

**Age:** 37

**Sex:** Male

**Time in Sport:** Five years

**Total Number of Jumps:** 684

**Skydives Within the Last 12 Months:** 82

**Cause of Death:** Hard landing under a spinning main canopy

## **Description**

This jumper was part of a 2-way that exited a Twin Otter at 13,000 feet. The freefall and breakoff went as planned, and this jumper deployed his main canopy at approximately 3,500 feet. Witnesses on the ground reported that his main canopy appeared to be flying normally and there was nothing unusual about the initial canopy descent. At approximately 1,000 feet, his canopy made a rapid 360-degree turn to the left then flew straight for a few seconds before making another 360-degree turn to the left.

Investigators reported that this jumper did not appear to be creating the left turn with toggle input. Observers saw him with his arms up, in the full-flight position, and flying level in the harness with a neutral body position and legs even. The canopy appeared fully inflated and not distorted in any way.

At approximately 300 feet, after just a few seconds flying straight following the second turn, the canopy made another steep, diving 360-degree turn to the left, and the jumper struck the ground at nearly the same time as the canopy. He received immediate medical attention, but the impact with the ground killed him instantly.

## **Conclusions**

An FAA Master Rigger inspected the jumper's gear. Investigators reported that the jumper had not collapsed the slider after deploying his main, which was unusual for him. Additionally, the rigger found a tension knot on the left steering line approximately two feet above the steering toggle.

Investigators could not determine the cause of the turns with absolute certainty, but the evidence points to the likelihood that the tension knot caught on the small guide ring on the back of the riser after the jumper pulled the left steering line down to make a left turn. The canopy would then remain in a left turn—even if the jumper put his hands up to go into full flight—until the knot that was trapped on the ring slipped past it. This theory is consistent with the ground witnesses' observation that the canopy remained in a turn even though the jumper had both hands up in the full-flight position. During the jumper's initial descent, he may not have pulled the left toggle down far enough for the knot to reach the guide ring and only encountered the problem starting at 1,000 feet when he pulled the steering toggle down a bit farther.

Past fatalities have also been attributable to the jumpers experiencing a stuck steering line on just one side of the canopy. This type of problem can be confusing, and a spinning canopy loses altitude rapidly, which greatly shortens the amount of time and altitude the jumper has available to determine what has happened and what needs to be done to stop the spin.

Prevention is the first line of defense. Jumpers need to take the necessary steps to ensure that their main canopies, steering lines, brake systems, toggles and risers are working properly. Removing the twists from the brake lines before stowing the brakes minimizes the chance of a tension knot forming. Replacing worn brake lines and maintaining toggle keepers lowers the chance that a brake will release prematurely during deployment.

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If a spinning main canopy will not fly straight, the jumper should initiate emergency procedures while there is still enough altitude remaining for a safe reserve deployment. If the jumper is below a safe altitude for a cutaway, pulling the opposite toggle down to neutralize the turn may be the only remaining option. Adding opposite toggle input may slow the rotation or even stop it altogether. Although landing with a partially braked canopy is not optimal, landing with a level wing is preferable to landing under a rapidly spinning main canopy.

**System:** Mirage Systems G4

**Main:** Icarus Crossfire 129

**Wing Loading:** 1.5:1

**Reserve:** Aerodyne Research Smart 135

**AAD:** Airtec CYPRES 2

**Helmet:** Open-face, unreported brand

**RSL:** No