

TOW-STER™

Patent 8,016,313

ASSEMBLY AND USE OF THE TOW-STER™

Please be sure to read this entire guide BEFORE beginning to assemble or use the Tow-ster*.

PLEASE BE ADVISED!

Although it is NOT required, your size and strength, and the size and weight of your motorcycle may suggest the need for the assistance of another person the first time you mount your motorcycle on the Tow-ster, just as we did. Every first-time user needs to feel confident in this process. The Tow-ster is a revolutionary device, but the user must still act in a sensible way. The Tow-ster is sold as a one-person device. And, there are motorcycles for which the Tow-ster is inappropriate. We also know from experience there are people who cannot, or will not, follow our instructions, and risk damage to their motorcycles and themselves through faulty preparation and execution.

This document also serves as a guide for the companion audio assembly and use guide.

TOW-STER SHIPPING CONTAINER CONTENTS

In the Tow-ster shipping container, you will find:

- 1 tongue
- 1 main beam (consisting of the upper and lower tire cradles)
- 1 left crossbar
- 1 right crossbar
- 1 ramp
- 1 nut, bolt, and anti-swivel pin combination (assembled)
- 1 tire restraining strap

(Press pause now. Confirm that all parts are in package.)

PREPARING YOUR VEHICLE FOR ASSEMBLY AND USE OF THE TOW-STER

Your towing vehicle must be equipped with a two-inch tow hitch receiver. The receiver must be mounted in a range of 16 to 20 inches from the ground. If you have a light-weight motorcycle, almost any vehicle will be able to safely tow it.

The TOW-STER'S weight-handling capacity is determined by your vehicle's hitch tongue weight rating (not its towing capacity)

Category 1: 200 lbs.

Category 2: 350 lbs.

Category 3: 500 lbs.

(Press pause now. Confirm your vehicle's hitch tongue weight rating.)

Make sure your tow-vehicle is safely parked, so, you can test the installation of the Tow-ster, and the mounting and pull-away of your motorcycle. Generally speaking, for your first use, you will need an unobstructed, level surface of from 20 feet to 80 feet long for assembly. You will also need an unobstructed quarter-mile stretch of road to test the Tow-ster before taking it out on local streets or highways. The curb in front of your house, with no other vehicles as obstacles, works well for assembly and mounting. However, once you pull away from your curb, you will still need a quarter of a mile for testing. Long driveways on private property and parking areas are even better than a curb for assembly, mounting, and testing. You may find that for your first-time use, it will make the process easier if you have an assistant drive your tow vehicle, while you ride your motorcycle to a large parking lot.

HOW TO ASSEMBLE AND USE THE TOW-STER

Assembly

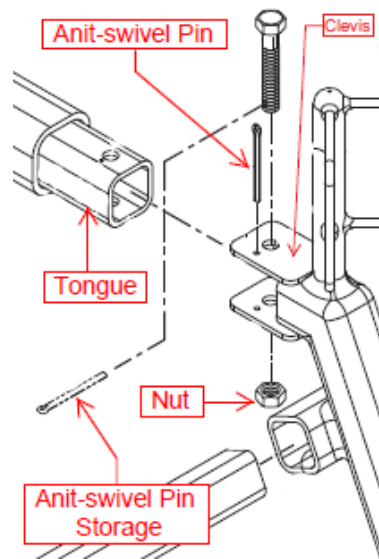
First-Time Assembly

Remove the anti-swivel pin from the assembled nut, bolt, and anti-swivel pin combination. Then, remove the nut from the bolt.

(Press pause now.)

Insert and align the tongue in the swivel assembly (clevis) with the bolt holes.

Insert the bolt through the clevis and tongue's bolt holes.



(Press pause now.)

Screw the nut onto the bolt as far as possible.

Check to be sure the nut is sufficiently tightened on the bolt, while still allowing the tongue and the main beam of the Tow-ster to swivel cleanly. A pair of 1 1/8 inch wrenches may be required to make the tightening of the nut to the bolt as easy as possible. Be sure the Tow-ster can still swivel easily.

(Press pause now.)

Insert the tongue into your two-inch tow hitch receiver.



Align the tongue and receiver holes, then insert and secure your hitch pin.

(Press pause now.)

If the tongue does not easily slide into your hitch receiver, you may need to remove -- **by sanding** -- enough powder coating off a few inches of the tongue, so it will slide into and out of the receiver more easily.

Because every hitch receiver wears differently, minor adjustments may be necessary to ensure proper insertion, removal, and operation of the Tow-ster.

(Press pause now.)

After inserting the tongue in the receiver, make sure to return the anti-swivel pin to its storage place at the bottom of the swivel bolt.



(Press pause now.)

Then, try to move the Tow-ster from side to side in the hitch receiver. If there is more than just a very small amount of play, using a hammer, tap the right-hand side of the hitch receiver collar.

Do not tap the receiver body; tap only the receiver collar.

(Press pause now.)

If there is still more than just a small amount of play, repeat this process until you feel that the tongue will not move much from side to side, but can still be easily inserted and removed.

If you have tapped the right-hand side of the receiver collar too many times, and the tongue cannot easily be removed, with your hammer, tap the left side of the Tow-ster tongue one time, and see if you can remove the tongue from the receiver. If not, tap the left side of the tongue one more time. The principle at work here is: For each right-hand side collar tap, one left-hand side tongue tap should counteract it.

(Press pause now.)

Now that you have the tongue inserted in the hitch receiver, remove the anti-swivel pin from the bottom of the bolt and insert it into the anti-swivel hole next to the bolt in the swivel assembly.

Insert and remove the anti-swivel pin several times to be sure that the anti-swivel hole is clear.

(Press pause now.)

Test the Tow-ster's anti-swivel properties by attempting to swivel it left and right. With the anti-swivel pin in the anti-swivel hole, the Tow-ster should be firmly in the receiver hitch, and not swiveling. You will remove the anti-swivel pin once you have mounted your motorcycle and tightened down the front straps. Leave it in the anti-swivel hole until then.

Insert the right-hand crossbar with the hook ring in the upward position. What this means is, the hook ring should be facing up, not down.



(Press pause now.)

Insert the left-hand crossbar with the hook ring in the upward position. What this means is the hook ring should be facing up, not down.



(Press pause now.)

From the left side of the Tow-ster, slide the female ramp mount sleeve over the male ramp mount pin.

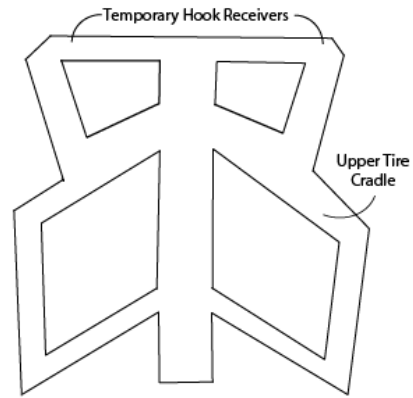


(Press pause now.)

PREPARATION FOR MOUNTING YOUR MOTORCYCLE ON THE TOW-STER

Laying out Your Front and Rear Tiedown Straps

Attach the left front tiedown strap hook to the Tow-ster's temporary hook receiver, which is now found atop the upper tire cradle.



(Press pause now.)

Attach the other left front tiedown strap hook to the ring in the left-hand crossbar.



(Press pause now.)

Attach a right front tiedown strap hook to the Tow-ster's temporary hook receiver, which is now found atop the upper tire cradle.

(Press pause now.)

Attach the other right front tiedown strap hook to the ring in the right-hand crossbar.



On the left side of the Tow-ster, and three feet behind, lay the left rear tiedown strap.

(Press pause now.)

On the right side of the Tow-ster and three feet behind, lay the right rear tiedown strap.

All soft-ties should be the standard 18-inch type, and rated at 500-750 pounds.

(Press pause now.)

Attach your left-hand front soft-tie as close to the left-center of your handlebar as possible.

(Press pause now.)

Repeat this procedure on the right side.

(Press pause now.)

Attach your left-hand rear soft-tie to your left-hand grip.



(Press pause now.)

Repeat this procedure on the right side.

(Press pause now.)

Or, you may wish to use soft-tie products like the "Canyon Dancer."

MOUNTING YOUR MOTORCYCLE ON THE TOW-STER

The objective of this part of the mounting procedure is to roll the front wheel of your motorcycle or scooter up onto the Tow-ster, attach the front two tiedown straps, and stabilize the motorcycle or scooter, so you can complete the mounting and checking procedures.

Begin by shifting your motorcycle into neutral. On a level, firm surface (or, a slightly down-angled and forward-facing surface), make sure your motorcycle is aligned and positioned at least six feet behind the lower end of the Tow-ster ramp, facing the rear of the Tow-ster and the tow vehicle.

(Press pause now.)

Keeping your motorcycle completely vertical, push it up the ramp until the front wheel comes into contact with the rear of the tire cradle.



Stand still and allow the motorcycle to stabilize in the tire cradle. Make sure the motorcycle is in a straight line with the towing vehicle. If it is not, carefully using your hand brake, roll the motorcycle back down the ramp and try again. Making sure the motorcycle is completely vertical is crucial to the success of using the Tow-ster.



(Press pause now.)

From here on, your hands will both be occupied. So, we will not ask you to press pause. Instead, you'll hear tones, allowing you sufficient time to complete each process.

Using your body to help keep your motorcycle upright, hold on to the left hand grip, or farther toward the center of the handlebar, with your right hand. Reach your left hand around the front of the bike and remove the left **front** tiedown strap from the Tow-ster's temporary hook receiver.



Attach the left front tiedown strap to the loop-end of the soft-tie installed on the left-center of your handlebar.

While using your body to keep your motorcycle upright, use your right-hand to hold the ratchet, then, with your left-hand, carefully ratchet the left **front** tiedown strap until the slack has been removed from the strap. **DO NOT TIGHTEN THE STRAP MORE THAN WHAT IS NECESSARY TO REMOVE THE SLACK FROM THE STRAP.**



Holding onto your motorcycle, move around from the left side to the right side of the motorcycle, making sure you have control of the motorcycle and it remains standing upright in the tire cradle.



Using your body to help keep your motorcycle upright, hold on to the right hand grip, or farther toward the center of the handlebar, with your left hand.

Reach your right hand around the front of the bike and remove the right **front** tiedown strap from the Tow-ster's temporary hook receiver.



Attach the right **front** tiedown strap to the loop-end of the soft-tie installed on the right-center of your handlebar.



While using your body to keep your motorcycle upright, use your left-hand to hold the ratchet, with your right-hand, carefully ratchet the right **front** tiedown strap until the slack has been removed from the strap.



DO NOT TIGHTEN THE STRAP MORE THAN WHAT IS NECESSARY TO REMOVE THE SLACK FROM THE STRAP. When completed, the motorcycle should be able to stand upright, by itself, in the tire cradle.

Return to the left side of the motorcycle and carefully ratchet down the left front tiedown strap until it begins to tighten. AGAIN, DO NOT TIGHTEN THE STRAP MORE THAN TO REMOVE THE SLACK FROM THE STRAP.



Return to the right side of the motorcycle and carefully ratchet down the right front tiedown strap until it tightens evenly with the left side. AGAIN, DO NOT TIGHTEN THE STRAP MORE THAN TO REMOVE THE SLACK FROM THE STRAP.

Attach the front wheel restraining strap to the vertical bar on the upper part of the tire cradle.



(We are now returning to having you press pause. Press Pause Now.)

REMOVE THE ANTI-SWIVEL PIN AND RAMP BEFORE CONTINUING.



(Press pause now.)

RETURN THE ANTI-SWIVEL PIN TO ITS STORAGE LOCATION AT THE BOTTOM OF THE SWIVEL BOLT. IF YOU HAVE TROUBLE REMOVING THE ANTI-SWIVEL PIN, YOU MAY HAVE TO LOOSEN THE FRONT TIEDOWN STRAPS ENOUGH TO ALLOW FOR REMOVAL OF THE ANTI-SWIVEL PIN. Generally, at this point, this is unnecessary.



You should notice that you have compressed the front shocks of your motorcycle. The front shocks should never be compressed more than 50%.

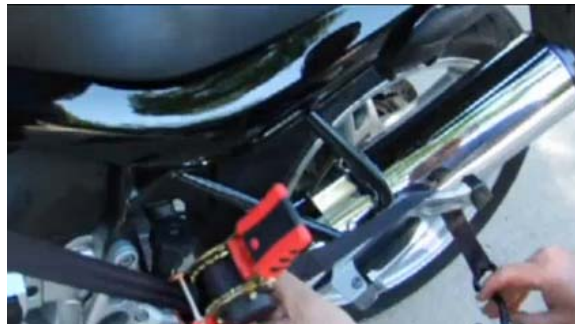
The objective of this part of the mounting procedure is to make sure the motorcycle's handlebars DO NOT and WILL NOT turn left or right, and will stay facing straight ahead in the tire cradle.

Return to the left side of the motorcycle. Pick up the rear left tiedown strap, and insert the front hook into the loop of the soft-tie installed on your left-hand grip.



(Press pause now.)

Attach the rear hook of the rear left tiedown strap to a structural point on the rear of the motorcycle. This may be done by hooking directly to a rear structural point, or looping around a rear structural point and inserting the rear hook into the soft-tie along with the front hook. In some cases, you may need to attach an additional soft-tie to a structural point on the rear of the motorcycle in order to attach the rear hook of the rear-left tiedown strap. This is true in some cases for scooters, and may also be true for some sport motorcycles.



(Press pause now.)

Return to the right side of the motorcycle. Pick up the rear right tiedown strap and insert the front hook in the loop of the soft-tie installed on your right-hand grip.

(Press pause now.)

Attach the rear hook of the rear right tiedown strap to a structural point on the rear of the motorcycle. This may be done by hooking directly to a rear structural point, or looping around a rear structural point and inserting the rear hook into the soft-tie along with the front hook. In some cases, you may need to attach an additional soft-tie to a structural point on the rear of the motorcycle in order to attach the rear hook of the

rear-right tiedown strap. This is true in some cases for scooters, and may also be true for some sport motorcycles. DO NOT ATTACH TO ANY PART OF THE TOW-STER, TO THE REAR TIRE, OR ANY DETACHABLE PLASTIC NON-STRUCTURAL PARTS OF THE MOTORCYCLE. IF YOU'RE NOT SURE WHERE TO ATTACH THE STRAP, CHECK WITH A DEALER.

(Press pause now.)

Carefully tighten the rear right tiedown strap until you have removed all of the slack. DO NOT TIGHTEN THE STRAP MORE THAN TO REMOVE THE SLACK FROM THE STRAP.

(Press pause now.)

Return to the left side of the motorcycle. Carefully tighten the rear left tiedown strap until you have removed all of the slack. DO NOT TIGHTEN THE STRAP MORE THAN TO REMOVE THE SLACK FROM THE STRAP.

(Press pause now.)

FINE ADJUSTMENTS BEFORE TESTING THE TOW-STER IN MOTION

Return to the front left tiedown strap. Carefully tighten the strap, understanding that you will be moving to the right-hand side of the motorcycle to do the same with the right tiedown strap.

(Press pause now.)

Return to the front right tiedown strap. Carefully tighten the strap, understanding that you will be moving to the left-hand side of the motorcycle to do the same with the left tiedown strap.

You will perform these two functions, until the front is securely strapped down.

(Press pause now.)

Return to the rear left tiedown strap. Carefully tighten the strap so the handlebars continue to be facing straight ahead.

(Press pause now.)

Return to the rear right tiedown strap. Carefully tighten the strap so the handlebars continue to be facing straight ahead.

All four straps should be firm and secure. No parts of the Tow-ster or the motorcycle should be bent, due to excessive force ratcheting down the tiedowns. The objective is to make your motorcycle follow the towing vehicle like a trailer.

Depending on the height of your hitch receiver, your motorcycle may lean a few degrees left or right. By adjusting the hitch collar (as previously described), virtually all leaning can be eliminated.

TESTING THE TOW-STER BEFORE TAKING YOUR MOTORCYCLE OUT ON THE ROAD

Before taking your motorcycle out onto a main road or highway, it's extremely important to completely check the tiedown straps and the orientation of the motorcycle.

The front tiedown straps need to be firm and very secure. They should be tight enough to have compressed your front shocks; but, no more than 50%.

The rear tiedown straps need to be firm, so the handlebars will not turn left or right; staying straight in the tire cradle is crucial to the Tow-ster's ability to swivel like a trailer.

The motorcycle must be in a completely vertical orientation. If you start out tipped to one side or the other, your motorcycle is much more likely to tip over.

Our policy is, if you have an SUV with a gate that opens upward, before traveling any significant distance, watch what the motorcycle does in your rearview mirrors (center, left, and right).

Pull forward, about 50 or 60 feet. Stop. Get out and check each of the four straps. Make sure they are secure.

(Press pause now.)

Return to your vehicle, and drive 150 or 200 feet straight ahead, checking on the orientation of the motorcycle.

(Press pause now.)

After each of the next exercises, stop your vehicle and check the straps making sure that they have not loosened during any of these exercises.

Make a 45° right-hand turn, while accelerating to 25 mph.



Drive in a straight line for 200 to 300 feet.

Slowly brake, and carefully make a 90° right-hand turn while continuing to accelerate again to 25 mph.

Continue driving 300 to 500 feet, accelerating to 30 mph.



Brake slowly and carefully to a stop.

(Press pause now.)

If you know how to back up a trailer, you know how to back up the Tow-ster. If you do not know how to back up a trailer, do not attempt to back up the Tow-ster.



Once you have completed the right turn exercises, do the very same thing with left turns.

Make a 45° left-hand turn, while accelerating to 25 mph.

Drive in a straight line for 200 to 300 feet.

Slowly brake, and carefully make a 90° left-hand turn while continuing to accelerate again to 25 mph.

Continue driving 300 to 500 feet, accelerating to 30 mph.

Brake slowly and carefully coming to a full stop.

Be sure to check that all of your straps are secure, without putting undue pressure on any part of your motorcycle.

If you have successfully accomplished the right-hand and left-hand exercises, you're ready to take your Tow-ster and your motorcycle out on the road.

The use of the Tow-ster is at your own risk. Please drive defensively, leaving plenty of room in front and behind you and your Tow-ster. Up to a point, the faster you pull your Tow-ster, the more stable, it becomes. After several uses, you will find it comfortable to take your motorcycle into normal traffic at the local speed limit.

(Press pause now.)

UN-MOUNTING YOUR MOTORCYCLE FROM THE TOW-STER -- WHAT TO DO WHEN YOU GET TO YOUR DESTINATION

Although these procedures may seem easier than the mounting procedures, care must be taken to perform them in exactly the order stated.

First, be sure your motorcycle is lined up with the tow vehicle. Remove the front wheel restraining strap from the upper part of the tire cradle.

(Press pause now.)

Second, on the left side of your motorcycle, holding onto the motorcycle with your right hand, loosen and remove the rear left tiedown strap.

Third, holding onto your motorcycle with your left hand move around to the right-hand side of the motorcycle.

Fourth, holding onto your motorcycle with your left hand, loosen and remove the rear right tiedown strap.

Fifth, now remove the anti-swivel pin from the bottom of the hinge bolt and insert it into the anti-swivel pin hole next to the hinge bolt in the swivel assembly. It may be necessary to turn the handle bars side to side in order to align the anti-swivel pin with the anti-swivel pinholes in the tongue and swivel assembly.

Sixth, holding onto your motorcycle with your right hand, return to the left side of the motorcycle and slide the female ramp mount sleeve over the Tow-ster's male ramp mount pin.

Seventh, understand that the next step will release tension from the left side ratchet strap, while leaving full tension applied to the right side ratchet strap. So, you must hold on to the left side of your motorcycle's handlebar, while slowly and carefully loosening the front left ratchet strap. The first press on the ratchet release will cause the ratchet to pop, as soon as the tension is relieved. So, you must be careful to hold on to the handlebar and keep your motorcycle balanced and vertical, while you remove the front left ratchet strap from the front left soft-tie.

Eighth, understand that the front right ratchet strap is still fully engaged. So, as you hold on to the motorcycle with your right hand, switch hands, using your left hand to hold the motorcycle, while you move around to the right side of the motorcycle. Keeping your left hand on the left hand grip of the handlebar, release the front right ratchet strap.

A trick, confirmed by extensive experience, is if your motorcycle is not too heavy, hold it up with your left hip and allow it to lean slightly toward you. Then, the release of the front right ratchet strap will be much easier; even a non-event. Loosen the strap, and remove the hook from the soft-tie.

Ninth, your motorcycle is now ready to be slowly backed down the ramp. Be sure all is clear behind your motorcycle, then, using the handbrake when necessary, allow your motorcycle to roll down the ramp to a stop.

When your motorcycle is fully off of the ramp, rest your motorcycle on its kickstand. Remove all soft-ties, and other straps. Finally, remove the Tow-ster from the hitch receiver and store for later use.

When you've reached this point -- in actual practice -- you will know how and what to do to assemble the Tow-ster, mount your motorcycle, tow your motorcycle, dismount your motorcycle, and remove the Tow-ster from your tow vehicle.

Once again, congratulations on your purchase of the Tow-ster! And, we'll see you on the road.

Tow-ster Operations

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