

RC in the Classroom

PART 3: Flight

Wayne Lehman

In this series' first installment, I checked out Multiplex's Easy Star and support equipment while musing over the possibility of taking aviation "illiterate" to the level of solo RC flight. The second article documented assembly of the models and flight training on the FMS Simulator. Now, it's time for the Easy Star to earn an additional star rating in the real test — flight.

It was certainly easy for this model to star in the building department. German precision engineering provided components that went together smoothly, guaranteeing proper alignment. Thanks to the stellar quality of Hitec's simulator, my students have experienced the joy and challenges of launches, stalls, turns and landings.

Maiden Flight

A beautiful spring evening with a slight breeze set the stage for the first flight. I selected one of the student-built Easy Stars at random, dropped in a flight battery and verified the CG. After a range check I advanced the throttle and with a gentle toss, the Easy Star was climbing out.

There was the initial droop so well depicted in the simulator as the plane gathered its forces. The ascent was steady with gentle turns in both directions. At a comfortable altitude, I throttled back. Here again, as the sim had indicated, the Easy Star becomes a first rate glider, an eagle with a mind to soar. I had noted that the design of



Wayne Lehman checks model and transmitters for buddy box operation.



wing looked rather sophisticated, with its undercamber and sinuous curves toward the wing tips. The Easy Star is definitely one cool-looking trainer.

The controls had a smooth response, yet were trainer-gentle. I glided down low and then powered up for a sec-



Science teacher and flight instructor successfully launches Multiplex Easy Star as first student pilot prepares for his first moment at the controls.

ond climb. The Easy Star seemed to hang in the sky with power off. I noted that the motor control could easily be adjusted for continuous level flight. Landing was silky smooth — not even a grass stain to mark the first flight. I now knew that I had a true candidate for flight training.

Student Pilots: Day 1

Fortunately, my 7th grade Tech Ed class is scheduled for first period, giving us better chances of low wind conditions. With approximately half the class having had successful lights with safe landings on the simulator, we made our way to the varsity hockey fields. Jeff Troy was there to shoot the event and offer his practical advice and sense of humor. Once on the field, I had my students consider what would be different, now that we were no longer on the simulator. We arrived at several observations. We might have some sun in our eyes, but at least we could view a much larger area than the simulator screen allowed — and yes, there was this thing called wind. Additionally,

we noted that the flying area was bordered by woods, unlike the seemingly endless alpine meadows on the sim.

After a group photo shot, we set up our "Blue Canopy" Easy Star, noting the movement of the rudder and elevator. We verified that the buddy box was operating. Wind direction was established using a neighboring flag and some dandelion fluff. Half the class thought we should launch with the wind, while the other half reasoned it would be better to head into it. Tyler Hawkes had requested that he go first. I told the kids that today we weren't going for anything fancy, just gentle right and left turns maintaining altitude. The simulator had trained them to apply back pressure on the stick in turns.

I launched, and within 30 seconds, Tyler was piloting the Easy Star around the sky. It wasn't perfect but he had the idea. Next up was Claire. She thrives on challenge, but today she had her hands full. I mistakenly allowed her to drift too close to a tree line that soon ended her flight.

While an eager search party headed into the brush, the remaining kids traded crystals out in the two Neon transmitters. That's when they learned that the "Master" and "Student" labels on each end of the buddy cord really do mean something. A quick switch and the "Black Canopy" airplane was airborne, guided by the thumbs of more novice pilots. Meanwhile, the search party had emerged from the woods with the downed model. CA and packing tape would have her flying the next morning.

Day 2

We had gone halfway down our pilots list, so today was the chance for the remaining kids. A significant addition to this session was the first student launch. Fortunately, facing into the wind afforded a 10' bank dropping down to the next hockey field. This provided a wonderful launching stage that absorbed any less than perfect tosses.



Easy Star trainer on the wing, high over the Lancaster Mennonite School athletic field.



Students take turns flying the models on the buddy box. Simulator practice proved helpful.

Day 3

After a week's break, during which several kids practiced with the simulator, we went out again. Starting at the top of the list again provided us with the opportunity to see progress as my students got their second turn at the controls. With several, there were sustained flight times with very little need for me to intervene. Launches were much smoother, too, but no one was really up to landing solo.

Day 4

Our last time out was two weeks later, and no one had had additional practice of any kind. We flew on a volunteer basis for this session, and this is when I noted that several kids were relieved that they did not have to fly. Even Claire said, "It's too much pressure."



It's all in the English. Molly Lehman shows Wayne Lehman (no relation) how it's done.

This morning was unusually breezy so we were mostly in survival mode, yet our Easy Stars performed well. Two students, Gabby and Blayde, showed special interest and determination, putting in some good flight time. Blayde actually launched and climbed out solo.

"I thought that actually flying was easier than the simulator," said Blayde. "It was a lot easier being in first-person than not being able to see everything that I needed to fly right. Flying the actual plane was quite a rush. You feel more in control, but you feel more nervous because it would be easy to sabotage the plane."

Time to Reflect

Initial Question 1: Could a Tech Ed class of a dozen seventh graders go from the status of aviation illiterate to accomplished pilots?

Yes and no. With additional practice, some of the students would have achieved this. I could see it coming. With more space and less wind, the goal could have been more easily reached. However, even with a small class of a dozen kids, there simply isn't enough sustained time for each one to get to the mastery level. Furthermore, not everyone has sufficient interest and drive, although it can be said with certainty that my students were no longer illiterate. All of them were flying the Easy Star.

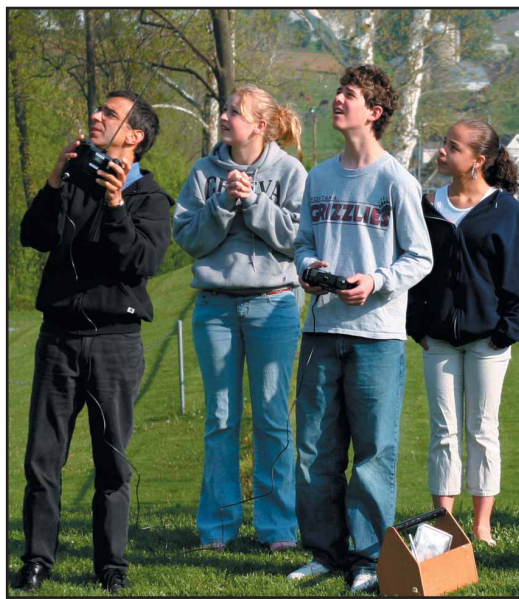
Initial Question 2: What role would an RC flight simulator play?

I feel certain the simulator paved the way. Unfortunately, I didn't have a control group to prove it. The realistic characteristics of Hitec's simulator gave my students valuable skill building and experience. All of us old school modelers who learned without a simulator remember well those desperate moments when we realized that our orientation was completely off.

My students had a safe way to experience those desperate moments. I plan to introduce wind factors next year, as well as other features. For more information about this simulator, turn to *Worth a Closer Look* on page 15 in the May 2005 issue of *Model Aviation*, or go to Hitec's Web page (hitecrcd.com), select New Product, then under Radios click on Flight Simulator Cable.

Initial Question 3: How much of the building process will a student class be able to handle?

All of it. In a previous article, I wrote that I set up the control linkages, but my students could have done that step easily with guidance. The written instructions were likely a bit too detailed for seventh graders to have followed independently. On the other hand, the illustrated steps were sufficient for most of the assembly. A number of the students mentioned that they really enjoyed building the Easy Star. Never in the whole building process did I sense frustration or inability to move ahead. It really helps when the parts fit.



Some students fared better than others, and this is to be expected whenever interest and determination are factors.

Initial Question 4: Could any Tech Ed teacher without flying experience handle this project?

Again, yes and no. I think any teacher could get their class through the building phase, but successful flying would be tough. If the school grounds had unlimited space with no obstacles in any direction — and there would be no wind — I think almost anyone could fly the Easy Star. On the other hand, as any experienced flier knows, there are the unplanned and unintended challenges that invariably present themselves — and too often the pilot learns something very quickly, often at some consequence to the model. It amazes me that 40-sized glow powered RC trainers are advertised in school supply catalogues. Somehow I can't imagine an inexperienced educator simply ordering such a package and making a go of it. Of all the entry style planes I've tried, I would put the Easy Star at the top of the list for success potential. Bob Aberle in his *Frequently Asked Questions* column (*Model Aviation* May 2005,

p. 76) seems to agree. "An excellent electric-powered RTF trainer is the Multiplex Easy Star. It is basically an electric-powered sailplane constructed from special molded foam that allows you to use cyanoacrylate glue on it.... The Easy Star is an excellent model for a beginner. It can be flown slowly without the tendency to stall. The Motor is mounted high on a pylon facing the rear of the aircraft, so it is unlikely that you will ever break a propeller or bend the motor shaft."

Final Thoughts

This Easy Star experience has certainly been rewarding. Even though I cannot repeat the building phase with another class, I now have a couple of great flying aircraft that can be used over and over again with no additional cost to my program. That deserves a repeat: I have an



Another smooth landing and a great close to a good flying day. Models sustained only slight bumps and dents, and each student managed to fly successfully.

ongoing flight-training program with nothing to refill or replace. With this exceptional package I expect to introduce many more young people to our great pastime. Many thanks to Hitec RCD and Multiplex USA for a great job in creating a true beginner's airplane. **HM**