to be. That is ok! Mark on the black cable conduit where it would go up into the back of the black fitting mounted into the firewall then add 3/4" of an inch. Once marked get a hack saw and cut the cable conduit to length. But be careful! Do not cut the aircraft cable. Then remove the excess black cable conduit.)** Now slip the aircraft cable up through the conduit fitting and then push the black conduit up into the engine side of the conduit fitting.

Next, secure the black cable conduit in the engine compartment with the provided zip ties and cable conduit clamps. It is very important to get this secure, because when the smart brake pulls on the brake pedal, the cable conduit will try to move around if not secured properly.