

[Drogue Testing](#)

By Steve Dashew

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For many years we've been students of the concept of using drogues in heavy weather, or for holding station when disabled. We did extensive research on this subject – interviewing dozens of users – when writing *Surviving the Storm*. But in our own cruising experience we never had conditions where we thought the use of such devices was a better option than keeping the boat up to speed.

With *Wind Horse*, the situation is potentially different. So, we've carried a Fiorentino parachute anchor, Galerider, and Jordan Series Drogue. We've looked at the rigging of these, discussed how to use them, but until recently have not found the time to actually get this gear into the water (our strong suggestion to you, if you carry any of this equipment, is to become familiar with it before heading offshore). We carry the para anchor in case we become disabled and need to hold position. Fiorentino makes what looks to our eye a very robust, well thought-out piece of gear.



There are a series of lead weights sewn into the hem on part of the circumference, to help keep the chute from rotating.



Above is a detail of one of the riser lines attached to the hem.



And this is the head of the chute, to which a float and trip line are attached.

Zack Smith from Fiorentino was volunteered to walk us through the learning curve of our first use.



We started by repacking the chute, rolling from the top (head of the chute furthest away from the boat when set) towards the base.



The series of attachment lines connect to a very substantial stainless steel ring. This ring and the lines need to be kept from fouling during packing and storage, so they are left outside of the rolled chute, and then packed into the storage bag after the chute is inserted. The key here is to not allow the connection ring to get turned inside out of the lines.



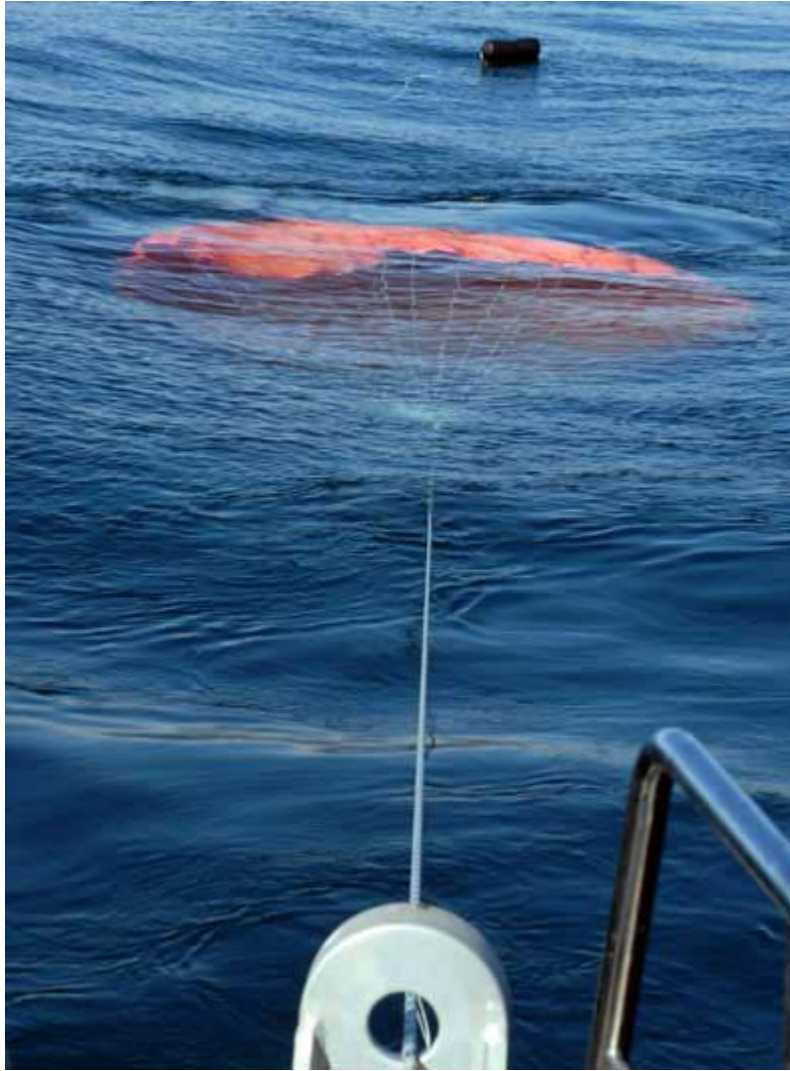
This ring will see huge loads (we were surprised by the strain we saw in relatively calm conditions).



Here is a clever detail in the storage bag. Note the plastic snap which holds the parachute ring in place so that it cannot foul the rest of the lines.



OK – ready to launch. Making sure that the rode is clear and ready to run free, the first step is to deploy the 50-foot (15m) trip line with a fender on the end. The parachute is then dropped over the side. If there were some breeze blowing, we'd be dropping this over the windward side. As it is calm, with no drift, Linda has the boat in slow reverse while Steve drops the chute over the bow.



Here is a photo of the chute deployed with its rode running through our fairlead off the bow. We were backing at idle on both engines to simulate load. The strain on the parachute rode – in our case, a piece of 1/2" (12.6mm) Spectra – is enormous.

The retrieval process is where the situation can get difficult, and why it is necessary to practice in calm conditions so you'll know what to do if you need to retrieve in wind and wave. The basic concept is to shorten the rode (we use our electric winch aft to do this), and then power up to the trip line. The trip line is retrieved using a boat hook. The initial loads on the trip line are substantial, and we took it to a foredeck winch. Once the parachute is inverted with the trip line, loads became more manageable.



Steve dragging the wet and heavy chute back aboard (with the trip line secured to the deck winch). Obviously you want to avoid fouling the chute or its rode on the keel, rudder, or prop. In the background you can see Zack Smith recording this for posterity with his video camera. Dave Wyman is behind Zack, and Beth Leonard is taking still photos from the flying bridge.

The Fiorentino parachute anchor has now been rinsed in fresh water, repacked, and is stored in the forepeak – and we hope never to use it again!



This is the Galerider we carry. The concept here is to deploy this in the event we are in large seas where our surfing speeds are higher than we're comfortable with. That's Evans Starzinger standing by the saloon door. He and Beth Leonard have dragged one of these many thousands of miles in the Southern Ocean.



To test this and the two other devices which follow, we set *Wind Horse's* engines ahead at 1200 RPM – which equated to 7 knots on the GPS before setting the Galerider. Note the substantial wake made by the Galerider. It is larger than the stern wake off the boat!



This close-up will give you some idea of the turbulence generated by this device. Boat speed dropped from 7 to 5.5 knots.



Next up was this new design stern drogue, which Zack is developing. The hardware has the same robust appearance as the parachute anchor he builds. The pennant Evans is holding in his right hand is so you can connect several of these in series.



A closer look at the head of this drogue.



And in use. The impression that all of us had was that this was an interesting design, but that it would not create nearly as much drag as the Galerider. However, with exactly the same power settings as before, speed dropped from 7 to 5.6 knots (just a tenth of a knot faster than the Galerider). Zack is doing more development and testing, and when he is done, this should be a very welcome addition to the heavy weather arsenal. The compact design and ease of launching

are big advantages. And we particularly like the ability to shackle two or more of these drogues in series.

Last of the items we tested was our Jordan Series Drogue. Based on our research, this device has an enviable track record in extreme weather on a variety of yacht designs. Our concept for its use on *Wind Horse* would be in a survival storm where we were disabled and unable to maintain headway in and/or steering control.



The JSD consists of a series of small cones – there are 600 of them on our unit, attached to 690 feet (212 meters) of Yale Spectra double braid. We're using Spectra because of the enormous potential loads. The Spectra is both more compact, and substantially lighter than Nylon or Polyester.



The JSD is flaked into a spinnaker turtle, ready to set.



This photo was taken as we were deploying the JSD off the stern. The small cones do not make much turbulence – however when totaled they add up to a lot of resistance and reduced our speed from 7 to 4 knots.



One of the big questions about the JSD had to do with retrieval. We've heard from some users that it was difficult getting the JSD back aboard when they wanted to start sailing again. We were curious to find out if our electric winch would do the job.

In the photo above Evans is running the winch while Steve tails. The self-tailer is not usable with the cones.



We found that it took a fair amount of tug on the tail to make sure the cones did not become fouled under the wraps of line on the winch drum. But in about five minutes we had the JSD back on deck.

So, what did we learn from all of this?

- First, test the gear, and make sure you are familiar with how it is deployed and retrieved, and how the rodes are lead.
- Second, the loads on all of this equipment are huge. Handling this gear in any kind of a sea or breeze needs extreme care. You will want to make sure in advance that rodes are flaked and clear to run without fouling – and that no body parts can become entangled. If you get any part of your body caught in this gear, you will go swimming and suffer serious injury. So make sure everyone is clear. And, pay particular attention to the retrieval process, especially where a wind gust or larger-than-average sea can momentarily increase loads.
- Third, there is no magic bullet in heavy weather tools like these. We want an array of these devices from which to chose, so that we can adapt to the conditions we encounter.

Finally, in well over 250,000 miles of sailing we have never towed a drogue or hove to behind a parachute anchor. But we still carry some inventory just in case. What is aboard varies with

where we are cruising. We have this variety on *Wind Horse* because of the potential for extreme weather in the higher latitudes where we are now cruising.

For a much more detailed discussion of this subject and numerous examples of use in heavy weather see our *Surviving the Storm*.

Post Script: One thing to consider in this test data is the use of engine and boat speed to compare drag, as opposed to just checking drift if the engines were off (which we could not do because it was calm). The engines are capable of delivering more power, and the props can absorb more energy at 1200 RPM. The result is that the prop/engine system is trying to keep the boat moving through the water, adding power as the drag from the drogues and para anchor increases. If we were just drifting with the wind, the wind's power would be fixed, and the reduction in speed would have been more substantial than what we showed here.

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