

Williams Aerobatic Workshop #1

**Organized by Guy Acheson
Sponsored by Valley Soaring Association**



February 21, 2010

Williams Aerobic Workshop #1

This workshop is an opportunity for any pilot interested in aerobatics to meet with other pilots of similar interest. The focus is an introduction to glider aerobatics. The day will consist of a morning meeting, followed with aerobic flights, and will close with a meeting to summarize the day. Pilots of all abilities are encouraged to come. Pilots with little or no aerobic experience will have the opportunity to meet with more experienced pilots. More experienced pilots can have a forum to demonstrate their skills. People with an interest in aerobatics but don't plan to fly are very welcome.

The main focus of this workshop is an introduction to glider aerobatics using competition standards as the syllabus. Aerobatics should be fun for the pilot but it should also be exciting for the observer on the ground. Aerobic flight involves both learning the mechanics of flying the plane, and flying the figures with precision and good form. Aerobic pilots require feedback from observers on the ground to help them develop this precision of form. Therefore, those pilots not flying will be provided an opportunity to learn aerobic judging to provide this feedback to the pilots flying.

The secondary point of this workshop is to provide some insight and skills in how to recover your aircraft from major upsets that can occur while flying your glider in turbulent air. Specifically, how to safely upright your glider if it is rolled inverted.

The morning meeting will start with some inspirational videos. The topics to be covered will include flight and aircraft safety issues, airspace safety, and the Aresti system of describing aerobic figures. We will be using the ASK-21 as the program aircraft but will include discussion of other aircraft.

The flight section will ideally include at least two flights per pilot. The first flight will be an introduction to aerobic flight in the ASK-21. On this flight, the instructor or mentor in the backseat will do the majority of the flying to demonstrate aerobic flight. The emphasis will be on safety, airspace awareness, precision of flight, handling G forces, and airspeed control. The second flight will have the front seat pilot flying the figures demonstrated in the first flight. Additional flights may be available depending on how many participants want to fly. The figures will include; coordination exercise (dutch rolls), uplines, downlines, chandelles, loops, rolls, inverted flight, and steep turns. Those pilots on the ground will have the opportunity to critique the flights.

We will end the workshop with a meeting to review the day, share experiences, answer questions, and plan for future events.

The backseat pilots may include Mallory Lynch, Richard Beardsley, Charlie Hayes, and Guy Acheson. Guy is not a CFI but will be available as a mentor. We will take 5,000 foot tows and end aerobatics with a floor of 2,000 feet.

Experienced pilots are encouraged to bring their own planes. They will have an eager and interested audience.

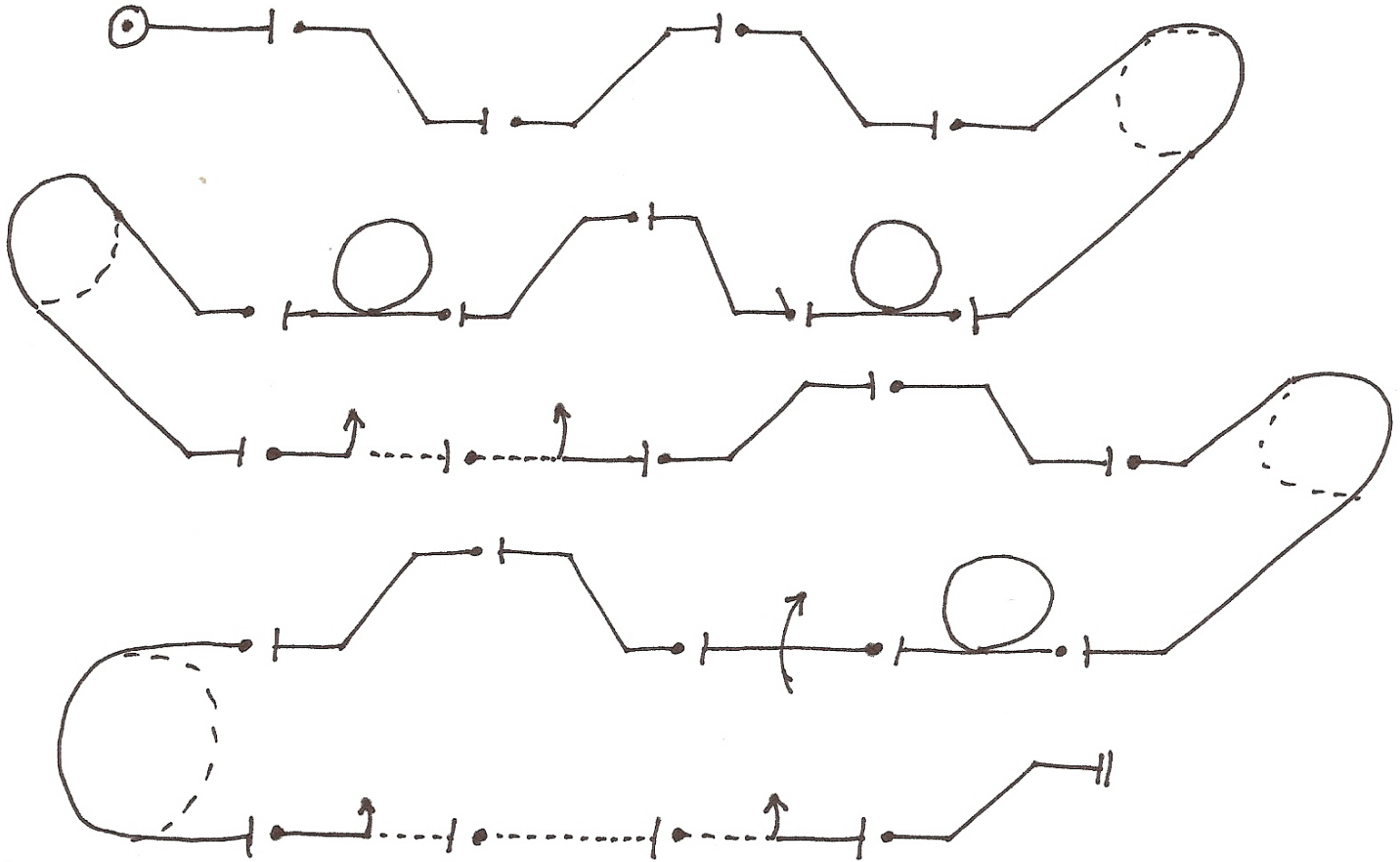
This is a VSA event. High carbohydrate and caffeine refreshments will be provided for the morning meeting and a buffet lunch will be provided at midday. Handouts will be provided to all participants that summarize the day's activities and provide information on obtaining further aerobatic instruction.

The costs are \$15 to attend the workshop and this includes breakfast, lunch, and handouts. The costs of flying will be the tow (5,000'), the plane rental (0.3 hr), and instructor time just for the flight (0.3 hr). We are considering a bundled fee per flight.

Questions should be directed to Guy Acheson. This can be done by e-mail (guyacheson@aol.com), phone (916-214-6663), or by using the Williams forum (www.williamssoaring.com).

Sign-up by contacting Noelle at Williams (530-473-5600).

The Program



Level Flight with wing wag.
 Down-line to 100 knots
 Up-line to 50 knots
 Down-line to 100 knots
 Chandelle exit at 100 knots
 Loop
 Up-line to 50 knots
 Down-line to 100 knots
 Loop exit at 100 knots
 Chandelle
 Half roll to inverted
 Half roll from inverted to upright
 Up-line to 50 knots
 Down-line to 100 knots
 Chandelle exit at 100 knots

Loop
 Full roll
 Up-line to 50 knots
 Down-line to 100 knots
 Competition 180 degree turn
 Half roll to inverted flight
 Inverted flight
 Half-roll to upright flight
 Upline to 50 knots
 Wing wag to end program

Practice on Tow:
 Dutch rolls (Coordination Exercise)
 Box the wake

Suggested Guidance for 1st and 2nd Flights

First Flight

Back seat pilot / mentor flies the whole program.

Talks through every maneuver. Discussing lines, changing visual targets to verify orientation, and turning the head.

Point out how Up-Lines and slowing down between figures allows time to get composed, check and correct course alignment, and check for traffic.

Discuss how control pressures change with airspeed.

Prepare student for G loads. Let them experience going through a loop relaxed and going through a loop with grunting.

Emphasize how high the nose must be in inverted flight.

Emphasize the 'push and roll' to recover from inverted flight.

Emphasize ending the routine at 2,000 feet and slowing down.

Second Flight

Front seat pilot flies most maneuvers.

Back seat will make sure pulls are at least 2.5 G for Up-Lines and Chandelles.

Back seat will make sure pulls for loops are 3 to 3.5 G.

Pushovers at top of Up-Lines and Down-Lines should be around 0 G, not much negative.

Back seat will make student aware of flight course and use top of Up-Lines to get re-aligned with axis.

Back seat will fly the Half-Rolls to inverted.

Front seat will fly inverted lines. Back seat needs to take control if needed to control speed while inverted.

Back seat will stress the "push and roll" for the Half-Roll from inverted to upright.

This will be the 'no rudder' technique. Stress pushing the stick to raise the nose when initiating the roll and changing to pull the stick once the plane has rotated past 90 degrees. (See, *The Handbook of Glider Aerobatics*, pg 84, last paragraph of "The Half Slow Roll (from Inverted to Erect).

Back seat will stress ending the routine at 2,000 feet and slowing down.