

Training in Low Performance vs. High Performance Gliders

What does “performance” mean?

The glide ratio of a glider determines whether it is considered low- or high-performance. The glide ratio is the forward distance covered compared to the vertical distance lost. Glide ratios are published by manufacturers for each model glider. They are determined by conducting performance tests in calm air. Even though calm air rarely exists, especially in Hawaii, the glide ratio is still a very useful way of judging a glider’s ability to cover distance. A glider with a higher glide ratio can fly further with the same amount of altitude.

Glide ratios, as you might expect, are expressed as a ratio. For example, 36:1 means the glider can fly 36 feet forward for every 1 foot of altitude lost. On the other hand, a glide ratio of 22:1 means that for every 22 feet of forward distance, the glider descends 1 foot. Although the number 36 doesn’t seem a lot bigger than 22, it represents a huge improvement in ability to cover distance. A glider at 5,000 feet with a glide ratio of 36:1 can glide 36 miles in calm air before reaching the ground, whereas, a glider with a glide ratio of 22:1 can only glide 22 miles. Having a high glide ratio allows a glider to fly further in order to contact lift and gain altitude. A higher glide ratio makes cross country flying easier. There is a greater likelihood of a pilot successfully completing a cross-country flight.

In order to achieve the published glide ratio, the glider has to be flown at the best glide or maximum lift to drag speed in calm air. The SGS 2-33 which is the standard training glider throughout the country is a high-wing glider fabric covered glider. With a glide ratio of 22:1, it is considered a low performance glider. Most soaring sites offer training in the SGS 2-33. Many soaring sites also offer training in more high performance gliders, like the ASK 21 with a glide ratio of 34:1, or the Grob 103 with a glide ratio of 36:1. Both are mid-wing fiberglass gliders.

Advantages of Training in a Low Performance Glider

There are many advantages to training in a lower performance glider, like the SGS 2-33.

First, the cost of training is less. The rental rate is much lower than the rate on a higher performance glider. For this reason overall training costs are less. Second, it takes more flight time and more training flights to learn in a high performance glider. This adds to the expense of flight training. Third, a student training in a lower performance glider will achieve his or her goals of flying solo and obtaining a pilot certificate sooner. Four, learning to fly can be a frustrating process – made more frustrating by learning in a high performance glider. This increases the chances that a student will simply give up and stop flying. Five,

high performance gliders are less forgiving of pilot error during any phase of flight, but especially during the landing phase. Six, a pilot who has trained in a low performance glider can easily transition into a higher performance glider.

Low performance gliders are easier to learn to fly. Most student pilots require many more training flights before soloing in a high performance glider than would be needed in a low performance glider. The flight controls are much more responsive (sensitive) in a higher performance glider. So, it takes longer to learn to control the glider smoothly and precisely. When students first begin training, whether in a low- or high performance glider, they must learn not to over-control (apply too much flight control input or apply the control input too rapidly). Higher performance gliders accelerate and decelerate much more rapidly than lower performance gliders. It takes students longer to learn good air speed control in a higher performance glider. Air speed control is an important skill for a pilot, but during the landing phase of flight it is a critical skill.

Overall, in a high performance glider, it takes longer to learn – more flight time and more flights. Especially during landing, a higher performance glider must be flown more precisely than a low performance glider. To paraphrase the FAA, before flying solo, a student pilot must demonstrate mastery of the aircraft at all times. Students must make more flights to achieve this higher skill level than would be required in a low performance glider. In some cases, the number of training flights may be double those needed in a low performance glider. This adds considerably to the cost of flight training.

Because so much more flight time and so many more training flights are required before solo, the training program is longer. Learning to fly is not easy. As a wise man said, if it was easy, everyone would do it. There's a lot to learn and the learning process can be frustrating. Sometimes, just when you think you've mastered a maneuver, you find yourself having more trouble with it than when you first started working on it. It's this way for nearly every student. The learning curve is not a straight ascent. Sometimes, there are plateaus where forward progress is temporarily stalled. Other times, skill level deteriorates. Learning to fly in a high performance glider makes learning more frustrating than it has to be. There's always the possibility that a student will become so frustrated that he or she will simply give up.

A higher performance glider, like the ASK 21 or the Grob 103, is much less forgiving of pilot error, especially during landing; therefore, is easier to damage than a lower performance glider, like the SGS 2-33, which is very forgiving. In addition, damage to a fiberglass glider usually is more expensive to repair. For this reason, we require renters of our ASK 21 to have a non-owned aircraft insurance policy in force. The cost of insurance adds to the overall cost of flight training.

Over the years there have been several incidents in which the Grobs at Dillingham have been damaged during landing. The incidents occurred due to improper airspeed control, improper flare technique, improper spoiler operation, and each incident was exacerbated by the pilot overcompensating (sensitive flight controls) while attempting to recover from bad landings.

A pilot who has trained in a low performance glider can transition into a higher performance glider with relative ease. When a pilot transitions into a higher performance glider, he or she is already a proficient pilot with considerable flight time and skill. For a student who desires to fly a high performance glider, learning in a low performance glider and then transitioning into high performance is the less expensive and quicker way to achieve that goal.

Advantages of Training in a High Performance Glider

There are some advantages to training in a high performance glider.

High performance gliders are prettier than low performance gliders. They are sleeker and more aerodynamic, designed to create more lift with less drag during flight. For someone who wants to fly a sexier-looking plane, there may be no contest with the lower performance glider.

If the cost of flight training is not an obstacle and the student is undaunted by the difficulties of training in a high performance glider, then there is no reason not to go ahead and do it. Both the ASK 21 and the Grob 103 were designed to be high performance trainers.

By training in a high performance glider, the transition from a low performance glider to a high performance glider is eliminated.