

Airtec GmbH

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Concerning attempts to activate an Expert CYPRES under canopy:

We read the article from Troy Ketsdever in the September 2003 issue of Skydiving with a lot of interest, as this subject has been one of continued concern and research of ours over the past 15 years.

Several years ago, we stepped up research and data collection with the advent of small highly loaded, cross-braced canopies. The purpose of our advanced testing was to find out if an aggressive canopy pilot with a small cross-braced canopy could activate an Expert CYPRES activate during an aggressive landing.

Troy tested if it is possible to reach the necessary speed for an CYPRES activation under a small canopy. But, as he mentions, he did this with an altitude adjustment of 1500 feet upwards to not bring himself into a dangerous situation.

We know that very small canopies can reach freefall speeds, but these speeds can only be approached and sustained at altitude, as a high speed landing needs a certain amount of setup in order to perform a successful controlled landing.

As Troy remarked, he had to discontinue the diving turns at a certain altitude to enter a normal landing pattern. This is the key point. As soon as the skydiver has stopped turning to take care about his setup for the final approach, he bleeds off the previous speed, then re-accelerates during the diving spiral turn on the final approach for landing.

Our experience from instrumented test jumps is that the skydiver did not have enough altitude and time to build up the necessary speed over a sufficient period of time to make the Expert CYPRES activate, as it is necessary to level out at a sufficient altitude to make it a survivable landing.

Although it is possible to (safely) reach the necessary speed for an Expert CYPRES activation at higher altitudes, according to our current knowledge base it is very unlikely that a skydiver will reach the necessary (vertical) speed for a CYPRES activation after the setup for a high performance landing.

This does not mean that something like this may never happen in the future as canopy designs further evolve. The activation speed of Expert CYPRES is 78 mph. This activation speed allows an activation in the situation of a light weight skydiver with a big jump suit and a pilotchute in tow malfunction.

In recent years there have been several fatalities where jumpers under highly loaded elliptical canopies with a spinning malfunction were not able to cutaway or to pull the reserve. In none of these cases did the Expert CYPRES fire, as even under the permanent spinning canopy, the necessary activation speed for an Expert CYPRES was not reached.

In the 12-plus years of CYPRES being on the market, we never have had an activation prior to landing because of excessive vertical speed under an open canopy. In recent years, a lot of canopy pilots jumping Expert CYPRES and highly loaded cross-braced canopies have made a significant number of high performance landings - none of them have experienced a problem.

This situation, although very satisfying, does not allow us to lean back and not monitor what is happening in the fast canopy scene. We continue to monitor new canopy developments, and have a permanent data gathering program utilizing our data logger technology.

It is possible that with line twists or an out of control landing approach, that an uncautious skydiver may reach the necessary activation speed to make Expert CYPRES activate and to open the reserve canopy. But, an incident like this would be clearly be an emergency situation.

In addition to what we have learned from our instrumentation, presently, it seems to be reasonable to conclude that, if the potential problem as described in the September article by Troy Ketsdever was real, it would have shown up by now considering the thousands of high performance landings made to date by canopy pilots using Expert CYPRES.

During Troy's test jumps, it was only possible to make an Expert CYPRES activate with a highly trained skydiver and with the CYPRES set to a 1500 ft. higher activation altitude, while performing a maneuver that is unrealistic to land with. Troy admitted that it would not have been possible to reproduce the results without adjusting the activation altitude. His test jumps showed that it is possible to reach the CYPRES activation speeds under an open canopy, but they also show that it was not possible (or at least not wise) to reach these speeds during a landing approach with canopies which are currently available to the public.

In October 2000, we performed numerous tests with Luigi Cani under the experimental 46 ft² Icarus VX. The 46 ft² Icarus VX, with a wingload of 3.6 is the only canopy to date which, according to our data gathering instrumentation, during an aggressive landing approach reaches the necessary vertical speed to make an Expert CYPRES activate. Under the 60 ft² VX, Luigi Cani was not able to reach the necessary speed for an activation. Even when reaching 78 mph for a moment, the Expert CYPRES would not activate. The reason is that CYPRES does much more than trigger based on measured descent rate and altitude, as it analyses the situation the skydiver is in.

We are concerned that Troy's conclusion might keep certain skydivers from putting an AAD into their container, because, while it's very cool to ride an aggressive canopy, they do not want to be "too fast for an Expert CYPRES AAD". This is an unfounded, and potentially deadly concern.

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