

## Make a Vari-Eze Go Fast

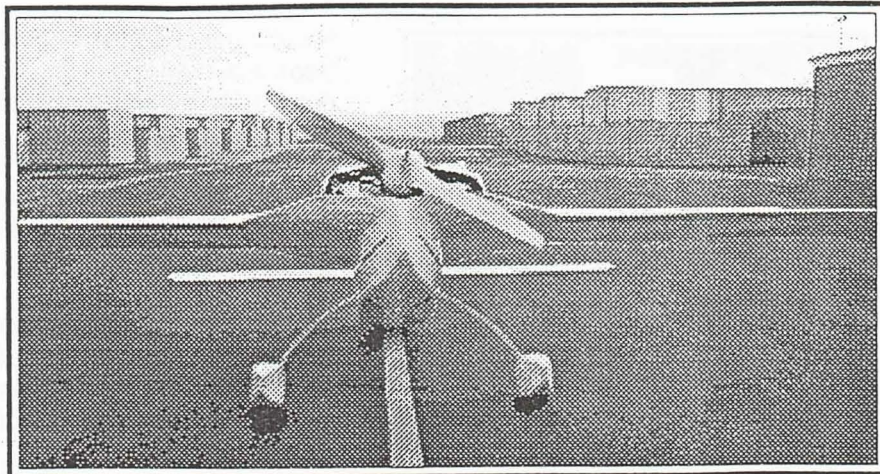
*Rob Martinson (CO)* - In the beginning I was quite happy to have purchased a Vari-Eze that I could fly. I went on several cross country trips and was having great fun just flying. The airplane would cruise at 150 mph and top out at about 175 mph, it wouldn't even hit red line on the tach.

I went to Wendover after hearing about RACE events that are held through out the year in Utah and Nevada. I didn't race but I met wonderful people, who remain friends today. I had great fun and became curious as to how my plane would compare. I added wheel pants and raced at Kanab. I learned it is one thing to go fast for 5 minutes and something very different to go fast for 30 minutes. I began to think of ways to go faster in the next race. I was hooked!

Since that first race my modifications have included the following: spinner, several new props, four versions of lower cowl, new top cowl, several versions of ram air induction system, electronic ignition, rebuilt engine (high compression pistons, balanced, Superior cylinders), modified oil tank, three versions of exhaust systems, several revisions of baffling, many cooling mods, modified carb, airfoiled gear legs, sealed nose gear, NACA cowling inlet, removed lower winglets, sealed canopy air leaks, cleaned up canard (counter weights used to hang down in the breeze), and finally better instrumentation so I could "see" what was happening.

If I were just beginning I would start by cleaning up the airframe. Eliminate the need for any trim by re-contouring or doing minor surgery if necessary. Wheel pants, gear leg airfoil, sealing for leaks, and removing any bumps from the flying surfaces would also be at the top of the list.

Next, I would move to the engine and start with the induction system. The stock system is very restrictive and



### Only pilots with larger engines avoided this view of Rob's Vari-Eze

can easily be improved upon. If you have a stock cowl you will find there is not enough room to get very creative. This leads to modifying the lower cowl to give more room to work around the carburetor. The boat tail is the most common as it provides room for inductive mods and cleans up air going into the prop. As you make the engine stronger and the airframe cleaner, you will have to change the prop. And so it becomes serious! Keep in mind, as you improve performance you are expanding the envelope you developed when you first began flying the airplane. Be careful that you do not exceed your limits!

What I found most important in making any modification, is to talk to others that have the same interest in making their planes go fast or fly more efficiently. Look closely at other planes and take lots and lots of photos. When you consider a change look at the photos with a lupe (magnifying glass) to see the detail. Don't limit your sights to only Rutan type airplanes.

The RACE events are an excellent place to meet those who have "The Need for Speed" and to get ideas. Even if your interest is not pure speed keep in mind that most speed changes increase efficiency.

I need to acknowledge some of the people that have shared their knowl-

edge and kept me from doing anything stupid.

Charlie Airesman - (and Charlie Sr.) who sold me his prop which allowed me to beat him at the Sun 100, all his great articles that have appeared in this newsletter, his constant concern with improving the breed without sacrificing safety. Great new ideas and meticulous workmanship.

Gary Hertzler - the Guru. Just look at his airplane and what he has accomplished with it. He shares his knowledge freely in articles, forums, and one on one.

Klaus Savier - the fastest Vari-Eze flying, innovator, makes great products - spinners, wheel pants cowlings, ignitions.

CSA Newsletter - the best single source of information for speed, safety, and efficiency.

Shirl Dickey - organizer of the RACE events. Call 520-427-6384 if you are interested in the RACE schedule.

Through all my efforts to make my plane fast, I have learned many lessons some of which I will share with you.

Make a list of what you think you want to change on your airplane. Organize the list with the easiest number 1 and the hardest number  $n$ . Begin with 1 and end with  $n$ .



Don't be afraid to ask questions.

Don't be afraid to experiment but be smart, ask questions.

Everyone is an expert and some even have a couple good ideas. It doesn't hurt to listen. The difference is that many say but few *do*.

Take small steps. Document your changes and test the results. If it didn't improve the performance it may be OK. If it hurt performance, you need to undo what you just spent hours, days, or weeks doing.

Prepare for the unexpected. There are many documented cases of something going wrong (see some of Hertzler's articles). So leave yourself room for error. Practice good pilot techniques and don't get overconfident.

Have fun.

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#### Avionics Work

*Thomas Henry (IA)* - I do avionics installations and wiring on homebuilts at home.

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#### EZ STOL Mods

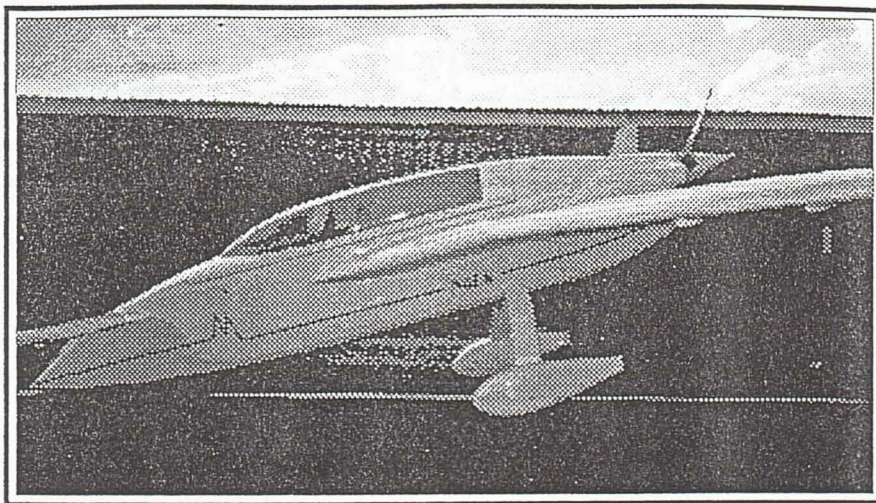
The adjacent photos show: Alban Schenker's muffler mod, required to comply with Swiss noise regulations and his "inside the spar" modification to install the prop governor.

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#### Nose Wheel and Cowl Molds Available

*Bernie Hanlon (OH)* - I have a nose wheel and cowl mold available for the Long-EZ if anyone is interested.

Bernie Hanlon  
1280 E 286 th St  
Euclid, OH 44132  
216-261-7056



Sleek profile is accented by Klaus' pants, spinner. Rob's airfoiled main gear strut decreased drag too. The final push came from Airesman's old prop.

