

# VELOCITY VIEWS

Volume 20

## SUV Premiers at Oshkosh '99



**V**ELLOCITY Aircraft's new "SUV", an entry-level four-place aircraft kit priced thousands below anything comparable, premiered at Oshkosh '99. "The SUV presents what is probably the greatest value in the four-place kit aircraft market today," explains Scott Swing, president of Velocity, Inc., "And it still incorporates much of the state-of-the-art technology used in our other aircraft kits."

At just \$22,000, the four-place SUV offers a desirable option to first time kit builders. Not only can this kit be built, ready for flight, for under \$50,000, but it literally "breaks the mold" in many of its design features. At a time when nearly all kit makers include a "stick" control ver-

sus the dual yokes commonly used by aircraft manufacturers, Velocity designed the SUV with dual yokes. "Stick controls are cheaper to design, but we felt the dual yokes were a priority for the entry-level pilot who we've designed the SUV for," adds Scott. "With the added goal of creating maximum seating comfort and room, the yoke was the logical choice...and the cost for doing this did not sway our decision." The yoke concept allows a single large gull-wing door for easy entry and exit into any of the SUV's four seats.

Another less-than-conventional aspect of the Velocity SUV is the use of the very durable and inexpensive 160 HP Lycoming engine. Although

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## New SUV model

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larger Lycomings are approved for the SUV, the small Lycoming provides the utmost in purchasing value and the best miles per gallon of any of Velocity's models. According to company estimates, SUV pilots can reasonably expect 175 miles per hour on under 8 gallons of fuel per hour. The plane's large fuel tanks (60+ gallons) allow for nonstop range in excess of 1300 statute miles.

Compare the Velocity SUV to any other four-place aircraft – and even most two-place – and it is quickly evident that this is the value leader in the industry. For information, photos, and specs on the new SUV, visit Velocity's web site at [velocityaircraft.com](http://velocityaircraft.com) or call the factory for a new brochure.



*The new SUV features dual yokes, and a smaller center console which allows easy access to the co-pilot seat.*



*by Duane & Scott Swing*

### ELEVATOR CUFFS

There have been many of you who have asked us to comment on the removal of the cuffs on the elevator leading edge. I think it is important that we state our position once and for all for all to hear.

First, let me go back to the reason it was put on in the first place. In a long discussion with Danny Maher, he told me the primary reason was to tame the pitch buck that he noticed on N81VA. At the time, he didn't notice much change in the rotation speed, or the pitch buck speed of N81VA. Remember, that Danny Maher weighs about 145 lbs. soaked with salt water. This isn't, perhaps, the real world for those of us who have a hard time keeping our weight even close to the 200 lb. level, and we have found that, in many cases, more elevator is needed, especially when loaded with two of us "over FAA standard" people. The 173 wing was of special note due to the leading

edge cusp you notice on the outboard end of the wing. This creates additional lift and will overpower the ability of the elevator to bring the nose up. We have found, in most cases, that the elimination of the elevator cuff will reduce the rotation speed by as much as 10 knots. The reason is simple. When the elevator is pulled back, the cuff will shut off the air flow over the elevator and cause airflow separation in this location. This was demonstrated by us with tuft testing. Wherever the cuff was in place, the portion of the elevator behind the cuff would be stalled. Removal of the cuff allows more of the elevator to create lift and thus lower rotation and landing speeds. We have also noted that, in some cases, the cuff extends forward of the torque tube by as much as 1/2". The more cuff you have, the more the tendency of the elevator to stall. What about the standard wing Velocity? When the deep stall testing was being done, no cuff was installed

on the elevator. This was done later to "tame" the pitch buck. Scott spent a couple of weeks down here at Velocity flying N81VA long before we actually purchased the company, and all this testing was done with the moving weight and no leading edge cuffs. We have, in fact, not put them on the SUV and have not seen any problems.

My suggestion would be to use them if you are one of the few light weight pilots in the country and your airplane has a light front end weight. Otherwise, I would cut them off and enjoy the slower takeoff and landing speeds.

### VORTEX GENERATORS

We are presently testing the SUV in the slow end of the envelope to get some consistent number at certain given weights. So far, we can see about 55 knots just as the pitch buck starts with one 200+ lb pilot and mid fuel. We will be installing a complete set of vortex generators using the same layout and schedule used by the Long Ez pilot who set a world altitude record with the VG's. On the Long Ez, he managed to

*Continued on next page*

reduce his low speed by some 10 knots. The upper end was reduced by about 2 knots. We feel this is a good trade-off. Once testing is complete, we will report the results back to you. If all looks good, we will be offering the VG's for those of you who fly from the shorter strips or at high density altitudes. There is also a safety issue in getting the minimum speeds down in the event of an off airport landing. More later.

### **SUV (Sport Utility Velocity)**

Speaking of testing, we are completely satisfied with the NACA cooling system used on the SUV. I flew the airplane to Oshkosh and back and the highest temperatures I saw was 410 degrees. This was in 100 degree temperatures climbing all the way to 10,500 feet. I leaned the mixture to peak during cruise at these altitudes. The average cylinder temperatures were about 390 degrees. There is no way of knowing how much additional speed the NACA ducts create but I averaged about 180 mph true air speed at about 11,000 density altitude at 2450 RPM. Running at peak EGT, my fuel flow was about 7.5 gph. Not bad for the little 160 horsepower airplane. Using the formula of gallons per hour x 14, we can compute fairly accurately our percent of power. ( $7.5 \times 14 = 105$  horsepower or 65% of 160). We also can confirm that, with the M-T constant speed prop, the SUV will get off the ground using less runway than N81VA with the 200 horse engine and a 3 bladed fixed pitch prop. The engine in the SUV was overhauled by Don George and I used less than one quart of oil in the 16 hours flying to and from Oshkosh. (almost as good as a car engine) As some of you know, our goal was to create an entry level airplane with VFR flying only in designing the panel and systems. The result was an airplane with a single com radio, transponder with encoder, and a moving map GPS. No fancy stuff, no night lighting, no Stormscope, no autopilot, just a very light (1235 lbs. empty) airplane that does a lot of things well.

We will be installing the NACA cooling system on the Elite that Mark and Nancy are using in California to see if the 200 horse engine needs more air. We should also be able to see a before and after comparison on speed.

### **ANOTHER XL RG**

We are also building another XL RG here for a new demo airplane that will also use the NACA system. Almost all the glassing is done and we hope that it will be flying in a couple of months. We will also be installing and testing a turbo system that can be added to any of the 260 Lycomings using the NACA ducts. There will probably be additional things we will try but it is too early to tell you about them now.

### **VELOCITY COMPLETION & SERVICE CENTER**

It has been our desire for some time to open a Builder Assist Center to help those of you who struggle with your projects or who want a head-start in the building process. We are very close to opening this center. We have made an agreement securing the building next to us (to the south) and should have this center operational within about two months. We will be able to do annual inspections, repair work on composite airplanes, insurance work, and, most importantly, set up a Builder Assist Center to help you build your airplane. We might call this our Head Start program for lack of a better name. You will be able to work with an experienced builder on your airplane for a couple of weeks, up to total completion. We will equip this building with all the necessary time-saving tools to speed up the building process and it will all be made available to our customers as part of the weekly/monthly rent. Our desire is to be able to do complete instrument panels, wiring, engine installation, interiors, and perhaps even painting. All this in addition to the normal fiberglass and finishing work. We will also be looking at installing several full hook-

up's for customer RV's. This will allow our customers to bring their travel trailers or motor homes to Sebastian and be within a short walk to their project. A loaner car will be made available to those who would rather stay at the local motel.

If you have any desire to be on the list as a potential user of this facility, let us know. We will probably limit out initial customers to about 4 until we get a good handle on just what it will take to manage this new venture. If interested, call me.

All this is being made possible by the addition of two highly qualified people whom Scott and I have been working with for the past 5 years and who have had great experience in setting up this type of work. They are Mark and Nancy Machado.

### **ENTER MARK AND NANCY MACHADO**

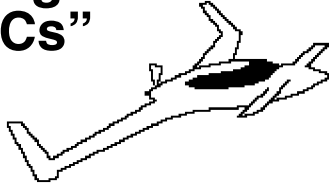
By late October or early November, Mark and Nancy will be joining us here in Florida not only to help us in the new completion center but also in the running of this ever demanding business. Scott and I have been trying for some time to find ways to spread the burden of builder support and company management beyond what he or I can handle by ourselves and Mark and Nancy are the answer. Their commitment to Velocity has been well beyond what most people would be willing to give and we really appreciate their desire to make the move from California. They are presently working on ways to keep our presence in the Western states alive. More about that later.

### **OPEN HOUSE NOV. 6th , IN OUR NEW SERVICE CENTER**

Our next scheduled open house will be on Saturday November 6th: Coffee and donuts from 9:00 to 10:00 Workshops from 10:00 to 12:00 (see our new XL under construction) Lunch from 12:00 to 1:00 (sandwiches, chips, soft drink, cookies)

*Continued on next page*

# Kit Plans Changes "KPCs"



Note: Check the date at the bottom of your page. If it matches the "Date of Change" shown in the KPC, your manual has already been corrected.

## KPC 104

Affects: All XLs, - Fixed gear and Retract  
Manual Section 5.1.2  
Date of Change: 9-1-99

Figure 5-1 shows a 62 1/8" to the instrument panel. In order to match the 59" dimension shown in Figure 5-2, that dimension should be 63 1/8".

## KPC 105

Affects: XL Retractable gear only.  
Manual Section 9.4.2  
Date of Change: 9-1-99

Fifth paragraph on page 9-17 mentions putting a mixing stick in the linkage. Actually, the sockets can be installed with the linkage completely locked. Just leave out the sentence with the mention on the stick. Also, Figure 9-21 shows a bulge where the

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## Factory News

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Workshops from 1:00 to 3:00

Price - No Charge

Demo flights from 3:00 to 4:30 (1/2 regular price)

It would be great if those of you who are flying would plan a Saturday trip to Sebastian to give some encouragement to those who are just getting started. Seeing and talking to someone who has already gone through this process certainly helps.

*Duane*

linkage bolts in. On the XL, this bulge does not exist since the linkage bolts in a little above the slanted bulkhead.

## KPC 106

Affects: XL Retractable gear only.  
Manual Section 9.1.3  
Date of Change: 9-1-99

We were originally concerned about rotation speed so we wanted to keep a positive angle of attack. One of our builders accidentally put the axles on at 2.5" from the bottom instead of 3.5" as shown in the plans. Since this didn't affect rotation and it increases the prop clearance we decided to change to 2.5". If you already have the axles at 3.5 but haven't cut the gear leg off below that and do not have the wheel wells in, you can fill the old holes, wrap with 2 bid and re-drill the holes. The standard prop clearance is more than adequate so this is not something to be concerned about.

## KPC 107

Affects: All Standard RG. (Non XL)  
Manual Section 9.5.3  
Date of Change: 9-1-99

Figure 9-29 shows screwing the upper bracket to the gear leg with 2 10-24 screws. Although this method has proved to be satisfactory, we think that glassing the tab to the gear leg with 2 bid is a better method. The area where they attach is subject to high torsional loading and holes could affect the gear's performance in the long run.

## KPC 108

Affects: Airplanes with pre-molded bulkheads  
Manual Section - Pre-molded bulkhead supplement  
Date of Change: 9-1-99

Note: On the side of the bulkhead that has the flange and it is glued in with structural adhesive, no tape glassing is needed. Consider the flange as the tape glass. Obviously

the opposite side still needs to be glassed. This includes the keel section and the ducts.

## KPC 109

Affects: All retractable gear airplanes  
Manual Section 6.3 - Nose gear templates  
Date of Change: 9-1-99

Somehow the template or dimensions for the nose gear slot in the canard bulkhead was taken out of the plans. The width is approx. 1.375 to 1.5" and the height is approx. 3.375.

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## Construction Notes

*By Scott Swing*

### Hydraulic Pumps

Any customer with a retractable gear Velocity with a date of 1998 or 1999 on the hydraulic pump will need to check the pump for proper internal pressure settings. From September 1, 1999, we have checked them here at the factory and made adjustments as necessary. If your pump is installed and working properly don't mess with it. If not, pull the reservoir off the bottom by removing the single bottom bolt. Make a note of the orientation so you can put it back on the same way. There are two posts with jam nuts on them. The one closest to the high side (the side that pulls your gear up) is the one you will check and adjust if necessary. The dimension between the tight jam nut and the top of the machined hex should be approx. 9/32". After you tighten the jam nut, check the dimension again to verify the measurement. This will probably be about 1 1/2 turns clockwise. If it were not, you probably would have been okay with whatever was there.

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## Construction Notes

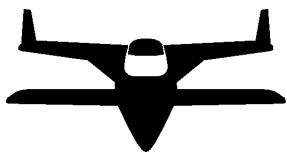
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### Sinking Floats

Recently we have had a problem with the low fuel warning float filling up with fuel. We have been using these for years with no problems but evidently there may have been a defective batch. In any case, if you haven't installed it yet, you can insure that it won't leak by scuffing the seam around the cap at the end of the float and putting a bead of epoxy around it. This should insure that it would not leak which would cause it to sink and give you a false warning.

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**Velocity Views Notice**  
**Be sure to renew your**  
**subscription for the 2000**  
**year by December 15th to**  
**avoid a late charge fee!**  
**See page 19**



## November 6 Factory Open House Workshop Schedule

**Saturday November 6, 1999** - Factory's quarterly open house in Sebastian Florida (X26)

9:00am	Coffee and donuts
10:00am	Workshops
Noon	Lunch
1:00pm	Workshops
3:00pm	Demo rides in the XL (at half price)

Please be sure to call the factory and **RSVP!** Friday arrivals can book a room at the Sand Dollar Motel (800-226-4546) here in Sebastian. When you call us to RSVP, let us know when you plan on arriving so we can make arrangements for transportation, etc.



## Safety Corner

**Accident & Incident Reports,  
Maintenance & Service Difficulties**

### FUEL SYSTEM

Most of you know about the off airport "landing" of an XL RG that did extensive damage to the builders airplane. Here are some of the known facts regarding this accident.

- 1) The engine quit with over 8 gallons remaining in one of the wing tanks.
- 2) Fuel starvation seems to be the only reason for the engine to quit.
- 3) The fuel system was plumbed properly with all vent lines and fuel lines properly opened.
- 4) The builder had noted a pronounced fuel imbalance on a previous flight.
- 5) The builder had changed his fuel caps only a few days prior to the accident.
- 6) The builder had not installed a low fuel warning system for his

sump.

7) The builder was using a fuel totalizer to monitor fuel remaining. Upon testing of the fuel tanks, it was found that one of the fuel caps was not sealed completely and was the tank with the 8+ gallons remaining. The other tank was empty. It was assumed by the builder (and by us) that the leaking cap was creating a low pressure above the fuel supply and restricting the normal gravity flow into the sump tank.

We then configured our XL with a leaking cap and flew the airplane to determine if this could happen. Sure enough, what fuel we had in the other tank was actually pulled into the tank with the leaking cap. We started with about 7 1/2 gallons in the tank with the leaking seal and noted the fuel level had increased to over 8 1/2 gallon within about 30 minutes of flying.

Our conclusion then is that it is quite possible to evacuate enough fuel from one side of the Velocity (any model) to starve the engine for fuel, even though there might be as much as 8 to 10 gallons remaining.

The "Reflector" has been full of editorials on how to "fix" this problem. We have read of how using 3/8" vent lines will cure this problem because the 1/4" lines are too restrictive. We have read about using one way valves, larger fuel lines and vent lines, electric fuel selector valves, cross venting, using independent vent lines, modifying the fuel cap bases with a pitot tube type forced air vent system, and other "fixes". It shouldn't take a NACA engineer to figure out that a 3/8" vent line will allow more air into the tank to offset the vacuum created by a leaking cap. Is it enough? Could 3/8" lines stop fuel from flowing from "both" tanks even though only one cap is loose?

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## Safety Corner

*Continued from previous page*

After all, the tanks are vented to each other through the manifold. The only way to find out is to modify our Velocity and try the same test we did with the loose cap. If the fuel level in the tank with the loose cap goes down, then we can be reasonable sure that this will take care of the problem. Of major importance here is that we will be installing the 3/8" lines at the very upper portion of the fuel tanks and will not extend the lines beyond the fuel bulkheads. Furthermore, the 3/8" lines will never go down below the level of the exit from the tanks. That is, always going up to the manifold so a low spot is not created that could hold fuel and thus restrict the vent lines from working properly. We know that with full fuel tanks, the 3/8" vent lines will be below the level of fuel where they exit at the back of the tanks. It is our feeling that there is plenty of head pressure to allow the fuel to flow into the header tank until the 3/8 vent lines are exposed above the fuel.

Just about every fuel system I know of has certain "down sides". Let me first tell you about the present system. We tested the present fuel system in a gravity feed situation with no restriction, other than the filter, and found a flow in excess of 40 gallons per hour. This should be enough for even the thirsty 300 horsepower Lycoming. The good part of having a header tank system is that when flying in a really low fuel situation, there is no chance of fuel starvation in an uncoordinated turn. The down side is that fuel flow can be restricted from a tank that has a fuel cap leak. There is also a problem when filling the tanks to the top. It is possible (and probable) that fuel will find its way into the vent line and will pocket in any low spot. On our XL, this will result in an uneven fuel balance until about 10 gallons has been used out of one of the tanks and then everything will balance out after that. We know of one builder who had the fuel vent plug on one side. (This was the old system with two separate vent lines, and would

not allow any fuel to feed into the sump from that wing.) He landed with one wing tank completely full and the other side empty. What would happen if both vents were plugged with fuel using the single manifold vent system? Would the head pressure be enough to overcome this situation? I really don't know.

Some of you are already asking why we dropped the header tank on the SUV. The plus side of this installation is that I no longer have to worry about fuel in the vent line or a loose cap. In either case the engine is "pulling" the fuel from whichever tank is selected at about 20+ psi. The down side is that there is always the possibility that I could forget to switch tanks or that when the fuel level is low, an uncoordinated turn could cause the fuel to vacate the pick-up line and the engine would quit when the resulting slug of air gets to the engine. To help prevent this from happening, a low fuel warning switch is installed in each tank as a warning when at a critical fuel level (about 5 gallons per side). This selector also has a "both" and an "off" position. Another potential problem is that I now have three fuel lines running through the center console to the selector valve. All of which are a potential leak hazard.

What about certified fuel systems? I fly an Aerostar with one of the simplest fuel systems ever designed for a twin. Under normal conditions, fill the tanks and fly until all the fuel is gone. No switching from one tank to another, no management problems and both engines will continue to run, even if one engine is using more fuel than the other, until the last drop of fuel is left and then both engines will stop at the same time. Just a really simple system.....until something strange happens. If a fuel cap is leaking, fuel doesn't come out, but a low pressure is created that restricts the fuel flow by some small margin. This reduction in fuel flow causes the engine on that side to start pulling fuel from the other tank until there is no more fuel in the other side and that engine will quit, followed shortly by the other

engine. All this with as much as 30 gallons of fuel left in the leaking fuel cap tank. Does this sound familiar? The FAA and Piper ultimately found the problem and an AD was issued to replace the "O" rings on the caps at every annual. Over 10 Aerostars crashed and it took over two years of research before the solution was found. Numerous AD's were issued while the testing was being conducted, one of which was a reminder to pilots to monitor the fuel tank indicators and go to cross feed if more than 15 gallons were noted as a difference on either tank.

If I had a flying Velocity and wanted to do something. I would probably go with 3/8 " vent lines. I would also probably do without a vent to the sump tank and instead, put in a remotely mounted spring loaded "burp" valve. This would allow full filling of the header tank. Why would I eliminate the sump tank vent? This would prevent the possibility of having a total vent restriction causing no flow from the main tanks to the header. One of the two main tanks would "always" flow. I would also use the low fuel warning in the sump and would use a check valve attached to the vent line going out the bottom of the airplane (in case of a plugged vent line) and would constantly monitor fuel levels while flying.

On our new XL, we will be splitting the sump tank into two separate tanks and connecting each one of them to their respective wing tanks. From the sump tanks we will run our 3/8" fuel lines up to a selector valve mounted in the center of the console in front of the control stick. From the selector valve to the filter and then the electric pump. The selector valve is a right/left/both /off. The "off" selection must be done by pulling the lever up past a restriction before it can be rotated. 3/8" vent lines will probably also be installed just like outlined above.

You are welcome to shoot holes in all I have said about this subject but don't be too critical unless you are willing, as I am, of testing what you think will or will not work.

## Starter Solenoid Problem?

One of our builders called the other day with an interesting problem. He said that while flying in turbulent air, the starter engage light would flash on indicating that the starter was engaging momentarily. He decided to turn the starter solenoid upside down thinking that the "slug" in the solenoid was being forced to the contact position due to the "G" loads in turbulence. Once this was done, he then noticed that the starter was engaging while taxiing. The solution was to replace the solenoid. I have never heard of this happening before and, perhaps, it was just a fluke. It does show the wisdom of putting a light on the starter side of the solenoid to indicate when the starter is engaged.

As a side note to this solenoid thing. I once was flying a Twin Comanche from Atlanta to Dayton Ohio at night in IFR conditions and suddenly, without any warning at all, everything went blank. All the lights went out, all the radios went blank, nothing. Conditions at Dayton were IFR as were most of the alternates I had looked at when filing the flight plan. I did remember Louisville was VFR but I couldn't remember just how VFR they were. Taking a compass heading as best as I could and checking my watch, I flew for about 2 hours and started down. This isn't a good feeling when in solid IFR. (snow) I picked up VFR conditions at about 1500 feet above ground level and proceeded to Louisville. I circled the airport a couple of times trying to get someones attention but no luck. The gear in the Comanche is electric so a manual extension was done. No green lights, no radio communication, no position lights, no landing lights, not much left. After landing and a taxi to the FBO I called the tower and told them I was safely on the ground. They said they had no idea I was even around.

The next day I started searching for the answer and guess what I found? The master solenoid had

suddenly died and disconnected everything. The master solenoid is activated by grounding the terminal on the face of the solenoid. The wire had broken at the terminal and resulted in the solenoid shutting off the same as if I had turned it off at the master switch. Could this happen to you?

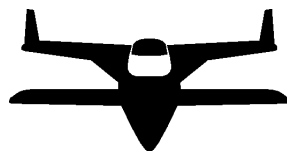
## THE NALL REPORT

Every year I get the Nall report from AOPA on accident factors. The current issue was for the 1997 flying year and it presents some interesting reading. Again this year, the leading cause of deaths in general aviation is the stall/spin. They refer to this as Maneuvering Accidents and over 30% of all deaths were caused by the stall/spin. It is also broken down into Homebuilt vs. Factory built. The Homebuilt stall/spin accidents resulting in death was a whopping 40%. It is somewhat comforting to know that this should never happen to a Velocity pilot. Another area where the Homebuilt airplanes have a higher accident rate is in the take-off and climb phase where the Factory built airplanes are at a little over 17% whereas Homebuilts are at over 30%.

*"Carelessness and overconfidence are usually more dangerous than deliberately accepted risks".*

Wilbur Wright 1901

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**Safety First**  
**Get a factory check out**  
**prior to your 1st Flight!**

Flight training is available at  
the Velocity factory in  
Sebastian Florida

## Daren Johnson needs a Heart Transplant - Your Help is Requested...



Daren Johnson needs your help! Daren, shop foreman at Velocity, has been diagnosed with severe cardiomyopathy.

His heart is just 20% functional. Daren's only option is a heart transplant and he has been referred to Shands Hospital in Gainesville FL for the procedure. Needless to say, this creates much hardship for Daren and his family. If you can help, any donations would be sincerely appreciated. Please send to:  
Daren or Lisa Johnson  
13835 79th Street  
Fellsmere, FL 32948.  
Thank you and God bless.

Lisa Johnson

## Notice

**Check your mailing label  
on the last page.  
If it reads:  
"Paid thru Vol 20"  
then your subscription is  
about to run out!  
Please renew on or prior to  
December 15th...**

**See page 19**

# Surfing the Web

by Brendan O'Riordan, CFII



There are only so many things you can say about flying a Velocity. So, I thought that I would share with you some of the more helpful sites I have found on the Internet. Most of these sites will allow you to find official information put out by the FAA that a number of people do not know about. Most of the questions that come up when registering your airplane or questions pertaining to what you can or cannot build into an experimental aircraft can be answered by these publications. The rest of these sites either have links to helpful articles on composite construction or are aviation Internet magazines that keep you in touch with what is happening in the Aviation community.

## [faa.gov/avr/afshome.htm](http://faa.gov/avr/afshome.htm)

This is a part of the FAA's official website. On this particular page you can get a copy of the latest FAR's (Federal Aviation Regulations). They also have a listing of all the FSDO's (Flight Standards District Offices) in the country, and a listing of Advisory Circulars.

## [provide.net/~pratt/ambuilt/pubs.htm](http://provide.net/~pratt/ambuilt/pubs.htm)

This is part of a site called the "Homebuilt Aircraft Site" run by Jim Pratt. On this page he has copies of FAA forms that any homebuilder will need to fill out while trying to deal with the paperwork end of building an airplane. He also has links to Advisory Circulars that just

pertain to Homebuilders. There are quite a few Advisory Circulars that apply to homebuilders such as AC No: 20-27D "Certification and Operation of Amateur-Built Aircraft." One of his links will take you to 43.13-1B "Acceptable Methods, Techniques, and Practices." This is the new addition to 43.13-1A which is the Aircraft Mechanics Bible when it comes to acceptable repairs. 43.13-1B now has a section that deals with composite construction.

## [exp-aircraft.com](http://exp-aircraft.com)

This site is run by our own Rick Lavoie. Rick has got quite a few things on this site that would interest a homebuilder. He has a classified section that has items from whole planes to engines being sold on it. There is a page that has helpful aviation related links. Rick also has a great Library page that is full of articles written on topics that range from Rules and Regulations to Composite Construction.

## [eaa.org](http://eaa.org)

This is the official site of the Experimental Aviation Association. It has the same great articles that you find in publications like "The Experimenter" and "Sport Aviation." If you happen to be an EAA member, which I would assume most of you are you can access areas only available to member like their classified section.

## [avweb.com](http://avweb.com) [landings.com](http://landings.com)

I am going to list these two together because they are very similar in the information they provide. Both Avweb and Landings are online aviation magazine sites. They both cover stories that pertain to all types of aviation. The neat thing about these sites is most of their updates are bi-weekly so you know what is going on before you read about it in your monthly publication. Avweb also has a service that delivers the news to you in the form of an E-mail. Landings has a great directory on its cover page that has sections like "Homebuilding" and "Regulations". It takes you right to the info you are

looking for.

As we all know by now the Internet has a ton of information on it and all it takes is a little searching to find what you are looking for. The sites I have listed here barely scratch the surface when it comes to aviation sites. You are bound to have a list of sites of your own that you have found you can't live without. Remember when it comes to information on the Internet that it is reliable as the source it comes from. Have fun Surfing and Flying.

•••••



*Bill Huene of Fresno California wishes everyone Happy Building with a Velocity pumkin. Bill is building an XL-RG with about 390 hours to date.*

## Index of Past Articles

Available via the internet as a PDF file

Go to:

<http://lavoiegraphics.com>

At the home page, click on "Velocity Views Newsletter" then click on "Download Files" then you will need to read the directions for downloading and using a PDF file to obtain "Index of Articles: vvindex.pdg"

Hundreds of people have successfully downloaded this file, so if you are having a problem, please re-read the directions.



# Short Circuit



by Martin Hadley



## SOLENOIDS and RELAYS

The two major solenoids used in the homebuilt market are the standard 3-post aircraft battery master solenoid and the 4-post Starter solenoid. The primary difference between these two, besides the number of terminal posts on them, is the fact that the battery master solenoid gets switched to a ground to energize it while the starter solenoid gets switched to battery voltage to energize it. Also, another difference is the amount of current used to operate each. The battery master solenoid usually uses around 1 amp to keep it energized. The starter solenoid, in contrast, uses over 2 1/2

amps to keep it energized.

The battery master solenoid is characterized by having two large (usually 5/16" posts) and one #10-32 post on it. It will also have the word "BAT" stamped into the case next to one of the two large terminals. This terminal should go to the positive (+) side of the battery. The other large terminal then goes to the starter solenoid and the circuit protection device buss. This solenoid is energized by switching the #10-32 terminal to ground. Grounding of the solenoid case is not required to make it functional.

The Starter solenoid is characterized by having two large (usually 5/16") posts and two #10-32 posts on it. There is no distinction between the two large posts, but there is usually an "I" and an "S" stamped into the case next to the respective #10-32 post. The "I" terminal is internally switched "on" when the solenoid is energized. This terminal can be used to energize a "shower of sparks" type start ignition or tied into a panel warning light letting the pilot know that his starter relay is engaged. The "S" terminal is switched to a positive (+) battery voltage to energize the

solenoid. Grounding of the solenoid case is required to properly operate this solenoid.

There are many different relays that are available for aircraft use. One of the primary reasons for using a relay is so that a small panel switch can be used to operate a high current device. Most relays only require 1 amp or less, usually a lot less, to keep it energized. Most any switch is capable of handling these power requirements. In this manner we can install a small switch on the instrument panel to control, say, two taxi lights requiring a total of 15 amps.

Another reason for using remote mounted relays is to limit the number of high current wires that need to be run into the cockpit. This is especially advantageous in a small cockpit environment where electrically produced magnetic fields can disrupt magnetic compass readings.

Any relay used should be properly sized. It should be sized for the amount of current going across the contacts, and the amount of current required to keep the relay energized.

•••••

## Is that Ann Bowden in my Velocity?

The name Bobby Bowden is well known to anyone that follows college football, being the head coach of the FSU Seminoles. On August 14th, Bobby's wife Ann visited St. Augustine to speak to our local Florida State University boosters club. The next morning, Ann mentioned that she needed to get to New Smyrna Beach. I volunteered to fly her and she accepted.

Although the Bowdens fly all the time, this was Ann's first time in the cockpit. Other than take off and landing, Ann flew the whole time from the right seat. She loved it!

Go Seminoles!

Rick L.



Ann Bowden, wife of football great Bobby Bowden, tries out the pilot seat in Velocity N570



# Views from the West

By Mark & Nancy Machado

Once again, greetings from all of us here at Velocity West. Much has happened these last few months.....So let's get right into it. This will probably be the last "Views from the West" column you'll read, at least originating from this office in California, for at least the near future. Nancy and I have accepted an invitation from the Swing family to join, as partners, the operation in Sebastian. This wasn't an easy decision leaving friends and family, but after considering most every variable imaginable many times, we sincerely thought this move would not only be best for ourselves, but also for the entire Velocity family, including you, the builders.

Needless to say, we are very proud of what we have created here in the West. We hope the services that Nancy and I have provided, through Velocity West, have helped those who have sought our help, and, in general, improved the "lot" for our local West Coast builders. We started this operation in California with a set of ideals and standards that we think worked! Confirmation came from the daily support we received, from the attendees of our fly-ins and, most notably, from you, the builders, who so graciously thanked us by making so much progress on your projects.

We really have no intention of abandoning these ideals, but rather hope to bring our West Coast style and attitude to Sebastian and make Velocity stronger.

The next millennium will undoubtedly bring many challenges. It's good to see that Velocity is looking to the future and has solid plans to keep the business vital and growing. Our move is a part of those plans!

Something happened yesterday

that simply tears at my heart. I'll try to explain. A very dear friend of mine was told that his kit company, PAPA 51, the producers of the Thunder Mustang, were closing their doors. The big problem, he's invested over \$175,000 for the kit alone and has only received less than half of the parts. To make matters worse, he is apparently one of the "lucky" ones. Many of the kit purchasers have received far fewer parts than he has.

Why am I talking about this? Because it goes to the very soul of our industry. Many of the Velocity "competitors" have done the same thing. It's simply shameful. Selling products that you can't support or even provide is borderline criminal and has to stop. Unfortunately, the public keeps buying into these schemes and misrepresentations and the process continues.

The Swing family has been entirely open with the business to us these past few months and from what we see, you can rest assured. They have run a very "good ship". We are getting more closely involved with a company that is on very good ground, with the hope that, at best, we'll improve the little things. It is comforting to know that some fine-tuning is what they expect from us, rather than some kind of total overhaul.

For the sake of my good friend, I hope the public starts to more diligently scrutinize the companies they plan to do business with. With that in mind, Velocity has a very bright future!

The big question...How 'bout the West? For the time being, we will be closing down the operation here at Lincoln. Once we get situated in Sebastian, probably early next year, we'll be reevaluating the situation and deciding what to do about another West Coast office. In the

meantime, Scott Baker, our former resident CFI, will remain available for Velocity transition flight training here in the West. Look for his announcement in another section of this publication regarding his new direction. Sounds quite exciting!

Naturally, if any of you have any questions about what's going on...give us a call. We'll tell you everything!

Until next time, it's been a genuine pleasure. Sometimes a very long-day pleasure, but still a pleasure. Look for my comments in future Velocity Views...probably under a new by-line!

Remember, not necessary to be perfect (yet), just precise!

Mark Machado

## Sierra Bravo Composites Opens Doors



Scott Baker opens business to assist West Coast builders

Scott Baker, formerly with Velocity West in Lincoln, California, has recently formed Sierra Bravo Composites, a business specializing in providing builder assistance, composite training, and sub-assembly parts for Velocity aircraft and other composite sport aviation aircraft. Sierra Bravo Composites is located at Sutter County Airport (O52) in Yuba

Continued on next page

## Sierra Bravo

*Continued from previous page*



*Pictured is a Velocity XL/RG under construction at the new shop.*

City, California - and will be in service to customers in California, Nevada and Oregon. For those who are unfamiliar with the region, Sutter County is located about 45 miles north of Sacramento.

Sierra Bravo Composites is co-located with Miller Aviation, a general aviation repair facility familiar with Velocity aircraft. Miller Aviation and Sierra Bravo Composites have teamed together to provide custom instrument panels and avionics installations for Velocity aircraft.

Scott plans to continue offering flight instruction in customer-owned Velocity aircraft as time allows.

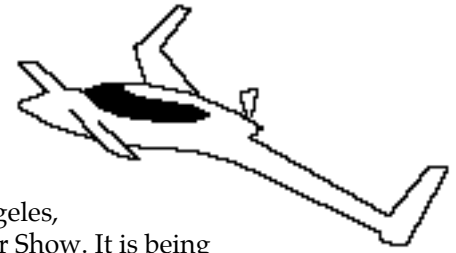
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## High Resolution Photos Now on [velocityaircraft.com](http://velocityaircraft.com)

High resolution full color photos of flying Velocitys are now available on the factory's web site for you to download. They are saved as JPEG files at 300 dpi. These files are very large, so they will take time to download. If you just want photos for viewing on your color monitor, just download any 72 dpi photo on the web site.

Go to <http://velocityaircraft.com>  
Click on the Builders Page

## California Fly-in November 6 & 7



On November 6 & 7, 1999, Brackett Airport in La Verne, CA., near Los Angeles, there will be an Air Fair: Fly-in and Car Show. It is being sponsored by Comarco, Inc. (Comarco is the Brackett Airport Manager) and the Pomona Valley Pilots Association.

Bill Borgardt, Lynn Swann, and Jim Brooks, presently building a Velocity LW RG at Brackett Airport, would like to sponsor a barbecue for all pilots and builders of Glass Type Airplanes. The barbecue particulars are below:

**Who:** All Glass Builders and Glass Pilots

**Where:** Brackett Airport, La Verne and The Hot Tubs Resorts

**When:** Saturday night: Elite Barbecue 6:00 to 8:00 PM;

Hot Tub and Airplane Talk 8:00 to 10:00 PM;

(Bring bathing suit and towel)

No Alcohol (The Hot Tubs are in a county park)

**Cost:** \$10.00 @ the Door, RSVP necessary - Lynn Swann (909) 593-2222 or email Lynn or Bill at "bill@borgardt.com Also use the same phone or email for additional information.

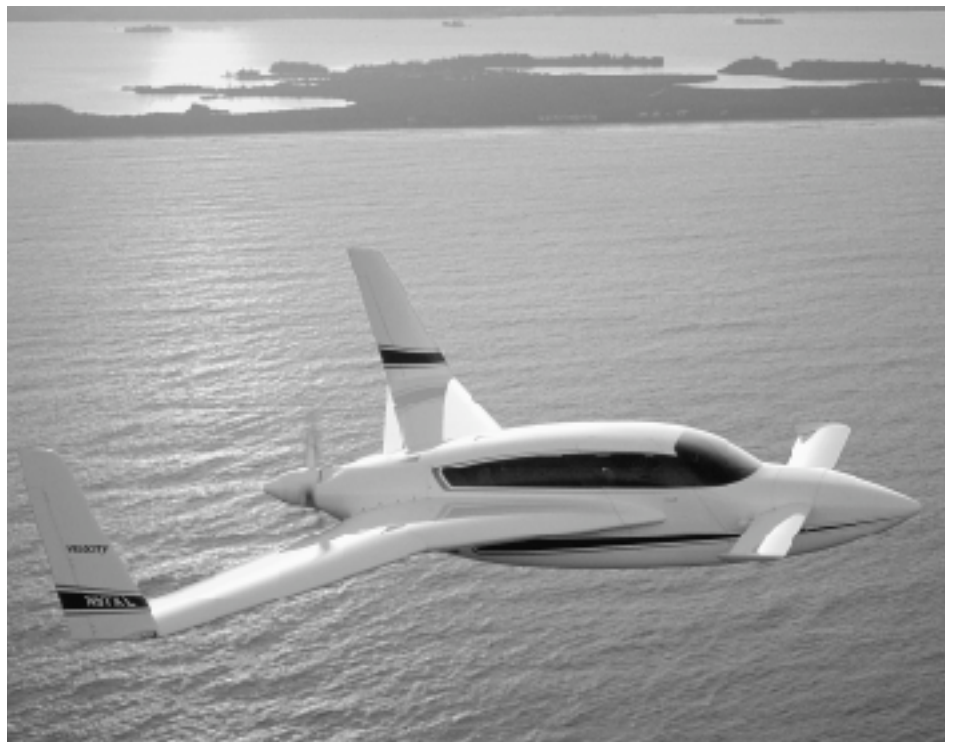
Glass and Airplane talk only, No Program;

Transportation provided to and from the Hot Tubs just south of the airport;

Camping or RV next to airport: (909) 599-8355;

Fly-in information: call Mr. Gil Lerma, (626) 964-7434 after 6:00 PM;

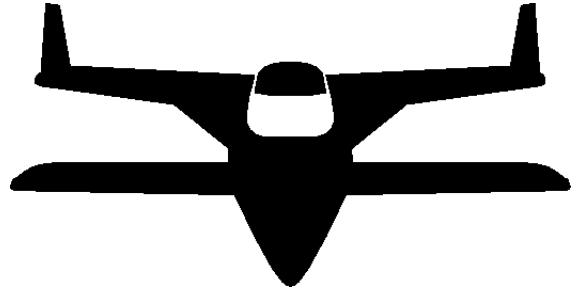
Lodging: Sheraton Fairplex: (909) 622-2220. (Courtesy Car Available)



**Friday, October 22, 23, & 24, 1999**

# **Velocity Texas Fly-in**

**McKinney, Texas**



We're hoping to meet more of our family members! McKinney, Texas is about 40 miles northeast of Dallas, and the McKinney Municipal Airport (TKI) is 2 miles SE of McKinney, Texas. Runway 17-35 is 7000 feet long. Runway 17 is left traffic pattern, and 35 is right traffic pattern. If you have internet access, <http://www.airnav.com/airport/TKI> has all the information you need. The FBO is where all the action is taking place.

A **group rate** of \$49.00 will be held for the Velocity group under the names "Mersky and/or Velocity" until October 20th at Ameri Host Motel 951 N. Central Expressway McKinney, Tx Phone 972/547-4500

## **Friday, October 22**

Arrivals Sweet table, beverages & fruit of the vine – hangar flying and meet your Velocity family.

## **Saturday, October 23**

7:30 – 9:00 Continental Breakfast  
8:30 – 9:00 Pilot briefing for Flying Poker Run  
9:00 Poker Run

- 1st draw – McKinney Airport
- 2nd draw – Rockwall Muni (F46)

3371 feet – 16-34

34 has right traffic

- 3rd draw – Mesquite Metro (HQZ)

5999 feet – 17-35

- 4th draw – Kaddo Mills (7F3)

3999 feet – 13-31

13 has right traffic

- 5th and final draw – McKinney (TK1)

(Each pilot may carry as many passengers/players as he chooses)

\$10 ante per player, with winner receiving 60% of total pot; 2nd best hand receives 25% of pot, 3rd best hand gets 15% of pot. Tie hands split available funds.

### **Other activities:**

Tandem skydiving  
Possible balloon rides  
Bungee Jousting Tournament (everyone participates)

Lunch: German sausages, Bratwurst, Kockwurst, Weisswurst, Mettwurst, Hot saukraut, etc.

1:00- 5:00 **Forums** (with breaks)

- Getting the Experimental License – Mr. Mel Asberry
- Troubleshooting Aircraft Starting Systems - Mr. Les Staples
- Drug Interdiction – Special DEA Agent, Mr. Matt Fairbanks

- 4th Speaker - TBA

5:00 Shuttles to hotel for rest.

6:30-7:00 Shuttles back to hangar for dinner of "gen-u-wine" Texas Bar-BQ, all the "fixin's" and homemade pie — and awards.

Special raffle drawing — FOR LADIES ONLY – (sorry, guys)

**Special Speaker** : Mr. Rod Lewin, author of "Steel Spine, Iron Will" is currently a pilot for an airline out of Las Vegas. Mr. Lewin will tell of his flying adventures in Australia by way of a slide presentation.

## **Sunday, October 24**

Meet for Continental breakfast and good-bye.

FOR THE LADIES: McKinney is well known for its antiques. A shuttle will be running into town so the ladies can enjoy browsing or doing some serious shopping.

IT PAYS TO COME! Arriving aircraft will receive a \$10 fuel coupon from the local FBO to be honored this weekend.

As is always the case, these

*Continued on the next page*



# Builders

# Forum

Builders Forum is full of tips, information and letters ("material") supplied to *Velocity Views* Newsletter from individuals that are Velocity builders (or want to be builders). It is provided as "USE AT YOUR OWN RISK" material. Neither Velocity Inc. (The Velocity Factory) nor *Velocity Views* Newsletter (Lavoie Graphics & Rick Lavoie) have endorsed this material, and disclaim any liability for the use of this material. Individuals who use this material for the operation, maintenance, or construction of their homebuilt aircraft do so at their own discretion and at their own risk. Any variance from the builders manual is high risk.

## The Really Really Big Hatch!

*From Lino Moya, Albuquerque, New Mexico*

When we set out to attach the canard and finish the upper fuselage, we realized that the standard hatch was way too small especially considering we had a larger battery and a second battery that went in the nose section of the airplane.

This modification is a retrofit to the original hatch design. We needed access through the existing hatch to build the really really big hatch.

There may be other ways to do it but this is how I did it. First I attached the canard and upper fuselage section as per the manual and cut loose the upper fuselage section over the canard as per the manual. Next I beefed up the area where the



fuselage halves meet with microglass to make a smooth uniform surface to attach the flanges.

four inch wide strip of two layers of triax and one layer of bid. I also put a four inch wide strip of this same

Then I reinforced this area with a

*Continued on the next page*

*Continued from previous page*

events take time and money to organize. Please fill out the attached form and forward it together with your check made payable to: Juanita Londenberg, c/o New Aviation, Inc., 11901 Swearingen, Ste. 54, Austin, Texas 78758. We look forward to seeing all of you in McKinney, Texas on October 22.

Questions, more info?

Contact either:

Juanita Londenberg:

512/837-0593 or

Milton Mersky 972/387-0445



## Sign Up for Texas Fly-in McKinney, Texas

October 22, 23, & 24, 1999

Name(s): \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Amount Enclosed: \$ \_\_\_\_\_

\$25.00 per person

Checks Payable to: Juanita Londenberg

Mail to: New Aviation, Inc.

11901 Swearingen Dr., Ste. 54

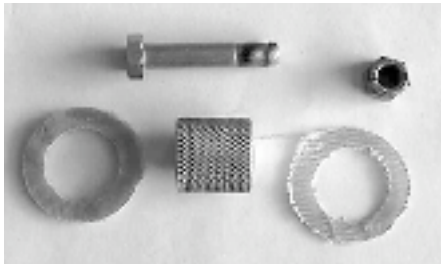
Austin, TX 78758

## Builders Forum

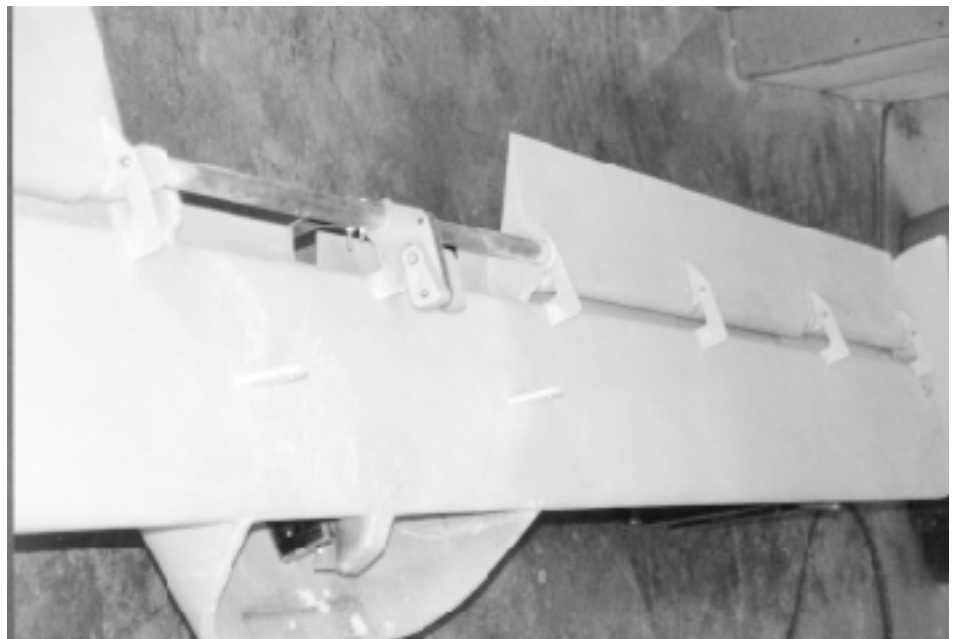
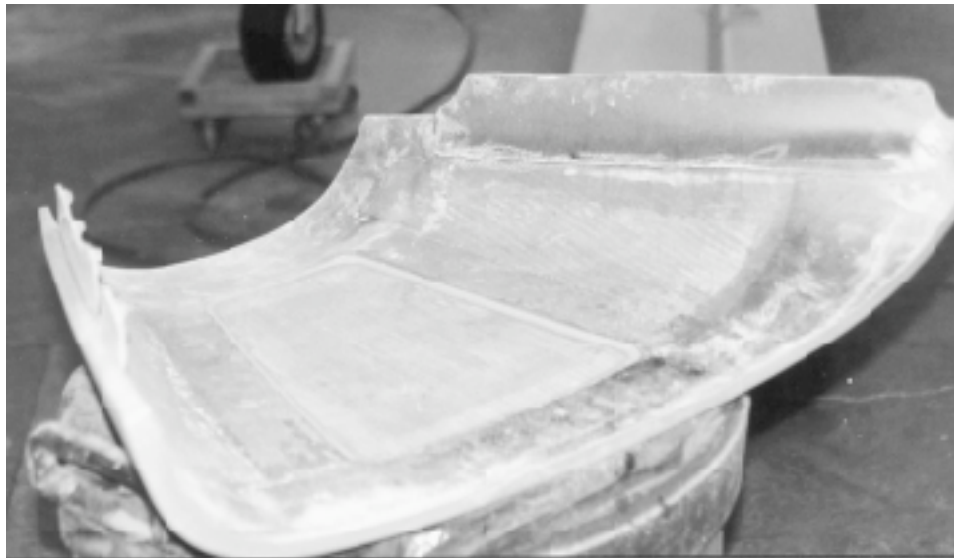
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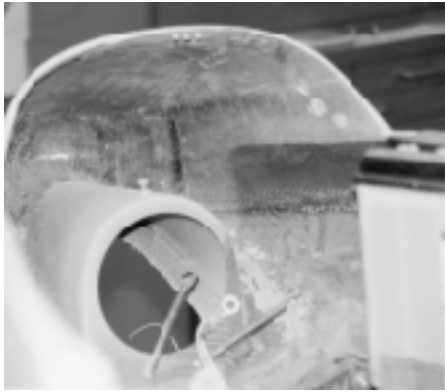
glass combination centered 13 inches from the nose across the top half of the fuselage. Right down the middle of the layup is where I made the other three cuts for the really really big hatch.

After I cut the hatch and smoothed the edges and did any necessary filling to make the hatch fit back onto the fuselage smoothly I temporarily glued it in place and made a flange that connected to the hatch and overlapped the lower fuselage 1 1/2" on the side and 3/4" at the top and bottom. I attached four nut plates per side and two nut plates on the top and one on the bottom. I used counter-sunk screws and tinnaman washers to hold everything together. I added additional reinforcement in the nose and the upper part of the fuselage at the cannard.



The other pictures are of the attach bolts that hold the canard. The aluminum bushings and the fiberglass washers we fabricated so that none of the aluminum bushings had to be ground off after they were microglassed to the bulk head. The





fiberglass washers were made from scrap fiberglass so that they would be flat with the bushings when everything was all bolted up. This way we did not have to grind off any of the bushing to get it flush with the bulk head and it gave us a lot more surface for the microglass to hold the bushing in place.

The smaller washers and nut plates in the other picture are the upper canard bolts. Everything on these was done as per the manual except that we J P Welded a fiberglass washer to the steel washer before we glassed it to the bulk head.

••••

## CAN IT BE DONE IN SIX MONTHS?

*From Dr. Fred I. Marconi*

I grew up next to an airport and always had this dream of flying. My father discouraged it but the dream persisted so when I completed my studies and could afford it, I got my private's. That was back in 12/16/86.

I learned that flying was fun but a serious business and if I was to continue, it had to be in a plane I knew well. Along the way I helped a friend do work on his kit plane, a Long Ez. He exposed me to the wonderful world of the Canard and Burt Rutan. I flew with him and confirmed that the Canard was the way to go. But two seats and cramped, no way!

Low and behold the Velocity!  
But 2000 hours or more and five

years! That was ten years ago, I got my first look at the Velocity in Duane and Scott's shop in Dayton. Since then they bought the company and, coincidentally, I also moved and not much further than I was from him in Louisville where I lived.

Well Velocity today, under the leadership of Duane and Scott, has much in store for us eager kit builders who wish to make their dream come true.

I placed my deposit for an XL on May 10, 1999. I was to receive my fast built kit in September and, as promised, they had my project initiated on 9/3/99. I freed a week and decided to spend time at Velocity Headquarters in Sebastian to help in fabricating the fast built kit. What an experience!

The team of men that assist the Swing family in preparing these kits are a great bunch and fabulous at

their work. I was assigned to work with Chad Holland, a great teacher and craftsman. I worked for four days with Chad and had the plane on wheels, the top up, the windows in, the doors cut out and much more. Had I stayed another week we would have had the main spar in and the doors close to finish. The strakes would take another week or so I would estimate. This would mean that most of the fiberglass work could conceivably be completed in close to three to four weeks.

I have elected to purchase the fast built wings from Brazil, this also saves a great deal of time, cuts out great deal of dirty work and guessing. These wings are uniform and, as Scott says, close to perfect and ready for painting. Their price is also enticing.

What remains to be done? More on that in the next edition of "Velocity Views".

•••••

## ***velocityaircraft.com just updated!***

Check out the factory's web site next chance you get. Lots of new photos, specs, pricing, etc. New SUV info is also now online! Just about every page has been updated.

Something brand new... go to the Builders Page and you can download high resolution (300 dpi) Velocity photos. Velocity logo files are there too.

Coming real soon, the Velocity Options catalog will be fully online. Formerly available only as a pdf file, the new and updated options catalog will be 100% online via the Velocity Store on the Velocity web site. This way you can view it online, or save it, or print it out!

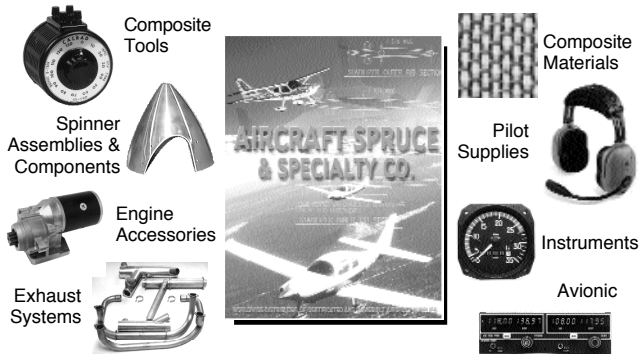
## ***New Info Pak***

The factory has just updated all their promotional materials. Pictured to the right is the front cover to the new Info Pak folder. The new design features full color photos front and back, plus lots of info sheets. They are now four full color sheets on each of the models. In the opposite pocket, you will find information sheets covering Velocity Development, Kit Pricing, Fast Build Options, Frequently Asked Questions, and Newsletter.





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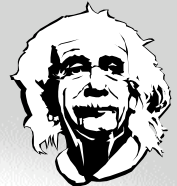
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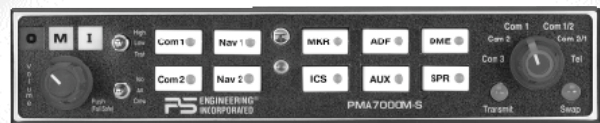
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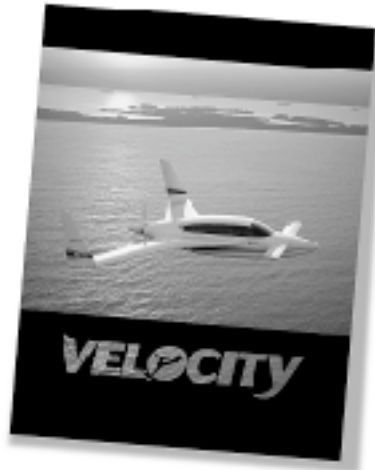
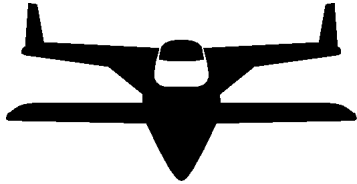
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# Buy Sell or Trade

Velocity parts, tools, kits, flying Velocity's: **Free** and exclusive to *Velocity Views* Subscribers.



## We need your input for this newsletter!

- Builder Forum Input
- First Flight Photos
- First Flight Stories
- Velocity Flying Adventures
- Velocity Fly-in Suggestions

Send your photos / stories to Rick Lavoie for the next newsletter!

### Engine Monitor For sale

Never Installed  
1 Rocky Mountain Inst. Engine Monitor, Factory Ass. With all standard sensors and senders. Also purchased extra, Manifold pressure, 2 EGT's and FloScan fuel flow transducer. Paid \$1600 for complete unit. Well let go for \$1300. Manuals & everything as from factory.  
Kerry Woods  
Ellsworth, KS  
785-472-4114 Days  
785-472-4113 Nights

Get the factory's newest Info Pak... Fresh off the press!

## Newsletter... Please Help!

Publishing a newsletter with such a small subscriber base is quite a challenge. Keeping cost (and hours spent) down are important. Here are two things that you can do to help Velocity Views:

- **Renew on time!**  
When you renew late, you cause me all sorts of extra work, as I now need to process each late renewal by hand. Next year, there will be a **\$5 late charge fee** for renewals that come in after December 31, 1999.
- **Pay by check...** Credit card option is only for international subscribers (to make currency exchange easy). The time it takes to process credit cards is very very inefficient and costly.

### For Sale 1997 Velocity Elite RG Standard Wing

110 TTSN Franklin 220 HP MT Prop., King Avionics, Century 2000 Auto Pilot, Strikefinder, 4 Place, Stereo Intercom Sony CD/AM/FM Pictures and details at:  
[www.twoway.com/aircraft/velocity](http://www.twoway.com/aircraft/velocity)  
\$120,000  
812-923-9462

Greg Rasmussen  
4116 Doe Ridge Dr.  
Floyds Knobs, In 47119

### Factory Information

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Lincoln CA 95648  
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E-mail address:  
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# INVOICE

## Renew for the 2000 Calendar Year Subscription Now

If I already have your correct information (address, etc.) in my data base, then you can simply mail me a check. Otherwise, please complete the subscription order form below (please print clearly).

Payment is **due no later than December 15th**. Renewals received after December 31st will be assessed a **\$5 late charge fee**. Thank You!

P.S. You can prepay future years as well...

### Subscription Order Form

**Renewal**

**New Subscription**

*For renewals, please check your mailing label (last page of the newsletter) for accuracy.*

Name:

Mailing Address:

Home Phone #:

Work Phone #:

Fax #:

(If) e-mail address:

(If) Factory DMO #:

(If) Which Model Velocity:

(If) Registration #: N

(If) Velocity now flying?:

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**2000 Calendar Year Subscription (Volumes 21-24):**

**\$ 35.00 in US funds for addresses within the United States**

**\$ 43.00 in US funds for International addresses** (extra \$8 covers air mail and special handling)

**Back Issues are \$35 per Calendar Year:**

**1999 (Volumes 17-20)**

**1998 (Volumes 13-16)**

**1997 (Volumes 9-12)**

**1996 (Volumes 5-8)**

**1995 (Volumes 1-4)**

**Check enclosed** (US Bank or International Money Order)

It is more cost effective for me if you pay by check. Credit card option is available **only** for international subscribers in order to make it easy to pay in US funds. Thanks!

Master Card

Visa

Card # \_\_\_\_\_ Expiration Date \_\_\_\_\_

Print your name as it appears on your credit card: \_\_\_\_\_

Your Signature authorizing me to charge your credit card: \_\_\_\_\_

NOTE: Your credit card statement will show the charge in the name of Lavoie Graphics

**Mail with your payment to:**

**Rick Lavoie, 26 Marshview Dr, St. Augustine FL 32084-5873**

Or you can Fax to 904-461-3146 if paying by Master Card or Visa e-mail: rick@lavoiegraphics.com

### Delivery Dates

<b>Quarter:</b>	<b>Mailed by:</b>
1st	January 15th
2nd	April 15th
3rd	July 15th
4th	October 15th

### Submission Deadlines

<b>Quarter:</b>	<b>Mail Date:</b>
1st	December 1st
2nd	March 1st
3rd	June 1st
4th	September 1st

Listed below are **4 options** for submitting your text. Please send us **photos** and drawings too!

1) Send it on a **3-1/2" computer disk** (Mac or DOS). This saves us from re-typing all that text. Don't format your text, just give us raw text, with no underlining, bold, or any other type of formats. We also can take Zip100.

2) **E-Mail** your text file to me: rick@lavoiegraphics.com

3) If you don't have access to a computer, then we can scan in your **typed** page.

4) If you **print neatly** so we can read it clearly, we'll type it on our computer for you!

Note: If you need your photos & materials returned, please include a self addressed envelop.

*Velocity Views*  
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## Subscriptions

- **2000 Calendar Year Subscription** (Volumes 21-24): The annual cost is \$35.00 for mailing addresses within the United States. For all other mailing addresses, the cost is \$43.00 in US funds (covers air mail & special handling).

All subscriptions are sold on a calendar year basis. New subscribers joining mid year will be provided with back issues for that calendar year.

- **Back Issues** 1995 thru 1999 are available for sale at \$35.00 per year in US funds. Specify the year(s) you want when ordering back issues.

- **Renewals:** Look at the top of your mailing label for the final volume number your subscription covers.

Simply mail a check to Rick Lavoie each year to keep your newsletter coming.

**It is more cost efficient for us if you pay by check**, but if you elect to pay with Master Card / Visa, be sure to include the following, printed clearly:

- Name as it appears on your Card.
- Credit Card number
- Expiration Date
- Master Card or Visa?

NOTE: On your statement, the charge will be processed in the name of Lavoie Graphics



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FIRST CLASS

FORWARD & ADDRESS CORRECTION

"Paid thru Vol ?" on your label indicates the final volume your subscription covers.