



Midway through the deployment sequence



Parachute fully deployed; main glider partly gathered in

# HOW TO BE A BETTER PILOT

CFI Tim King continues his series aimed at the beginner paraglider pilot

## NO 14: EMERGENCY PARACHUTE DEPLOYMENT

Emergency parachutes (“reserves”) have saved many lives in our sport over the years. Though not a mandatory requirement, most pilots do own one. But would you know how to use it if you had to?

It is of course vital that the system is fitted correctly for it to deploy properly, and it's well worth going along to a club repacking day where you also may get the chance to deploy your parachute on a zip-wire setup. These sessions often reveal potential malfunctions due to incorrect packing or installation - scary stuff!

At the very least, just prior to having your parachute repacked, as recommended by the manufacturer (this commonly varies between six and 12 months), or if you suspect damp ingress, hang your harness up indoors and actually go through the motions of deploying your reserve - you may be surprised at the force required. Mind the 42-inch flat screen!

Also note how easy or difficult it was to locate the deployment handle in the first place. You can practice locating the handle at any time and I recommend that you do this on a regular basis.

Take a moment to familiarise yourself with your particular setup and how it works. It's not uncommon to have a deployment handle accidentally pulled out on the ground, so you need to make sure you can reset the pins and handle to safely continue flying.

### Design

Paragliding reserves need to be able to deploy quickly even at low speeds, remain stable even with possible interference from the main glider, and have an acceptable descent rate.

It's quite a tall design brief, but over the years manufacturers have managed to improve on their designs. New materials have aided these improvements, adding stability, strength, weight savings, smaller packing volume, anti-static properties and higher drag.

There are several different fundamental designs. The round pulled-down apex is the most common but there are also “Rogallo” type steerable, round steerable, annular and now even square parachutes.

The round pulled-down apex types have proved popular due to their relative simplicity, small packing volume and quick, reliable opening. I'm not going to discuss all the pros and cons of the various types of reserves - we don't have space here - however it's worth doing some research and discussing the merits of each with your instructor or dealer.

What I look for in a reserve is low weight, reliability, stability, fast opening, excellent build quality and straightforward repacking. Do not be tempted to economise here and buy cheap or off eBay. A second-hand reserve that has been immersed in sea water may well be severely weakened and should be avoided. The manufacturers usually quote a ‘life’ of ten years, so a quality parachute is not so expensive if you think of it as an insurance policy. Of course you hope you'll never need to cash in, but if you do it will be the best £450 you've ever spent.

Of course your reserve should have the correct EN testing and the weight range should be looked at closely. Manufacturers usually offer several sizes and quote descent rates at different loads. Remember that the parachute will have to support your total weight in flight (this figure includes the weight of the pilot, harness, clothing, equipment and glider). A descent rate of approximately 5.5 m/s (18 ft/s) is recommended as this keeps the likelihood of injury low while keeping all the other design factors (parachute bulk, weight) manageable. Any existing parachute system that will, at your all-up weight, give you a sea-level descent rate greater than 7.5 m/s should be replaced. But don't get one that is too big for you; this can lead to a slow deployment and oscillations during a descent!

Possible deployment scenarios include mid-air collision, irrecoverable flight situation, accidental deployment and equipment malfunction.

Two questions that I am frequently asked are, Have you ever thrown your reserve? and What's the minimum safe height a reserve will deploy at? The answer to the first is, No, not in anger in 23 years, but Yes, under training several times.

As for the minimum height question, I have seen parachutes deployed successfully at 150ft, although obviously 500ft is better and often recommended. The deployment speed does depend on the speed at which you are falling, rotating or flying at the time of throwing the reserve. For a rapid opening the parachute requires a clean, moderate airflow to commence the opening sequence. If flying slowly, perhaps after a mid-air collision, it helps if you throw the reserve container with some force. The most time-consuming part of the deployment sequence is the human factor - your decision time of whether or when to deploy. Once you have thrown the reserve it should only be a couple of seconds until it's deployed.

### The sequence

Make sure you can release your hand from the glider's control handles. This can be surprisingly difficult if wearing thick gloves and if you use the technique of putting your hand through the handle to grip the line in your thumb and finger.



SkyDrive "steerable" Rogallo-type reserve being tested over water

ALL PHOTOS: SKY PARAGLIDERS

Look at the reserve handle to locate it quickly to avoid fumbling around.

Grasp the handle firmly with your thumb inside the handle.

You then need to pull or peel the handle at an angle that suits your particular system, to release the retaining pins and open the harness flaps. The next stage should be a fluid continuation of the first pull. As you pull your arm outwards, the reserve container attached to the handle will be revealed. The whole lot should be thrown into a clear space with some force. This may mean throwing behind you.

It has been known that, in slow or hindered deployments, the pilot has tugged on the bridle to 'shake' out the reserve. I have never needed to do this but I have heard of a few success stories.

The reserve should have opened fully, and now your priority is to minimise interference with your glider. Depending on the circumstances this could now be flying normally but in front of you, or be a thrashing mess. The aim is to collapse and gather the glider towards you, usually

by pulling in the B or C risers, then lines, until the wing is having little or no effect on your reserve.

Adopt an upright Parachute Landing Fall position. Most reserve bridles are attached to the harness at the shoulders, usually making this easier. If you have time make a Mayday radio call with your approximate position, particularly if flying in a remote area where you may not have been seen by other pilots. Activate your emergency locator if you have one.

It's not over yet! Once you have landed, any breeze will want to drag you and your reserve downwind. If you have the strength, gather the apex line if a pulled-apex reserve is used, or any skirt line if not, and continue to gather until stable.

I hope there is no reason for you to deploy your reserve throughout your flying career. However it is a vital safety component that, should you ever need to use it, it must be in top condition and fitted properly.

Look after it, get it repacked frequently and practice your deployment routine.

*Tim King is CFI of Sky Paragliding (www.skyparagliding.co.uk).*

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