INSTALLATION MANUAL

52211

Level of Difficulty

Difficult

Installation difficulty levels are based on time and effort involved and may vary depending on the installer level of expertise, condition of the vehicle and proper tools and equipment.

Parts List

Item	Description
1	RVibrake Shadow
2	Booster box
3	Accessory kit
4	Vacuum kit
5	Cylinder brake cable assembly
6	Tie wrap and clamp bag
7	Command Center system

Product Registration and Warranty

CURT stands behind our products with industry-leading warranties. To get copies of the product warranties, register your purchase or provide feedback, visit: **warranty.curtgroup.com/surveys**

⚠ WARNING

It is the end user's responsibility to verify that their specific vehicle make and model is approved for flat towing by the manufacturer.

Always consult the vehicle's owner's manual to fully understand flat towing procedures, limitations, and requirements.
Failure to follow manufacturer guidelines may result in severe vehicle damage and may void warranties.

Ensure compliance with all applicable state and local laws regarding flat towing. Regulations may vary by jurisdiction.

Improper towing can result in vehicle damage, legal consequences, or personal injury.

The use of RVibrake Shadow or any of its accessories in a manner inconsistent with these instructions could cause damage to the motorhome or towed vehicle and may cause serious injury or even death.

Never exceed the vehicle manufacturer's recommended towing capacity.

Product Photo

NOTICE

Before you begin installation, read all instructions thoroughly.

Visit **www.curtmfg.com** for a full-color copy of this instruction manual, as well as helpful videos, guides and much more!

Proper tools will improve the quality of installation and reduce the time required.

RVibrake Shadow is not compatible with hydro boost vehicles.

All steps must be followed to ensure the product will function properly. Once installed, test for proper function by using a test light or connecting a properly wired trailer.

Maintenance

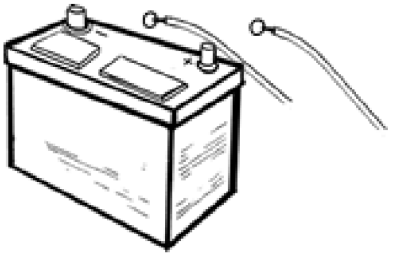
Periodic inspection of all wires and connections should be performed to ensure there is no visible damage or loose connections.

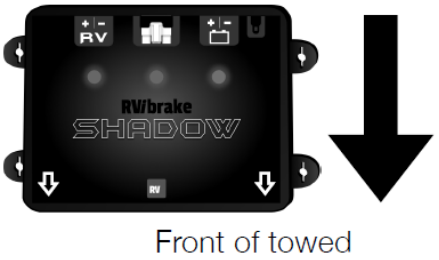
INSTALLATION

Step 1: Mounting the Shadow Box

Find a location near the towed vehicle's battery to mount the box. This location should allow you to easily route the duplex wire to the vehicle battery terminals.

Use the provided wire ties or screws to mount the box in place with at least three (3) mounting tabs as preferred. You can mount the box on a wire loom with the wire ties, or screw it down to the plastic fuse box.





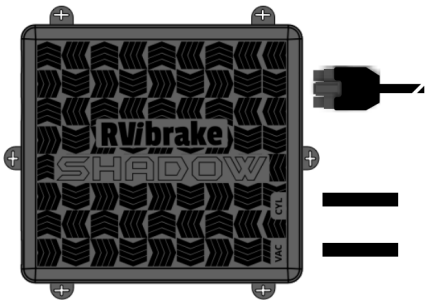
NOTICE

The arrows on the Shadow box must point toward the front of the towed vehicle lying flat within 30˚. Failure to do so will prevent the brake from functioning properly.

Step 2: Mounting the Booster Box

Find a location in the engine compartment to mount the box. This location should allow you to easily plug in the 6-pin wire harness, vacuum, and cylinder hoses.

Use provided 15-inch wire ties or screws to mount the box in placewith at least two (2) mounting tabs is preferred. The orientation of the box does not affect performance.



NOTICE

If possible, it is recommended to mount near the vacuum line of the master booster.

Step 3: Drilling the Cylinder brake pedal cable hole

From the passenger compartment, pull back the carpet from behind the brake pedal to expose the firewall. Press the brake pedal down with your hand and mark the firewall behind the brake pedal arm where it meets the top of the pedal.

Using reference points near the marked location, go to the engine side of the firewall and ensure that there are no obstructions and that nothing can be damaged at the intended location.

From the passenger compartment, drill a hole with a 5/16" drill bit at the marked location into the engine compartment.

Note: If the marked location is not suitable, a hole can be drilled within two (2) inches in any direction of the marked location.

(Bracket is reversible)

For double firewalls see Troubleshooting pg. 10

⚠ WARNING

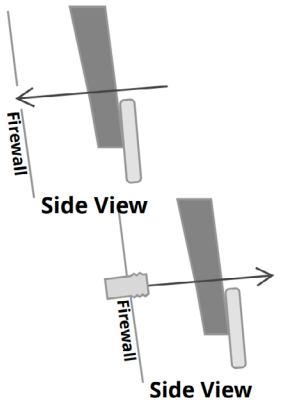
Before drilling, always ensure there are no components, wiring, or structural elements located behind the firewall. Drilling without proper inspection may result in serious damage to hidden parts, leading to costly repairs or safety hazards.

Step 4: Routing the Cylinder brake pedal cable:

From the passenger compartment, feed the provided steel pull wire through the new hole into the engine compartment. In the engine compartment, remove the outside nut and one lock washer from the end of the threaded conduit of the brake pedal cable. Tape the braided steel cable from the brake pedal cable to the pull wire.

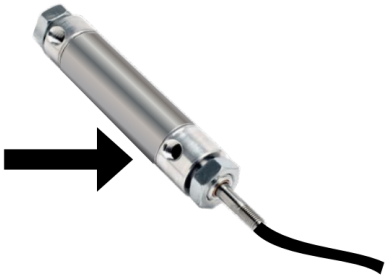
From the passenger compartment, pull the wire until the braided steel cable and threaded conduit fitting are through the hole.

Remove taped pull wire. Slide the lock washer and nut on the braided steel cable and tighten onto the threaded conduit with a 1/2” wrench.



Step 5: Mounting the Cylinder

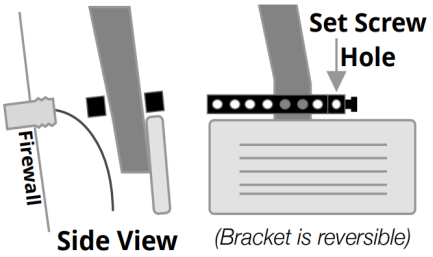
Working your way from the firewall in the engine compartment, avoid sharp turns and/or tight loops in the brake pedal cable when the cylinder is mounted. Use provided wire ties to mount in place. Ensure female fitting for the cylinder hose is accessible.



Step 6: Mounting the brake pedal clamp

Mount the brake pedal clamp onto the brake pedal arm near the top of the brake pedal for maximum leverage. The clamp’s set screw hole should be lined up within 2 inches of where the braided cable feeds through the firewall.

Use a 5/32” Allen wrench to tighten the bolts of the clamp onto the brake arm. The closer the bolts are to the brake pedal arm the better.

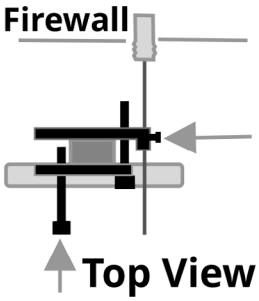


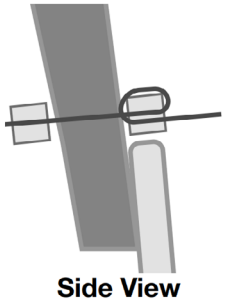
Step 7: Attaching the braided cable to clamp

⚠ WARNING

Extra steps must be taken for vehicles with adjustable pedals. When setting the cable and/or flat towing, be sure that the pedals are positioned closest to the driver’s seat. This will allow the pedals to be used normally in any position and will avoid brake damage.

Feed the braided cable through the set screw hole and tightly loop around to go back through the set screw hole a 2nd time. Make sure to leave a little slack in the line between the brake pedal and the threaded conduit to ensure that the brake pedal isn’t being pulled on, then tighten the set screw with a 5/32” Allen wrench.

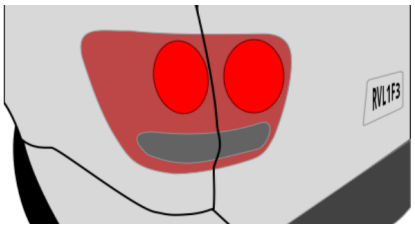




Step 8: Testing the brake pedal clamp assembly

Check to make sure your brake lights are not illuminated at this time. If they are illuminated, then release the set screw on the brake pedal clamp and adjust for a little slack on the braided cable.

Retighten the set screw and check the brake lights. Using side cutters, trim the excess braided cable to be flush with the clamp.



Step 9: Connecting the towed battery charger (TBC) to the towed umbilical connector

Connecting the towed battery charger (TBC) to the towed umbilical connector: This allows the RV to charge your towed vehicle's battery when towing. NOTICE: TBC installation is required for RVibrake Shadow to perform braking function.

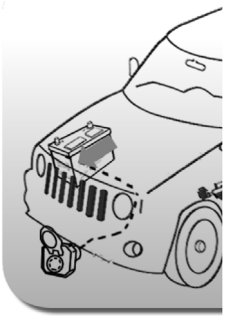
⚠ WARNING

Failure to connect the TBC according to the instructions may result in damage to your charge circuit or other electronics, in which CURT is not responsible.

Step 10

Locate the multi-pin connector near the front of your vehicle. The end of the red and black duplex cable with the male connector should be at the Shadow box.

Route the other end of the cable without the male connector safely through the engine compartment, or fender, to the front of the vehicle where this connector is located.



Step 11

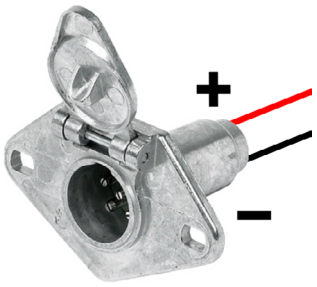
Identify the positive 12VDC terminal in the multi-pin connector where the wires come into the towed vehicle. You should see 13+ volts coming from the motorhome through your umbilical cord when the motorhome engine is running.

Strip the end of the red wire from the TBC and insert the wire into the multi-pin connector. Securely tighten.

Step 12

Identify the ground terminal in the multi-pin connector where the wires come into the towed vehicle.

Strip the end of the black wire from the TBC and insert the wire into the multi-pin connector and securely tighten.



Step 13

Inspect for any loose wire, and secure as necessary with the wire ties provided.

⚠ WARNING

If you have to disconnect the towed vehicle's battery for towing, it is recommended that you disconnect the negative and positive terminals. Failure to do so can damage the towed vehicle.

CONNECTION

Step 1: Connecting the Cylinder to the Booster Box

NOTICE

When connecting the components make sure to avoid contact with belts and elements that see extreme heat. Failure to do this can cause damage to the hoses and cables.

Using the provided 6mm hose, push one end firmly into the female fitting on the cylinder. Route the other end to the Booster Box labeled "CYL" avoiding bends in the hose.

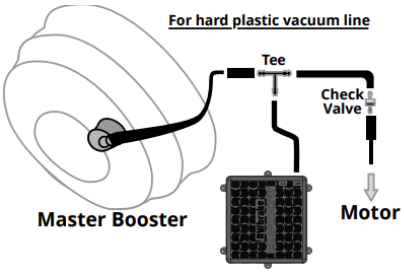
Cut the hose straight with side cutters to length, and push firmly into female fitting. Use provided wire ties to tie up any loose hose.

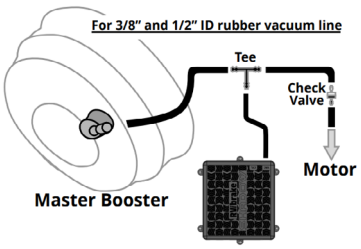
Step 2: Tying into the car's vacuum line from the Booster Box:

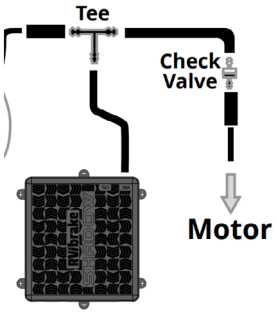
If your towed vehicle does NOT have vacuum brakes (master booster), skip this step and use the provided 1/4" plug for the VAC male fitting on the Booster box. There are 3 types of vacuum lines in towed vehicles: 1/2" inner diameter hose, 3/8" inner diameter hose, and thin plastic hard line hose.

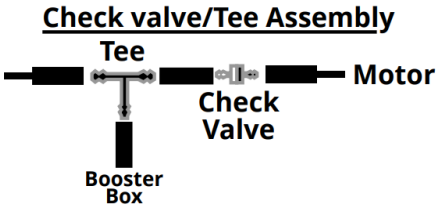
NOTICE

When making connections, lubricate the hose, check valve, and tee with soapy water or silicone spray. This will help them slide easily into the vacuum hose.









HARD PLASTIC VACUUM LINE

Locate the existing vacuum hose and determine where the check valve/tee assembly be inserted in the hose. Avoid being too close to a bend in the hose.

Cut 2” of the provided 3/8” hose and insert the end of the check valve with the small diameter. Insert the tee into the other end.

Cut another 2” of the provided hose and insert the other end of the tee. Cut another 2” piece and insert to the end of the check valve with the larger diameter.

Measure the length of the check valve/tee assembly and cut out a portion of the existing hard plastic line 2” shorter than the assembly. Slip the open ends of the 3/8” hose about 1” over the plastic tubing on each side. Make sure the end of the check valve with the larger diameter is toward the motor.

Press the provided 1/4” black hose over the tee. Route the hose to the barbed fitting on the Booster box labeled “VAC”, cut the hose to length, and press over the fitting. Use the wire ties to secure any loose hose.

3/8” & 1/2” RUBBER

Locate the existing vacuum hose and determine where the check valve and tee will be inserted in the hose. Avoid being too close to a bend in the hose.

Cut the existing vacuum hose and insert the end of the check valve with the larger diameter towards the motor.

Cut the hose between the check valve and the master booster and insert the tee.

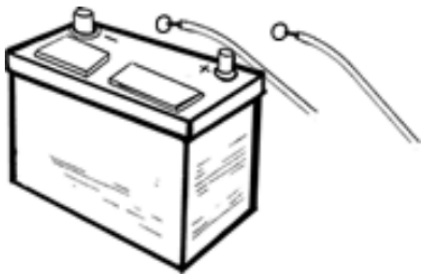
Press the provided 1/4” black hose over the tee. Route the hose to the barbed fitting on the Booster box labeled “VAC”, cut the hose to length, and press over the fitting. Use provided wire ties to secure any loose hose.

NOTICE

Hose clamps not required on the vacuum line.

Step 3: Connecting the Shadow Box to the towed battery:

Pull fuse from the Shadow power cable and store safely. In your towed vehicle, remove the nut on the positive battery terminal, place the RED ring terminal over the bolt, and then retighten the nut back onto the bolt. Remove the nut on the negative battery terminal, place the BLUE ring terminal over the bolt, and retighten the nut back on to the bolt.



Towed Battery Led Status

Flashing blue: Above 12 volts	**Flashing yellow:** Between 11-12 volts	**Flashing red:** Below 11 volts	**Solid red:** Error

Step 4: Plug in Breakaway Cable:

Connect the male breakaway plug into the Shadow box. Wrap and zip tie any excess cable.

Breakaway LED Status

Flashing blue/white: Breakaway plug not detected	**All flashing red:** Breakaway in progress

Note: See the Breakaway Installation Guide for installation and operation.

Step 5: Connect the Booster Box to the Shadow Box:

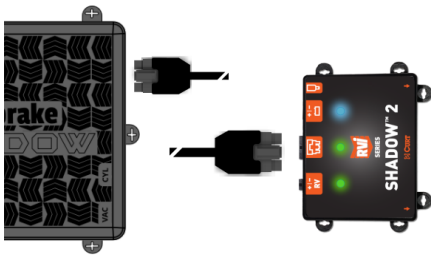
Connect the Booster Box to the Shadow Box: Connect the 6-pin cable harness into the Booster box and Shadow box's 6-pin female receivers. Wrap and zip tie any excess cable.

NOTICE

It is normal for the compressor to run when first powered.

⚠ WARNING

Do not cut 6-pin cable harness



Center LED Status (for booster box):

Solid green: System good	**Solid red:** Error

Step 6: Connect Towed Battery Charger

Connect Towed Battery Charger: Plug in the red and black cable into the Shadow box port labeled RV.

RV LED Status

Green: Above 13 volts	**Yellow:** Between 12-13 volts	**Red:** Below 12 volts & battery low
Flashing: Charging	**Flashing:** Charging	--
Solid: Not charging & battery good	**Solid:** Not charging & battery good	--

Step 7: Test the Breakaway

First, place the fuse back into the Shadow power cable. At the bumper of the towed vehicle, pull the breakaway pin to test that the system is operational. The towed vehicle brake lights will come if working properly. Then re-insert breakaway pin.

NOTICE

The compressor should shut off after 20 seconds.

OPERATION

PAIRING STEPS

Step 1

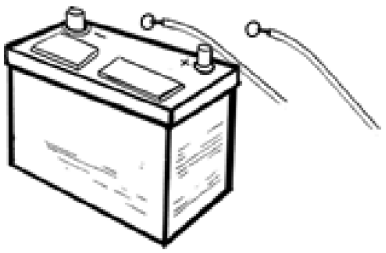
Power on the Command Center tablet and hub. To power on the tablet, press and hold the power button for three seconds. To power the hub, connect it to the provided USB charger.

NOTICE

RVibrake Shadow does not come paired with Command Center and is pairing is not required. See the Command Center User Guide for more info.

Step 2

Make sure RVibrake Shadow is powered and the
blue LED is flashing. If the LED is not flashing, start the towed vehicle engine for a few seconds and shut off or pull the fuse on the Shadow box and re-insert to wake it up.



Step 3

On the tablet, click Add Device from the tablet Dashboard

Step 4

On the new screen, enable RVibrake Shadow by toggling the on/off slider to ON. The tablet will walk you through pairing.

Step 5

You will be asked to pair to RVibrake Shadow by placing your powered Command Center hub on or near the RVibrake Shadow. Once the Shadow is found by the hub, you'll be asked to enter the Shadow's seria; number (S/N).

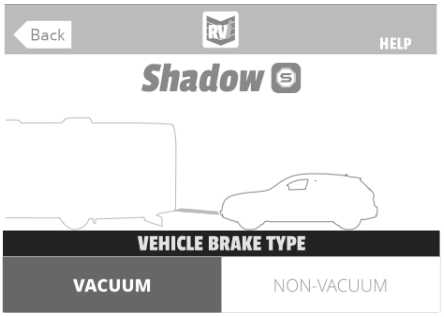
RVibrake Settings

To choose your settings, use the Command Center tablet. The tablet must be paired to RVibrake Shadow to change settings. There are two settings to choose on RVibrake Shadow: Vehicle Brake Type and Brake Pressure.

Vehicle Brake Type

Most vehicles are Vacuum assist vehicles. This means the car uses a master brake booster to boost the pressure when braking.

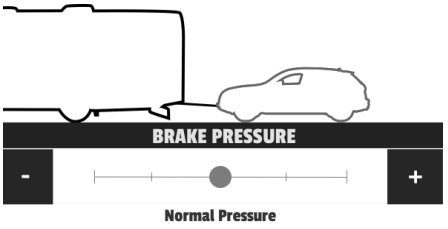
Non-Vacuum vehicles have constant electrical or hydraulic systems to assist in braking, whether the engine is running or not. Most hybrid and diesel vehicles have Non-vacuum brakes.



Brake Pressure

Brake Pressure determines how hard RVibrake Shadow will pull on the brake pedal. The default setting of NORMAL PRESSURE is correct for most vehicles.

To ensure the correct Brake Pressure for your vehicle, see the Brake Test section on page ().



How RVibrake Shadow Works

Now that RVibrake Shadow is set up and settings are selected, it's time to start towing. The purpose of RVibrake Shadow is to take the weight of the towed vehicle off of the motorhome when braking and reduce stopping distance. RVibrake Shadow is activated by an accelerometer that detects changes in inertia, the same force that draws your chest forward when braking. Because RVibrake Shadow is proportional, the more inertia it sees, the harder it knows to pull on the brake pedal in the towed vehicle. RVibrake Shadow is compatible with both gas and diesel coaches.

The slope sensing software will keep RVibrake Shadow from being more sensitive downhill and less sensitive uphill, giving you accurate braking at all times. This software keeps your brake pads from having excessive wear.

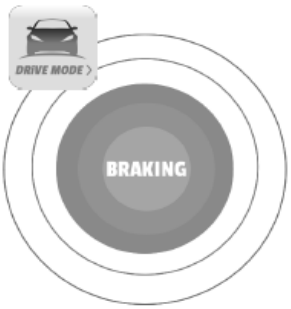
⚠ WARNING

RVibrake Shadow is compatible with almost all towed vehicles. It is NOT compatible with towed vehicles that have standard hydro boost power assist brakes, as the RVibrake Shadowx cannot provide enough braking power. It IS compatible with electric hydro boost power assist brakes. To know, put your towed vehicle's ignition in tow mode, have an assistant pump the brakes several times. If it's electric, you'll hear a very quiet electric pump running.

Drive Mode

From the tablet's Dashboard, you can enter DRIVE MODE by
pressing the Drive Mode icon to monitor the performance of
RVibrake Shadow while towing.

When RVibrake Shadow pulls on the pedal the braking rings will illuminate in DRIVE MODE. The harder RVibrake Shadow pulls on the pedal the more the braking indicator rings will grow.



Brake Test

Perform a brake test in BRAKE settings to ensure the correct Brake Pressure for your towed vehicle.

Accelerate to approximately 30 MPH in the motorhome, then lift off the accelerator. While coasting, press the Brake Test button; you should feel a gentle pull on the motorhome.

If you do not feel a gentle pull on the motorhome, increase your Brake Pressure setting in the RVibrake Shadow settings for greater braking power, and repeat the test.

If you feel too much pull on the motorhome, decrease your Brake Pressure for less braking power, and repeat the test.