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Saved by a satellite

New communication tools aid wilderness rescue

By Dave Hirschman

When the Cessna 206 clipped the top of a tall pine tree moments after departing a rugged Idaho mountain airstrip, veteran flight instructor Art Lazzarini thought the stout, single-engine utility airplane would keep flying.

Then there was a second impact, and a third and fourth, and Lazzarini—who specializes in backcountry flight training and has logged more than 19,000 flight hours during 32 years flying the Mountain West—knew the airplane couldn't stay aloft. The airplane's owner was in the left seat and Lazzarini was administering a flight review in the right.

"I was aware of the whole trip down through the trees," said Lazzarini, 61, who estimates that the towering pines surrounding Simonds Airstrip in remote Yellow Pine were about 75 feet tall. "I kept thinking, even after the first impact, 'We're going to make it.' But even when I saw we weren't, we never gave up. We kept flying all the way down."

The airplane came to rest about three-quarters of a mile from the gravel airstrip near the Middle Fork of the Salmon River. The aircraft owner suffered minor injuries, but Lazzarini knew he had been badly hurt when the airplane fell. He smelled avgas leaking from the wreckage but there was no fire.

"I knew I was in pretty bad shape," said Lazzarini, a small, wiry pilot with an irrepressible enthusiasm for flying and teaching. "My right wrist, hand, and thumb were broken, my right forearm was fractured, and my pelvis was broken. With the pilot's assistance, I was able to get free of the airplane."

It was just after 10 a.m. on July 14, 2009, a cool, clear day in the ruggedly beautiful, lightly traveled Frank Church Wilderness Area, and Lazzarini evaluated their chances for a quick rescue.

No one at home knew when the pair left Hailey, Idaho, that morning that they were going to land or take off from the unattended Simonds Airstrip. The two had added it to their itinerary only after landing or practicing approaches at several nearby airstrips. Also, it was likely that no one had seen them go down. They hadn't filed an FAA flight plan, although several people knew their final destination that morning was McCall, Idaho, where Lazzarini was scheduled to teach, and the students and staff there were sure to notice his absence.

The airplane was equipped with a standard emergency locator transmitter (ELT) that likely was sending out a blaring signal on 121.5 MHz. But U.S. satellites had stopped monitoring that frequency five months earlier, and only local pilots flying above the sparsely populated region might hear it. Even then, a pilot hearing the signal could alert the Civil Air Patrol or other searchers, and they could track the signal to a 20-square-kilometer area. Since the 206 had fallen amid a thick stand of trees, it would be difficult to find.

But one thing they had in their favor was that Lazzarini and the aircraft owner both carried SPOT personal locator beacons (PLBs). They dug the orange, handheld devices from the wreckage; placed them on top of the airplane, and hit the emergency 911 buttons. Each PLB instantly sent an emergency message, with latitude and longitude coordinates, to an orbiting satellite that relayed their GPS position to a communications center in Houston, Texas.

A dispatcher in Houston started making telephone calls and sending e-mail messages to the people the two men had designated when they bought and activated their PLBs. One of those on Lazzarini's designated list was Lori MacNichol, a veteran backcountry pilot, instructor, and owner of McCall Mountain/Canyon Flying Seminars, the place where Lazzarini had been scheduled to teach later that morning.

MacNichol got a call from the Houston dispatcher and told him the two, collocated 911 messages weren't inadvertent activations. She was sure that Lazzarini and his companion had been involved in an aircraft accident. "He was already 20 minutes overdue when I got the phone call," she said, "and I had been wondering where he was."

She plugged the latitude and longitude into Google Earth and took note of the location, and the nearest airstrip to direct a rescue helicopter. The dispatcher, following company protocol, notified the local sheriff. MacNichol called the state aeronautics bureau and was informed that the agency didn't perform rescues, only searches. MacNichol already knew the location of the accident—she didn't have to search. She needed rescuers.

Her next call went to the U.S. Forest Service's aviation center, also in McCall. A USFS de Havilland Twin Otter carrying smoke jumpers was on a training mission a few miles away from Yellow Pine. She gave the lat/long coordinates to a USFS dispatcher, and the dispatcher relayed them to the Twin Otter crew via radio. Five minutes later, the USFS aircraft was overhead and the pilots saw the wreckage, but Simonds Airstrip was too short for their airplane to land.

A medical helicopter made the short, 30-mile trip to the accident site from McCall and arrived at Simonds Airstrip about 20 minutes after the accident. The helicopter was able to set down at the remote field, and emergency medical technicians hiked to the accident site.

There, they stabilized Lazzarini but couldn't carry him through the thick forest and over the rough terrain. Another helicopter, this one from the USFS carrying firefighters, arrived overhead, and firefighters rappelled down ropes to the accident site. They described the situation to the crew of the orbiting USFS airplane and soon the smoke jumpers parachuted into the area. The jumpers used chainsaws to clear a landing zone for a medical helicopter.

Lazzarini was loaded aboard a helicopter and flown to a hospital in Boise. He arrived there about 2 p.m., less than four hours after the accident. He spent eight days in the hospital before going home to begin months of physical rehabilitation.

MacNichol said the SPOT device was a lifesaver for Lazzarini, and finding him without it would have been like searching for the proverbial needle in a haystack. "I've flown many missions, many hundreds of hours in the backcountry, fruitlessly searching for ELT signals," she said. "The chance of finding and rescuing someone with that kind of technology is slim at best. The SPOT, with the GPS coordinates it provides, is incredibly accurate. The system has the potential to provide much more timely and useful information as long as we use it correctly."

MacNichol now requires that students and instructors at her flight school carry SPOTs, and she makes sure they update their personal and contact information regularly. If someone is allergic to certain medications, knows their blood type, or hasn't provided the color and registration number of the airplane they plan to fly, she makes sure that's included in their online profile. And she makes sure the SPOT devices are attached to individuals, not just stowed in their aircraft.

One pilot attached a SPOT to his airplane's glareshield with Velcro. When he was involved in an accident, the windshield shattered and the device flew forward into cluster of poison oak. He had a concussion and deep cuts, and it took him a full hour to walk into the thicket and retrieve it. When the Houston dispatcher noticed the location of the PLB had moved several hundred feet since the initial 911 activation, rescuers knew the pilot was ambulatory.

"It's a great relief to see the SPOT move," MacNichol said. "I'm worried when it stays still."

About 120,000 SPOT devices have been sold to hikers, boaters, and pilots around the world since the product went on the market in November 2007. About 350 rescues have been launched in 51 countries as a result of SPOT emergency calls. Each SPOT device has four buttons: On/Off, Check OK, Help, and 911.

MacNichol asks pilots at her school to “check OK” to let others know they’ve landed safely at a particular location; “help” when they’ve got a mechanical problem and need assistance, and 911 in an emergency.

“We’re learning more about these devices and how to use them all the time,” said MacNichol, who was able to launch two successful rescues during the summer of 2009 using information from SPOT devices. “They’re a wonderful tool, and they’re changing and improving the way we operate in the backcountry. But they’re still a tool—they’re not magic—and we can get much better at using them to improve flight safety.”

For information on SPOT personal trackers and GPS messengers, [visit the Web site](#). See “[Pilot Products: Survival Gear](#),”

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