

Towing is one of the easiest ways to get high with a paraglider. At TowMeUp.com we all tow actively from both land based vehicles and boats over the water. We've been actively towing paragliders since the mid 1990's. In the early days it was somewhat frustrating for us to find a reliable source of well made, quality tow bridles. After testing many different models, and seeking advice from very active tow pilots in the industry, we developed what is quite possibly the best split apart style tow bridle in the world. Constructed using the finest structural materials available, and sewn automatically on a computerized pattern tacking machine, each bridle is hand crafted to extremely high standards to give the discriminating buyer the best value for their hard earned dollars. As I edit this document, it dawns on me that we have been supplying gear to tow pilots now for over 22 years, and have shipped out well over 25,000 tow bridles worldwide.



**Stuart Caruk operating Nightmare. The worlds first Aluminum Hulled jet boat with 2 independently controlled hydraulic winches.**

In order to keep our prices low, we have elected to manufacture tow bridles in any color... as long as you choose black. Individual tow bridles are only available in this color. For schools or commercial operators who elect to loan out equipment to students and need to quickly differentiate a school or customer bridle we also offer the bridles in bright pink. Pink bridles are only sold to schools or training facilities and require a minimum purchase of 5 bridles. Special colors and custom embroidery are available for an additional charge, and require minimum order quantities. Contact us for details.

Hooking up our bridle to your harness is simplicity itself. Drop your riser through our welded rectangular link and pass your harness carabiner through both the riser loop and the tow bridle loop. You are quickly connected to the tow system at the most optimum location. This system tows from the base of the riser, allowing good weight shift ability on tow. It also reduces side loading of harness carabiners or pulled stitching due to inappropriate tow attachment points. To improve the performance of your glider on tow, our bridles incorporate a towing assist system. Hooking



your speed system to the included triangular stainless steel quick link allows the system to automatically trim your glider faster on tow, improving the performance of the glider and allowing greater comfort to the pilot.

For newer students or pilots using older gliders, or gliders that are trimmed a bit slow, this is an essential safety device that reduces the chances of a glider being pulled into the air before it come completely overhead. One of the most dangerous phases of towing is right after launch. Numerous accidents have occurred in the past simply because the pilot was pulled into the air with too much tension applied too soon. The result was typically a weak link break at very low altitudes, with a very high angle of attack on the glider. The pilot then pendulumed backwards into the ground, or the glider surged ahead and the pilot pounded in face first, or the glider did a full frontal collapse at low altitude with nasty results to the pilot.

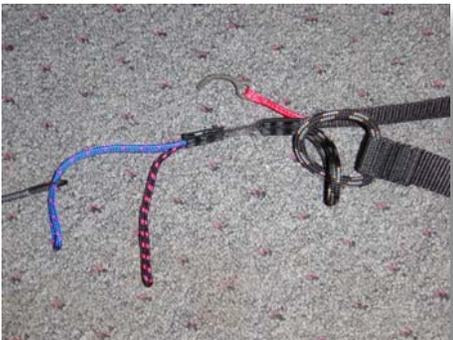
Our tow assist device helps to ensure the glider is trimmed fast enough to bring it cleanly overhead before the pilot leaves the ground. Advanced pilots love it because it automatically helps to steer the glider back towards

the towline during the tow by speeding up the side of the glider that is diverging from the towline, resulting in an autopilot like ride to the top of the tow.



If you are towing behind a TowMeUp hydraulic winch, you will typically have a drogue at the end of 5500' of Spectra towline that is spliced in through the shroud lines. At the apex of the drogue a leader line is connected. The leader line keeps the pilot behind the drogue so that if tension is released during the tow, the drogue won't blow up in the pilots face. Normal tension during the tow keeps the drogue stowed.

A weaklink MUST be in place at the end of the towline. Girth hitching it to a knot in the end of the line is a VERY BAD PRACTICE, as the weaklink can't move, and it will saw through your tow bridle loop if the glider surges on tow. Ideally a small 1/8" stainless steel quicklink will be attached to a spliced eye at the end of the leader line. This allows the weaklink to roll around the eye of the quicklink, absorbing any motion and giving the towed pilot a smoother ride and allowing the tow bridle to live a long and full life.



Hooking up to the towline is simple if you remember the purpose of a two string release. It is designed to reduce the forces at the release pin, and you should note that the closure loops are thicker where the force is greatest.

To attach the tow bridle to the weaklink, the largest, and longest closure loop on the bridle should be looped through the eye in the weaklink. (It would be the blue line in the photo above) This loop is designed to reduce the force on the release mechanism by half. Now take the remaining shorter closure loop and place it through the eye in the longest loop BEHIND the weaklink. This loop once again reduces the remaining force by half making it simple to release from tow, even at ridiculously high tow pressures. Now take the large 6mm sewn loop in the end of the bridle (typically attached to the left side of the harness for right handed pilots) and pass the loop in the release side of the bridle through it. (This secures the 2 halves of the bridle together) Pass the smaller closure loop through the loop in the 6mm release side of the bridle, and continue through the grommet, leaving enough room for the release pin to pass through.

Take a close look at everything and make sure the bridle halves are secured, and that the weak link is freely in front of the longest closure loop, and you have no obvious tangles in the system.

THE NEXT STEP IS CRITICAL, SO PLEASE TAKE THE TIME TO CHECK AND GET IT RIGHT! Be sure to check this on the preflight for every pilot you observe as well.



The final closure loop passes through the grommet, leaving room for the release pin to secure it. You should give a tug on the release pin to make sure it isn't pulled up into the sleeve of the bridle. The pin should pass through the final closure loop (purists will put the curve of the loop on the top side of the release...it does make it slightly less likely to fall out while you are getting set up) and **SECURE THE TIP OF THE RELEASE PIN IN THE LITTLE POCKET SEWN INTO THE BRIDLE**. Ensuring the pin is seated in the pocket is **CRITICAL** to making

sure that the pin can't fall forward enough for the eye of the release pin to pass through the closure loop. This could create an issue where it becomes very difficult to release from the tow at high line tensions. Once everything is secure you want to hold the weaklink and give a firm pull on both half of the bridles to make sure all the closure loops are snugged up tight. If you have any doubt as to the ability for the release to function properly, simply lean back a bit in your harness, stick a foot behind you for support, and give a light tug on the release loop. The bridle should separate instantly with no fuss. If it doesn't go through the hookup procedures again and verify what you did wrong..



The end of your tow bridle **MUST** look like the photo above once you snug everything up. If you launch normally in either the forward or the reverse position, you should have no issues with our release. If you blow a launch for some reason, verify that the release pin is still in the proper location when you snug things up before your next attempt.

When it comes time to release from the tow, release is made by simply pulling our large release loop to quickly separate the pilot from the tow line under any anticipated tow condition. Our bridles use a 2 string style release system. The weak link is looped through the largest tow loop. Tow forces are reduced through a second loop that is routed through a stainless steel grommet where it is retained by a stainless steel parachute pin. Pulling the handle, pulls the curved pin from the closing loop, which releases the tow loops and the weak link, freeing the pilot from the tow line. Once released, the bridle splits apart. Split apart bridles are preferred for operations over water. In the event of a water landing, one piece bridles can make egress from the harness difficult, or impossible.

If you make a mistake in hooking up the bridle and you notice it during the tow you can most often request a wee bit of slack in the line (or create it yourself in a turn) and pull the bridle up into your lap to fix it during the tow. If you can't you can wait for slack at the end of the tow and pull the assembly into your lap to release it, or simply use your hook knife (**YOU ALWAYS FLY WITH A HOOK KNIFE... RIGHT?**) to cut the weak link. In the worst case, you can stay attached to the tow line and just fly back for a normal landing. Just remember that you might be dragging a mile of line, and plan your approach accordingly. Now Go Tow High, and have fun.

## SAFETY NOTICE FOR THE SAFE USE OF PARAGLIDER TOW BRIDLES

Now that you know how to assemble the tow bridle correctly, here's how to get it all wrong and attempt to complicate a really very simple device.

The following photos illustrate events that have occurred using our bridles, and some that we have seen while teaching operators how to safely run our TowMeUp.com Hydraulic Winch systems. Please ensure that you don't make these mistakes, and if you are an instructor, tow tech, or launch assistant please check carefully for these items as part of your prelaunch safety check. Just as a check, grab a piece of paper and cover the screen under the pictures below. Can you tell what's wrong at a glance?



It should be obvious, but apparently it's not. A split apart style bridle needs to be hooked together to function properly. Several pilots have attempted to launch **WITHOUT CONNECTING THE BRIDLES TOGETHER!** Naturally this makes for an interesting launch, and yes you can easily launch a pilot in this configuration in windy conditions. It gets messy when the tension is increased after launch though... We've seen skilled pilots make this mistake and continue the tow rather than abort, so it is possible to fly the glider. We also think that catching the mistake during the preflight is a better idea.

Watch how the closure loop gets routed around the release pin. Whether it's a curved pin like ours, a straight pin, or a cotter pin, we have seen it happen on all types. Now one would think that it is obvious not to hook up the release as shown in the photo on the left, yet we have seen this happen many different times, with virtually all types of tow bridles...

See anything wrong with the above photo on the left? Obviously the head of the pin goes entirely through the release loop which will make it very difficult to release from the tow by simply lightly pulling the release handle.



A prudent tow pilot will do a quick survey of all their equipment right after launch, ensuring there are no knots or tangles in their lines, the harness is completely secure, carabiners are closed, no tangles in the tow bridle, and the tow release mechanism is free of anything that might tangle it up or cause it to jam before they get very far off the ground at any rate. If you noticed the malfunction

above after you became airborne, it's a simple matter to radio the tow tech to either terminate the tow so you can land still attached, or reduce the tension so you can reach down, clear the malfunction and re secure the pin properly before completing the tow. **PLEASE NOTE THAT THERE IS A SMALL POCKET SEWN IN THE RELEASE IN FRONT OF THE PIN FOR A REASON!** It's designed to contain the curved portion of the pin so it can't be pushed too far through the closure loop; and the pin is much less likely to be knocked loose if you have a less than perfect launch..

What's wrong with the photo on the right? Nothing really, except that the loops haven't been snugged up by pulling everything tight. Some pilots claim that it is possible that the cords were properly hooked up before launch and that by shaking and bouncing the release you can maneuver the pin into the position shown on the left and launch in this configuration. Sure, it's possible to get in that position, but it's much more likely that the pin will fall out and the bridle will release. Before launch it's always a good idea to snug everything up tight to preclude the possibility of the release pin being bumped out of place under a loopy, droopy piece of cord.....**CHECK YOUR CLOSURE PIN BEFORE LAUNCH!** While you're at it, please ensure that the tip of the pin is properly seated in the pocket. If you have less than perfect launch skills and blow a launch or two, please take the time to check the release again before launch after you have reset your glider and gear for another attempt.

Incidentally, there are a couple very close copies of our tow bridle on the market that appear to be a TowMeUp.com bridle. It's pretty easy to tell. Virtually all of the competitive bridles use straight stitches for all the connections. In a perfect world, straight stitches are fine. After all you can compute the strength of a sewn connection by the size of the thread, and the number of stitches. The problem is that straight stitches are hand sewn and subject to the skill of the person sewing the connection. Some days they get the perfect number, but many times they sew too few stitches, or go over the same location, greatly weakening the material. Every structural connection on a TowMeUp.com bridle is sewn with a computerized pattern tacker ensuring the exact same stitch is used, every time.

Many of these are copies of our bridle and they lack several unique features. Most often, they do not incorporate the pin pocket or certain other critical features, and it is a bit easier to push the head of the pin inadvertently through the closure loop. A certain well meaning (but inexperienced) individual wrote an interesting article in a well read publication a while back suggesting that the closure loop be sewn together so the head of the release pin can't be forced through the closure loop. **WE DO NOT RECOMMEND THIS MODIFICATION TO OUR TOWMEUP.COM BRIDLE!** The main reason is that it compromises the free movement of the closure loop under light line tensions. With a new bridle it's not much of an issue. With a used bridle, particularly one that has been used at the beach, the closure loop swells from the salt and the sand and the loop will not readily fall away from the bridle when the pin is pulled with light line pressures, which may lead to a line entanglement that is difficult to resolve.

If you should ever find yourself in the position where the pin goes through the closure loop, it's very simple to release from our bridle in any case. Simply place your foot through the V of the bridle and press the bridle while pulling the release with a free hand. The pin will easily pull free and allow you to release from the towline before any emergency should occur. If you have any doubt about your ability to release you should call the tow operator and have them release tow tension. Simply reach down and pull the entire bridle into your lap, and pull the release pin out. If you can't reach the operator you can wait until tension is released at the end of the tow, or use your hook knife to sever the tow line or weak link. If you are circle towing another option is to wait until you are in the turn and then cut to the inside of the turn to allow the line to go slack and release the tension. Reach down, fix the problem, and fly back to the outside to tighten up the line and continue the tow. It's worth noting in any case that having any release fail should never put a pilot in a hazardous flight configuration. You always have the option of landing attached to the towline, and it's a simple process. If you're towing in a manner that your life would be endangered if you can't immediately release from the towline, I'd suggest you might also want to consider analyzing your towing procedures. This isn't supposed to be, nor is it a death defying activity.



This one is a little less obvious. Using a 2 or 3 string style release, you always start with the longest, strongest line going to the weak link. If you get the order backwards as shown above (please refer to the photos earlier in this document for instructions on how to get it right) the weak link will jam between the closure loops and you will be unable to release from the towline. Typically this is not a big deal at the termination of a normal tow, since you can usually reach down, pull the release towards you, and pull the assembly apart once the line tension is reduced. In an emergency though if you have made this mistake you will be unable to release from the towline, particularly with high tension on the line. All tow pilots should carry a hook knife, and cutting the weak link is always an option as well. Of course if you run into this situation with high tow forces, and an out of control glider, particularly at low altitude; it may be time to consider throwing your reserve parachute. Always **CHECK YOUR CLOSURE LOOPS** as part of your preflight. If you're not sure you have hooked the release together properly, you should test for a proper release before launching. When in doubt **STOP and FIGURE IT OUT!** Do not guess on how you think the tow device should work!



This was an interesting one. At the end of the tow, I noted that the pilot was taking a while to release from the towline, so naturally I gave him some slack to allow him to resolve his inability to release from the towline. It's not a big deal, really, since he could easily have simply flown down to a landing while attached to the tow line; while I slowly wind in any slack. Of course his best option would have been to simply pull the bridle up into his lap and unhook everything. The next best option would be to cut the weak link. Eventually he separated from the towline (all told it took him probably 20 seconds) and I rewound

the line. As the line was coming in I noted an odd black mass flapping in the breeze and this is what I found when I got the drogue into the boat. The tow bridle was still firmly attached to the towline, and you can see the weak link is still attached. Pretty effective hook knife eh! It not only can cut a weaklink, but it severed 3 pieces of webbing and some 1200 pound test spectra in one whack.

Here's a close up of what I found. The pilot was a very experienced tow pilot, but he had a long day and suffered a brain fart when he hooked up his tow bridle. He came up with a truly unique and creative way to screw up the release. You can clearly see the pin has been pulled and the closure loop released, but by feeding the weak link loop through the loop that holds the bridle together; there was no way for the release to separate. The harder he pulled, the tighter the mess became. Interestingly the pilot was assisted as he hooked up by another very experienced pilot and they both looked at the release commenting that "something



didn't look right"! There were at least 3 instructors present near the area, so a simple question would have certainly received a quick check and the problem "should" have been noted and corrected before the launch.

I was most curious as to why the pilot didn't simple pull the mess into his lap and separate it. Nobody would have been the wiser. He told me he realized he'd screwed up as soon as he pulled the release and went immediately for his hook knife. He considered cutting the weak link, but didn't want to destroy my equipment so he cut his bridle in half instead! While I do appreciate the thought, I'd rather he cut the 20 cent weak link, which is sacrificial in nature anyway, than destroy an expensive piece of equipment. Having never seen this creative piece of origami, I traded him a new bridle for his slightly used one. It resides in our collection now.



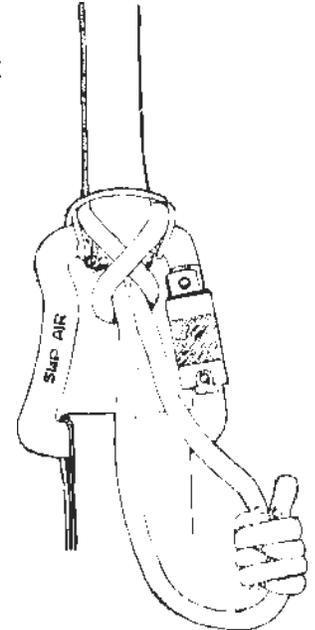
Surprisingly this is a very common mistake. Especially with the Austri Alpine style carabiner. Be sure it doesn't happen to you! When you have the additional bulk of a tow bridle and you choose to hook it to your main hook in carabiner, it is extremely important that you **PHYSICALLY INSPECT THE CARABINER GATE** to ensure it is properly closed and locked. Launching with the gate open is guaranteed to increase the pucker factor during your flight!

So, just out of curiosity, if you were towing up, several hundred feet above the ground and noticed this, what would you do? Part of the answer lies in the question... Do you feel Lucky Today?

Luck should have no bearing in the successful outcome of your flight. Pay attention to your preflight!

If you are using a bridle manufactured by another supplier and simply clipping it into the side of the harness carabiner, please be advised that this is a sketchy practice at best. It side loads the biner, making it subject to failure, and worse, we have seen it rotate the main harness carabiner out of position on launch causing the riser to be loaded across the gate which is a very dangerous practice.

Another equally dangerous practice is to clip the tow bridle into the main harness carabiner loops. Most harnesses are not designed to have this loop pulled from the front, and it causes point loading of the harness stitching in this area. This brings up the possibility of blowing out the stitches that secure the harness carabiner in flight. Naturally this would cause an unintended departure from controlled flight. Many harnesses have loops sewn into them for attaching a tow bridle to, and this is a perfectly acceptable practice for experienced pilots.



If your tow bridle does not include a suitable method of attaching it to your

harness, you might consider a obtaining a TowMeUp.com Split Apart Style Tow Bridle from your School or Instructor. If they don't have one available, you can have them contact us, or order it directly from us. As an alternative, you can fashion a very good connection to the tow system as shown in the illustration to the right. (Illustration and attachment method courtesy of Maxim deJong).

Start with a 70 cm long piece of 6mm Perlon (Climbers Static Cord) available at any climbing shop.

Tie a double grapevine knot (see instructions on how to tie this on our weaklink page) into the cord, and girth hitch it around the clip in carabiner as shown. You can use an O ring to secure the assembly to ensure it doesn't slip. You can then attach your tow bridle into the loop formed by this piece of perlon. Novice pilots should attach this "deJong Hitch" into the top of the clip in carabiner. Experienced pilots can attach it around the base of the clip in carabiner and will have more weight shift ability during the tow.

If you come across any towing safety concerns using our equipment, or equipment from another manufacturer, please contact us and we will include it on this page. The main purpose is to ensure safe towing for all pilots concerned.

Thanks for your attention.