VELOCITY VIEWS

Volume 32

Rose and John Ward's First Flight Story...

by Rose and John Ward

Since the Roses wrote this article, they completed the restriction fly-off and are now safely home in Alabama awaiting final paint.

February 1996 - Travis Holland delivers our Standard Elite RG kit to our hangar in Elberta, Alabama. We look thru all the bags, buckets, boxes and two pieces that look like boats and think, "How are we ever going to put all this together to get a Velocity airplane?" For the next five years we keep thinking that and never have time to really work on the project.

Fast forward to January 3, 2001 - John has retired from working after spending 26 years as a U.S. Navy pilot and the next 20 years teaching Navy pilots in simulators. Time now to build that Velocity. We load the whole kit and caboodle into a U Haul truck and head for Sebastian. After unloading everything at the Service Center, we proceed to build and build and build, learning so much as we go along.

July 16, 2001 - Load everything up again. Put the fuselage with strakes attached in a trailer behind our Jeep and head for Alabama with flashing lights and wide load signs. During the next six months a few essential things are accomplished but the work doesn't go as well or as fast

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Ward Story

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as when we were at the Service Center soooooooo.

January 15, 2002 - Pack Velocity on trailer once more and return to Sebastian to finish installation of the Lycoming engine, construct our beautiful instrument panel with the help of Wayne Lanza and Scott Brown, add the wings and there - IT'S A VELOCITY !!!!!

July 11, 2002 - FAA inspection completed and we receive our Airworthiness Certificate. Finally, July 15, 2002 test flight day has arrived. Engine sounds great, everything looks right. John, doing his own test flight, starts N120RJ (wedding anniversary 1/20 and Romeo Juliet, for Rose and John) and away he goes. Everything looks great and what a beautiful sight with all the Service Center people watching in anticipation of this maiden flight. What a nerve wracking twenty minutes for Rose, listening on the radio for any sign of trouble. After a few tweaks and adjustments he takes off for the second flight. Afterward, we keep saying "We really did it!" or "Can you believe this!" - A great feeling of awe and accomplishment not to mention satisfaction. At this point we must say we have the utmost respect and admiration for all you builders who do what we did at home in your garage or hangar - How do you do it?

Everybody at Velocity and the Service Center has been wonderful and so helpful and encouraging. It is THE place to build and we've made many very good friends. Thanks to you all.

After flying off the required twenty five hours, we'll head back to Alabama, only this time we'll be flying a beautiful, awesome airplane that we plan to enjoy for a very long time.

See you in Branson in October.

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FACTORY NEWS

by Duane Swing

Insurance Stuff

I got a call the other day from one of our builders asking me for the name of the insurance company that will insure the Velocity without the inspection and without the pilot training. He said he had read something about it in the "Reflector" and needed phone numbers. I couldn't believe anyone who has known anything about our problems with insurance would even consider flying their airplane without both the inspection and the training. If there is actually an insurance company out there who is doing this, rest assured he will find sooner or later his losses exceed his revenue. We have seen some absolutely horrendous examples of poorly built airplanes that are just not safe to fly. Please, for your sake and for ours, get some training and have your airplane inspected properly.

If you are ready for insurance, we recommend you contact the following:

AUA at 1-800-727-3823 (ask for Pam)
Falcon at 1-800-880-4545 (ask for John Allen)

Firefly

I guess one picture is worth a 1000 words but here is the Firefly (see photo below). Several issues ago we showed you a picture of what the Korean Aerospace Research Institute (KARI) was doing with their Velocity XL FG. KARI is the Korean equitant to our NASA and the twin tail arrangement is an attempt to minimize the adverse yaw (sometimes called yaw reversal) by moving the winglets inboard and mounting them on booms. The twin tails are neutral airfoils with fully actuating rudders (just like your Cessna) and toe brakes. On most canard airplanes, the great stability creates difficulty in making coordinating maneuvers for approach to landing in any kind of turbulence and crosswinds. With the Firefly almost all of this is gone. The approach phase is not much different than what one would notice in any other general aviation airplane and cross controlling is also easier. There are other changes that made this all possible including a deeper cord wing with some of the sweep taken out. Wingspan is also

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increased to 34 feet and the ailerons have been moved as far outboard as possible.

Is there a down side to all this? First of all the weight is higher, the speed looks to be a little less and the building would be much more complex. KARI has granted us the use of the airplane for as long as we want it, to do all the testing we feel is necessary. In the few months we have had it here, we have already identified several changes needed to make it a viable product and are working to test these changes before we make any decisions as to production. Our initial reaction is that it would be easier to learn how to fly the Firefly than our conventional Velocity. Once properly trained, however, I see no advantage that would be worth the extra cost and complexity. We will continue flying and evaluating before making any decision. In the meantime, KARI has already started building and testing the next generation of the Firefly, which will extend the tail booms back further and add a horizontal conventional stabilizer/elevator. The present canard will be replaced with a much smaller one with only a small flap to be used in conjunction with the wing flaps. More later as this project matures.

He Did What?

Some of you are making our guys here really mad when you do dumb things. Mike, Brendan and Nathan have spent a considerable amount of time fine tuning our inspection and training programs to insure that we are doing the best we can to make your airplane and you as safe as possible. Quite often one of our customers will come in after some major work has been accomplished and fly off into the sunset (sometimes long after sunset) paying no mind to what could happen to an airplane after major surgery.

One case in point was an airplane that had just gone through a lot of work to bring it up to an airworthy condition. The new owner, along with a friend, came in and was checked out in our trainer aircraft. The weather had not been too good and it was decided to postpone the departure until the next day. Mike strongly recommended to the pilot that he spend an hour or two flying in our area just in case there was something on the airplane that needed fixed. Instead, they decided to depart after dark, in a brand new airplane (for them) that had not been flown since the work was done, and preceded to fly into a storm. Neither pilot was instrument rated. After flying around for awhile, they landed several miles off course and called Mike the next morning (Saturday) asking him if they could fly back to Sebastian for him to do some re-rigging of the airplane as it was flying one wing heavy. Mike, rightly so, told them they were very lucky to be alive and if they wanted the airplane fixed, bring it back on Monday. Mike got a call a few days latter from a mechanic asking about the procedure for rigging this airplane.

And then there is the case of a pilot leaving out of here on his first cross country in his newly built Velocity. He, too, had to deviate around storms and was so concerned about the weather he ultimately ran out of gas. He said he didn't notice the low fuel warning in time to land at an airport and the off airport landing done substantial damage to his brand new airplane.

I know we all have made mistakes in what we have done in airplanes. Sometimes we live to make more mistakes, sometimes we don't. (John Kennedy Jr. and John Denver are examples)

Please, please, please, know your airplane well before you venture out. Don't let the "gethomeitis" syndrome force you into a decision that could cost you your life. If you have had major work done on your bird, don't immediately plan a long cross-country flight until you have had some time to check things out.

Sometimes we feel we are wasting our time telling you how to make your flying safer as much of what we say seems to go unheeded. Time after time we remind you through this newsletter about things needing changed or procedures to follow, only to read the NTSB report and determine the accident could have been prevented if only the pilot had followed these warnings. I can also tell you that a high percentage of the accidents happen to second owners of the Velocity who don't know the airplane well and who have never read a word in the Views because they don't get the Views. Another problem is that some of the information might have been printed before the builder even starts his project and he is not aware of the warnings of the past. Back issues of all previous newsletters are available (see the last page for details). Also, there is an index of previous articles that you can download for free from our website.

Oshkosh 2002

Another grueling week at Oshkosh is over. Many of you who come to this event think of it as a fun period and several of you ask us how we were enjoying our vacation. For us it is hardly a vacation, just a lot of hard work. Our dinner this year was held at one of the airport hotels and we could set on the patio and watch the airplanes landing and taking off. Most everyone enjoyed this more than the previous dinners so we will be doing it again next year.

One of the more interesting things to do when one arrives early, (I got there on the Sunday prior to the start on Tuesday) is to set under the wing of a Cessna and watch airplanes land in a gusting 15 knot crosswind. Airplanes flip/flopping all over the place. In one exciting moment, I watched, as a Piper Pacer seemed to hang in the sky, wallowing back and forth on final, nose high, until it let go at about 40 or 50 feet in the air and spun into the grass besides the runway. The entire

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Factory News

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wreckage was within the wing span of the airplane. The pilot suffered only minor injuries and his passenger walked away unharmed. A couple really lucky people. I watch a Cessna 180 land with brakes squealing until it up-ended and came to rest with the tail straight up in the air resting on the main gear and its nose. All in all, this event is well mannered and fly-in procedures are really not that difficult to handle. Mostly, just listen and follow the airplane in front of you. Rarely will you hear any two-way communication, just follow orders and all will be OK.

Perhaps we will see more of you next year.

See Oshkosh photos to the right

We Have Lost A Good Friend

Dr. Tim Crawford loved to fly and built his career around it. As a major player in NOAA's research on global warming, Tim spent countless hours flying his Long EZ on research missions equipped with the latest in technical electronic gadgets, many of which he had designed himself, to collect data vital to this program. Often his research was flown just 30 to 40 feet above the water collecting this data. Tim also built a beautiful Velocity RG and loved to talk about the trips he and his wife Sharon took in his airplane. At Oshkosh, he shared some of his future plans with us and was looking forward to finishing his work with NOAA and devoting more time to flying all over the country he dearly loved.

At just 54 years of age, all these plans came to an abrupt halt. Tim was flying a NOAA mission in his Long EZ and suffered a massive stroke. He and the wreckage of his airplane were found near Martha's Vineyard a few miles off the coast. As I said, we have lost a good friend and he will surly be missed by his family and all those who had the privilege of knowing him.

Sharon has directed us to find a buyer for his Velocity and you will find an ad in the Views for this airplane. The airplane will be based in Sebastian until sold.

Last Call for Branson

It's now or never for Branson to be held October 11 - 13, 2002. This is absolutely the last reminder you are going to get from us. Call us or go to our web site to find all the details. See you there.

The Velocity T/C

We have been contracted by a Chinese Aircraft company to provide 9 completely built and ready to fly airplane to be used by this company for Chinese certification. After certification, this company will begin building completed airplanes to be used for primary training in China. We would be responsible for overseeing the entire program and providing manufacturing help for this Chinese company.

In order to do this, we have enlisted the help of Danny Maher, the original designer of the Velocity to design and build the proof of concept airplane. Our plan is to provide a two-place version of our standard airplane with lighter spars, wings, and fuselage and reduce the weight everywhere we can. It will use a conventional rudder/toe brake configu-

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ration and either dual yokes or a single center stick controller. It will be powered by a 120 horsepower, six cylinder Jabiru engine, coupled to a three bladed, constant speed, full feathering electric propeller. Our goals are for an airplane with an empty weight of around 900 lbs. and a gross of 1550 lbs. All 30 gallons of fuel will be carried in one rear seat fuel tank and the fuel strakes will no longer be needed. Canard stall speed is estimated at 53 knots at gross with a 130 to 140 knot cruise speed. We are calling this new airplane the T/C for Trainer/Commuter. The proof of concept airplane is presently under construction and we hope to have it flying within four months. Production kit models for the US market will be available in about six months if the testing goes as planned. More later.

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Renewal Discount?
See the last page of this issue for details...

Kit Plans Changes "KPCs"

by Scott Swing

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.

Notes pertaining to the plans

1. Several sets of plans have been sent out without the pre-molded bulkhead supplement. This has caused some scratching of the head as well as some unnecessary calls. Let us know if you are missing either of the fast build supplements or the pre-molded bulkhead supplement and we will send them out or e-mail them to you. Also, please go through the newsletters and check the KPCs with your plans to make sure they were inserted. Most of you do this anyway but check anyway even if you just got your plans.

2. We should have parts of the online manual for you to look at very soon. We first wanted to update our sections then put them on. We will soon have hyperlinks to the pictures so that you don't have to look them up later. This will allow us to keep the manual updated and allow our builders to see the most up to date section with a click of the mouse. We will have a short description of how to work in the on line manual when it comes out.

3. We recently had a chance to fly a plane with the elevator mounted flush or slightly higher than the upper surface of the canard. This was possible by shortening the canard by 1/4" and raising the elevators when they were installed. It looks good but the results are less than ideal. We noticed that the airplane did two things different than normal. Rotation ability was reduced in that it took more speed or a reduction in power to get the nose to rotate. Also, the faster you flew the plane the more you would have to trim the nose up. That last point was really strange. We removed the elevators and the hinge arms, added about 1/4" to the trailing edge of the canard and re-installed the hinge arms into the canard in the proper position. I flew the aircraft the next day with normal results. The key here is to install the elevators as shown in the plans unless you want to be a test pilot.

4. For those of you who are building your own wings, we have been sending out pre-molded ribs for the inboard trailing and leading edges of the wings. These were sent out by mistake and are no longer being sent out. If you do have them, you can use them but you must allow room for them when you glue the foam cores onto your spars. If the rib were 2" wide, you would have to cut your foam to allow for that. In the case of the leading edge inboard rib, first you would have to square it up then remove the material. Once you know what they are, it makes it easier to understand. You cannot add them after you have glassed both sides of the wing. These are actually for the wings we produce here at the shop. We never charged the customer for them.

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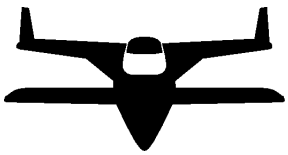

The Velocity Branson Fly-in October 11-13, 2002

Last Call... Have you Signed up yet?

We have set up a special page on the factory's website with the latest information about Branson activities, the fly-in schedule, lodging choices, and how to sign up. Go to velocityaircraft.com and click on the link located on the home page for the Branson Fly-in. You can also refer back to a detailed article on page 1 of Velocity Views volume 30

Check velocityaircraft.com for up-to-date details

Builder Hints & Information

by Scott Swing

Removing epoxy from plexi

When you get done with your project, you most likely will have some epoxy on your windows. Hopefully you don't but if you do, there is an easy way of removing it. Do not sand it off. This will cause distortion even if you get it clear by using special scratch remover or Micro Mesh. Take a new single sided safety razor blade and bend it slightly. This is done to keep the edges from digging into the plexi. Carefully scrape the cured epoxy off the surface. The thicker the epoxy, the easier it is. This will leave minor scratches in the surface, which can be eliminated with compounds or Micro Mesh. This same method can be used on the airplane after it is completed. This happens here a lot since we are working with epoxy around finished aircraft. If you try and sand it off, you will sand around it and you may be into the primer around the spot you where trying to remove.

Tires

If you are using the 15 X 6.00 X 6 main tires (low profile 6.00 X 6) and your tires are tight in the wheel wells, we can help you out. Our new tires seem to be about 1/2" smaller in diameter. They are Condors but are more robust looking and are smaller. Condor switched manufacturing locations recently and this is what we got.

Servicing Brakes

We have been working on different brake options here, and we continue to, but in the mean time you must get what you have to work to its potential.

First, make sure the pads are not cracked from the start. Some times the factory,(Matco), sends out installed pads that are already cracked. This happens because the installer used to much force in riveting them on.

Second, make sure the assembly is correct and that all bolts that are supposed to be safety wired are done that way. There are two sets of bolts to be safetied on each assembly. If you assemble something wrong, it will bind up.

Third, make sure the caliper floats freely. If it doesn't, only half your brake will work. The caliper may have a clearance issue or it may be the bushings it slides on.

Forth, make sure you have greased your bearings.

Fifth, make sure the axle nut is tight but not to tight. If you are not sure, have an A&P check it. You should not be able to shake the wheel in or out and the wheel should roll nicely. If you get it to tight, you will work the bearing to hard as well as increase the rolling resistance. Don't forget the cotter pin.

Sixth, I like to bleed the brakes from the bottom up which takes two people. Use Dot 5 brake fluid only. Get all the air out of the system. Check the line at the master cylinder while you push it in since some times air gets trapped there. If you see a bubble, you will have to open the fitting slightly under load to get it out. You may have to bleed several times to get all the air out.

Seventh, The break in is very important. I usually just went for it on the fast taxi/runway flight and got on them but that is probably not the best way. One of our builders was told by an old timer how to do it and this is what he says. Push the plane out to the taxi way and start it up, accelerate to about 30 knots and aggressively use the brakes to a complete stop. Let it completely cool down then do it one more time. Do not taxi around at slow speed using the brakes as that will glaze the disk and the pads. If you suspect that you are already glazed, remove your discs and using a DA(dual action sander) with 80 to 120 grit sand paper, clean the discs. You also want to sand the pads on a flat surface to clean them up. Repeat the break in procedure. There is some suspicion that the anodizing is causing some of this since that may upset the break in.

Eighth, maintain the brakes, check them often, if anything seems out of the ordinary, fix it.

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A&P Talk

by Brendan O'Riordan, CFII, A&P

Pre-flight Preparations

How to catch something before it becomes a problem.

In the last few months we have had quite a few minor incidents with Velocity's. Looking at these incidents with hindsight, many of them could have been avoided if proper pre-flight planning was done before the flight. I will go through what a person should do before a flight in a Velocity.

Preflight planning should begin before you get to the airplane. We will first start with a quick check of our weight and balance. First off we will figure out the total weight we will be carrying and make sure we are under our gross weight. Next we will make sure this weight is placed

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A&P Talk

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in your airplane so that it doesn't adversely affect the flying characteristics. For instance, you are carrying a load (fuel, baggage and people) that is a few hundred pounds under your gross weight and after doing your balance equation you realize that you are forward of your CG limits. If you were to take off it may take more runway to rotate and at a faster speed or you may not be able to rotate at all. Next you would want to check the weather conditions to see how they will affect your aircraft performance. I had one instance where I was flying a LWFG Velocity out of an airport just South of Phoenix. It was the middle of the day and very hot. I was loaded to my gross weight and my airplane had a fixed pitch propeller on it. I had 6000 ft of runway. Taking off out of that airport I did my impersonation Of Charles Lindbergh taking off in the Spirit of Saint Louis. I rotated bounced twice and climbed out just over the telephone lines at the end of the runway. If I spent a little more time evaluating my situation I might have left some fuel behind and lightened up the airplane.

We also need to check for bad weather along our route of flight. Some of you may think that this should be common sense, but common sense isn't so common these days. We had two VFR pilots fly out of Sebastian at night into nasty thunderstorms because they had to "get home". Fortunately they just got to Daytona before scaring themselves enough to call it quits for the night. We had another VFR pilot fly out into bad weather who wound up running out of gas because of all the deviating he needed to do.
Now we are finally ready to go check the airplane and make sure it is ready to fly. With a Velocity you always start at the nose.

1 First we will check our nose gear and shimmy dampener. Many landing incidents caused by loose shimmy dampeners could be avoided here. You also want to check out you nose gear (especially on an RG) and check for cracks at the gussets.
2 Check your oil cooler inlets and outlets and your pitot tubes to make sure something hasn't built a nest in them.
3 Check the condition of your canard hinges and general condition of your canard.
4 Wiggle the elevator up and down and check that the stick and the other elevator move with it. We had a builder reinstall a canard without properly installing the elevator torque tube. He loaded the airplane up with 4 adults and took off without doing a preflight inspection or a con-

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Flight Check!
Be Safe!

Velocity Service Center Inc. offers flight training for builders/pilots to safely learn how to transition into flying a Velocity. Get a **Flight Check Out** prior to your first flight! Flight training is available from:

- Nathan Rigaud, CFII
- Brendan O'Riordan, CFII
- Scott Baker,CFII

The following Flight Instructors have also been approved by Avemco Insurance:

- Sam DaSilva - Seminole FL 727-595-6384
- Mike Gunvordahl - Burke SD 605-775-2952
- Mack Murphree - Dayton NV 775-246-9364
- Manny Lewis - Scotia NY 518-399-8614

Don't take a chance, get checked out prior to your first flight. Please note that you should be current in some other type of aircraft prior to your Velocity check out. The purpose of the "flight check" program is to transition you from flying other aircraft types (like a Cessna) to a canard pusher (Velocity).

Factory Authorized Insurance Inspectors
Please make note of these individuals:

Name - Location Home Phone / Work Phone

Brian Gallagher - Murrieta CA 909-461-9990 / 909-696-0160
Barry Gibbons - Palmdale CA 661-273-7398
Don Pearsall - Owasso OK 918-272-5551 / 918-474-2610
Mike Pollock - Sachse TX 972-530-8400 / 972-728-2725
Glenn Babcock - Tampa FL 813-677-2543 / 813-604-2637
Wes Rose - Grand Rapids MI 616-772-7235 / 616-530-0255
Jean Prudhomme - Boca Raton FL 954-559-4988
Mack Murphree - Dayton NV 775-246-9364
Gary Stull - Tampa FL 813-949-1297
(Gary is an airline employee and can travel inexpensively)

A&P Talk

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trol surface check. They took off ok but soon realized they had no elevator. To compound the problem they didn't hook up their pitch trim motor either. They fortunately flew the airplane around the pattern using weight shift and power but this all could have been avoided.
5 Check your fuel (sight tubes or panel gauge.) If you just have a panel gauge you want to stick the tanks as well to make sure it is reading correctly.
6 Check your main gear tires for wear. Check your gear leg. Check your brakes and brake pads. We have had a few incidents recently where we have had brake pads that have been cracking. There is a good chance that some of these occurrences could have been caught on the ground.
7 Check the general wing condition for delaminations. Also check your Vortilons or VG's.
8 Check your rudder and aileron hinges. Make sure the pins are where they should be and the screws are tight.
9 Check your cowling screws. Many an expensive propeller has been damaged from a cowling screw.
10 Check your exhaust system. A broken stack can go through your propeller.
11 Check your oil. When filling your oil make sure your oil spout is clean. A piece of rag down the spout and into the engine is all that is needed to clog the oil pickup.
12 Check your propeller for damage. The copilot side follows the same pattern as the pilots side.
These are items that should be reviewed before each flight.
I know that this is stuff our first flight instructor tried to pound into our heads but for a few of us we need the refresher. The old saying " An once of prevention is worth a pound of cure " doesn't translate well to aircraft operations. In the worst-case scenario an once of prevention can save your life.

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Safety Corner

Accident & Incident Reports, Maintenance & Service Difficulties

AD Notice on Franklin

If you own a Franklin engine, the FAA has issued AD# 2002-18-51 on August 27, 2002 for the PZL Franklin 6A-350 series engines regarding a mandatory aircraft grounding until removal of the fuel pump diaphragm type AC4886 and replacement with the PLL-7 fuel pump. PZL-Rzeszow has issued Service Bulletin on August 2002 number PZL-F/71/2002 which covers the mandatory fuel pump replacement, and how to obtain the replacement fuel pump. Be sure to get both of these documents. Another bulletin is expected to be issued covering the replacement procedures.
Your replacement fuel pump may be free if your engine was manufactured by PZL. They have set up the following email address for a replacement fuel pump: pump_replacement@wskpzlrz.pl
Be sure to give the pertinent info like your engine model number, engine serial number, who you bought your engine from, etc.
If you don't have email, send a fax to: 011 48 17 854 0725

Gear Up Landings

In spite of all we do, there just doesn't seem to be any way we can prevent the possibility of a gear up landing on our RG's. There are, however, several things the builder/flyer can do to minimize the chances.

One of the simplest solutions, it would seem, would be to have a warning horn coupled to the throttle and a landing gear micro switch to warn us of a gear that isn't down and locked. ALL our RG Velocity aircraft have the necessary components to make this work and a wiring diagram to go with it. If we don't install it, then a gear up landing is going to happen some time. Notice, I didn't say "might" happen, it is "going" to happen. We have had too many builders call and say they "accidentally" landed with the gear up and locked. When ask if the warning horn was working, I often get the answer that they didn't install one because they never thought it would happen to them. Another common answer after a gear up landing is that they had the horn installed but it didn't work. Let me tell you what I have been doing for the past 35 years flying retract gear aircraft and, "knock on wood," have never had a gear up landing. yet.

I always, repeat, always, pull the throttle back on downwind, prior to putting the gear down, and check to see if the horn is actually working. Once I can honestly say I have a working gear horn, I then can advance the throttle to mute the horn and then put the gear switch down and check for two (or three) in the green. This procedure is not used if I am on an instrument approach as I will drop the gear at the final approach fix or on glideslope intercept to establish the proper descent profile. It isn't difficult to understand that without a power reduction when crossing the final approach fix or on intercept of the glideslope, I will not be coming down. No power changes here, just dropping the gear will set up the proper glide angle. This is the perfect reminder to lower the gear and always check for the green lights. If all you do is push the nose over to maintain a glideslope capture, you will almost immediately accelerate to a speed far beyond the normal approach speed. I usually fly at the 120 knot approach plate recommended speed and can easily

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Safety Corner

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achieve the desired descent angle once the gear is down and locked.

I flew a customers XL RG a couple weeks ago and found the airplane to be almost perfect with one glairing exception. The builder had installed some Bose noise canceling headsets and when I pulled the power back to check for the gear horn, NOTHING. The gear horn was installed behind the panel and was a low volume horn that would not get through the headsets. Even with the headsets removed, the horn was barely audible. Radio Shack sells a very loud horn that has an adjustable front plate that can muffle the sound somewhat. This horn will drive you out of the airplane. You can also couple the horn output through the audio panel or intercom and this should be done if the horn cannot be heard easily.

Another area we see here that could cause a gear up landing is very poor or no maintenance on the gear system. Let me say it is far cheaper to check the gear often than replace a propeller once. This is especially true of those of you who had your airplane built by someone else or have purchased a flying Velocity RG. The system is not infallible and needs to be checked often if you are going to survive years of RG flying. Most of the airplanes we have going through our shop need work on the gear system. Either the cables are too tight, too loose, the hydraulic ram spacer is the wrong length, the gear rubs in places it shouldn't, the pulleys don't move properly, the gear sockets have too much play in them, the gear pivot spacers have been left out and on and on. Just doing a retract test is not enough.

We have had at least one gear up landing caused by using a tire that was slightly larger than the one originally installed. The tire stuck in the wheel well and would not release. A good rule of thumb is to always do a retract check on the ground whenever new tires are installed. We have seen cases here where there is a noticeable difference between two tires coming from the same manufacturer. When you do a retract test, have someone who is knowledgeable in the airplane looking for things that are not correct. Does the gear rub in places it shouldn't? Are there noticeable noises that should not be there? Is it possible for something to "hang up," because, if it is possible, it will. In looking at the nose gear, can the fork catch on the upper edge of the guides? Will the fork catch on the nose gear opening? Are there any noticeable cracks in the gusset plates? Is there any excessive side to side play?

Remember always GUMP. G is for gas (including fuel pump), U is for undercarriage (down with green lights), M is for mixture (full rich) and P is for propeller (takeoff position). Remember, just saying the word is not enough, you must react to each letter by verification that the act is complete. Putting the gear switch in the down position is not enough. Verify that the gear actually goes down by observing the green lights. We have more than one pilot that "assumed" the gear was down because he put the switch in the down position.

What if I do everything right and the gear doesn't come down? Don't panic! There are several things you can do to get the gear down and locked. The most common cause is pressure build-up in the hydraulic system that causes both the "up" pressure switch and the "down" pressure switch to open. This results in the pump motor not running when you select either up or down. The cause of this is the altitude and temperature changes. Sometimes you can clear the system by moving the dump valve to the open and then closed position. A better solution is to install a momentary push button switch near the gear switch and wire it directly to the down solenoid. With the gear switch in the down position, simply push the switch for a couple seconds to get the pump running. This will purge the system and it will then work OK. Our pre-wire gear system has this momentary switch mounted on the front panel and is labeled "reset." Let us know if you want to install this switch in your aircraft and we will send you the wiring information. It is really not difficult to install and should be a part of every RG Velocity.

If the pump still refuses to run, use the dump valve. Remember, the dump valve should be reset to the closed position after the gear is down and locked. This is to help lock in the hydraulic fluid so that the nose gear will not collapse if the overcenter linkage is not "overcenter." If you don't have an access hole in the keel just below the nose gear overcenter linkage, you should put two in now. This will allow you to use your finger or a short rod to reach into the keel and force the nose gear overcenter linkage to the locked position. If this access hole is on both sides of the keel, it will allow you to insert the short rod, (we use a 3/4" wood dowel) all the way through the keel to "lock" the overcenter linkage. This dowel has a double duty as we paint it black and then calibrate it in 5 gallon increments for a preflight check of the fuel quantity.

As an added benefit, I always hold the false bulkhead that covers the rear of the airplane in place using Velcro. This allows me to pull this cover away from the front of the gear so I can visually check on the gear system should I not get the main gear down light. If a cable is hanging up, or some other obstacle is holding the gear from going down, I then can reach back and free the gear up.

If a gear just will not go down and a gear up landing is inevitable, don't panic. If it is just the nose gear, make a normal approach and as smooth a touchdown as possible keeping the nose in about the same position as it would be if the gear were down. As speed is bled off, con-

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Safety Corner

Continued from previous page

tinue to hold the nose in the level position until you run out of elevator. Not much else you can do now but ride out the landing. We have repaired a nose gear up landing in about three working days including finish painting of the gear doors .

If the nose gear comes down and not the mains, don't panic, you need to keep your cool. If you have tried everything to get it down and it just won't happen, I believe I would retract the nose gear and land the plane on the belly. Keep the wings level to minimize wing damage. Your probably going to get the prop no matter what you do so my advise would be to keep the engine running to make as smooth a touchdown as possible. With a wood core propeller, there is really not much chance of doing crankshaft damage. I would do a dial indicator check of the propeller flange as a safety measure.

Believe me when I say I will do just about anything humanly possible to get that gear down. A gear up landing is not difficult to repair; it's that expensive prop I'm most concerned about.

Duane Swing

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Production News

by Scott Baker

Service Center Programs

You all are familiar with the great services and coaching that is provided at the Velocity Service Center, but did you know that that factory also offers a unique "Head Start" service? It involves making the skeletal portion of your own "Fastbuild Wings".

Jim Parrott (pictured above) heads the Velocity Fastbuild Wing manufacturing operation and also provides coaching and one-on-one assistance to help customers build the skeletal structure of the main wings and canard in as little as ten (10) working days. Customers gain a big timesaving advantage by using the factory's production wing jig tables to position the foam core sections and to do the initial lay up.

Customers can expect to complete the following wing building steps during this 10-day program:

* Prepare main and canard spars to receive foam cores
* Position and bond foam core sections to spars
* Install communication and VOR antennas in each main wing; including the connection of coax antenna cables
* Prepare foam cores to receive fiberglass
* Install rudder conduits into main wings
* Install wing root ribs (2 each for each main wing)
* Apply triax cloth to top and bottom surfaces of main wings and canard
* Apply glass lay ups to winglets
* Attach winglets to main wings
* Attach winglet bottoms
* Fabricate elevators, including application of Uni cloth

In other words, everything short of applying "schmooie" (micro) and doing the sanding is done (we left the fun stuff for you to take home and do later!).

The cost of the 10-day program is $4,300 and includes 80 hours of technical and hands-on assistance. Custom antenna installations, such as Strikefinder and Stormscope antennas that require a perforated wire ground plane and internal hard points cost extra.

Replacement Parts

Someone recently offered a good-natured, tongue-in-cheek remark on The Reflector that "Natalie has everything!" Well, not quite true, Natalie Femia (who is Velocity parts) does have a selection of parts beyond those that are provided in the Velocity kit that are in support of Velocity customers. Some of these items include replacement brake pad kits; master brake cylinder rebuild kits; hydraulic cylinder rebuild kits; oil access door latches; replacements for tired gas-spring shocks; tires and tubes of all sizes; seat belts (just about any color can be ordered); and more. We are working on listing everything in the catalog.

Some reminders regarding the packaging and shipment of parts – Epoxy hardener is considered "hazardous" by all of the major shipping companies, and as such cannot be shipped via overnight (air) service. It

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can only be transported via ground. Keep this in mind should you instruct Natalie to send your order via overnight service … the hardener will be arriving much later. Unfortunately for international customers (including Canada), epoxy hardener cannot be shipped via the major shipping companies at all! Also, please remember that 12 o'clock noon (Eastern time) is the cutoff time to order parts and have them shipped the same day. Unless a part is back-ordered, we will do our best to see that your order gets shipped the same day.

Working with Jeffco 9700 Fuel Sealant

As you all know from the last issue of Velocity Views, the manufacturing team is building a 2-door SUV (more about the SUV aircraft name in another part of this View's issue). We recently completed the fuel strakes and learned some interesting things on how to work with Jeffco 9700.

First of all, if you are not using the Jeffco 3191 Slow 60 minute hardener, consider doing so. The slow hardener is much easier to work than the 9700B hardener – and it gives you a lot longer pot life. Be sure to measure the resin and hardener with a graduated measuring cup or a scale. We use a battery operated postal scale that is then covered with a plastic bag to protect the unit from epoxy drips. The ratio is 2 parts resin: to 1 part hardener. Mix small batches of 9 ounces or less to reduce the likelihood of an exothermic reaction. This is especially important if you are using the 9700B "fast" hardener.

Do a good job of prep-sanding the inside of the strake – blow away the dust – and give the surface a light wipe with a cloth wetted with alcohol. Allow the alcohol to completely evaporate before applying the mixed Jeffco.

There are several methods of applying Jeffco. One can dump the mixture on the surface and then spread the coating around using a plastic squeegee – or it can be applied from a cup with a brush. The squeegee method uses more material. The brush method does a little better job of covering all of the areas that need to be covered.

Here's the secret of getting a leak proof tank. Plan on applying at least 2 coats of sealant; maybe 3. Even though the directions allow a follow up coat when the first coat is just about dry … don't do it. Allow the first coat to dry and then sand the surface to prepare for the second coat. Jeffco often displays a phenomenon called "gassing". You think you've done a great job of spreading the sealant around – and moments later an air bubble will appear. This is caused when trapped air inside pin holes makes it's way to the surface. Unfortunately, when air bubbles appear, the surface is too tacky to touch without messing up the job. That is why it is important to sand the surface between coats. Do not – I repeat, do not brush two wet coats and then "close out" the strake. Chances are that air bubbles will appear and become a source of leaks.

Velocity Models Updated

Velocity XL and Velocity SE
Two Models: 4 Popular Options

We now offers two basic models - the Velocity XL and the Velocity SE. Both models will come with fixed landing gear, 2-doors, and a center mounted control stick. Buyers can select 4 major options:

* Retractable landing gear
* Dual control yokes
* Fastbuild Wings, and
* Fastbuild Fuselage

The Velocity XL, standing for eXtra Large, is the Velocity flagship and features a roomy 48" cabin and lots of room for 4-adults, plus baggage. The Velocity SE stands for "Standard Elite". This model features a 42" wide cabin; room for 4-adults; plus a little room left over for baggage. The SUV model and name is being dropped from the model line up. Customers have clearly stated their preference for wanting the comfort of 2-doors. The Velocity SE features a cut-down center keel when the Dual Control Yoke Option is ordered – which essentially makes this model a 2-door "SUV". The differences between the SUV and SE models are minor – and Velocity decided to drop the name SUV to simplify the order process and to help avoid confusion.

Split-Kit Option Eliminated

Velocity, Inc. has eliminated the Split-Kit Option for a number of reasons – chief amongst which was a lack of customer interest. Administrative costs and the higher cost to ship the kit in two shipments vs. a single shipment have apparently dampened interest in this once popular option. Most buyers find that it is cheaper to finance the purchase of the entire kit than it is to deal with the added costs associated with a split-kit shipment.

Support "Velocity Views" and "The Reflector"

The Velocity Views Newsletter and The Reflector serve as great resources for Velocity owners, flyers, and builders. By virtue of your reading this article, you already know about the Velocity Views Newsletter and the important and entertaining information that it contains. The Reflector is an email Velocity support group that is open exclusively to Velocity owners and builders. These two services are not associated and they operate independently from one another.

The Velocity Views newsletter and the Reflector email support group is available thanks to Rick and Judy Lavoie (Velocity Views) and Brian Michalk (the Reflector). Both are Velocity aircraft owners that share a passion for building and flying Velocity aircraft. The work that they do in publishing the Views and administering the Reflector is more of an act of volunteerism than it is a business.

Support the Velocity Views. Help save costs by sending in your renew subscription before the end of

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Production News

Continued from previous page

the year. Why not do it now? The information is printed on the newsletter's last page.

Support the Reflector. Send Brian Michalk $10 (or more!) to help defray the cost of keeping this service up and running. To do so is easy. Access the PayPal donation button at www.tvbf.org and simply enter your credit card information.

A Report from MATCO Mfg.

George Happ (MATCO) recently wrote to let us in on the findings of a recent braking problem experienced by a Velocity owner. The information was enlightening – and we thought it might be of interest to everyone. What follows is a cover letter from George Happ along with a copy of the report.

[Letter from MATCO]:

Here is the inspection report that we discussed for the D6 disc from (Customer's name) Velocity. This is the first solid evidence I have seen of a brake that has exceeded the energy capacity of the disc. We have seen some evidence of lining overheating but it is not a easy to establish the temperatures that have been seen. With this disc, since it was fairly new, the blistering of the zinc plating gives a good indication of the temperature seen in operation.

The W600 or W600XT use the D6 disc and have an energy rating of 337932 ft-lb as determined by the mass of the disc. The brake serves as an energy conversion device, converting the kinetic energy of the aircraft to heat energy in the disc. With the kinetic energy (KE) of the aircraft being a function of the square of the velocity, additional speed at brakes on can have a significant impact on KE and therefore brake temperatures. For example, and aircraft weighing 2800 lbs with a brakes on speed of 73 knots would have a KE of 659141 ft-lb requiring 329570 ft-lb capacity per brake. If the same aircraft uses brakes with a speed of only 5 knots higher, the aircraft KE jumps to 752526 ft-lb and the per brake requirement of 376263 ft-lb would exceed the energy capacity of the D6 disc. It is important to note that the energy capacity assumes an initial disc temperature below 80 degrees. If the starting energy state of the disc (initial temperature) was high to begin with, the brake over temperature at the end of the high energy stop would only increase.

I hope this information is of use to your customers. Discs found to have similar conditions as found on the inspected disc in the report should be cleaned and linings inspected for cracking.
[End of Letter]

INSPECTION REPORT
George R. Happ
Date: 8/28/02
Part Number: WHLD6 Brake Disc
Reference: RMA 02-082
Aircraft: Velocity

BACKGROUND
Customer reported brake vibration and mechanic attributed it to 'hot spots' on the discs. Reported that discs had defect on both sides of disc at same radial and circumferential locations with raised spots. Theory was that there were hard spots in material that wore different and caused bumps. When wheel was turned slowly, the wheel would drag in at locations with bumps. Belief was that bumps caused drag that in turn caused brake vibration. New discs were sent and installed on aircraft with apparent relief of vibration. Disc from the aircraft were returned to MATCO mfg for inspection.

INSPECTION
Both D6 discs received had surface blemishes as described by the customer. The blemishes varied in diameter from .35 to .5 inch elliptical shape. The discs were very new with most surface grind markings still visible on the friction surface. The material blemishes had a very dark color and had heights of approximately .002-.005 inches. Blemishes were apparent on both sides of the disc in the same location as described by the customer.

The outer edge of the disc in a 40-degree arc was discolored with mild blistering of the plating. The arc section of the discoloration band encom-

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Calendar of Events

October 4-6 EAA Southern Regional Fly-In in Evergreen, Alabama. Nathan Rigaud will be there with a Velocity XL-RG

October 10-13 Copperstate EAA Fly-In. The SUV aircraft will be at Copperstate, complete with a new instrument panel featuring the Blue Mountain Avionics EFIS-One Package.

October 11-13 Branson, Missouri Velocity Fly-In. Sounds like great fun! Duane and Bonnie Swing will be at Branson.

October 24-26 AOPA Expo 2002 in Palm Springs, California. Scott Baker will be at AOPA this year. Chris Martin's XL-RG will be on static display; and the SUV will be available for demo rides.

November 2 Velocity Open House at Sebastian, Florida

passed the blemished area of the friction surface.

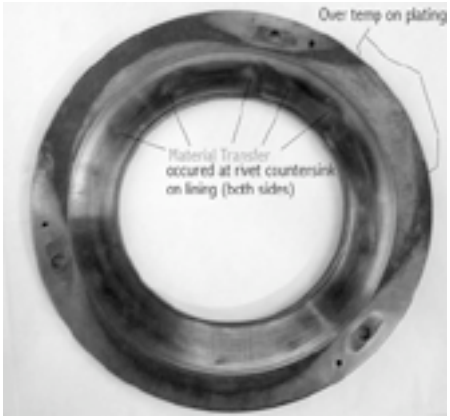
The blemishes did not appear to be disc material. An attempt was made to remove the blemishes and proved quite easy with a sharp edged knife. The blemish material was brittle and tended to come off in flakes. There was very slight deformation of the disc material under the blemishes that were visible but not measurable in height.

CONCLUSION

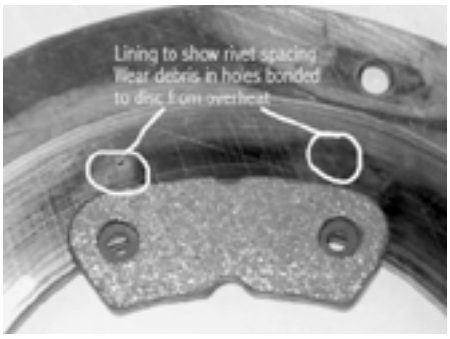
The brake disc had been severely over heated. Temperature estimates required to blister the plating are 650-700 F. The blemishes on the disc were wear material that had bonded to the disc. The wear material collects in the rivet holes during operation. The severe overheating of the brake caused the wear material trapped there to bond to the disc when the aircraft was parked. The linings on both sides of the disc exhibited these phenomena and caused the blemish pattern to be the same on both sides of the disc. After the aircraft cooled and was later moved, the wear material 'buttons' that had fused to the disc were snapped off. With the linings in a conditioned state, the fused material was not scraped off on subsequent passes with the lining but instead formed a hard barrier that caused the lining to 'skate' over the deposits. Additional wear debris was infused into the blemishes making them appear very smooth edged. The blistering of the disc edge occurred in the arc segment where the caliper stopped on the disc. This would be the hottest portion of the disc. A more severe overheat would cause blistering around the entire surface.

The following photo shows one of the discs with the material transfer areas highlighted. Both sides of the disc exhibited transfer in the same areas. The blistered area of the plating on the disc OD is also highlighted.

The next photo (below) shows the material transfer areas with a lining to clarify the spacing. In operation, the counter sunk area of the lining that is visible in the photo would be against the disc surface and serves as the collecting point for the debris.



The ramifications of this over heat condition are several. First, the linings can be overstressed at the rivet holes as the bonded material is sheared off on the initial rotation after the material transfer occurs. If the material transfer is evidenced on the disc, the linings should be inspected for cracking at the rivet holes. It has been reported by other brake manufacturers that in severe conditions, entire sections of the lining surface can be transferred from a severe overheat requiring immediate lining replacement.



Second, the material deposits on the surface of the disc may cause some torque oscillation from the brake. The impact to the gear stability will vary with aircraft but a torsionally sensitive gear may suffer some loss of stability for the oscillation. The deposits can be easily removed with a metal edge and should be so removed if found. Both sides of the disc should be cleaned. Care should be taken so as not to gouge the surface of the disc.

Third, the loss of corrosion protection from the overheat may be a problem depending on the operating environment of the aircraft. Replating may be considered for some operators.

Care must be taken in the selection and operation of the brake on the aircraft. The energy limits are determined by the mass of the disc. The D6 has an energy rating of 337000 ft-lbs. This rating assumes a start temperature below 80 degrees. The energy state of the brake (starting temperature) affects the energy level of the brake at the end of the stop. It is important to bear in mind that the kinetic energy of the aircraft, which the brake will be required to convert to heat energy, is a function of the square of the velocity. Increases in landing speed by several knots on a configuration that is near the energy limit at a predefined speed can quickly lead to an over temperature situation. The same is true with repeated landings without sufficient cooling in between. Long taxi with residual engine thrust also adds energy to the brake and may be a consideration if the brake operation limits are close the landing energy alone.

[End of Report]

In other words – the starting temperature of the brake discs and the landing speed greatly affect how well the brakes are going to perform. Conserve braking action during taxiing – manage taxi speed with power (not brakes). Hot brakes will not make a lot of difference when beginning a flight – but they might if you need to apply brakes during an aborted takeoff. Manage approach speeds so that the aircraft touches down somewhere around 75 knots. If you are having trouble slowing the aircraft to 85 knots on final – consult with Velocity to find out why. It might be pilot technique or it might be the aircraft. If the runway is long enough, allow rollout speed to dissipate somewhat before applying brakes.

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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.

Velocity XL/FG

From Brett Ferrell, Mason Ohio

I have discovered the secret to building composite airplanes, and it only took me 2 weeks. It merely requires the ability to stand on your head, maintain complete fine motor movement in both arms, and to target your sweat drops. We don't want to make a mess on our nice prepared lay-ups. But I'm getting ahead of myself, that's not where the story starts.

Flash back about 12 years. I say about, because I don't remember exactly when it happened, this faithful conversation, but it happened "in college" as do so many important life events. "Brett, check this out, it's the coolest thing, you can build your own airplane!" my friend John told me. "You're out of your mind", I replied
"No, really, see there's this whole magazine about it, it's awesome." "No, you're a nut case", I assured him as he handed me a shiny but already well-worn and fingerprinted copy of Kitplanes. "And just because there's a magazine doesn't make it rational", I threw in as my zinger, my sure-fire call to reality. Yet he remained unmoved. So I browse the magazine, and tried to shepherd my wayward friend back to the real world of engineering where you build expensive things with other people's money and go home in a minivan to a house painted in four shades of white.

And a funny thing happened, rather than convince him that this wasn't possible, I began to suffer delusions of grandeur, that I might be able to pull off such a trick myself… given a huge amount of time and vast financial resources. Oh my friend was ever the dreamer, telling me about how he was going to scavenge spare parts from work and with a few key pieces from Radio Shack, he was sure he could build a function 'Heads-Up Display Unit'. (my friend suffers from both over-enthusiasm and Electrical Engineer's disease) I knew that I would never build a HUD, but I thought that I might, just might mind you, build an airplane some day.

In time I subscribed to Kitplanes myself and carefully analyzed the performance of the various planes, also looking forward to the big year-end extravaganza that summarized the variety of aircraft available in the market that year. I always wanted a composite bird, that much I knew, that we were fast and sleek and modern looking. And they seemed simpler for a non-mechanic to build. Where my friend leaned toward the Laincair, Glassair, and Seawind (he had a pronounced fling with the Seawind, being a scuba diver), I kept coming back to the spaceship like pusher design of Rutan. At the time I was in ROTC, and looked forward to flying other pointed-nosed aircraft, and the non-propped portrait of these planes just felt like home. And there were the imminently sensible improvements from not having prop-wash on the rudders, visibility, and stable stalling characteristics.

I came to love these ducks, these canards, very much. I longed for a long while, but knew it wouldn't last. No, if I, me myself, were going to own an airplane, I was going to be able to carry 4 people on trips. My idea of flying is being able to go far off places, fast, and with a payload. I had an affair with the Cozy, so much so that I very nearly bought the plans. Then she came into my life, the Velocity. It was love at first site! Beautiful clean lines, a pusher canard with 4 places and no need to "graze" on the ramp. Now this was a plane a guy could really fall for, and I did, hard. If I ever built a plane, this would be it. Then in about '97 came the "Elite" gull-wing doors, and I thought it couldn't get any better. Until about '99 when the XL came out, to my total and unabashed admiration! It had more of all of the good things in life, power, fuel, legroom, and even came with slightly better stability. This was the plane for me.

But as happens, life proceeds, and the timing was never right. I was just out of college starting a job, moving, moving jobs, needed the money for something else, but it just didn't happen for many years. Then I met a soul mate whose soul also longed for flight, with similar means, and reasons to move about this great land. Hints turn into chats, chats into discussions, discussions to research (why this plane over that), and finally she was hooked to. So, last year we went to Oshkosh together and met the Swings. For those who haven't had the pleasure, they are extraordinary good people with whom we got along very well. We took the demo flight, talked to builders, and enjoyed the show, stopping to take pictures of the canards in attendance. Then it happened, on one of our seemingly dozens of visits to the Velocity booth, Beth blurted it out, "alright, we'll take one – can we put the deposit on Discover?" I was stunned. We both pretty well trained by our professions to be slow moving, conservative, but over all rational people. We hadn't discussed doing this today, was she out of her mind?!

In the end it was very well rea-

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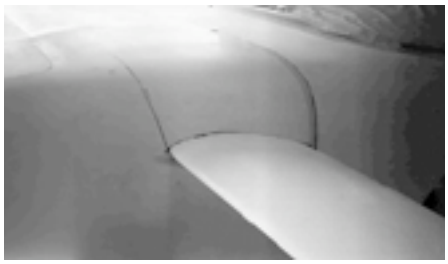
soned, there was a price increase coming, and we knew we wanted the plane. They'd mentioned that production was a bit backed up, especially if you wanted fast-build wings (we'd already decided not to tackle the primary flight structures ourselves). We had months to get the necessary preparations made, and we'd really already made our decision, she just felt it was time to let Velocity in on the secret.

Flash-forward to present day, where we've settled into a new house purchased largely on the size and shape of the garage, purchased hundreds of pounds of tools, and made endless preparations (gray epoxy/terrazzo for the shop floor, 2 perfectly leveled industrial strength work-benches, paint and light the shop-including the Velocity logo) for delivery day. We went to Sebastian for 10 days of Head Start training on building technique where we actually accomplished a lot of work on our plane (set the Center Spar, installed the elevators onto the canard and bedded the canard to the fuselage, installed the engine cooling NACA ducts, the keel, the landing light, battery tray, and the oil cooler scoop).

The funny thing about life is mostly I find that no matter how well I plan, I nearly always find I'm under prepared. As we unloaded the truck (that my beloved was kind enough to drive the plane back in – whole other story, ask sometime) I began to wonder, "well I'll be d@amned, where I'm going to put this?" My oversized garage was beginning to resemble a seriously under-sized workshop. Who knew

At Head Start, after fitting the canard and 'doghouse'



An evenings worth of sanding.... but a nice fit

the wings were that big? I don't think I got the memo.

But we got our baby tucked in for the night, and began disaster recovery the next day. We rearranged the shop, and then rearranged our rearrangements. Come by sometime, I think you'll find we did an acceptable job. We tried all kinds of things, many of which we were sternly reassured by this or that hardware guy could support a couple hundred pounds of wing (they can't), and resorted to a basic but time tested "stack on floor" concept. Which just goes to show why they don't call it "Plane Depot" I suppose. Then we took inventory, and brought our documentation of construction already completed on our website (by the time you read this www.velocityxl.com will be up and running), tested the epoxy pump, and set off on our great adventure.

Since then we've spent about 2 weeks happily glassing, drilling, bolting, sweating, and learning contortionist tricks of every description. In retrospect the Head Start trip was invaluable, as I would have been terrified of the project (and the money spent getting it into my garage) if I hadn't done it. Also, my fears about calling the factory were completely

Delivery Day!

Big Bird in the shop - Artwork courtesy of Elizabeth

unfounded; they are more than willing to hold my hand and tell me which piece goes where, and with an encouraging and sympathetic demeanor (coming from a computer support background I can really appreciate this too, because I know that there are stupid questions, and though they need to be answered, sounding cheerful while doing so can be difficult).

Major milestones since taking delivery are bonding and glassing the center section spar in, completing the speed and actuator installation, installing the brake master cylinders, and bonding in the gear leg bushings. There is much to do yet, but we're setting off to tackle it optimistically.

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N216MR Cross Country Trip

From Denis Wood

A memorable cross country flight from Sebastian, Florida, to Boulder City, Nevada, in a newly constructed Velocity Standard Elite

Introduction

Srirangam Rangan built an SUV in the Service Center over a 6 month period. It is powered by a Lycoming engine with an M-T constant speed propeller. Denis Wood is also completing a Velocity standard RG in the Service Center. The airplane was built by Denis and his co-builders in France and shipped to us with all the glass work completed. Denis plans on flying the airplane back to France once the engine, avionics and wiring are completed. Denis is a retired airline captain for British Airways and

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Builders Forum

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flew as the co-pilot/navigator for Rangan (pictured below) on his trip to Nevada.

Early on Thursday, July 25, 2002, my good friend Tony Fortune and his wife Alexis drove me from their home in Spruce Creek near Daytona Beach in Florida to a rendevous at Sebastian Airport, some 100 miles south. This was the day that I had agreed to fly in a brand new experimental aeroplane with the owner across 8 states, a distance of 2300 nautical miles.

The aircraft was fully fueled, the flight plan filed, and the outside checks completed by the time we arrived at 0815 hours. With the minimum of ceremony we were airborne by 0830. Our initial routing took us northwest, across the Florida peninsula south of Kissimmee, over Cross City, towards Tallahassee.

After two hours of flying we observed that fuel was being used from the starboard tank and that the sight gauge on the port side showed the tank still full. With less than 10 gallons indicating on the starboard side we had to assume that this was all the useable fuel available. Added to this, the weather looked formidable, a line of thunderstorms appeared to stretch from Panama City on the Gulf of Mexico, northeast as far as the eye could see.

With the aid of the wonderful color moving map on our Apollo GPS navigational system, which I was learning fast, I located a small airfield 15n miles to the north, which would keep us clear of bad weather and give us the opportunity to investigate the reason for the unequal fuel consumption. From the GPS GX 60, I was able to obtain all the diversion airfield data and a successful landing was made on a wet downhill and fairly short runway. When we came to a halt there was very little of the 3200 ft. of tarmac available!

Between downpours of torrential rain, which can only happen in Florida, we refueled and found that the "O" ring rubber seal on the port tank filler cap was covered in paint. After cleaning this area we took off four hours later, after the bad weather had moved away to the northeast.

We flew west in clear but turbulent air, to the north of Pensacola and Mobile. Our weather problems were not yet over - yet another squall line forced us to divert to a small airfiled at Boglusa where we refuelled yet again and waited for the weather to pass. At least the fuel problem seemed to have been solved; perhaps it was the turbulence, we will never know.

Airborne again in improving weather, we climbed to 8500 ft, passing to the north of New Orleans. We had a superb view of the Mississippi Delta. By now we were both becoming more familiar with the aircraft and the navigational systems in particular, and, with improving weather and a sense of optimism, we flew on across Louisana and into Texas. It had been a long day and not without incident, and as the sun's rays became ever longer in the west we decided to call it a day and landed at a most hospitable airfield - Montgomery, just to the north of Houston. We had flown almost 900n miles into headwinds averaging 35 kts and had been airborne for over 8 hours.

As is the case in America, there were no landing fees to pay (a far cry from Europe), a hangar was offered for $20 for the night, bookings were made for the Holiday Inn (where my British Airways ID card enabled a 20% discount), maps and a free car were provided for our night stop. I do enjoy American hospitality.

After a sound night's sleep, we took off at 0920 hours in beautiful weather and followed the almost deserted highway Route 10 across the width of Texas to El Paso. Due to the lack of airfields in this desolate area Route 10 could have proved a useful diversion in the event of an emergency. The IO 360 Lycoming engine purred away faultlessly. At 8500 ft and leaned to 65% it used around 10 gallons of fuel per hour.

The terrain below looked rather like the surface of the moon, the sameness broken occasionally be isolated dust devils that darted to and fro. The heat from the midday sun made the clear air turbulent, and, as we descended towards El Paso, the weather reported gusts in excess of 25 kts. We requested a ILS approach to runway 22, this was granted and I was able, for the first time, to put a GPS overlay on the moving map. It was very impressive to watch this non precision approach unfold, vectors to finals seemed a thing of the past... we just followed the line. At 300 ft on finals we took a gust that seemed to put us on our wing tip and our heads came into heavy contact with the fuselage roof, then on touchdown we experienced severe nose wheel shimmy along with a smell of burning rubber. At around 70 kts the shimmy stopped and we turned off the active runway on taxiway N. It was necessary to stop before crossing another active runway before proceeding to dispersal and on clsing the throttle the engine stopped.

Help was offered but proved unnecessary, at an airfield elevation of 4100 ft and an OAT of 105 degrees F, the leaned mixture proved just a little too much for our faithful engine. We restarted the engine and requested permission to taxi to a hangar to investigate the nose wheel shimmy. Tightening the large hexagonal nut at the base of the nose leg through 180 degrees solved the problem.

Another night stop at yet another Holiday Inn with the usual discount was welcome and we set off early the next morning as still more thunderstorms were forecast for the Tuscon/Phoenix area, so the earlier we departed the better.

Continued on next page

With full tanks and a temperature of 104 degrees F (8500 ft density altitude), we taxied out to runway 22 for take off. At the holding point the engine stopped again, something to do with density altitude and mixture we thought. After 15 minutes at the holding point we were finally cleared for take off and, with all temperatures on maximums, we rolled and rolled and rolled. I began to wonder if the earth had not been curved whether we would have made it! Finally at 115 kts (GPS) we left the ground and at 1000 ft commenced a gentle turn to starboard. The rate of climb was poor to say the least; it took us 20 minutes to cruise climb to 4400 ft to 8500 ft AMSL (12,000 density alt). Cruise climb is something that I thought was confined to big jets!

Having reached our cruising altitude it was necessary to route south of our intended track due to weather and we came within 5 miles of the Mexican border before we were able to turn north and follow the great Colorado River en route for Las Vegas.

We covered the 600n miles nonstop in 4 hours 5 minutes and our arrival into Boulder City was windy but uneventful. We must have been getting the hang of it!

Flight following proved very useful en route althought it must be said that in some areas we were out of communication with everyone, we saw only 3 other light aircraft and 1 hot air balloon on our entire journey.

A somewhat relieved Rangens wife was there to greet us on arrival with a much appreciated bottle of champagne.

As they say in aviation circles "we learned a lot from this." Safe flying to you all.

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Visit
the Factory's
Official Web Site:
velocityaircraft.com

Coming Home Again, For the First Time!

by Scott Baker

It is exciting to see new Velocity buyers enter the Velocity Service Center and begin work on their new Velocity aircraft. Time and again, customers speak of the great things they have learned and accomplished by spending as little as two weeks in the Service Center. The Velocity Service Center is an excellent learning arena for new builders – but did you know that the center is an excellent resource for seasoned builders as well?

Several Velocity builders have brought their construction projects 'home' to Velocity to receive extra help towards fulfilling their dream of building (and flying) their own Velocity aircraft. Tom Donald of Hilton Head, SC and Denis Wood of Caans, France recently brought their nearly completed Velocity aircraft to the Velocity Service Center to finish the installation of the instrument panel and also to complete the engine installation. Both wanted the benefit of experienced hands and inspectors to help with the completion of these important building phases.

John and Rose Ward of Elberta, Alabama (see front page photo and story) had a different motive for bringing their Standard RG kit to the Velocity Service Center. Their kit sat untouched for years (it happens!). Soon after his retirement, John had a renewed interest in working on the Velocity – but felt that he needed a 'boost' to get things started in earnest. It was a simple matter to load the kit onto a small trailer and haul it to Sebastian, Florida. Our technical people helped John for a few weeks at which time he acquired the skills and know-how to work by himself in the center. Interesting, John's "1-month at Velocity and take it back to Alabama" plan later turned into a "Let's do everything at the Service Center" plan. Rose and John decided to complete their Velocity at the Velocity Service Center, and John

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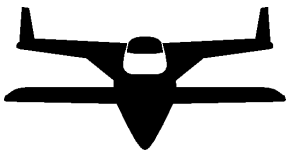

November 2, 2002 Factory Open House Workshop Schedule

Saturday November 2, 2002 - Factory's quarterly open house in Sebastian Florida (X26)

9:00am	Coffee and donuts
10:00am	Workshop: TBA
Noon	Lunch
1:00pm	Workshop: Building Q&A
3:00pm	Demo rides in the XL

Please be sure to call the factory and RSVP! Friday arrivals can book a room at the Key West Inn at Captain Hiram's here in Sebastian. Call 800-833-0555 and mention Velocity to get a corporate rate. When you call the factory to RSVP, let us know when you plan on arriving so we can make arrangements for transportation, etc.

Check velocityaircraft.com for up-to-date details

Buy Sell or Trade

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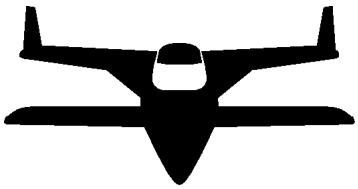

Place **your ad** here... FREE to all current subscribers. Individuals selling parts, tools, kits, & flying Velocitys. Your ad will run once per submission. See last page for deadlines. Please do not type text in all caps!

Parting Out
VELOCITY 173 RG

For a complete list please e-mail me at vxlphoenix@hotmail.com

N173DT for Sale

1997 173RG - IFR - dual com and nav - Apollo 2000 GPS - Century 2000 Auto pilot coupled to GPS & ILS - 600 hours on the plane and since major overhaul on Lycoming IO360 including new cylinders, pistons, magnetos, etc. - one Rose Electronic ignition - 3 blade Performance Prop - 174 knots at 10.9 gph at 7500 ft. - pictures at www.texusa.net/~velocity/photo.htm - $100,000 - 1-888-241-2238

Velocity Standard Elite RG.

Approximately 500 hours total time on airframe and engine since new. Franklin 220 engine, good radios and autopilot. Aircraft based at Sebastian. Contact Duane or Scott Baker for details. $125,000 or best offer. (being sold by Sharon Crawford)

IO-540-C4B5, 260 HP engine for sale.
New "0" time since new limit overhaul, 2100 hrs. total time since new.
Factory new limits, New Unison mags, harness & plugs, new starter and the Bendix fuel system new overhaul. Pick your cylinders:
New ECI classic cast $20,500
New Superior Millennium SC $21,400
New Lycoming $22,000

Contact Jimmy Broad 863-655-5000 or e-mail at Jimmy@jbair-craftengines.com

173 Elite RG Kit For Sale

Kit No DMO-333, purchased in September of 1995. 173 Elite RG. Wings assembled with nav/com antennas installed. Needs final sanding on Winglets. and Rudder and Aileron in Right wing. Canard/Elevator assembly ready for prime except for tips. Bulkheads installed in lower fuselage, seat hardpoints, keel fitted, NLG fitted, battery support installed, NLG doors installed, Hyd pump mounted, Speed brake fitted and hinged. Oil cooler, Rite Angle AOA kit, Tip lights/strobes, landing lights, 1500 hours work with complete construction log and pictures. Includes complete set of VV's, all videos, epoxy pump and glass rack Located in Land O Lakes FL. Asking $34,000 Lloyd L Garner (813) 929-9275 wvlloyd@juno.com

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Builders HOT LINE

Please remember that on weekends and after hours, we do not answer the 561-589-1860 phone number. Our unlisted builders hot line is 561-589-0309 and, if we are here, this is the only number we will answer.

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Please Renew your 2003 Calendar Year Subscription NOW!

Send in your check today. A Renewal **Discount** is available. See the last page for details.

Coming Home Again...

Continued from page 17

recently performed the first flight in their new aircraft. The Phase 1 fly-off hours are complete and the couple has taken their Velocity to their real home in Alabama.
The moral of the story is this – Velocity Service Center is here to help. From providing specialized technical assistance - to simply getting things off to a fast start - to working out the final details before the first flight, the Velocity Service Center is hard to beat!

••••

NOTICE
2003 Calendar Year Subscription Renewal is Now Due

If I already have your correct information (mailing address, etc.) in my data base, then all you need to do is **mail a check** to Rick Lavoie. See the last page (page 20) of this newsletter for renewal details.

A **Renewal Discount** is available if you pay by **check** in **US funds** and mail it to Rick Lavoie **by December 15th**! See page 20 (last page) for details...

This is your only notice! As explained in an article in Volume 30 page 3, I will not be mailing any reminder postcards anymore.

Subscription Rates have changed (see the article in Volume 30 page 3 for details) and are posted on the last page of this newsletter.

MARKETPLACE

Delivery Dates	
Quarter:	**Mailed by:**
1st	January 15th
2nd	April 15th
3rd	July 15th
4th	October 15th

Submission Deadlines	
Quarter:	**Mail Date:**
1st	December 1st
2nd	March 1st
3rd	June 1st
4th	September 1st

Listed below are **4 options** for submitting your text. Do not type your text in all caps. Please send us **photos** and drawings too!

1) Send it on a 3-1/2" disk, a CD, or a Zip 100. 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) **E-Mail** your text file to me: rick@lavoiegraphics.com and please don't type in all caps.

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
is published Quarterly by:
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Velocity Views newsletter is published by Rick Lavoie / Lavoie Graphics as an agent for Velocity Inc. (the factory). Prior to printing, the factory reviews each volume published for accuracy.

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- **2003 Calendar Year Subscription** (Volumes 33-36): The annual cost is $45.00 for mailing addresses within the United States. For all other mailing addresses, the cost is $50.00 in US funds (covers Air Mail & special handling).

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VELOCITY VIEWS

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