

TK's few words on Skydiving, RSL's, Cypres's and Altitude

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On RSL's;

It seems to me that there are a great number of people that rely on their parachute equipment without fully understanding the function and purpose of the parts that make it up. The RSL or Reserve Static Line is one of those parts. Maligned by many, yet still standard equipment on most new rigs today, the simple little shackle creates a great deal of discussion. Recently, I asked a young skydiver what the RSL did. "It opens my reserve for me" was the reply. Somewhat true, but not entirely....

The RSL will open the reserve if and only if:

1. You have one on your rig
2. It is connected properly
3. Your main parachute has left the container, deployed or otherwise
4. You have cutaway the main parachute
5. There is actually enough drag from whatever is out there to activate the RSL

Otherwise, the RSL is pretty useless. What that means is that in a normal cutaway situation (malfunction of the main), the RSL will likely do its job and do it very well.

So what makes RSL's bad in some eyes? People seem to feel that they can deploy at the wrong time. Recent examples were a tandem pair with a broken riser, a video cameraperson with a main/reserve entanglement due to a main that failed to cutaway. In both cases, though, the RSL did EXACTLY what it was supposed to do and what it was designed to do. People are very quick to forget that the root cause of both of these cases was another problem that led to a bad situation.

In the case of the tandem pair, let's not forget that a riser broke. The RSL was a secondary issue. What are the odds of a riser breaking, really? Are you going to base your skydiving safety decision on the remote chance that this could happen? I think not.

In the case of the cameraperson. The original malfunction was combined with an entanglement of the main parachute on the camera system. The cutaway did not release the main from the jumper, but did activate the RSL, resulting in a main reserve entanglement. I think our time would be better spent trying to resolve the camera/main entanglement to see what could be done to prevent this in the future. There are many camera people out there that would benefit from that knowledge. RSL or not, if you have a camera/main entanglement, you are in some trouble. Let's not blame the RSL, at some point, even without an RSL, the same situation would still require a reserve activation.

So, it is easy to say that you would rather deal with the reserve deployment yourself, rather than rely on an RSL, but that assumes that you will be in perfect health when you are in a malfunction situation. Today, higher performance canopies are resulting in more midair collisions, more hard openings, and more situations than ever where the jumper is incapacitated under canopy. Perhaps that spinning mal that you do not want an RSL to help with was caused by the hardest #S%@!! opening you ever had in your life, and you are barely conscious to deal with it. I would much rather be pulling my cutaway with one hand, knowing that something is helping me out.

In the end, yes there are situations that require the disconnection of an RSL, CreW, some video jumps, high altitude jumps (accidental activation), but please do not assume that an RSL is an 'unsafe' piece of equipment. Since the fatality reports of the 1970's and 1980's, there has been a great reduction in the number of low-pull no-pull fatalities in the sport. The main reason is that simple little Reserve Static Line.

Check out the October Parachutist (2005) and the great article on RSL's. Statistically, you are far better off with one than without one. Scary stories are what give it a bad name – but no one knows the real count of how many lives they have saved. But we certainly know how many people have been killed because of them – hence that is what we focus on.

Please give them some more thought....

On Cypres and Reserve Parachutes;

I asked another young feller “What does your Cypres do?” “It opens my reserve.” Was the reply.... Where have I heard THAT before? The Cypres is probably one of the greatest inventions in skydiving in the last 20 years and ranks way up there with the development of the square parachute as far as new innovation.

It also has a down side. That being, when it fires, were you relying on it? And what is in your reserve container these days anyway? 20 years ago, the smallest reserve parachute you could buy was a Swift Plus, at about 180 sq. ft. Nowadays, you can get TSO'd reserves down to 113 sq. ft. (depending on how you measure them).

The question that I always thought about (not my question, by the way) is, “Would you land your reserve with the brakes still set, downwind, with your eyes closed, and no flare?” If your Cypres has fired, that may very well be the scenario that you are in (i.e. unconscious skydiver). The reserve that is in your container had better be able to set you down enough that your injuries are not life threatening (or hopefully even less)

What is the wing loading on your reserve? Have you even considered that? My guess would be that the difference between 0.8 and 1.2 wing-loading on a reserve could be the difference between breaking an ankle or death on landing. Just something to think about.

On Tracking and Low Pulls

I see a lot of people that determine the breakoff altitude for a formation upon the number of people that are on the formation. When I started skydiving, this all made sense to me, as we did not need to get further away from each other on a 2 way, unlike a 20 way.

As I get older (and hopefully wiser), I also tend to get a bit more conservative. The older paradigms do not apply anymore, and for many reasons. As above, in the Cypres discussion, the canopy speeds alone dictate a need for greater separations between deploying jumpers. As well, the very fact that the distance to the ground should be the greatest consideration for breakoff altitudes. Whether you are on a 2 way or 20 way, the ground is still just as close when you leave the plane.

Here's the math; Lets assume good old 120MPH, which is 176 ft/sec or 54m/sec. Let's assume that when you are tracking, you increase the vertical descent by 10% or 200 ft/sec (60m/sec).

Let's take that 2 Way that you break off at 3000', just for fun since there is only you and your friend and what could go wrong anyway?

3000' (900m) – You turn and track for 5 seconds, chewing up 1000' (300m)

2000' (600m) – You slow down, wave and pull, but because you are really hot, that takes you only 2 seconds or 350' (100m)

1650' (500m) – You have a bag lock, look, gasp, look again, gasp again, grab your cutaway, grab your reserve, pull and pull (Try it while counting to yourself), this takes 5 seconds again, 1000' (300m)

650' (200m) – Your reserve deploys and because your rigger was such a great guy or gal, it only takes 2 seconds to deploy, decelerating you along the way, so we could guess that this took maybe 200' (60m), but probably a bit more.

450' (130m) – Your reserve is open and you have a 25-30 second ride down. Hell that ain't so bad – my Vengeance ride down is usually only 45-60 seconds anyway, so you land, laugh it off and impress your friends with the way you handled that.

So what's wrong with that scenario? I think the times I put in there are realistic, and the altitude math is correct. The problem here is that there is no room for error at all. With a canopy at 450' (130m), you are 2.5 seconds to impact at terminal, and I will guarantee you that the last couple seconds will not matter.

What if the reserve takes 3-4 seconds to open? What if you fumble for a handle? What if you see someone in freefall and decide to track a second or two longer? What if you are going 'too fast' for your canopy opening, so you spend a couple seconds more slowing down? What if you just plain aren't paying attention? If anything ate up 1-2 more seconds in this scenario, you could very well be dead.

My real story to back up what I say (Granted this was on a tandem where higher speeds are generally encountered, but the point is relevant). I pulled my tandem at just under 5000' (1500m), got a bag lock. Took a look at it, gave it a second and looked again. Said to myself "Yep, that's a bag lock". Tossed the ripcord, grabbed the cutaway, pulled, got the reserve, but with the RSL, I was surely beat to the punch. The reserve deployed normally and I looked at my altimeter. I was just under 2700' (820m).

I had chewed up 2300' (700m) and I DID EVERYTHING RIGHT! The point is that you can still do everything right and run out of time. The consequences are very grave. Little mistakes, like fumbling for a handle, are not worth dying for.

I now pull my tandems at 5500' (1650m) and I break off almost every skydive at 4500' (1350m). I get great tracking practice with the extra time, enjoy the canopy rides and as a result, am a better canopy pilot than ever before, and I will probably live longer too.

Think about it folks. If you are dead, you are dead. Nothing can change that. More altitude is more time, more time is your friend.

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