How to Avoid Being Run Over

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I don't believe I know anyone who has had a stall spin accident (though they remain a prominent factor in the NTSB database) , but I personally know three or four other glider pilots that were almost run over by jets.

The first I'll attribute to the training and focus that we have provided to avoid that. For the second, we don't do much, but we need to do more and it's not hard.

I'll cover how to be seen, how to know the highest risk areas, and how to have ATC assist in the effort.

The foundation of our effort comes from the right of way rules found in FAR § 91.113 which codifies our actions in see-and-avoid collision avoidance. AC *90-48E (Pilots' Role in Collision Avoidance***)** provides a wealth of information on with "a focus on a pilot's responsibility to see and avoid other aircraft."

The first obvious step is to be seen. Our often-thin profiles, especially when viewed straight on, put us at a disadvantage. Visually, low power-draw LED canopy and omni-directional anti-collision lights are available that can increase the visibility of a glider. However, canopy flashers are usually focused in one direction (e.g., straight ahead) and aren't prominent from more than a few miles away. Of course, the other aircraft needs to be looking outside to see you.

Electronically, we have FLARM, transponder, and ADS-B out. FLARM is great for other similarly equipped gliders, but neither ATC nor most airplanes can receive FLARM signals. Most FLARM units can receive ADS-B signals to enhance your awareness of other aircraft, though some require the purchase of a license to do so.

Equipping with a transponder adds a significant layer of electronic visibility to the glider. ATC radar and some equipped aircraft will be able to pick up the signal or display it as long as they have their traffic displays selected on. The availability to display your position depends on their equipment and potentially your radar coverage (for some installations, other aircraft don't pick up a transponder directly, but only when rebroadcast over an ADS-B TIS-B (Traffic information Service Broadcast) channel.

ADS-B–Out adds an additional layer of coverage as well as additional information to a transponder installation, as it transmits a sizable block of information including 3D position & trajectory with GPS precision, callsign, aircraft type, etc. A Traffic Awareness Beacon

System (TABS) my offer a lower cost alternative for similar functionality. Again, you increase your electronic visibility to those aircraft equipped to use ADS-B IN. But there are no rules that require ADS-B In for any aircraft at this time.

Let's take sidestep for a moment to discuss what gliders are required to carry. Most aircraft are required by 14 CFR § 91.215 and 91.225 to use a transponder with altitude reporting capability (Mode C) and ADS-B Out in class A, B, and C airspace, above class B and C up to 10,000 ft MSL, within a "Mode C Veil" and in all airspace of the 48 contiguous states and the District of Columbia at and above 10,000 feet. Gliders, balloons, and other aircraft certified without an electrical system are exempt from only two of these requirements: The Mode C Veil (the 30NM area surrounding Class B airports up to 10,000 ft MSL), and the above 10,000 feet rule. Everything else applies. SSA and SSF have recommended transponder installations in gliders that operate in high traffic areas since at least the start of the century.

So, even if we have this equipment, there's no guarantee that other aircraft will see us visually or electronically, though larger commercial jets (> 10 seats) are required to have a collision avoidance system (TCAS). It's time to add another layer: ATC (Air Traffic Control), as they will receive the transponder and ADS-B-Out data and help us avoid other traffic that may not be aware we are there.

A simple call to the controlling sector can provide Traffic Advisories and the slightly more comprehensive Flight Following. ATC will be able to point out traffic to us and report us to potential conflicting traffic. They can also steer other traffic they are controlling away from us and point out aircraft to us that they are not talking to, but could present a potential hazard. Even though ATC can see us without talking to them, our flight paths often seem unpredictable. By talking to ATC they better understand our intentions and can provide better service for everyone. The ability of ATC to provide these services to non-transponder equipped gliders will be limited by workload and their ability to detect the weak primary radar signature of many non-metal gliders.

Who to call? There are several ways to determine who to call. If you are near an area with a Terminal Area Chart, the frequencies are printed on the chart. Contact frequencies are also printed surrounding Class C airspace. The *Class B, Class C, TRSA, and Selected Approach Control Frequencies* tabs on the margins of the sectional chart can also provide some initial contact information.

Another source of this contact information is your Flight Service Station (FSS). We can inquire what frequency to contact ATC on by the FSS with a location and altitude for initial contact. They'll also ask for a destination.

We can contact Flight Service during preflight by calling 1-800-WX BRIEF. In the air we can reach them on the universal frequency of 122.2 or by relay over VOR stations (figure 1) or FSS remote communication outlets (RCO) (figure 2) on frequencies published above the VOR or FSS frequency boxes on the sectional chart.

Figure 1 VOR remote frequencies

Figure 2 FSS Remote Transmitter

You'll want to avoid the frequencies ending with an R (figure 3), as Flight Service will only receive on that frequency but will transmit on the VOR frequency – and if you don't have a VOR installed in your glider, you won't be able to hear them.

Figure 3

Note: As of April 2025 the FAA is considering decommissioning all 936 RCOs in the continental US (except Alaska) and the ability of FSSs to provide in-flight advisory services.

Once you have the frequency it's a simple call to the controller. The first call consists of simply telling them who you are, where you are, and what you want. "Los Angeles Center, Glider 1234, 10 miles north of Julian at 10 thousand feet request traffic advisories." They'll most likely issue a transponder code, so be sure you know how to change the code easily. These services are available workload permitting. If you don't have a transponder, it will be difficult for the controller to fully assist you.

We've increased our visibility but there's another layer yet, and that is reducing or at least being aware of where the greatest threat of traffic conflict exists. That is knowing about and possibly avoiding high traffic routes.

Most air traffic approaching and departing major airports are not doing so on random routes, but follow Standard Terminal Arrival Routes (STARs)—which connect to instrument approach procedures, and Standard Instrument Departure (SIDs). These standardized procedures describe the route and in many cases the altitudes the jet traffic will be following. The charts that depict these procedures are often not to scale and don't include

other landmarks for reference. So we'll have to transfer those waypoints to a sectional chart or to our electronic companions to mark these higher threat areas.

Using a website such as SkyVector.com, click on the airport symbol and locate the arrival and departure charts and look for routes that cross your proposed flight path at the altitudes you'll be near. Make note of the waypoint names and altitude ranges.

For example, in figure 4 we see the arrival route cross TRIXI between 12,000 and 14,000, and cross HSKER at 8700. Since those are altitudes we're likely to operate at, we'll plot those waypoints.

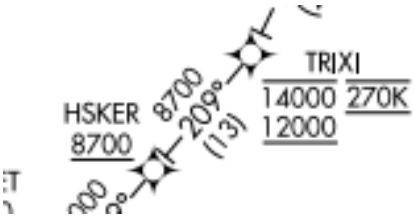

Figure 4 Segment of STAR chart

We then simply enter those waypoint names into the flight plan route box as shown in figure 5.

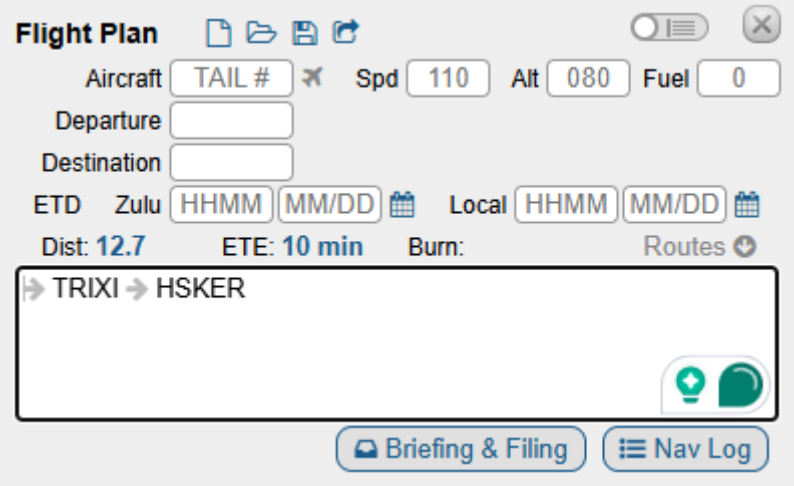

Figure 5 SkyVector.com route entry

And the route is plotted on the chart for us is shown in figure 3.

Figure 6 Entered route displayed on SkyVector.com sectional view

Repeat the process for other applicable arrival and departure routes and you can build a chart showing the routes where you're most likely to encounter jet traffic.

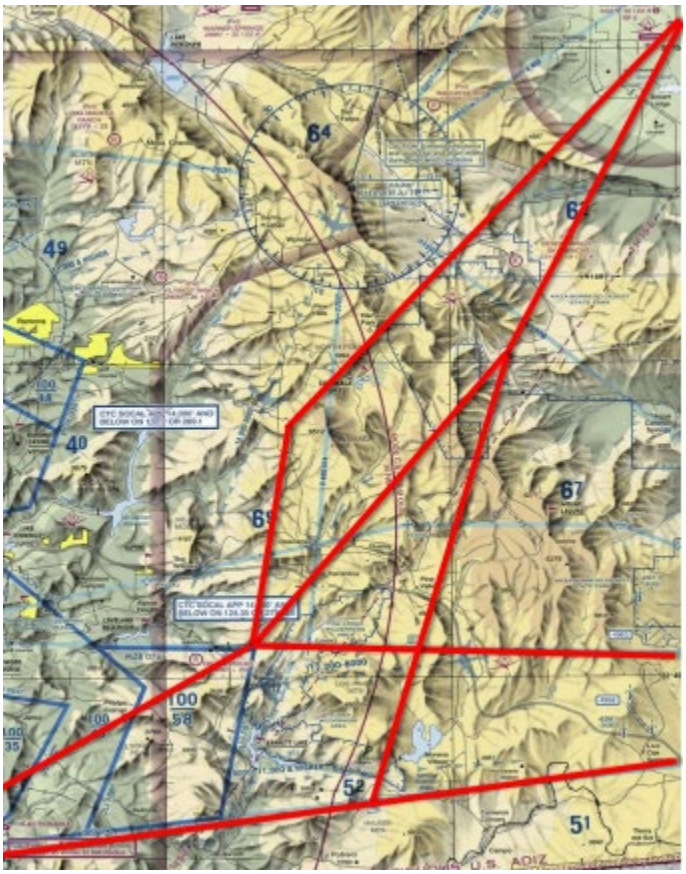

Figure 7 marked sectional chart

Alternatively, you can look up the waypoint name on a site such as airnav.com and plot the waypoint by latitude & longitude. Then you can plan your flight to work better with ATC by being above or below the routes when practical, or at least be aware of the routes and altitudes that ATC must work with.

For those not used to talking on the radio it can be a little intimidating at first and may only sound like a series of scratchy mumbles (as one of my students describes it). A good way to become accustomed to listening to ATC is to use the website liveatc.net while watching along on a traffic display site like puretrack.io (which has many other features useful to glider pilots).

Remember, ATC is there to help you, they'll appreciate your call as they'd much rather know what you're doing and planning than just watching the glider doing all kinds of seemingly random stuff.

To see all of this in action, watch my video: *Flight Following for Gliders* on YouTube at: https://youtu.be/3spS6oLBtMM. It's also linked in the Cross Country Training section of my soaring resource-packed website TheSoaringPage.com.

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