

UPT Product Improvement Notice - 2009-01-15

The recent Tandem fatality in NC emphasized a well known flaw in the concept of the modern automatic openers. Even if they function as designed, they can do something no sensible human would do. They can open the reserve container during ,or just after, a normal main deployment, if the jumper pulls close to their firing altitude. This can cause a dangerous two-out canopy situation. A MARD system, such as the Skyhook, can make this situation better, worse, or make no difference at all, depending on the exact timing of the AAD activation. Three basic scenarios are possible:

1. If the AAD fires during the deployment sequence, above an airspeed of about 30 mph, then the reserve pilot chute should generate enough drag to disconnect the Skyhook, and pull the reserve out of its freebag, just as it would in a total malfunction. You will have a two-out situation, but because the Skyhook released normally, it will have no effect on the outcome. The best way to avoid this (and the other two scenarios) is to always pull well above your AAD's firing altitude.
2. If the AAD fire happens after opening shock, then the bag should not fall out of the container, and depending on the size and speed of the inflated main, the reserve pilot chute should tow about 5 feet behind the jumper, still connected to the Skyhook. This is because the airspeed at pilot chute inflation was so low that the red seal thread on the Skyhook did not break. This is a more or less stable situation, but you should gain control of the trailing reserve pilot chute before releasing you brakes. With the pilot chute trailing just 5 feet behind you (instead of the usual 12-18 feet) it is easier to "reel in", and there is less likelihood of its generating enough drag to pull the reserve bag out of the container causing a two- out situation. In this scenario the Skyhook actually makes a two-out less likely.
3. However, if the timing is "perfect", and the AAD fires during the main deployment, below 30 mph, and just before opening shock, the reserve freebag can be ejected from its container by opening shock , and end up hanging from the Skyhook. This is also a more or less "stable", situation, but a lot messier. Therefore, there is a danger that you might inadvertently load the Collins' Lanyard, through the Skyhook, while trying to reel in the mess. (If the Collins' Lanyard is pulled over 6 inches in the right direction, it will do its job and cutaway the left main riser.) While other causes are certainly possible, this scenario may have happened in the North Carolina tandem fatality. To help prevent this scenario from happening in the future, UPT has added two new features to its Vector and Sigma Tandem harness and container systems shipped after January 5, 2009.

1. The Reserve Staging Loop

Most modern reserve containers have pocketed lower corners to properly stage the reserve deployment. That means that they are designed to contain the reserve bag and lines until the pilot chute reaches the end of the reserve bridle, inflates, and pulls the bag out of the container. This passive staging method, first introduced on the Vector, has proven adequate.unless an AAD fires just prior to opening shock, and the bag is expelled by that opening shock (scenario 3).

By adding a bungee cord staging loop, locked with a bight of the freebag bridle, to the reserve container, this scenario can be prevented. We have done over 75 reserve deployment test jumps using this configuration, at all common airspeeds, with no adverse effects to the reserve deployment. In other words, the staging loop does nothing to slow down the reserve deployment. It only insures that the reserve opens in the correct sequence in all scenarios. Before pocketed corners became common on reserve containers, this type of device was used for many years, on thousands of reserve deployments, without adverse effect. It is simply the combination of widespread use of AAD's and jumpers pulling low, that once again makes it a good idea.

2. Split RSL Lanyard.

The new Split RSL, while maintaining a single connection to the right main riser, isolates the Collins lanyard function from the other two RSL functions on the Skyhook system, thus making an inadvertent left side cutaway, for any reason, far less likely.

While scenario #3 is not as likely on smaller containers, it is definitely a possibility on large containers, where the corners of the reserve container are less likely to contain the longer, heavier reserve bag through an opening shock. Therefore, while we would like to see both these innovations on all our Skyhook/Collins Lanyard equipped systems with AADs, we highly recommend that they be installed on our Sigma Tandem and student systems by the next reserve pack job.

Neither of these innovations requires any additional input from the jumper, nor do they change standard emergency procedures. Retro-fit kits fit in a letter-size envelope, and are available at UPT at no cost except for shipping and handling. Please see the below links for work instructions and further information.

PICTURES

