

# VELOCITY VIEWS



Volume 1

## Welcome to the Premier Edition of Velocity Views: A Newsletter for Builders, Pilots, & Velocity Dreamers

You obviously have noticed a monumental change in our newsletter. During my first meeting with new Velocity builder Rick Lavoie, one "tool" he was interested in was missing: a networking & builders' newsletter. As a Long EZ pilot Rick was used to having this valuable reference. I told him that I have wanted one for some time, and, that since he had so many good ideas, to go ahead and get one started. Well he did!

Starting with this issue, our good friends Rick and Judy Lavoie will be providing a Velocity / Builders newsletter whereby you can pass on builder hints and receive the same, along with service bulletin ADs (now called KPCs - see article), and any other factory information all in one quarterly publication. Rick has a better than average knowledge of the Velocity as he will soon be building his own Standard RG "Elite". In addition, Rick will be creating an "options" catalog soon with all our "stuff" in picture form along with a description as to what it's for. Rick will also be publishing the Velocity Owner's Manual, complete with check lists, procedures, 100/annual inspection check list, etc.

We have decided to provide all our present & new kit customers with this newsletter for one year at our expense. Renewal rates are set at \$35.00 per year thereafter. I trust this will take some of the load off the staff here and provide a better and more punctual newsletter to you.

Here's how Rick plans to organize the newsletter (subject to change with your input on an on-going basis):

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• <b>Factory Information Networking</b></li> <li>- Factory News Items</li> <li>- Kit Plans Changes (KPCs)</li> <li>- Ask Scott/Tech Qs from builders</li> <li>- Product Information</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Builder / Pilot Networking</b></li> <li>- Builder Tips &amp; Input</li> <li>- First Flights</li> <li>- Buy Sell or Trade Classified</li> <li>- Social Events / Fly-ins</li> </ul> |
|---|---|

Scott, Bonnie and I will give Rick all the support possible to help launch this newsletter to greatness! Your input is the key to success or failure. If you agree with Rick that this newsletter will benefit you as a builder and pilot, then you need to step up and support it. Please take a few moments right now to submit an article, building tip, first flight photo, technical Q for Scott or myself, start a fly-in somewhere, free classified ad, or whatever!

*Duane Swing*

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# FACTORY NEWS

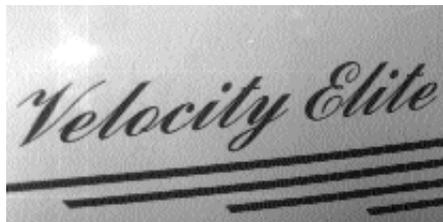
by Duane Swing

Business continues to be brisk with one Velocity a week being shipped and a 6 month backlog of orders. With all the new builders out there, we again ask that you keep your phone calls to reasonable business hours. When you do call, please be prepared with your manual with page numbers noted...to minimize our stumble time. If Scott or I happen not to be available, Travis, Jeff, and Scott Lower – who are all building Velocities – can possibly answer your questions.

We have had a lot of calls regarding the Subaru engine so it's probably time to tell you what's going on. After about 20 or so flight hours I was still not able to determine what was causing an "out of sinc" sound. It was like a twin engine airplane with one engine turning slightly faster than the other. It was driving me nuts. I tried a different prop but this did not help. Since it would not do this static or under full power on take off roll, or powered back in cruise, I think it might be some sort of frequency problem between the short exhaust stacks and the prop. I was also having some problem with the auto electronic fuel injection/ignition system and occasionally the engine would go into the "limp home" mode... guaranteed to get your attention. The bottom line to all this is, I'm not going to spend any more of my time on this project. We have a Dallas based group of builders who are also working with the Subaru SVX engine, and they have the time and expertise to work out all the bugs. I can't give you their names because they would prefer to not try to answer questions until all is working well. I had planned on having NSI or Formula Power do the Subaru Conversion, but prices of \$18,000 have been quoted. This is just too high.

The turbo 2 cycle diesel is still in

the works but don't expect any information until next year. How about a new Franklin 210 to 220 HP six cylinder? We will be installing this Polish built engine in the Velocity and, if all goes well, we will be making an engine mount and exhaust available. A ready-to-go engine should cost about \$13,000 to 14,000 complete with mags, starter, alternator, vacuum pump, carb, etc. Performance numbers to come later.



Some of you are aware that we are working on a non-retrofitable mod called the Elite. We have taken the stock Velocity fuselage and modified with two gull wing type doors that hinge from the top and continue down to the duct work on either side. Larger side windows, adjustable seats, and other changes are planned. Look for a flying example later this year. If you have a December or later delivery date and want the Elite option give me a call. If you already have the Elite on order for November, we may have a delay due to the difficulty in finding time to complete the prototype. (Too many interruptions). In any case, if you already have the plans, you can look forward to new pages.

For those of you who may get calls from time to time from prospective builders, my apologies for not getting an OK from you first. If this is problem, and you haven't told us to take your name off our reference list, please do so as soon as possible.

We now have available the pre-wired switch module. This consists of all switches and circuit breakers

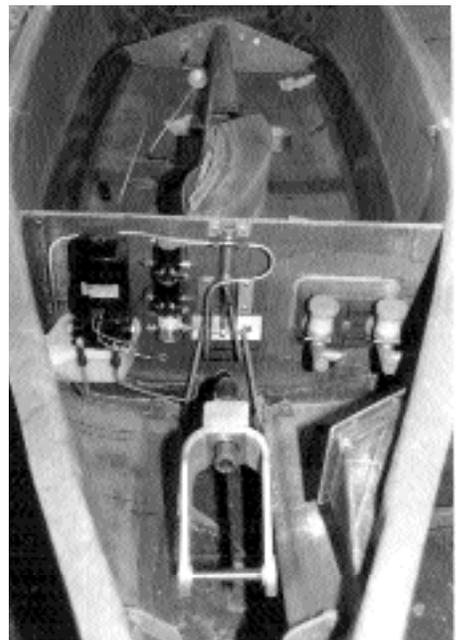
wired onto a circuit board. Greatly simplifies panel wiring. Price is \$495.00 with instructions.

We have shipped out several of these switch panels with a 5 AMP breaker in the fuel pump circuit. This should have been a 10 AMP. If you have one, please let me know and I'll send you a 10 AMP breaker to replace the 5.

Also available is a new Retract Switch Panel. This consists of a heavy duty switch and 30 AMP breaker with gear down (gear unsafe) and gear in-transit lights mounted on a pre-marked panel. Price is \$65.00. If you already have one of the heavy duty switches, price is \$60.00, with instructions. The gear unsafe lights will require two additional micro switches and are used to indicate if the gear doesn't go all the way up.



Jeff Baker working on the Elite prototype





John Harvey constructing the new Elite center console mold



Elite fuselage viewed from the rear



"Duane is already on two lines, with three more holding"

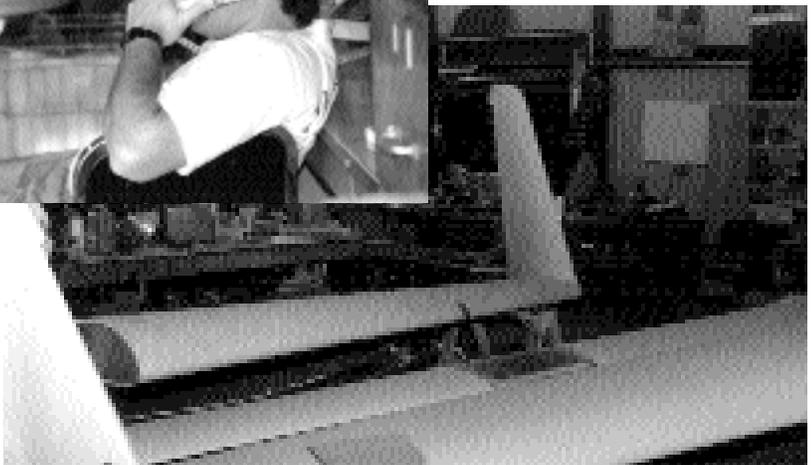
"Yes, Scott's working on it right now!"



"My dad said we'd have this ready when?"



Yes, Duane sometimes does get off the phone long enough to use his A&P



**ASK****SCOTT**

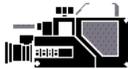
Mail your technical questions for Scott to Velocity Views Newsletter. Both your question and Scott's answer will be published in this section in our next volume.

**Q &**

I'm wait-



## Manuals & Videos to be Reorganized



Duane and Scott are now working on revamping the existing kit builders' manual & video series. The existing manual leaves a lot to be desired if you are building anything other than the standard fixed gear Velocity. For example, the RG conversion is a separate chapter that causes confusion with the standard fuselage chapter (not step by step). All that will be fixed as we now will have four manuals:

- Standard Elite SE
- Standard Elite RG SE RG
- 173 Elite 173E
- 173 Elite RG 173E RG

Won't that be great? Each manual will be step-by-step, customized for the model you are building!

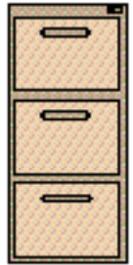
## Cataloging of all Kit Plans Changes "KPC" is in the Works

I'll be working with Scott to catalog all KPCs into four categories that will match the four new manuals now in production at Velocity Inc:

- Standard Elite KPC-SE
- Standard Elite RG KPC-SE RG
- 173 Elite KPC-173E
- 173 Elite RG KPC-173E RG

Once the new manuals are finished, all KPCs will be numbered in sequence. Therefore, if you are building a standard Velocity, you only need be concerned with kit plans changes labeled KPC-SE. Each change will be assigned a number in sequence (i.e. KPC12-SE) for easy cataloging. Here are some examples of the new system which will be effective once the new manuals are finished:

- "KPC001-ALL" would cover all models (including non-elite)
- "KPC002-ALL E" would cover all Elite models
- "KPC003-173E RG & SE RG" would be only for the models 173 Elite RG & Standard Elite RG. This KPC would not affect all other models!

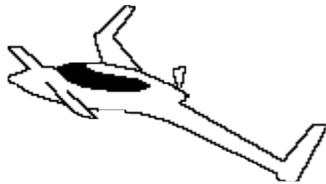


Scott and I also will go through all the old newsletters (pre-new manuals) and catalog those KPCs separately. We hope to have this all done for the next volume of *Velocity Views*.

*Rick Lavoie*

**All KPCs will be published and cataloged in *Velocity Views*.**

# Kit Plans Changes “KPCs”



**PAGE 491/492** – The handle assembly will fit better if you move it 1/4" further forward of the Hartwell latch assembly. The manual states *"The outer skin is removed from 3-1/2" to 8" forward of the forward edge of the front latch assembly"*. **CHANGE THIS TO 3-3/4" to 8-1/4"**.

*"The inner skin is removed on the same elevation, but from 5-3/4" to 8-1/4" forward of the forward edge of the front latch assembly."* **CHANGE THIS TO 6" to 8-1/2"**.

We have had reports of leaking fuel line hoses from "Earls" and "Aeroquip 601". This is the Stainless braided lines. The FAA has issued an AD note on the 601 for mandatory replacement every 24 months. Check yours if within this 2 year period and replace pronto.

**PAGE 409 PARAGRAPH 5** – (8 PLYS TOTAL) Some confusion regarding this 8 ply statement. To clarify, just scratch over this statement.

For those of you who have purchased the outside tank fuel sensor, we find the best way to secure to the tank is with two sided sticky tape, available from K-Mart etc. Operation can best be checked by reducing fuel to three or four inches below the top and moving the sensor up and down to check operation. Light should operate when the sensor is about half way down the fuel level in the tank. The unit will also be triggered, in most cases, by activating a transmit radio. Not only a good light check but also a good stuck mike indicator. If you can't check with the mike button, it would be a good

idea to put a push-to-test button next to the light. Light check is by grounding the wire from the sensor to the bulb.

**PAGE 50 (RG CUSTOMERS ONLY) PARAGRAPH 3** – "1-3/4" should be "2-1/8" same as figure 108.

We have had a customer's 173 RG flying for some time now and since this individual built the first one, he had some recommendations that we will pass on to you. The gear door brackets were not stiff enough for the more flexible gear door. The gear door is more flexible because the bump is shallower. Before anyone else flies their 173 we need to get this cleared up. Since we are doing our own, we will make the adjustment and let you all know.

Also on the 173 RG, there has been some confusion over the placement of the caliper on the gear leg. This is shown on a full size template in the back of your manual, but basically the axle mounts 1/4" aft of center, and the caliper goes on the rear bottom corner of the leg instead of the front bottom corner. Also, we found out by one of our builders that there was an interference problem with the axle to caliper fitting. Sure enough there was some interference on a one batch of brake systems. If you have one of these, just file the axle down so it clears.

When doing the fuel tank installation, we use a lot of floc in the epoxy to make the mixture lighter and stickier. If you only use microglass, that heavy fine glass mixed with epoxy, it tends to fall off of surfaces. Cab-o-sil also helps make the mixture sticky. We use a 2- or 3-to-1 mixture of floc to microglass with a little Cab-o-sil thrown in mixed to a thick but juicy consistency. Juicy as can be, but will not sag.

If you have an RG with the old 7/16" main gear pivot bolts, let us know and we will send you the new 1/2" set up.

We want to re-emphasize the gas spring situation on the RG. Make sure you install them with the reservoir down and remember to replace them every year. Also, if you have a gas spring failure in the nose gear system, for instance, and you lost your power or pump or whatever, you will obviously dump the valve first. If you don't get a light or you are not sure, you can reach in the hole and pull on the shock to make sure the linkage is overcenter. If you cannot reach this, you should put a small hole in the side panel so you can stick your finger in to make sure it is overcenter.

When you are installing your canard in an RG, make sure the elevator push tube is taped back at an angle so that it doesn't come down and hit the overcenter linkage causing the nose to drop. Obviously this cannot happen when the system is under pressure but remember this anyway since it did happen to one of our builders.

Just a note on different epoxy systems. We are currently looking at two alternate epoxy systems that we can go to for our builders. One is a PTM&W epoxy and the other is Poly Epoxy (see Rick's article on page 6). Both epoxies are MDA and Styrene free with acceptable physical properties. We should have some definite answers shortly.

For you latest RG customers that recently got your kits, some of the hose that went out was S703 which will not work with the fittings. If you have this S703 hose please return it for exchange.

*Scott Swing*

# Composite Workshop Features Latest Techniques & Materials

I recently attended a 2 day composites workshop in Lakeland FL sponsored by Alexander Aeroplane & the EAA. Of the 20 or so attendees, three of us were building Velocities in the near future. The workshop covered basics, but, most important for me, it updated a builder on the newest materials and techniques that save time, increase strength & lower weight! Sounds too good to be true, right? Well read on!

First, about the instructor. Stan Montgomery has a strong background in chemistry and is Alexander Aeroplane's composite technical expert. As a chemist, he has developed several products on the market in composites. He has personally built several canard aircraft. His knowledge and in-depth experience was evident to all the workshop attendees. Stan was assisted by Zack Park of Alexander Aeroplane, who was also very knowledgeable.

Here's Stan's **process** for a wing core skin lay up:

- Cut your fabric one lay up of "triaxial" knitted E glass fabric (vs. 2 BID plus 1 UNI lay ups). Make the size an inch or two larger than the exact size you need for the lay up. Remember that when you cut the fabric, the UNI direction (0° axis) will be parallel with the wing.
- Cut a piece of plastic (say 4 mil) a few inches oversized to the fabric you just cut.
- Mark the exact size of the fabric needed with a marker on the back side of the plastic.
- Pre-coat the foam core material with "SuperFil" (vs. micro slurry).
- Mix an amount of "Poly Epoxy" (vs. Safe-T-Poxy II/Epolite) equal to the weight of the fabric.
- Lay the fabric so that the 0° UNI side is facedown on the plastic and wet out the fabric with Poly Epoxy using a squeegee.

• Trim the glass to the proper size. Now that the fabric is wet, you can see the lines you drew on the back side of the plastic easily.

• Leaving the plastic on, apply the material to the wing core. The UNI direction (or 0° axis) should end up face up and parallel to the wing.

• Use a squeegee (or plastic spreader) to work down the fiberglass.

• Remove the plastic, then remove any excess air from the glass lay up with a grooved laminate roller.

• Apply "peel ply" to the glass with a squeegee, using a hair dryer (on the low setting; caution: extruded polystyrene foam core material melts at 170°) to draw any excess Poly Epoxy through the peel ply.

• Allow proper time to cure.

• Remove the peel ply, trim, and you are now ready for one finish coat of "SuperFil" (without the need to sand for a mechanical bond).

• "Post curing" is needed prior to spraying any non-epoxy based primer.

Now let's look at the **advantages & benefits** of Stan's method, as compared to how many "Rutan followers" built a Long EZ during the 80's:

## 1 Triaxial knitted E glass replaces 2 BID & 1 UNI

One lay up versus 3 (saves many hours) with the end result being 27% stronger and much lighter. Stan uses "biaxial" instead of 2 BID lay ups. Triax or biax can be used in most applications (like wings, fuselage, & bulkheads). But, BID is still best for complex curves, with UNI used for spar caps.

## SuperFil replaces micro balloons & micro slurry

Non-hazardous environment friendly, no more breathing micro balloons while mixing, sands much easier, no pin holes, does not shrink, no oxidation or corrosion on metals, will not ball up if spread within 5 minutes of mixing.

## Poly Epoxy replaces Safe-T-Poxy II/Epolite

A polymer epoxy that has 95% of the "mechanical properties" (tensile, compression, & flex strength) of Safe-T-Poxy/Epolite, but drastically improved in "toughness properties" (peel, shear, fatigue resistance, impact strength, stress strain cycling and fracture behavior). Use Poly Epoxy on all lay ups and structural use. Pot life at 77° is 105 minutes. Mix with cotton floc for structural filets. Caution: due to the polymer, this product does not sand well at all! Never mix with micro balloons and expect to sand it as a filler. Also, the scratch test is out! Stan took a batch that had hardened overnight and threw it very hard on the concrete. It bounced about 20 feet, and, when retrieved, it was not cracked or scratched at all. Try doing that with some leftover Safe-T-Poxy!

## Equal weight Epoxy to Fabric vs. slop it on & wet out

The ideal weight ratio is 40/60 epoxy to cloth ratio. We mix an equal weight of epoxy to cloth 50/50, figuring that we will lose some to the plastic and peel ply. Zack says that the average home builder uses about 40% too much epoxy with the old slap it on and stipple method.

The other process that was new to me was "post curing". Take the wing component we just made (prior to applying any non-epoxy based primer) and place it in a homemade post curing oven for 2 to 6 hours at 140°. Prior to turning up the heat, jig it level and well supported (unless it is still in a mold). If heated unsupported and not level, the component may become slightly rubbery and your shape may change! The post curing oven is made of cardboard walls (or use a small garage or canvas tent) with an electric space heater or two and a few thermometers to monitor surface temperatures. Be careful to leave space for fire precautions and be sure to monitor the temperature carefully. The post curing is

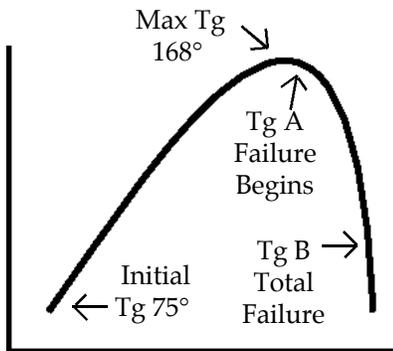
*Continued on page 7*

## Techniques *Continued from page 6*

best done within 7 days of initial curing, but not essential. Stan cures his entire fuselage all at once.

Why post cure at all? Post curing increases both the mechanical and toughness properties of cured epoxy. Room temperature curing is just fine until you introduce the sun, especially in places like Florida or Arizona. Heat causes the molecules in resin to move again. If you do not post cure, then mother nature (the sun) will do it for you with your plane not level and components not properly supported. Depending on your Velocity's color, the ambient skin temperature could reach as high as 190° in the sun.

A little chemistry on post curing. Refer to the chart on Transition to glass (Tg). Say our initial curing was 75° (room temperature cure). Without any post curing, your component will undergo a transition from a solid to a rubbery state at about 105° (about 30° above the



Transition to Glass = Tg

temperature of the initial cure, with maximum Tg at 168° for Poly Epoxy). Even if your plane is painted white, the sun can raise the skin temperature to 130°. So, if you post cure your components yourself to 140° (assuming your resin has a maximum Tg of 168°), then you have reached the Maximum Tg of 168° (140° + 30° = 170°) and are now safe (unless you painted your plane with a heat-absorbing color).

At one point I told Stan that these techniques were quite different

from the "Rutan norm" and I was having trouble accepting them as believable. Stan pointed out that Rutan's methods were dated and I needed to step into the 90's technology. By the end of the workshop I agreed with him. Burt Rutan would most likely be looking at these newer systems today if Rutan Aircraft Factory (RAF) were still in the plans business. I have submitted this information to both RAF & Central States Association.

Safety precautions:

- Both Stan & Zack stressed throughout the workshop to follow the factory's plans or kit instructions at all times.
- Never mix more than 1 quart of any epoxy at one time (exotherm may cause a fire!). A quart is the absolute max, but it is best to mix 8 oz. by weight or 16 fluid oz. of resin hardener mixture.
- Coat your hands and arms with "Invisible Gloves" and wear disposable latex gloves.
- Protect your lungs while sanding any filler material or using epoxy.

NOTE: There are varied opinions out there regarding this new system. Velocity Inc. is in the process of testing this new system out. Nat Puffer (Cozy) has reviewed Poly Epoxy and found it to be under requirement in physical properties and does not recommend using it. This new system has not had the benefit of time to prove itself at this point. I'll publish the opinion of Velocity Inc. once Scott has worked with Poly Epoxy.

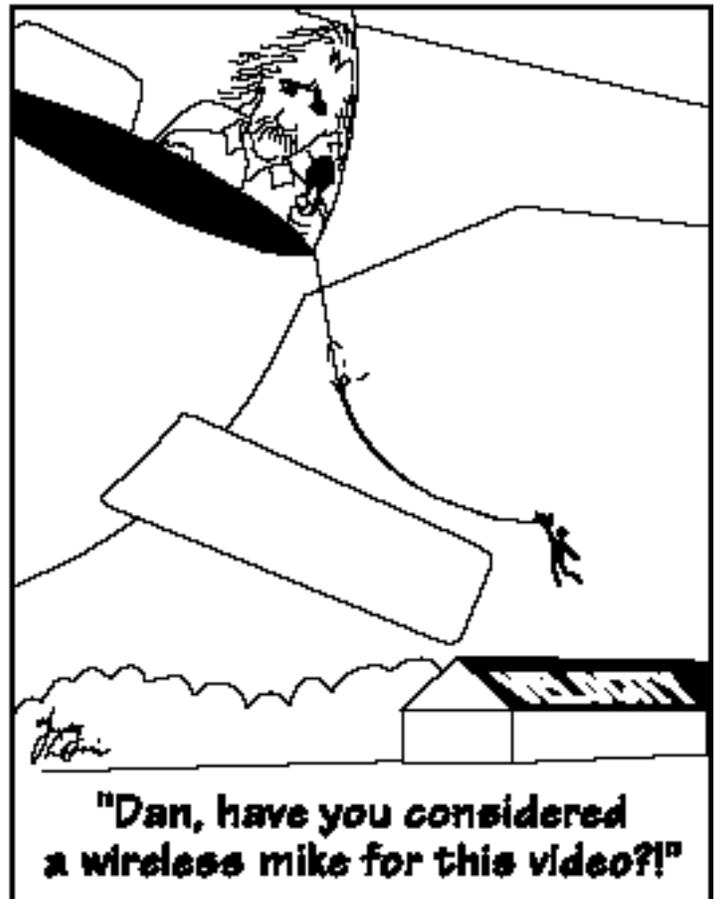
*Rick Lavoie*

## Organizations Worth Joining!

**"CSA" Central States Association**  
9283 Lindberg Blvd  
Olmsted Falls OH 44138-2407  
For "Rutan type" aircraft, great fly-ins & newsletter too! \$20 per year, make check out to Terry Schubert, not "CSA"

**"EAA" Experimental Aviation Association**  
\$35 per year, great support & includes subscription to *Sport Aviation* magazine  
PO Box 3086  
Oshkosh WI 54903-3086  
1-800-843-3612

**"AOPA" Aircraft Owners & Pilots Association**  
\$39 per year, lots and lots of services & includes a subscription to *AOPA Pilot* magazine  
421 Aviation Way  
Fredrick MD 21701-4798  
1-800-872-2672



# Suggestions from a Neophyte After 1 Year of Construction

by Hugh L. Hyde, Houston TX

There are some things that require prior knowledge and experience to accomplish or require a very specific instruction book. The instruction book prepared by Velocity is excellent, but no one can be expected to write instructions that are complete enough to satisfy the true neophyte. I have been working on my kit for one month and have made more than the normal number of mistakes. One of the advantages of composite construction is the ability to correct almost any mistake, thank goodness. If I could start over, I would do the following things differently, none of which are covered in the manual or the video tapes.

(1) **Do the right wing first.** You will be an "expert" not a neophyte by the time you finish one wing and start the next (I hope). The door is on the left wing (non-elite model) and people looking at your finished product will spend more time on that side of the plane. A more important reason is that the manual and the tapes primarily show the right wing and you will not have to make the mental "flip over" to apply the logic to your first wing.

(2) Apply the yellow goo (micro-something) to the foam only thick enough to seal, scrape off almost as much as you can and if your wife is only 5'3", get someone else to hold

the other end of the triaxial cloth when you put it on the wing.

(3) Order your **antenna** supplies and instructions before you skin either wing and think through your full antenna placement. Consider doing two of everything, even if you plan only one. It is cheap and easy, at this point, to provide for either back-up antenna systems or expansion antennas to later add additional equipment. Consider using fuselage placement as your course of last resort. The guys at Velocity have great ideas in this area, if you ask for them.

(3) **Before cutting anything**, follow through the manual and/or tapes and be sure you know **WHY** you are cutting and not just that you are told to. This should keep you from cutting at the wrong place.

(4) If you decide to leave off the lower winglet, Travis has drawings at the factory for an **internal rudder bellcrank**. It is best if your decision is made before installation of the nylon conduit for the rudder cables as they need to be moved.

Remember!! There are two additional things to think about after putting the wing foam on the spars, but before doing any further work: (1) **antenna placement**, probably different from video tapes and instruction manual, unless you are planning a VFR plane, and (2) installation of

**rudder conduit**, depending on whether you will have an enclosed rudder bellcrank (this is especially nice if you do winter flying up north due to possible icing effects on external rudder bellcranks). Also, if you are omitting the bottom winglet, it is easier to make the vertical corn antennas on the outside of the winglet, in foam, instead of inside the rudder well.

(5) Before adding top to the bottom of the fuselage, so that you can work with upper fuselage upside down, add duct tape around windows and use bid to lay up **window trim** for later gluing fabric for interior finish. They do this at the factory for prototypes, etc., but it is not in tapes or plans.

(6) Make life simpler for yourself and spend \$50 on a **Smart Level**. Not only is it more accurate, but you can use it as an inclinometer for attaching winglets and building the 70° gizmo to work on aileron cut outs. I got mine for Christmas after those things were done and sure wish Santa had come earlier!

(7) Use two pieces of angle aluminum, a small piece of gasket material and a 10-32 flathead screw to fashion a **rudder stop** on each winglet. Also requires 3/32 rivets. Again, not in plans, but almost everyone is doing it.

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## Velocity Gathering & Dinner Planned for '95 Sun N Fun in Lakeland Florida

Sun N Fun is from Sunday April 9th through the 15th, and **April 10th (Monday night)** will be our annual Velocity dinner. We are holding the gathering at the Red Barn Steak House at 6:30 pm.

Let's all plan to meet at the Velocity Booth (LD 12 or LD 10) at 5:00 pm so people that need rides can team up with people that have cars.

Please call Pat or Bonnie at Velocity Inc. 407-589-1860 (407-589-1893 fax) to **RSVP**.

Here are your menu choices: T-Bone @ \$21.00, Filet @ \$21.00, Fish @ \$12.00, Chicken (whole) @ \$13.00, Children menu @ \$5.00 (shrimp/fish/chicken/hamburger). Call ASAP!

*Bonnie Swing*





Meet at the Velocity Factory in Sebastian Florida on Friday May 19th for a Pre-Bahamas Flight Briefing, followed by a "Swinging" Cook Out!

# Velocity Bahamas Fly-in Set for May 20th of '95

Fellow Velocity Builder Tom Chimento and his wife Pamela have invited us to have a fly-in at their beautiful resort located in George Town on Great Exuma Island, Bahamas. The Coconut Cove resort is an elegant and peaceful island getaway, nestled in palm groves along white sandy beaches.

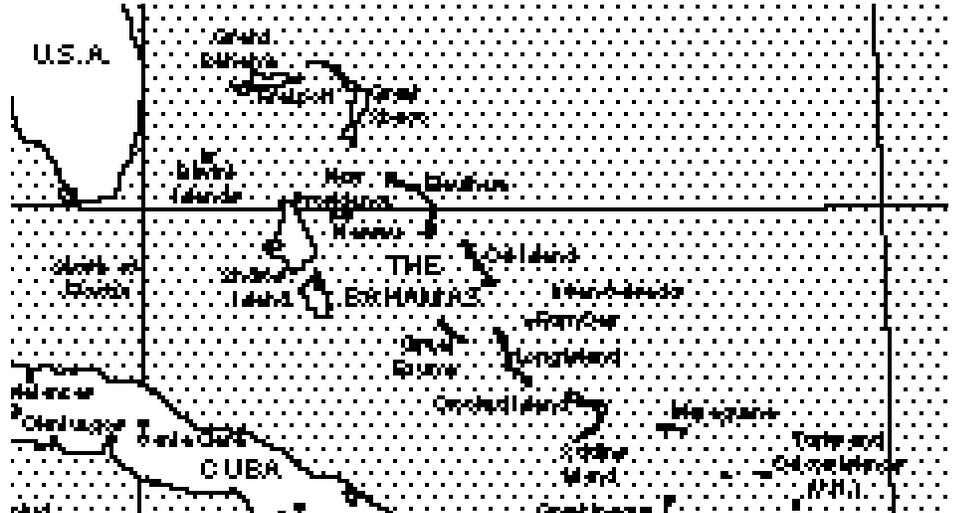
Accommodations include two rooms overlooking the aquatic pond and tropical gardens, seven beach rooms, all air-conditioned with a private terrace. All rooms have a view of the ocean and private baths with queen size beds. There is also a "Paradise Suite" that has an oversized bath, king size bed, jacuzzi & hot tub overlooking the ocean. There's a beachfront fresh water pool, ocean side bar, & gourmet dining room.

Tom is offering his fellow Velocityites the following very special rates (EP- no meals):

	Single	Double
<b>Beachside</b>	\$64	\$80
<b>Aquatic Garden</b>	\$76	\$92
<b>Beachfront</b>	\$84	\$100
<b>Paradise Suite</b>	\$155	\$171

Add \$16 per room per night for taxes. Bar service tips not included. MAP to include breakfast & dinner (\$38 per person daily, \$20 for kids under 12). Also, you can add a third person for \$30.00 per night. Tom is real happy to have us staying at his resort. We can take a look at his Velocity project while we are there too!

**With only nine rooms, be sure to sign up early, on a first-come first-serve basis.** Judy and I plan to stay until Thursday the 25th. You'll need to let me or Tom know what your length of stay will be. I have all nine rooms blocked off for 5 nights.



Give me a call at 904-461-3146 to get on the sign up list. You will either need to give me your credit card number & expiration date, for the first 2 night's deposit, or call the resort directly at 809-336-2659 to book your stay. Deposit is refundable up to two weeks notice.

Judy and I visited George Town some time ago in our 182. We remember great beaches, clear waters, excellent scuba diving & snorkeling, fishing, & friendly people. Tom has things all set up for scuba & snorkeling trips, rental equipment & instruction, etc. Judy and I will be bringing our diving gear along. Oh yea, in case this is your first trip to the Bahamas, pack light and very informal & casual! Shorts, t-shirts, & sandals are the order of the day!

We plan on having a cook out get together and pre-flight briefing at Velocity in Sebastian FL (X26) on Friday early evening (5 PM-ish) May 19th. The best Bahamas flying weather is always in the morning so an early Saturday morning wheels up at 7:30 am sharp (May 20th) is planned. We'll depart in flights

direct to Moss Town, Exuma, Bahamas / Exuma International Airport (MYEF). Customs is right on the field, service with 100 octane fuel, 8,000 ft paved runway. Our route of flight will be Sebastian (X26) direct Freeport (ZFP), direct Nassau (ZOA), direct Mosstown (ZEM). Be sure of a few things for a flight to the Bahamas. You need to try to comply to 12" tail numbers (temporary tape is ok). Bring along a coast guard approved life vest for each person. I'll have paperwork with me at the cook-out Friday and review procedures then too! The paperwork is no big deal. I'm of the opinion to just show up and fill out what they want on the spot at Bahamas customs & immigration. On each previous trip I've made to the Bahamas (4 times), they usually don't like my pre-filled in forms anyway! On the return trip home, be sure you file an international flight plan (either IFR or DVFR) to Ft Pierce to clear US Customs. We will go over all this before the cook-out at 5:00 pm on Friday in Sebastian. If you plan to skip the gathering in Sebastian and meet us at Moss Town, be sure to let me know that! See you soon!

*Rick Lavoie*



# Flight Planning & Weather "On Line" Via DUATS For Free

If you are not obtaining your weather and filing flight plans "on line", you're missing out! This "how to" article can get you past your first log on experience.

### What you will need:

- computer
- modem
- communications software
- access to phone line

I prefer Macintosh because it is more user friendly, but any DOS computer (preferably with MS Windows) is also ok. Any speed modem will work fine. Just about any kind of communications software will work or you can call GTE at 1-800-345-3828 and they will mail you their Golden Eagle DUATS software for FREE! There are also a number of flight planning software on the market that have all kinds of bells and whistles, too.

### Toll Free 800#

Congress funds an 800 number for pilots to direct access DUATS. The number is 1-800-767-9989. The idea is that it is more cost effective for pilots to obtain weather & flight planning direct vs. calling up a briefer.

### Set Up

Enough background talk, let's go on line right now. As I've mentioned, any old communications software will work, but you must use the following settings: 7 bit, even parity, one stop bit.

### First Time Log On

Now give the command to dial up DUATS (1-800-767-9989). Since this is your first time logging on to

DUATS, you will need to answer some questions in order to get an access code. The system needs to verify that you are, in fact, a certified pilot. Required entries are self prompting. Get out your pilot certificate. Once logged on, you will need to enter your last name, first name and middle initial exactly as they appear on your pilot certificate. When entering your certificate number, again give it exactly as it appears on your certificate, with no dashes or spaces. You will next need to enter a six to eight character alphanumeric password of your choice. The system will generate an access code for you, but you can change this to any 9 or 10 digit number you like (i.e. your phone #). Next you need to give a security authentication as a unique identifier (like your mother's maiden name). Then number of characters per line for your computer display (usually 80), then number of lines (I use 0 for continuous scroll). I like continuous scroll because I get the info I need, then log off and view it off line. The system now will ask for your Tail N number, type of aircraft (HXB), Home base (SGJ), aircraft colors (W = White), and finally airspeed in knots (170). Now all that is stored in the system and ready every time you log on. If you ever need to change this info, select "Modify Personal Data Profile" from the DUATS main menu.

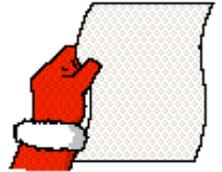
You are now set up to use the system! Go ahead and explore the various menu options for weather info & flight planning. Have fun!

*Rick Lavoie*



*(Be sure to leave this list where Santa's elves will see it!)*

## Holiday Gifts for the Velocity Builder...



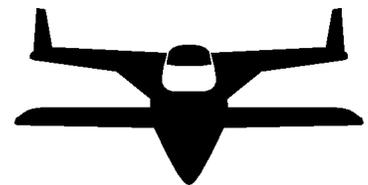
- Smart Level
- Dremel motor tool kit
- Workmate work bench
- Hot Glue Gun
- ZAP - Super Glue & Kicker
- Variable speed cordless drill
- Saber saw
- Air compressor (3.5 H.P. min.)
- Air driven tools (i.e. angle die grinder)
- Croix CX-9 spray system
- Cleco pliers and 1/8 & 3/32 clecos
- 2 foot carpenters square
- Charcoal activated respirator kit

Call:

Alexander Aeroplane 800-831-2949  
Harbor Freight Tools 800-423-2567  
Sam's Club or Home Depot

## Buy Sell or Trade

Free and exclusive to all *Velocity Views* Subscribers.



### Looking to buy:

VOR indicator for Collins VIR 351 tso, Horizon/attitude indicator, Various tools for building (just starting a Velocity), special drill bits for velocity 12" long 1/4", #19 (#8 clearance), #30 (1/8" rivet), #40 (3/32 rivet), #11 (3/16" / #10 clearance), 3-1/8 hole saw, & Fly cutter  
Contact Rick Lavoie 904-461-6912

# Sick of “The Deep Stall” Question???

“Oh why are you building a Velocity... isn't that the plane with the deep stall problem?” Velocity builders, don't you just love that question? Let's set the record straight!

There have been four incidents of “deep stall” & one fatality. Here are the facts as explained to me by Duane & Scott:

- 1st deep stall Neil Hunter
  - 2nd deep stall Carl Pascarell
  - 3rd deep stall Jim Patton
  - 4th deep stall Neil Hunter (fatal)
- Let's look at each of these four situations.

**Neil Hunter** was the first and fourth deep stall incident. Neil built 2 Velocities. His 1st incident was in his second Velocity (built for a friend). No weight & balance was ever completed and vortilons had not been installed. While flying over a canal near his home, Neil got into a high angle of attack from which he could not recover. The airplane became locked aerodynamically in a flat attitude and descended at an unnaturally low rate of sink all the way down to the water. Neil, an experienced military pilot, tried everything to get the nose down. He escaped with only minor injuries. At this point, Dan Maher hired test pilot Carl Pascarell to try to duplicate this “deep stall” situation.

Test pilot **Carl Pascarell** flew “Totally Orange”



N81VA with some experimental “aluminum gap seals beneath the canard elevator”, to try to induce this deep stall. Also, the CG was near the aft limit.

After countless attempts, Carl succeeded by rocking the stick with the pitch bucking several times. Carl now also found himself in an unrecoverable deep stall and rode the plane into the ocean off St. Augustine's coastline. Again Carl tried everything to get the nose

down. He escaped with no injuries.

In July of 1990, flight test engineer **Jim Patton** (Chief of Flight Operations at NASA Langley - head of the general aviation stall/spin program) was hired to evaluate the deep stall problem. He flew N81VA (recovered from the ocean) with a new paint job again, but this time with no “gap seals”. A 210 lb weight (movable fore and aft by an electric motor) was installed to provide a reasonable assurance of recovery by means other than primary controls (the stick). This allowed Jim to test the full range of fore and aft CG limits. Jim consulted with a wide range of experts. They decided to mount the prototype Velocity on a trailer to test 5 CG positions in an outdoor wind tunnel. After testing many configurations, a 60 in. cuff extending inboard from the wing tip provided the best recovery. Jim was now ready for actual flight testing

During Jim's first flight test (without the cuffs), he also was able to induce a deep stall by attaining full aft stick stall, then pumping the stick forward and against the aft stop to obtain the largest possible pitch oscillation amplitude. Jim was able to get out of it with full power and full forward stick after an altitude drop of about 1500 feet. His CG was at 118.73.

After more test flights, with the leading edge cuffs (60 inch) fitted on the outboard wing tips, the same test procedure was induced with results back to level flight, with no severe drop off in airspeed and little or no altitude loss! Problem solved!

Dan Maher redesigned the Velocity wing by extending the trailing edge and changing the aft camber slightly, which after test flying, he reports is now absent of any unrecoverable deep stall! Previous kits were advised to install the 60 inch leading edge cuffs (provided for free).

In addition, the Velocity has been subjected to a full flutter analy-

sis and, with the new wing, a structural load test.

**Neil Hunter** had built a modified Velocity. His tanks were 100 gal with one baffle rigged aft, causing a CG problem in itself! He needed to place 50 lbs of lead weight in his nose, but had failed to do so. Also, Neil had one of the early model kits which needed the 60 inch LE cuffs installed to his outboard wings. Neil got caught in jet turbulence which flipped him inverted and he was once again in a deep stall, but this time inverted. He talked with ATC all the way down & tried his best to recover, but to no avail. Neil was a good friend of the Swings and of many Velocity builders. A very competent pilot & friend that we will all miss. However, if Neil had kept his CG within the envelop, we feel that he would be with us today.

For the early Velocity models (Serial # DMO 1 through about 115):

- Install the wing 60 in LE Cuffs
- Stay within your aft CG limit of 120.75

*Note: Vortilons not used with the 60" LE cuffs*

If you have not done this, do it right now! Ground the plane until it is done. The cuffs are free from Velocity Inc.

For Velocity kits after Serial # DMO 115 est., you have the NEW WING design & tested deep stall proof. Your wing has 2-1/2 " more chord by extending the trailing edge and changing the aft camber slightly. Also the fuel tank baffles were moved forward. If you have followed the plans (including vortilons) and stay within CG limits, you are all set!

If you are not sure if you have the old or new wing, then look down (top view) at your wing near the winglets. If you have more than 1" on the rudder line, then you have the old wing design. Call Scott if you are unsure!

So the next time someone asks you that question, you are armed and ready to set the record straight!

*Rick Lavoie*

# INPUT PLEASE!

The focus of this quarterly newsletter is on things of interest to **Velocity builders and pilots**. This newsletter works only if you participate and share knowledge and ideas!

- Builders Tips & Suggestions
- Technical Questions
- First Velocity Flights
- Stories about Velocity Builders
- Builders' Buy, Sell or Trade
- Social events
- Velocity fly-ins
- Aviation education

We need your help now!

Listed below are 3 options for **submitting your article**, story, builder tip, fly-in, or classified buy sell or trade. Yes, please send us **B&W photos** or **line art** too! Graphics and photos are always more interesting than just words!



1) Send it on a **3-1/2" computer disk** (Mac or DOS), saved as text or ASCII. 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.



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



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



Mail it or fax it to us right away!

We publish the newsletter quarterly (January, April, July, October). Should your submission come in after our cut off date, don't fear, we will automatically consider it for the next issue.

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Please limit your calls to items that concern only the newsletter. For immediate answers to Technical Questions, call Velocity, Inc. at 407-589-1860

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