

# AOPA

November 1996 Training Topics

## In Training

### Getting There

By Greg Laslo

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The fastest route between two points is not necessarily a straight line. Often, the unconventional is the best route. Ask two aviation technology students at Purdue University. They won this year's Air Race Classic, a 67-year-old, 2,500-mile cross-country proficiency air race for women.

Ask them, and they will tell you the secret is sound judgment and precise flight planning. They will say good weather briefings and engine leaning techniques can make the wind and machine work harder for you. And they will say that, in this age of GPS navigation and three-axis autopilots, there is no substitute for basic VFR piloting skills.

"You don't have to be flying 15 years, have 4,000 hours, and break FARs to win," says 21-year-old navigator/first officer Jackie Battipaglia. She and her 22-year-old captain, Lauren Nicholson, have fewer than 800 hours combined. Purdue, one of three collegiate teams in the race, fielded the youngest team. "If you added our ages, you still wouldn't come up with the average age of the other competitors," Battipaglia says.

Embry-Riddle Aeronautical University sponsored this year's Air Race Classic and entered two teams, one from each campus. The VFR-only race started at ERAU's Prescott, Arizona, campus and finished at its Daytona Beach, Florida, campus. With checkpoints at Durango, Colorado; Roswell, New Mexico; Wichita Falls, Texas; Conway, Arkansas; Owensboro, Kentucky; and Athens, Georgia, racers had from 8 a.m. Thursday, June 20, until 5 p.m. Sunday, June 23 to finish the course.

Because aircraft are handicapped to even the field, the race is really about proficiency. Racers earn points equal to the difference between their handicapped, no-wind ground speed and their actual speed between checkpoints.

Race organizers expected Purdue's Piper Warrior, N525PU, to fly at an average of 124 mph. If the Purdue team averaged 130 mph between checkpoints, it earned six points. If it averaged 118 mph, the team lost six points.

Nicholson says it takes high-performance cross-country flight planning, good judgment, and sound aeronautical decision-making to win the race. It also takes textbook and seat-of-the-pants flying knowledge. It's 80 percent skill and 20 percent luck.

"There's not much to it for piloting skills—you just have to hold heading and altitude," Nicholson says. "The hardest part of the race takes place on the ground. Deciding what altitude and heading to fly, when to leave, and when to wait takes some research."

In addition to the usual considerations, such as weather and fuel endurance, the go/no-go decision has an additional dimension—speed calculations. "You have to compare ground speeds," Nicholson explains. "Do we fly one leg today, or fly three legs tomorrow, when the wind is supposed to be better? Can we even fly three legs tomorrow?"

When considering favorable winds, the team also considers the time-and reduced ground speed-it requires to take advantage of them. Climbing to altitude reduces the average ground speed, which creates a point deficit. The tailwind has to pay this deficit, and then pay dividends, for the climb to be worthwhile.

Understanding how weather works, comprehending subtle information in weather reports and forecasts, plus diligent and precise use of aircraft performance charts provide the preflight planning answers.

Purdue has entered the Air Race Classic for the past three years. It requires a two-year commitment from its racers, and Nicholson was a first officer and racer-in-training during the 1995 Classic. During that race, she compared her decisions to her captain's, and there were times when Nicholson would have done things differently, like flying north around a storm instead of south. She wondered what would have happened if she were calling the shots-whether Purdue would have done better than its ninth-place finish. Or worse.

Nicholson was calling the shots in 1996. Competing against 49 other teams, the Purdue crew won on points. Although they didn't win any single leg of the race, Nicholson and Battipaglia beat 1995's time by more than 5 mph.

"I was nervous coming into Prescott," Nicholson says. "I had nothing to compare my decisions to. There was pressure to live up to last year's ninth-place finish. We fly in such a sheltered environment at Purdue. We're sheltered in the kind of decisions we have to make. It's the university's airplane, so it's the university's ultimate guidance. During the race, however, it was like having our own airplane-right down to getting fuel and arranging for an overnight hangar."

Chasing faster ground speeds tested Nicholson's flight planning judgment. The team never flew direct routes between checkpoints, flying around some airspace instead of over it. They used several different navigation techniques, including great circle, GPS, VOR, and a lot of pilotage.

Each method has its own problems, says Battipaglia, the team's navigator. The Department of Defense jams GPS signals in New Mexico, and the Rocky Mountains blocked line-of-sight VOR signals. Ground-reference checkpoints are few as you fly across the Desert Southwest by dead reckoning and pilotage.

"How do you tell the pilot there's no town for 50 miles, but the next checkpoint is an Indian trading post-'Just look for the totem pole?'" jokes Battipaglia.

When adding the time it took to fly from Purdue at West Lafayette, Indiana, to Prescott, and back from Daytona Beach, Battipaglia and Nicholson spent two weeks together in a small, often warm space. "It was a lesson in crew resource management," Battipaglia says.

"CRM is the same for an airline and a small plane," Nicholson adds. "It's about communications, respecting the other pilot, and discussing situations to make good, safe decisions. It's teamwork. We briefed each other the night before-the weather, the route, who would have what responsibilities, the double-checks we would use."

The Purdue team also flew the route backwards from Owensboro, Kentucky, on its way to Prescott for the start of the race. "I'm glad we did that. A lot of the airports were hard to find," Battipaglia says. "Most were on aircraft carrier-type mesas."

Nicholson says "the wide variety of terrain is the challenge. You don't know about it until you fly through it. You can't just read about it."

These conditions made the trip a good teaching exercise for Nicholson, who was scheduled to take her FAA flight instructor checkride not long after the race was over. [She passed and now has two students.] Nicholson says she taught the procedures to Battipaglia during the flight west, and when her 'student' seemed to understand, "I figured I must be explaining things right."

The training was important to Battipaglia. One year's first officer/navigator is next year's captain. In 1997, it will be Battipaglia's turn to select and train a new first officer on a more mountainous route that stretches from Boise, Idaho, to Knoxville, Kentucky.

"You see things out there you don't get in the Midwest or East-the different landscapes and textbook clouds," Battipaglia says. "You learn to maintain situational awareness, to take advantage of what facilities are available-especially weather services-and not to get complacent."

Nicholson credits Purdue's emphasis on meteorology for their win. But the race was fun because it emphasized the basics of flight. Nicholson and Battipaglia are enrolled in the Boeing 727 flight engineer course, and the Classic was an eagerly-anticipated change "...from learning the hydraulic system of 727, " Battipaglia says. "It's not driving a bus."

Purdue entered its first race in 1993, after the speaker at a Women in Aviation International meeting asked why the school didn't participate. Purdue's aviation department traces its roots back to the 1920s, when air races were popular and the predecessor of the Air Race Classic-the Women's Air Derby-was first held.

In 1929, humorist Will Rogers and others called the inaugural race the "Powder Puff Derby." Amelia Earhart was a contestant. That same year, Earhart and 98 other female pilots formed an organization named after their total number-The Ninety-Nines. In 1935, Earhart was appointed visiting aeronautics adviser at Purdue. She lived in a women's dormitory so she could be close to the students.

The link to the past is important to Nicholson and Battipaglia, particularly Nicholson, whose aunt was a Women Airforce Service Pilot (WASP) in World War II. This race cements their place in aviation. Although they were the youngest pilots in the Classic, the Purdue pilots were taken into the flock, Battipaglia says. "People are happy to see a young person involved, and they want to talk to you about flying. It's better than any ground school."

While younger pilots learn from those who are more experienced, they also have something to teach about fast, efficient flying-and about aviation's future. Lessons, after all, sometimes need to be taught in new ways. "When Amelia Earhart raced in 1929," Battipaglia says, "she finished third."

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