CYPRES Cutter and Loop Facts

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After we had started to sever closing loops with a mechanical guillotine 24 years ago in order to open reserve containers, we learned a lot about this area. E.g., that the result is different, depending where the cut is executed. That triggered us to try to find out why this is so, then to learn what causes those different results. Later we did trials with every existing container model that we could find, regardless where it came from and who had manufactured it.

Very much later that generated the "CYPRES Riggers Guide for Installation". A thick purple binder, which showed the necessary installation of a loop-cutting device in all these different constructions in sketches and in worded description. To show it as easy as possible and assure as less as possible mistakes by riggers retrofitting containers with a set up, we even produced a video with the important contents of the binder. The complete "Riggers Guide for Installation" kit did consist of a Part A and a Part B. Part A was the information, the binder and the video and a questionnaire and asked the retrofit applicant to learn and then fill in the check questionnaire and fax it to us. If answers were satisfying, we did ship Part B, which were tools and needed material. Without Part B it was difficult to do retrofits. This proceeding was done to try to achieve that people did as much correct as possible, because this location and installation is so important.

One aspect of the location subject is the reserve container's closing loop. The better the loop is in terms of allowing and in supporting the opening sequence the better. I knew three skydivers which have died (one together with a tandem passenger) because -I for myself are absolutely sure about it- they had a too poor reserve closing loop. These realizations and knowledge together has born the idea to make a suitable container closing loop. The opinion of some people that this, later called CYPRES loop, is necessary for the CYPRES cutter is ABSOLUTELY wrong. A CYPRES cutter can sever any dacron, spectra, kevlar, nylon, or whatever loop or even a steel ripcord cable. Nothing causes it any problem. It doesn't matter if there is tension on the loop or not, it cuts clean every time. A suitable loop is narrow, slippery, and flexible, doesn't become hard after a long time under strong tension, is fingertrapable and has the necessary breaking strength, etc. We developed different generations with a well reputed German weaving mill and tried and tested and so on. At the end we decided for the version, that you likely know as the CYPRES loop. To make that loop even better, we introduced a certain silicon in its upper four centimeters. It is important to realize that the silicon does not aid in cutting the loop, the reason for it is to further improve the opening characteristics of the container.

I personally believe that there are skydivers still around, that would have been dead if they haven't had this "CYPRES closing loop". Completely independent of using an AAD or not, only due to advantage which this loop provides to the container's opening process.

I am happy about it. That was the reason to spend the time and energy to generate this loop system and to distribute it, mainly via our CYPRES channels.

Of the standard 1 pin loop made from this loop material and to our ideas and treated with our silicon, we until today have manufactured more than 3 million items. We gave the vast majority of those to riggers and packers and rig manufacturers for free.

Just on the side, we also improved the holding discs with the idea to reduce the typical and dangerous loop tearing at the washer. From our final solution, (the three hole disc which you likely will know as "Smiley"), we have meanwhile manufactured more than 700,000 items. The vast majority of those we have given to riggers and packers and rig manufacturers for free.

One of the side spin results of all our work was a development which allowed opening the reserve container of a rig like the Racer, not with a fixed loop, but with a floatable loop. It used a channel across the pilot chute top, which enabled the loop to run through it. The result was that a reserve container, like the Racer reserve container, would immediately open when only one of its two pins was pulled. In case of a loop cutting system, the container would immediately open if only one loop cutter would sever the loop. On a walk along Lexington Ave 20 year ago, I entered the Jumpshack building and showed this to John. He was impressed that this system worked always and without hesitation. But because of possible additional packing effort he didn’t want to have it installed in the Racer. I was a bit disappointed. Forth and back, then we negotiated a compromise. In all countries where John’s TSO for the Racer was valid, it was forbidden to use this running (floating) loop, in all other countries it is permitted. You can find this regulation in every CYPRES User’s Guide since 1991 under the Chapter "Repacking of Reserves".

Because we were interested in the most reliable system to sever a closing loop, we searched for something which was more reliable than a mechanical guillotine. We ended up choosing a pyrotechnic system. That is a very sophisticated affair. There is extremely much to learn and to take care about. We are not only used to thinking analytical and completely, but we, when thinking about a problem, think in a ball completely around the problem and from every angle towards the problem. And even we did run into wrong directions several times with this pyrotechnic cutting system. That did cost us a lot of time. Even a dummy went in. This was all long before we did sell CYPRES. The CYPRES development took 4 1/2 years and we did build 12 generations of development units. So, loop cutting (consisting of fibers) is something really difficult. If we had not come to an absolutely satisfying solution for the cutting action, we would have dropped the CYPRES project.

By the way a cutter as we wanted it was not available. So we designed our cutter and searched and found a German manufacturer who manufactured it to our specifications and quality ideas. For example is an ex ray made of each and every cutter, which we use to check certain things that we want to check.

We also would have dropped the CYPRES project, if we would not have found a safe possibility for CYPRES to compensate automatically all day long for the air pressure changes of the weather. And for a number of other requirements too.

The guideline has always been: very very close to perfect, or nothing.

So the system which was first produced in January 1991 was safe, and this of course included the cutting device.

Airtec feels necessary to comment about the latest conversations about failed cutters from other AAD manufacturers. There are voices who compare the reliability of our cutters with those of other AAD brands on the same level concerning quality and failure rate.

We insist to completely be out of these discussions.

We have neither the same supplier, nor would we ever accept such product for our device, as it is a low cost item not to be compared with the CYPRES cutter. The design principle of the CYPRES cutter is especially for our purpose and completely diverse and not to be compared with copies, imitations, or derivatives from other suppliers.

We have proven over 20 Years to cleanly and entirely severe any loop. More than 200,000 CYPRES cutters have been manufactured.

The reliability of the CYPRES cutter is so astonishing that it has found its way into non-CYPRES applications including satellites, rockets, aerospace, commercial, and military.

We are investing a lot of time, money, and energy to guarantee the highest level of safety and confidence, and we can not tolerate any misjudgment or transfer of serious problems other manufacturers may have to our products. Our cutters are strictly not affected by the current “lack of proper design” discussions.

I would like to thank everyone involved over the past 20 years, especially rig manufacturers and riggers, in helping make CYPRES one of the most reliable pieces of skydiving equipment in use today.

With my regards.

Helmut Cloth