
GETTING THERE & BACK

The most dangerous part of any competition

By Dave Hirschman

The contest is over. The two aerobatic sequences you flew this morning went smoothly, and your airplane performed flawlessly. You're sunburned and tired after two days of competition. But you're in good spirits and looking forward to getting home before nightfall.

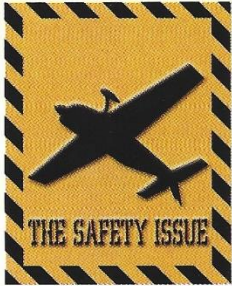
With toothbrush, credit card, and a weekend's worth of sweaty T-shirts wedged into the baggage compartment, you top off the fuel tanks, power up the GPS, and taxi to the departure runway for the two-hour trip home.

This is your most dangerous flight of the weekend.

The International Aerobatic Club has an outstanding safety record at sanctioned contests. But those stellar statistics don't include pilots injured or killed while flying to or returning from contests, practices, and other events.

Most aerobatic mounts aren't equipped with attitude or gyro instruments. They have an extremely limited range, are uncomfortable, and are designed to be aerodynamically unstable compared to standard category aircraft. Then add the fact that the pilots flying them are frequently under tight deadline pressures: They have to arrive at the contest at a specified time, and they have to be back at work on Monday

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morning. "The most dangerous part of any contest is getting there and getting home," said Glenn Frick, a member of the 2000 U.S. Advanced Team. "Pilots need to approach cross-countries with the same intensity as aerobatic flights."

Pilots who have made multiple cross-country trips in aerobatic planes have plenty of potentially lifesaving advice. First, bring a GPS or two—but don't depend on them completely. If you have two GPS units, connect one to the aircraft electrical system and run the other on internal batteries. Keep both of them running simultaneously so that if one fails, you don't have to search for the second unit, mount it, turn it on, and program it to autolocate while trying to hold a heading and an altitude. Many aerobatic planes have a panel-mounted GPS, but a handheld unit can be a valuable backup. Some pilots combine a portable aviation GPS with an inexpensive backup that still provides speed, distance, and heading information.

"GPS is one of the best safety features ever for aerobatic pilots flying cross-country," said George Andre, an IAC veteran who has logged transcontinental trips in open-cockpit biplanes and sleek mono-planes. "GPS has taken a lot of sweat and

worry out of cross-country flights. But we tend to rely on GPS too much."

More often than we care to admit, pilots type in the wrong airport identifiers, run out of battery power, or allow GPS antennas to disconnect in flight. Total GPS failures are rare, but they do happen. Unless the pilot has an old-fashioned paper chart unfolded to the proper section, a GPS failure can be a handful in a cramped cockpit.

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It's also tempting for pilots with a GPS to stretch distances between fuel

stops. Pilots with a higher-than-expected ground speed can quickly see from their estimated time en route that they'll be able to avoid a fuel stop and a hot start by proceeding nonstop to their destination. But the estimated time en route changes with each shift in wind speed and direction, and pilots that overfly a fuel stop can be left high and dry, literally, if a tail wind turns into a head wind.

Digital fuel-flow computers are another great safety enhancement—especially when

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CARL SCHUPPEL

combined with a GPS. Fuel-flow meters continuously show the time remaining before the tanks run dry. By comparing that figure to the estimated time en route from the GPS, pilots can reduce their workload and increase their peace of mind. But accurate fuel-flow readings depend on the instruments being properly calibrated and the pilots entering the correct amount of usable fuel. That amount can be significantly less than the total fuel on board.

Pilots who stretch their fuel reserves to the limit can also be in for some rude surprises when they reach their destinations. If the weather has deteriorated or the FBO's fuel pump is broken, they may have inadequate reserves to fly to an alternate field. The FAA's VFR requirement of 30 minutes at cruise power may not be enough.

"Out here in the west, airports don't always come along at the intervals one would like," said Dick Rihn, a veteran of numerous transcontinental flights in aerobatic planes, including a Pitts S-1T and a DR-109. "If there's an accident in front of you that takes time to clear or the wind has shifted to produce a severe, or even impossible crosswind, can you go to an alternate? These things have happened to me and others."

Aerobatic planes with fixed-pitch props typically reach their rpm red lines at a far less than optimum cruise power. For that reason, it's tempting for pilots to take advantage of their planes' speedy climb rates to rocket into the thin air and pick up strong tail winds. That way they can increase their ground speed, save fuel, and escape the heat and haze that blanket the country in the summer. But beware of hypoxia and regulations governing oxygen and transponder use before venturing into the thin air. (Mode C is required above 10,000 feet MSL, and supplemental oxygen is required after 30 minutes above 12,500 MSL and at all times above 14,000 MSL.)

Many aerobatic planes lack electrical systems because owners want to keep them light and simple. But transponders, turn coordinators, and electric gyros can be fantastic safety features on cross-country trips. Transponders allow VFR flight following, and air traffic controllers can help pilots avoid other planes and find unfamiliar airports.

Also, in an emergency, being in radio contact with a controller can be a blessing. Most single-seat aerobatic planes don't have an emergency locator transmitter, so being able to notify a controller of your position in case of a forced landing may be the best way to ensure someone will come look for you.

Electric turn coordinators and attitude gyros can allow pilots that encounter unexpected clouds or poor visibility to perform a smooth, 180-degree turn back into the clear. And those instruments can combat the vertigo that can occur in haze or between cloud layers, even during VFR conditions.

Increasingly, aerobatic pilots seem to enjoy flying to and from aviation events in formation. While it's often stated that there's safety in numbers, that's not always the case

While it's often stated that there's safety in numbers, that's not always the case in airplanes. Formation briefings must consider each pilot's capabilities and define each person's responsibilities.

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in airplanes. Formation briefings must consider each pilot's capabilities and define each person's responsibilities. Typically, the lead pilot is responsible for navigation, communication, and other matters of flight safety. Those on his wing must trust the leader to get them to their destination—just as the leader must trust the pilots flying beside him to maintain proper spacing and formation discipline.

Also, when flying dissimilar airplanes, the lead pilot has to consider the other airplanes' characteristics. If the leader is flying a Pitts S-2B and the wing pilot is in a Pitts S-1S, the single-seat plane may be able to keep up—but at a far higher power setting and fuel burn than usual.

Finally, put yourself in a position to



Here are some additional safety tips for cross-country flights:

- If your plane has more than one fuel tank, check the flow on the ground before takeoff. It's better to identify a faulty fuel selector valve or vapor lock on the ground than in the air.
- Bring ear plugs, a noise-canceling headset, or both. Prolonged noise exposure causes mental fatigue. You'll be a lot sharper after hours in the cockpit if you can reduce the decibel level.
- Wear your parachute, even if it's uncomfortable. If you have to bail out, you don't want to wonder whether you've remembered to put it on and cinched the straps down tightly.
- Bring a survival kit. If you land off-field in a remote area, you'll want water, a collapsible blanket or jacket, a flashlight, and a handheld radio or a cell phone. Also, a small tool bag with a few carefully chosen screwdrivers, wrenches, duct tape, and safety wire doesn't take much space.
- Be aware of crosswind limitations, and try to plan fuel stops at airports with multiple runways and/or wide grass runways.
- Secure baggage so that it can't shake loose and jam aircraft controls.
- Get a thorough weather briefing before takeoff, and monitor weather en route via passing ATIS stations and Flight Watch.
- Get a yellow pen and highlight radio transmission towers and other obstacles on your VFR chart. Observe minimum safe altitudes. Many radio towers are taller than the Empire State Building—and they have guy wires, too.

make good decisions.

If you set a tight schedule, you've put yourself at a disadvantage before you've even crawled into the airplane. Also, take an unflinching look at yourself. Are you properly rested, nourished, and hydrated? If not, admit it, and do something about it. Remember that pilots killed while flying in bad weather are

buried on sunny days. If you wait long enough, the weather always improves.

"The older I get, the more careful I become," George Andre said. "No contest is worth low-level scud running. If you are at or near VFR visibility minimums, turn around. It's better to be on the ground wishing you were in the air, than in the air wishing you were on the ground."
