A PROBLEM WITH TWO SOLUTIONS
THE PILOT-CHUTE-IN-TOW MALFUNCTION

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Coke or Pepsi? Chevy or Ford? Your daily life is filled with choices. Though most choices are inconsequential to your safety and wellbeing, this is not necessarily the case when it comes to skydiving. A perfect example of a skydiving problem with two possible solutions is the pilot-chute-in-tow malfunction.

A pilot-chute-in-tow malfunction occurs when a jumper throws his hand-deployed pilot chute but the container remains closed, trapping the main deployment bag inside. This is a high-speed malfunction that requires a quick response. But what is the correct response? Deploy the reserve immediately or cut away first and then deploy the reserve?

The argument of whether to cut away first or just deploy the reserve is certainly not new. The debate has been around since skydivers on piggyback parachute systems changed from using ripcords to hand-deployed pilot chutes. A July 1986 Parachutist article about deployment problems shows that the debate raged even then. In the article, the author recommended cutting away first, but an editor’s note disagreed with that recommendation and stated that cutting away wastes time and increases the risks of the main risers entangling with the reserve. The debate is essentially the same today.

YOUR TWO CHOICES
Skydiver’s Information Manual Section 5-1 provides two options for responding to pilot-chute-in-tow malfunctions:

*Procedure 1:* Pull the reserve immediately. A pilot-chute-in-tow malfunction is associated with a high descent rate and requires immediate action. The chance of a main-reserve entanglement is slim, and valuable time and altitude could be lost by initiating a cutaway prior to deploying the reserve. Be prepared to cut away.

*Procedure 2:* Cut away, then immediately deploy the reserve. Because there is a chance the main could deploy during or as a result of reserve activation, a cutaway might be the best response in some situations.

OPTION ONE: IMMEDIATELY PULLING THE RESERVE

Some jumpers prefer this response because it saves time during a high-speed malfunction by eliminating the step of pulling the cutaway handle. However, in order to achieve this time savings, jumpers must practice this response so that they’re prepared to take action immediately after discovering a pilot chute in tow. This procedure works well as long as jumpers react correctly, but in some cases, jumpers with pilot chutes in tow have died with nothing out because they either did not pull any handle or pulled only the cutaway handle. Although it’s impossible to know whether debating how to proceed caused these jumpers to hesitate or act incorrectly, it’s likely the case in at least some of the instances.

One concern about going directly to the reserve is that as the reserve leaves the container, it may release pressure on the main container flaps and allow the main to deploy as the reserve inflates. This poses the chance of entanglement, since the main and reserve are both still attached to the harness. If there is no entanglement, the canopies will likely inflate into a side-by-side or biplane configuration. The jumper can then deal with the situation while descending under two inflated parachutes.

A study conducted by the Parachute Industry Association contains helpful real-world data about dual canopy deployments. The 1997 Dual Square Report is available on the PIA website at pia.com. Keep in mind that these tests were not necessarily geared toward pilot-chute-in-tow situations. However, the report does provide helpful recommendations for handling the main and reserve in various deployment scenarios.

If your rig is equipped with a dual-sided (cross-connected) RSL such as the one on the Parachute Laboratories Inc. (Jump Shack) Racer, there is only one correct procedure for a pilot chute in tow: Pull the reserve without cutting away. Performing your emergency procedures correctly is crucial when you have a cross-connected RSL since if the reserve deploys first and the cutaway
you have no control over where and how that Dual Square Report], it is not advisable to RSL before releasing the main (if he decides for any malfunction. Jumpers may actu - take action on the resulting configuration.

the prudent decision is to deploy the reserve the same reasons as outlined in [the PIA can then take the time to disconnect the RSL, holds them in place until the main canopy deploys. Second, if the main container opens and allows the main canopy to deploy once the reserve deployments (which it usually does in this situation), it will detach from the harness as soon as it inflates. Often the main leaves cleanly and the jumper lands unevent - fully under the reserve, but in several cases, the main risers have entangled with some part of the reserve as they detached from the harness. It’s a bad day when you look up and see your cutaway main canopy drag the reserve slider up the lines and choke off the reserve completely.

In addition, a reserve static line adds complexity to the situation. If the main risers detach from the harness and a single-sided RSL is still connected to a main riser, it can increase the chances of an entanglement as the RSL pulls free while the main canopy continues to fly away. RSLs are valuable back-up devices; just be sure you understand how they work and how they come into play if the reserve deploys first as both canopies deploy.

**IT’S YOUR CHOICE**

Surprisingly, rig manufacturers do not usually include emergency procedure recommenda - tions in their owner’s manuals (even in the case of cross-connected RSLs). Some of the six manuals reviewed for this article state that jumpers must practice emergency procedures, but none give specific instruc - tions for what to do when encountering a pilot-chute-in-tow malfunction or, for that matter, any specific malfunction. The training and procedures jumpers use are entirely up to them.

So, do your research and discuss it with a local parachute rigger, instructor and Safety and Training Advisor; be sure you understand all there is to know about your equipment; and decide now which procedure you plan to use if you encounter a pilot chute in tow. Then, practice your procedures like your life depends on it... because it does, and it’s a lot more complicated than picking out a soft drink.

**AVOIDING A PILOT-CHUTE-IN-TOW MALFUNCTION**

Using the correct packing procedures and keeping your equipment main - tained properly will go a long way toward eliminating the chance of experi - encing a pilot chute in tow. Simple failure of the jumper to cock the collapsible pilot chute is the leading cause of this malfunction. By establishing a packing routine that incorporates this step and performing your pack jobs in the same order each time, you can minimize the chance that you’ll forget. Receiving a basic gear check that includes a check of the indicator window on the bridle will give you an additional margin of safety on each jump.

Jumpers also frequently cause pilot chutes in tow by failing to follow the manufac - turers’ bridle-routing and main - flap-closing-order instructions. Closing procedures can differ dramatically between brands. The manufacturer of your container provides these instructions in its owner’s manual, and you need to follow them to avoid inadvertently locking your container closed.

In some cases, manufacturers will amend their instructions and post updates on their websites. A few years ago, several jumpers on a variety of containers experienced pilot chutes in tow when their closing pins pierced their bridles and locked their containers closed. Some manufacturers—believing the cause to be partially cocked collapsible pilot chutes that allowed the bridles to jam into the closing pins and lock the containers closed—provided alternate instructions to prevent this problem by routing the bridle out from the bottom of the container flaps rather than from the top.

Your pilot chute and bridle will eventually wear out, so keep an eye on them and have them replaced before you start to have problems. Collapsible pilot chutes lose effectiveness when their kill lines shrink. If a kill line shrinks to the point that the pilot chute is unable to fully inflate, it will lead to a pilot chute in tow. If you have noticed slight hesitations after throwing your pilot chute, this could be the cause. Similarly, if the pilot chute is worn, it may not create enough drag to extract the closing pin. Your main-container closing loop also needs to be short enough that it keeps the container tightly closed; a longer closing loop with a more loosely closed main container is not the solution for this problem! Replace the pilot chute.

Jumpers can also use pull-out (as opposed to throw-out) pilot-chute systems to avoid pilot chutes in tow. In a pull-out system, the pilot chute—attached to a short lanyard, closing pin and handle (often called a “pud”)—is packed inside of the main container. Because the jumper must manu-