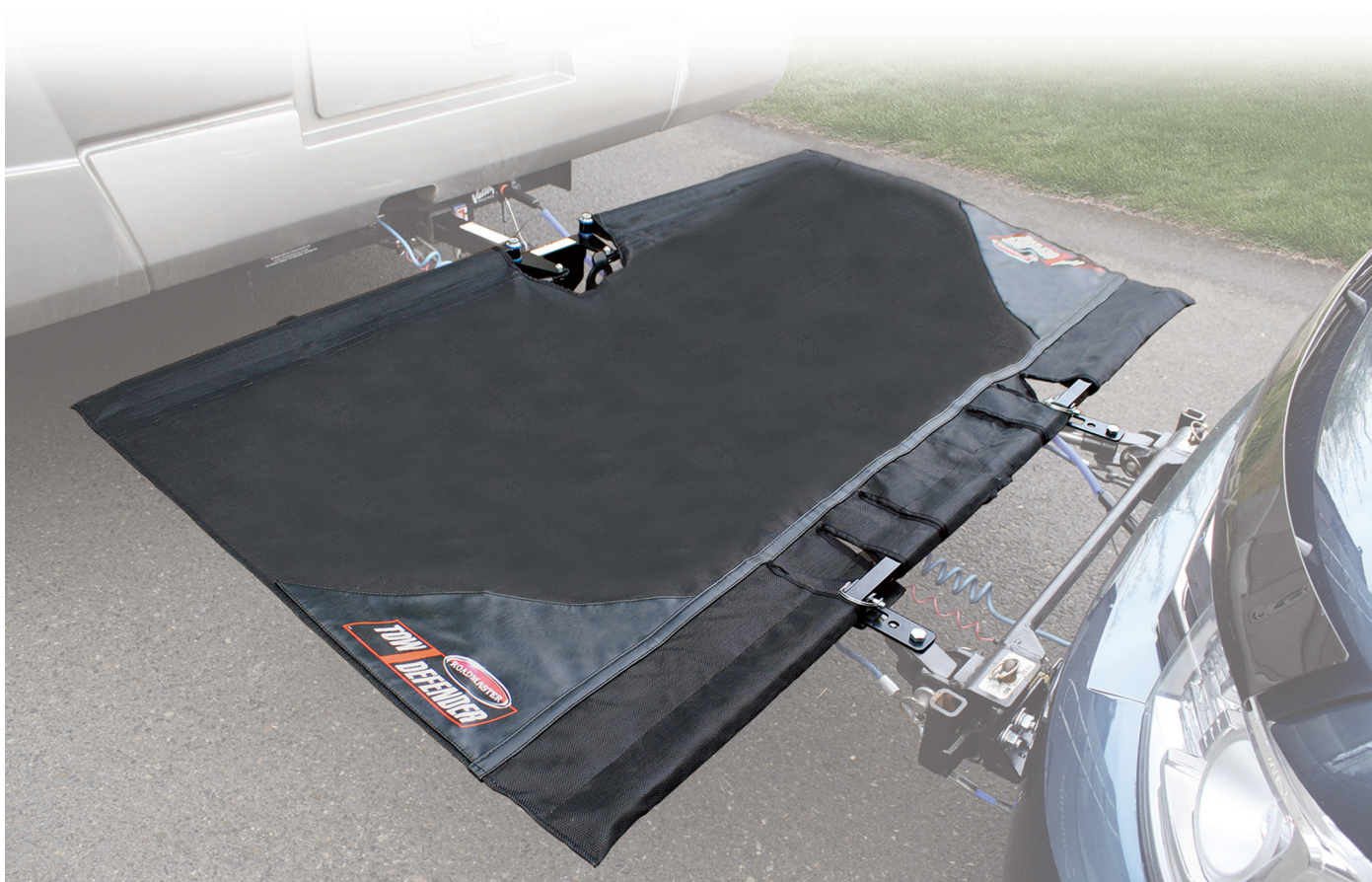




roadmasterinc.com/patents

**part number 4750-250 Tow Defender for 2.5" hitch
for Blue Ox tow bars with Blue Ox brackets, Demco tow bars with Demco brackets,
and all motorhome-mounted ROADMASTER tow bars with 2.5" hitch adapter**



Assembly and Installation Instructions



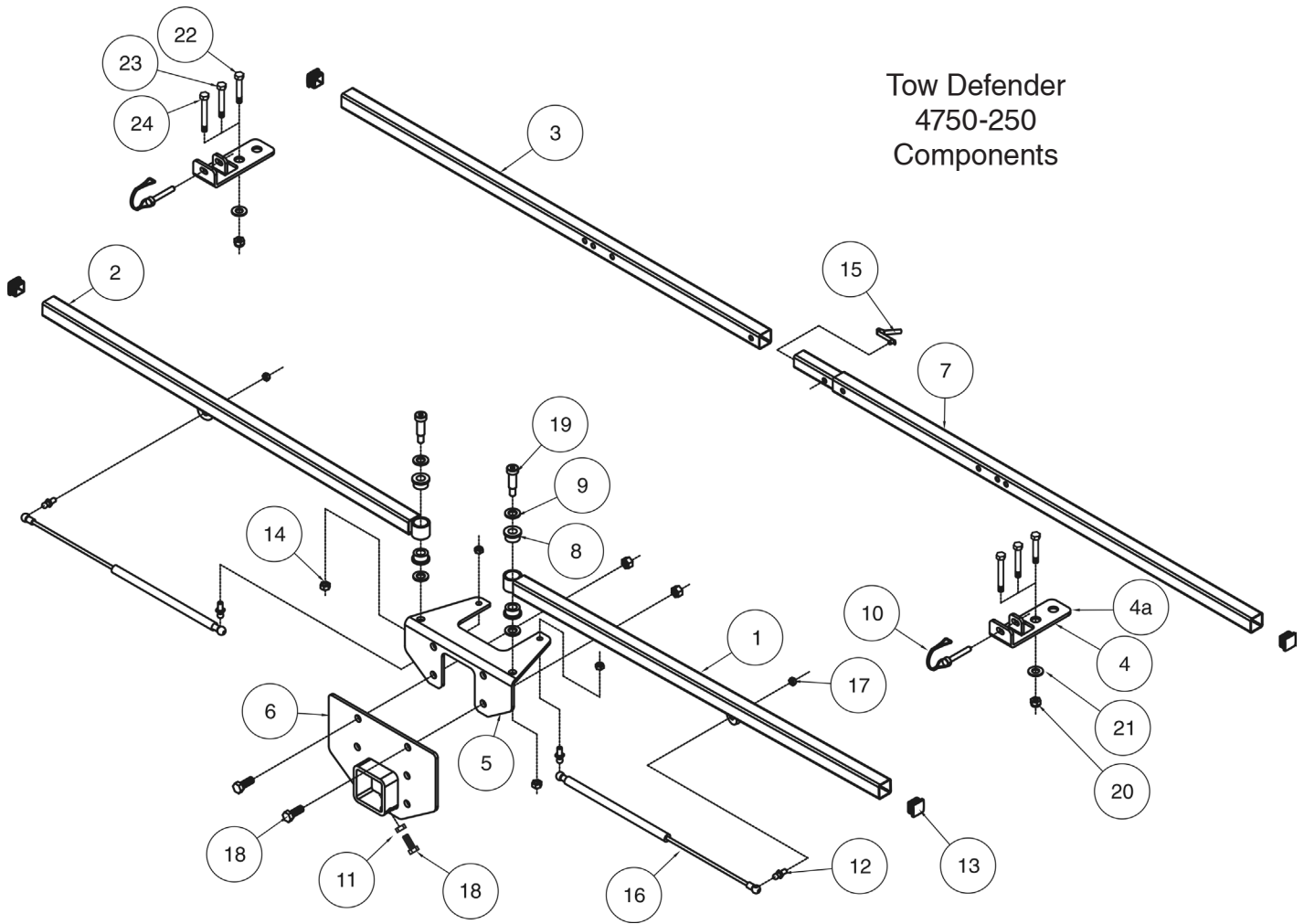
Time Tested • Time Proven

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Tow Defender
4750-250
Components



Item	Qty	Description	Part number
1	1	Driver side tube	501301-00
2	1	Passenger side tube	501301-10
3	1	Female support tube	A002641
4	2	Shoulder bolt adapter	B001574A
4a	2	optional 2" extended shoulder bolt adapter (not shown)	4750-02
5	1	Collar	B001174
6	1	Collar bracket	C001708
7	1	Male support tube	C001709
8	4	Poly bushing	200375-00
9	4	1/2" I.D. x 1" O.D. flat washer	350309-80
10	2	Safety pin	356997-00
11	1	3/8" jam nut	350254-40
12	4	Ball joint	200024-00
13	4	Plastic plug	200142-00
14	4	3/8" lock nut	350272-00
15	1	Spring button	200699-00
16	2	Gas strut	
<p><i>Note: two different gas struts have been used to manufacture the Tow Defender. You must measure to determine the appropriate gas strut:</i></p> <p>200023-50 – overall length: 20 1/2"</p> <p>200023-60 – overall length: 21"</p>			
17	4	5/16" lock nut	350253-01
18	2	3/8" x 1" bolt	350055-00

Item	Qty	Description	Part number
19	2	1/2" x 1 1/4" shoulder bolt	350094-50
20	2	1/2" nylon lock nut	350259-00
21	2	1/2" flat washer	350308-00
22	2	1/2" x 2 1/2" bolt	350099-00
23	2	1/2" x 3" bolt	350101-00
24	2	1/2" x 3 1/2" bolt	350103-00

Not Shown
Tow Defender fabric – part number 4750-10

Velcro straps (4)
(Replacement Velcro straps, set of 2 – part number 4700-2)

Description

The Tow Defender's all-weather, heavy-duty screen deflects rocks, gravel and road debris down and away, protecting your towed vehicle's finish, headlights and windshield against chips and dings. The vinyl-coated mesh lets air through, keeping it low and over the road.

Fully extended, the Tow Defender measures 39" by 73" (almost 20 square feet), and is held in place with shock-absorbing steel struts.

Once you've reached your destination, roll up the Tow Defender, snap the elastic straps around each end, and store it against the motorhome.

The Tow Defender features powder-coated steel supports and heavy-duty gas struts for maximum durability, support and cornering flexibility.

The model 4750-250 Tow Defender is designed for Blue Ox tow bars with Blue Ox brackets, Demco tow bars with Demco brackets and all motorhome-mounted ROADMASTER tow bars.

Unpacking

After unpacking the Tow Defender, inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Check to be sure all supplied components are enclosed.

In case of questions, damaged or missing parts, please call 800-669-9690 for customer assistance.

IMPORTANT

The Tow Defender is designed to reduce the damage to the vehicle while being towed. Although the Tow Defender will significantly reduce the amount of vehicle damage, the Tow Defender will not eliminate all damage, under all circumstances.

Accordingly, ROADMASTER expressly disallows any and all claims related to rock chips, dings, scratches or any other damage incurred to the towed vehicle or motorhome.

All illustrations and specifications contained herein are based on the latest information available at the time of publication. ROADMASTER, Inc. reserves the right to make changes, at any time, without notice, in material, specifications and models, or to discontinue models.



Made in the U.S.A.

IMPORTANT NOTICE!

Safety Definitions

These instructions contain information that is very important to know and understand. This information is provided for safety and to prevent equipment problems. To help recognize this information, observe the following symbols:

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in property damage, serious personal injury or even death.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage, or minor or moderate personal injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE

Refers to important information and is placed in italic type. It is recommended that you take special notice of these items.

CAUTION

Read all instructions before installing or using the Tow Defender. Failure to understand how to properly install or use the Tow Defender could result in property damage or personal injury.



Save these instructions

Save these instructions for future reference. They contain important sections relative to safety, use, parts replacement and other information. Therefore, make sure this document is always with you when you're towing. You may download or print a copy of the most current instructions at www.roadmasterinc.com (under 'Support').

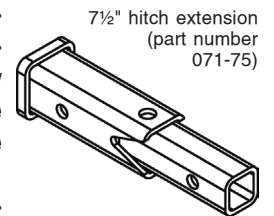
CAUTION – A hitch extension may be required.

Some motorhome chassis have such a tight turning radius that the Tow Defender may contact and cause damage to the motorhome or towed vehicle during sharp turns. For this reason, check the motorhome turning radius before using the Tow Defender for the first time – in an empty parking lot, attach the Tow Defender, then have someone watch as you slowly turn the motorhome sharply.

If the Tow Defender is too near the motorhome,

you must attach a hitch extension to the motorhome hitch receiver in order to use the Tow Defender. This will extend the distance between the motorhome and the Tow Defender.

We recommend our 7½" extension (part number 071-75, pictured above) for this purpose.



CAUTION

Do not attach the Tow Defender so that the mesh fabric is in close proximity to the engine exhaust pipe. The fabric may be warped or otherwise damaged by the heat from exhausts at the rear of the motorhome.

The Tow Defender can be adjusted to move the fabric away from the exhaust – see “Adjusting the fabric” on page 5.

If the exhaust is still close to the fabric after adjusting the Tow Defender to its farthest extent, install a ‘turn down’ extension (sold separately) on the engine exhaust (according to the manufacturer’s recommendations), to redirect the exhaust away from the fabric. Otherwise, the fabric may be warped or otherwise damaged.

Heat from other exhausts which cannot be redirected (recessed exhausts, or exhausts from “hydronic” heating systems) may also damage the Tow Defender if they are in close proximity to the fabric.

Under what conditions could heat from exhaust pipes damage the Tow Defender fabric?

1. Heat from the engine exhaust could potentially damage the fabric – the temperature at the engine exhaust pipe can be over 1,000° Fahrenheit, under certain conditions.

Install a “turn down” extension, as instructed above, if the engine exhaust pipe is directly below the Tow Defender.

2. Heat from a “hydronic” heating system exhaust will damage the fabric, if it is directed out the rear of the motorhome, in close proximity to the fabric – the temperature at the exhaust pipe may be between 500° and 600° Fahrenheit.

Many of these systems vent the exhaust at the side of the motorhome. Side-vent exhaust will not damage the Tow Defender fabric – only exhaust which is vented at the back of the motorhome could potentially damage the fabric.

Some manufacturers stipulate that hydronic system exhausts at the rear of the motorhome be directed straight-back (horizontal to the road). The exhaust cannot be directed down, or a fire may result when the motorhome is parked in dry, grassy areas, according to these manufacturers.

Redirecting the exhaust may void the manufacturer’s warranty – several manufacturers stipulate a maximum of two 90° bends over the entire length of the exhaust pipe – more than two 90° bends may cause back pressure to destroy the exhaust pipe or force the exhaust back into the heating system.

Redirecting the exhaust at any angle may be ineffective, as far as avoiding damage to the Tow Defender fabric – the exhaust would still be carried back and over (or under) the fabric.

3. Heat from the generator exhaust could potentially damage the fabric – the generator may run when the motorhome is stationary, and the heat may not be dissipated as quickly as it would be if the motorhome was moving.

Similarly, if the motorhome is stationary for an extended period, with the engine idling, the Tow Defender fabric can be damaged by heat from the engine exhaust.

4. Additionally, heat from recessed exhausts (for the furnace and/or water heater) could conceivably cause damage, if they were close enough to the fabric.

5. Heat from the exhaust of other systems, which ROAD-MASTER is presently unaware of, may also cause damage.

Before you begin...

- The 4750 Tow Defender has six built-in adjustments that will lengthen, shorten and elevate the fabric. All or some of them may be necessary for your particular towing system. For that reason, do not tighten the nuts on any bolts until the Tow Defender is assembled and connected – you may have to unthread a nut and reattach the bolt at another location.

Assembly and connection instructions

1. Unfold the Tow Defender and unroll it, until the fabric is completely flat.

2. Connect one of the gas struts to the collar – pivot the end of one of the gas struts until the cap at the end of the gas strut (Figure 1) is over the ball joint (Figure 1) on that side. Press the cap down onto the ball joint, until it ‘snaps’ in place.

Repeat to connect the other gas strut.

3. Disconnect the tow bar from the hitch receiver and slide the Tow Defender collar bracket (Figure 2) over the tow bar stinger, so that the adjustment bolt (Figure 2) at the bottom of the collar bracket is facing the hitch receiver. Hand-tighten the adjustment bolt to hold the collar in place.

Slide the tow bar stinger into the motorhome hitch receiver and reattach it.

4. Attach the collar (and the Tow Defender gas struts and fabric with it) to the collar bracket, using the two 3/8" x 1" bolts and nuts, as shown in Figure 3. Attach the collar at the ‘average’ setting.

5. Reconnect the tow bar to the towed vehicle so that the tow bar is locked in position, with both tow bar arms fully extended.

6. Remove the shoulder bolts (Figure 4) from both tow bar collars (Figure 4), paying particular attention to the sequence of washers and/or spacers in the collars – you will reinsert the washers and/or spacers in the next step.

Discard the original collar shoulder bolts.

WARNING

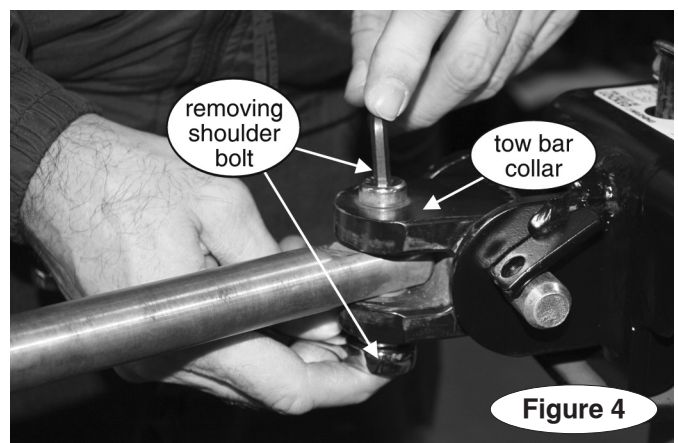
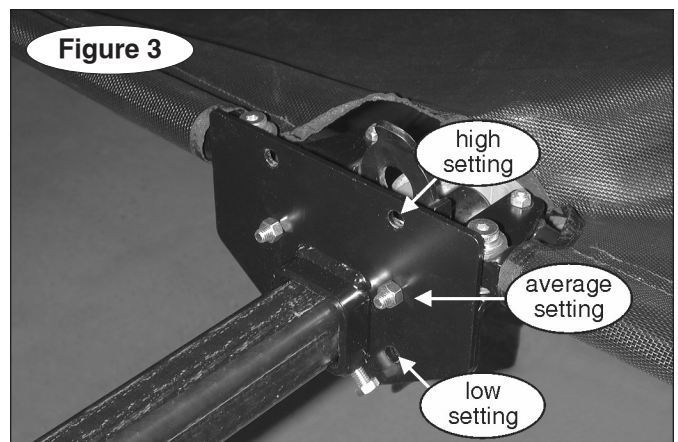
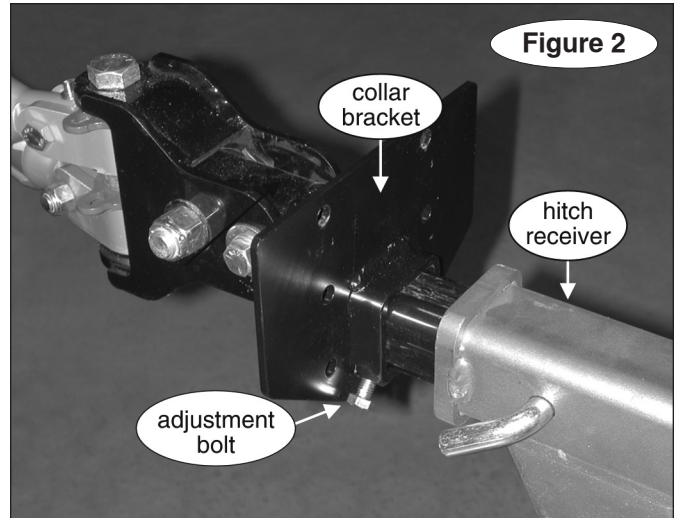
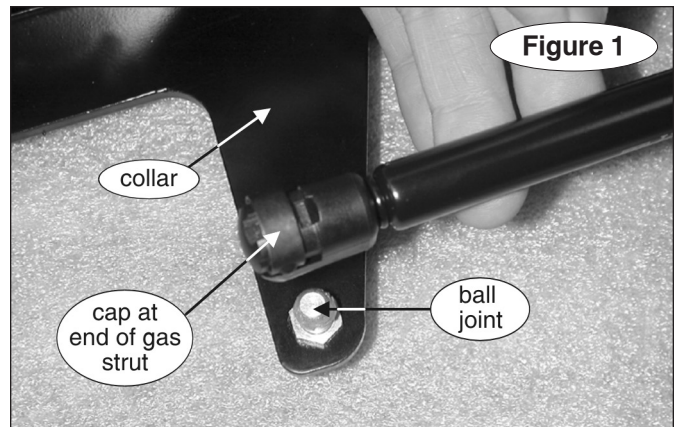
Discard the original collar shoulder bolts. They will not be long enough once the Tow Defender brackets are added. They may break while towing, which will result in the separation of the towed vehicle.

7. Attach the shoulder bolt adapters – There are three pairs of shoulder bolts included with the Tow Defender, to accommodate various brands of tow bars. They are 2½", 3" and 3½" lengths. Use the bolts that will allow at least two or three threads to protrude through the lock nut once reassembled with the Tow Defender adapter.

With the collar washers and/or spacers back in place, insert the new shoulder bolts through the collars and through the hole at the front of the shoulder bolt adapters, as shown in Figure 5.

Since the nylon lock nuts can only be used once, do not tighten them to the shoulder bolts at this time – after the Tow Defender has been assembled and connected, it may be necessary to remove the shoulder bolts and

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reattach them at another location on the adapters.

Note: very rarely, the base plate tabs will be so close together that the distance between the towed vehicle and the motorhome is extended. In these instances, the Tow Defender will be too short to connect to the shoulder bolt adapters. If this is the case, order the optional 4750-02 shoulder bolt adapters, which will extend the reach by two inches.

8. Connect the car-side support tubes – first, bring the loose end of the Tow Defender fabric over the tow bar and align the cross tube with the shoulder bolt adapters.

You may need to change which flap is removed from the cross tube, depending upon the width of the crossbar arms (Figure 6).

Note: the majority of Blue Ox and Demco tow bars will use the narrow setting; the majority of ROADMASTER tow bars will use the wide setting.

One of the support tubes has a pre-drilled hole near one end; the other has a push-button lock. Slide both of the support tubes through the center of the Tow Defender and into the sleeve at the edge of the screen (Figure 7), so that the hole and the push-button lock are at the center. Then, depress the push-button lock and slide the tubes together, until the lock snaps through the hole (Figure 7).

9. The support tubes have pre-drilled holes at 24 and 28.5 inches. Rotate the support tubes until these holes are parallel to the ground.

Maneuver each shoulder bolt adapter until the holes in the adapters align to the holes in the support tubes and attach the safety pins, as shown in Figure 8.

Note: the support tubes have been pre-drilled at 24 inches wide to align with the receiver width of most Blue Ox and Demco baseplates; however, some Blue Ox and Demco baseplates vary in width. If you find that the shoulder bolt adapters do not line up with the pre-drilled holes in the support tube, you must drill new holes in the support tube.

Similarly, the support tube has pre-drilled holes at 28.5 inches to fit most Roadmaster baseplates. However, some Roadmaster direct-connect baseplates (MX and EZ-5 series) have receivers that vary in width, and may require new holes to be drilled.

If the pre-drilled holes in the support tubes do not align with the two shoulder bolt adapters, center it on the towed vehicle and use the pin holes in the adapter bracket as templates and drill the support tube.

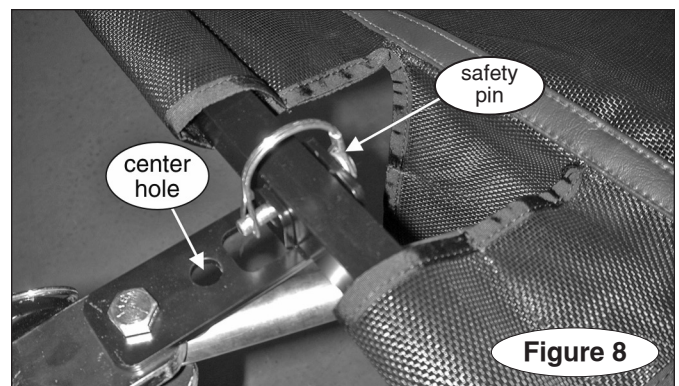
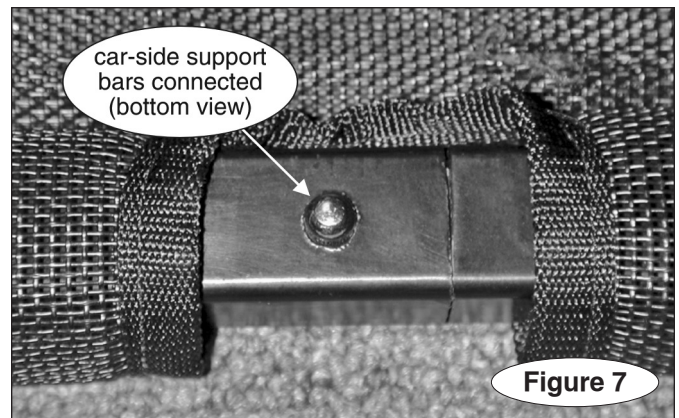
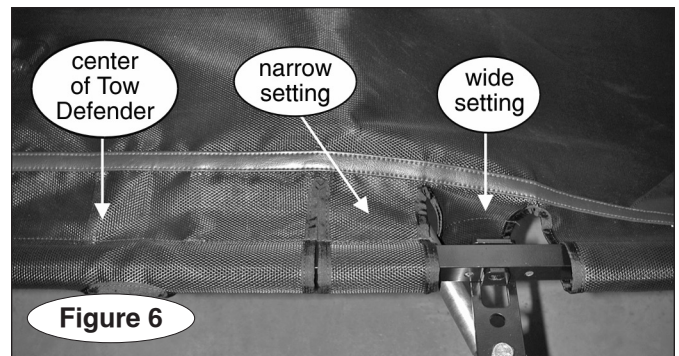
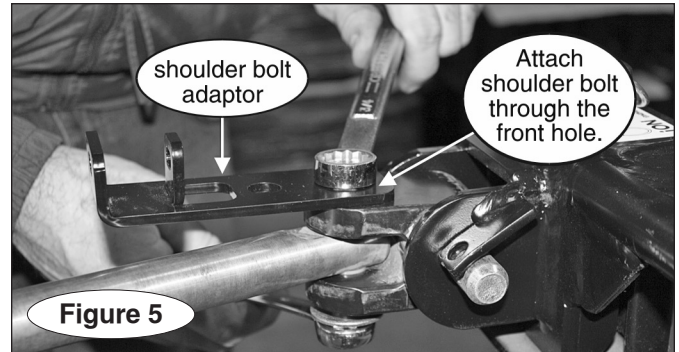
Now, secure the support tubes to the adapters using the included safety pins.

CAUTION

If, while towing, the safety pins are not locked in place (as shown in Figure 8), the Tow Defender will

separate from the towed vehicle, which may cause significant damage to the towed vehicle or the Tow Defender.

10. Now that the Tow Defender is connected, make certain that the tow bar can be stored at the back of the motorhome – without removing the support tubes, roll the screen toward the motorhome, and secure the Tow Defender
continued on next page



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Defender with the Velcro storage straps (Figure 9) around each side of the Tow Defender. Then disconnect the tow bar and fold it against the rear of the motorhome.

If the Tow Defender interferes with the storage of the tow bar, adjust the collar and/or the collar bracket to gain clearance.

11. Now that you have verified that the tow bar can fold up for storage, it may be necessary to adjust the Tow Defender to your towing system. The fabric must be taut enough to deflect road debris away from your towed vehicle. However, if it is stretched too tight, the fabric will fail and tear at the seams over time.

If necessary, refer to the table on this page to adjust the fabric.

If no adjustments are necessary, hand-tighten the bolts on the Tow Defender collar to secure it in place. Attach the nylon lock nuts to the bolts on the shoulder bolt adapters, leaving just enough play in the adapters so that they can be rotated to the left or right.

12. **IMPORTANT!** The last adjustment you make must be as follows: slide the Tow Defender collar bracket (Figure 2) so that the Tow Defender screen appears taut.

Now slide the collar bracket back one inch toward the towed vehicle. **This slack is necessary for sharp turns.** If the fabric is too taut, over time the fabric will fail and tear at the seams.

CAUTION

Failure to leave enough slack in the screen will cause the fabric to tear and is not covered by warranty.

With the collar assembly in the correct position, tighten the adjustment bolt at the bottom of the collar bracket (Figure 2) with a 9/16" wrench until the collar is fixed in place, then secure the jam nut. Tighten the shoulder bolts and Nylock nuts to secure the adapters.

13. When not in use, the Tow Defender may be stored at the rear of the motorhome – remove the safety pins and roll the support tubes and screen toward the motorhome. Secure using the provided Velcro straps (see Figure 9).

CAUTION

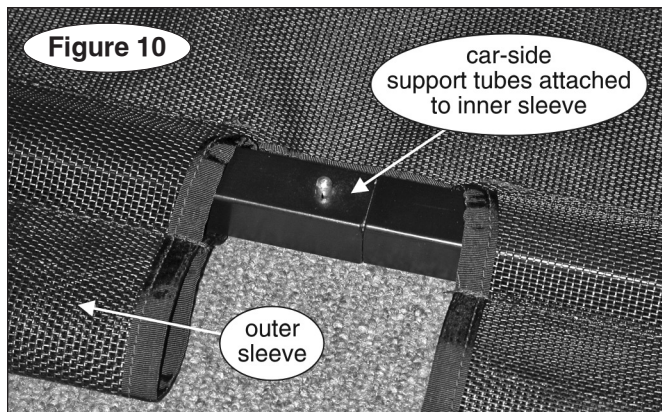
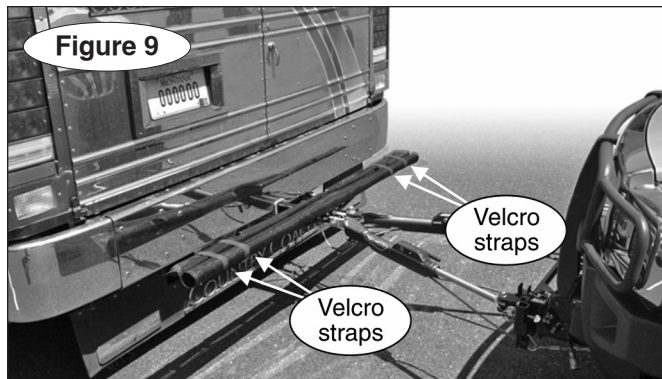
The adapters reduce clearance between the tow bar and coach. Ensure that they are stored so that they do not contact the coach.

Damage caused by improper storage will not be covered under warranty.

CAUTION

When the motorhome is stationary with the engine idling, the Tow Defender fabric can be warped or otherwise damaged by the heat from exhaust systems at the rear of the motorhome. Do not idle the motorhome engine for an extended period when the Tow Defender is attached to the motorhome, or non-warranty damage to the fabric may occur.

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Adjustments to the Tow Defender fabric

If the fabric is too tight...

- Move the collar bracket toward the towed vehicle, or...
- Reattach the shoulder bolt adapters using the center hole (Figure 8) for the shoulder bolt, or...
- Move the support tubes to the outer sleeve (Figure 10).

If the fabric is too loose...

- Move the collar bracket toward the motorhome, or...
- Move the support tubes to the inner sleeve (Figure 10), or...
- Bolt the collar on the other side of the collar mounting bracket, or...
- Reattach the shoulder bolt adapters using the front hole (Figure 5) for the shoulder bolt.

If the motorhome exhaust pipe is too close to the fabric...

- Bolt the collar to a different height setting (Figure 3), or...
- Move the collar bracket toward the towed vehicle.

CAUTION

If the fabric cannot be adjusted away from the exhaust pipe, do not use the Tow Defender – non-warranty damage to the fabric will occur.

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 **CAUTION**

Do not lift or carry the Tow Defender by the safety pins. The pins will separate and the Tow Defender will fall.

 **WARNING**

The Tow Defender fabric may conceal the towing system attachment points, as well as the attachment points for other components underneath it. Before towing, make certain that the tow bar, safety cables, electrical cord and any other components which are underneath the Tow Defender are securely attached, according to the manufacturers' instructions.

If a component of the towing system, or any other component underneath the Tow Defender, has detached and is not reattached, the towing system or other components may fail.