SSF Soaring Safety Foundation

Scenario Based Training (SBT) By Ron Ridenour, DPE and SSF Trustee

As a Designated Pilot Examiner (DPE) I have an opportunity to test many applicants each year for their pilot certificates. The FAA and the general aviation training industry have been promoting SBT for many years now. They acknowledge the value of SBT in the training environment as a useful tool to reduce the accident rate. As examiners we are required to test using scenarios as much as we can. However, in my observation scenario based training by our glider instructors is not happening. Here are a few examples.

Let's first talk about the steep turn maneuver. I can't tell you how many times an applicant has performed this maneuver at an airspeed of 60 knots or greater! When I ask them why they are flying so fast they say, "I don't want to stall". In my opinion, many instructors are not using a scenario when teaching the steep turn, they're only teaching the maneuver for the check ride. The scenario we should be teaching in this instance is to do steep turns (i.e. bank angles of 45° to 50°) at the minimum sink speed for the angle of bank used during thermaling. If the minimum sink speed for the glider is 40 knots then the minimum sink speed in a 45° banked turn will be about 20% greater (i.e. the square root of the load factor) or about 48 knots. This speed will keep the pilot well above stall speed and allow them to actually climb in the thermal if the lift is adequate. This is what instructors should be teaching and what their students should be practicing and demonstrating.

Let's next talk about the stall maneuver. Stalls are not very hazardous at altitudes above 1500 feet, the minimum altitude for demonstrating stalls and recoveries during the practical test. Again, it seems to me that instructors are teaching the maneuver to be accomplished on the check ride and not using scenarios, such as a low altitude rope break turn back to the field or a low turn from base leg to final approach with a tailwind on base. Both of these scenarios have much more risk involved and should be what is taught during the training phase about the precautions to take if the glider should stall during those maneuvers. Most likely these kinds of turns will be a shallow banked turns (because they're close to the ground and pilots don't like to bank steeply close to the ground) and will probably be skidding turns to try and "get it around the corner" with the shallow bank. Stalls performed under those circumstances have much more risk of stall and even spins. Many times what I see on a practical test are slipping turns and steeper banks than the practical test standards (PTS) call for. In fact, in a slipping turn it is difficult to get the glider to stall no matter what the bank is.

There are many ground applications of SBT that can be used to determine a pilot's judgment, decision making and risk management skills. For example, I create a scenario question about getting down to 1000' AGL on a cross-country flight and ask, "What would you do"? Another question might be about encountering a thunderstorm on a cross-country flight and how would they handle that situation. The NTSB accident reports are filled with pilots not making the best decisions and ending up in an accident or incident. As instructors we can use those reports to set up the scenario and then discuss what your student would do in that situation versus what the accident pilot did.

As required by the PTS, I always ask about glider assembly using the scenario that the glider is sitting on the trailer and you are the only qualified pilot around to assemble it. How do you accomplish that task? The usual answer that I get is, "I would find someone else who has assembled the glider before". While this is not a bad answer, it is not a great one either. As a certificated glider pilot you have been given the responsibility to safely assemble a glider before flight. As an examiner I want be sure that you can safely conduct this task in a responsible manner. The use of the proper number of helpers and tools, the

assembly checklist, a critical assembly check and a positive control check are all part of the process that needs to be understood and accomplished to safely and consistently assemble a sailplane.

Using Condor glider flight simulator is also an excellent scenario based training tool that can be used. On the SSF website (soaringsafety.org) we have many scenario based flight safety videos that are based on Condor simulations. They can be found under the topic “Flight Safety Videos”. These scenarios were developed by Scott Manley, a glider instructor who has conducted thousands of hours of training using the Condor simulator. These videos can be viewed by any pilot or instructor who desires to use them. “Flight Training Videos” can also be found at this site and are some of the PTS maneuvers that are performed on practical tests. These videos were developed and flown by Burt Compton a Designated Pilot Examiner and SSF Trustee.

These are a few examples of SBT. I would urge all instructors to use scenarios while instructing, both during the ground and air instruction phases.