



Safety Hot Spot: Summer Weather Checkup

Thunderstorms

- ✓ **Nature's worst** — Summer means thunderstorms. Fueled by unstable, moisture-laden air, these natural "heat engines" release massive amounts of energy in the form of extremely heavy rain, severe turbulence, violent up- and down-drafts, lightning, and hail.
- ✓ **The reality** — Light aircraft and thunderstorms simply don't mix. Airplanes have emerged from thunderstorms with doors blown off, leading edges smashed in, windshields broken out and airframes distorted beyond repair...and those were the lucky ones. Many more have been torn apart in mid-air, or hurled to the ground out of control.
- ✓ **Avoidance** — Get a detailed weather briefing prior to departure and update it during the flight. When operating around thunderstorms, try to circumnavigate cells by at least twenty miles: If you can't, it's probably best to look for a place to land. Holes between developing storms can close quickly, and staying clear of the clouds doesn't necessarily ensure safety.
- ✓ **ATC radar** — Air Traffic Control weather radar can be helpful as you attempt to steer clear of thunderstorms, but it's critical to understand the limitations of the service. For more information on using ATC weather avoidance services safely, check out the ASF online course, [Weather Wise: Thunderstorms and ATC](http://www.asf.org/wxwise_thunder/) (www.asf.org/wxwise_thunder/).

Turbulence and Haze

- ✓ **Turbulence** — Thermals caused by surface heating can result in light or moderate turbulence-and serious discomfort for passengers (and pilots) who aren't used to being bounced around! During the summer months, try to schedule flights for the early morning or evening, when there's less thermodynamic lifting and convective activity.
- ✓ **Haze** — Haze can restrict visibility to such an extent that you might not see that airplane (or cell tower, or mountain, or thunderstorm) at your 12 o'clock until it's too late. Be especially wary when flying around terrain in hazy conditions.
- ✓ **Above the fray** — Climbing above the haze layer can be a good way to maximize summertime comfort. It's not always practical to do, but if you can, getting above the haze means better visibility and a smoother, cooler ride. Likewise, climbing above a scattered layer of low-lying cumulus can result in a smoother ride-just be sure you can get down through when it's time to descend.

High Temperatures

- ✓ **Density altitude** — As the air temperature rises, air density decreases-and that means reduced aircraft performance. Remember: As far as the airplane's concerned, the density altitude is the altitude, so be sure to account for it as you plan your flights. If runway length or terrain clearance might be a problem, you may need to carry less fuel and plan shorter legs-or just wait for cooler temperatures.
- ✓ **Keep cool!** — The cockpit of a typical GA aircraft is a great place to experience the greenhouse effect. To avoid overheating, keep your skin covered, both to protect it and trap perspiration before it evaporates. Drink plenty of liquids, open vents in flight, and keep windows and doors open on the ground. Also consider climbing to find cooler air (unless there's a temperature inversion, of course).
- ✓ **Hot starts** — After shutdown, residual heat trapped in the engine compartment can boil fuel sitting in the supply lines. The resulting vapor can block the flow of fuel to the carburetor-or the cylinders on a fuel-injected aircraft-and play havoc with your next engine start. Be sure to review the POH (Pilot's Operating Handbook) to brush up on the recommended hot start procedure.