

VELOCITY VIEWS

Volume 5

'95 Contributor of the Year Congratulations Hugh Hyde



If you look through your issues, you will find contributions from Hugh Hyde that contain practical information any builder can use. Often the Texan's tips clarify or simplify an existing procedure from the manual. His "learn from my mistakes" attitude is to be commended. Hugh is building a standard Velocity RG.

Choosing contributor of the year was not an easy choice. I weighted frequency of contribution and relevancy of the material submitted. Dave Black (scored a close second) is also a frequent and quality contributor. Many thanks to all who have contributed! Keep up the good work.

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Builders Construction Manual News

As of mid-December, I must report that the manuals are still not ready for shipping. They should be finished by the end of January, but I hate to even quote a date. Our goal is to get them as near perfect as humanly possible.

Here's where things stand as of this writing. Jim Foster is supposed to get the most recent edited copies of all eight versions to us by early January. Scott and Jeff will then lock themselves in a room (away from the factory) and spend as much time as needed to get all eight versions right. Jim will then update his computer files and return the final pre-press originals to us for copying.

Please call the factory to get on our manual order list, so that once ready, we can ship your new manual out to you immediately. All builders are strongly urged to upgrade to the new construction manual. Manuals will be sold at our cost plus shipping:

- Manual Pages only @ \$26.00
- Manual Pages + chapter divider tabs @ \$33.00
- "The Works" - Pages, tabs, and a beautiful burgundy binder @ \$48.50

Call the factory to order yours

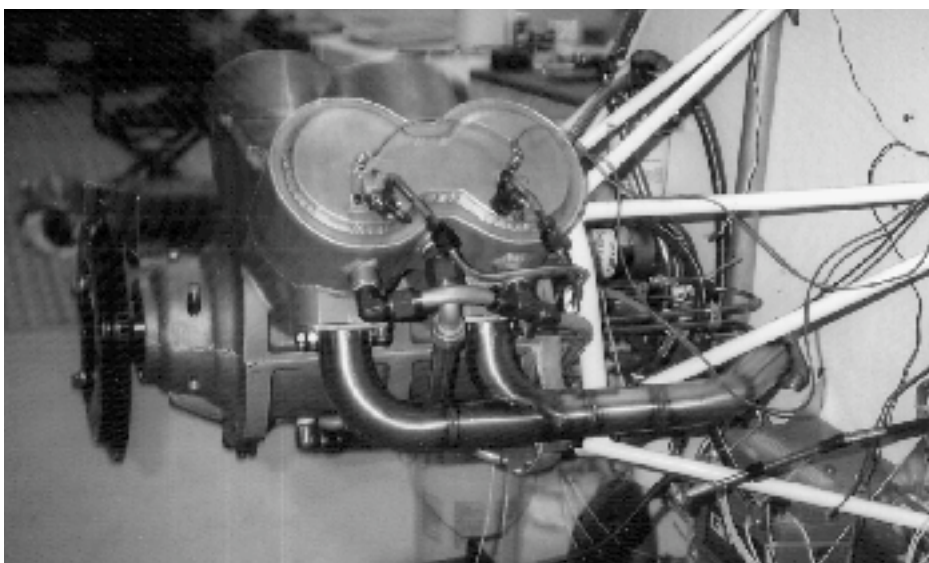
Two publications are of vital importance to every Velocity builder and pilot: *Velocity Views* Newsletter and the new Builder's Construction Manual.

If you are building or flying a Velocity, subscription to this newsletter is mandatory. Failure to keep your subscriptions current could raise serious safety concerns. Kit Plans Changes (KPCs), Safety Bulletins (Safety Corner), and Factory News are published each quarter via this newsletter. The newsletter is the factory's primary means of getting information to our builders and pilots.

The new Builder's Construction Manual will soon be complete and ready for shipment. Builders using the old manual are strongly urged to upgrade to the new one for several reasons:

- Better organization - material is organized in the correct order of sequence for construction (ex. RG material is integrated), broken down into 22 chapters for each of eight Velocity models (refer to article in *Velocity Views* V2 page 12)
- Drawings have been redone with much improved quality, clarity, and precision.
- KPCs have been incorporated into the manuals up to newsletter volume 4 (as well as the old factory newsletters "pre-*Velocity Views*").
- Future KPCs (starting with *Velocity Views* Volume 5) will be numbered and referenced to the new manual sections. If you do not upgrade to the new manual, you will need to do some hunting around to reference the change to the old manual.

Duane



Doug Doers Turbo Diesel Engine mounted on the Velocity

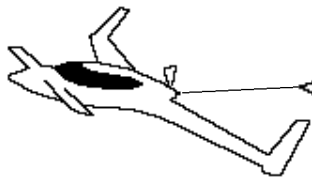
FYI

Turbo Diesel Engine Update

Doug Doers reports that progress on the project has been painfully slow, but that he sees the light at the end of the tunnel. "I will only communicate a date for first production shipments when I am confident I have identified and managed all the critical path items," said Doers. "It is important to do this right, and not just fast, so that we can all enjoy the long-term benefits of a quality product professionally produced and distributed," continued Doers.

The 2 cycle 4 cylinder turbo diesel is a general aviation engine designed for simplicity, durability, fuel efficiency and power. The first production-scale engine (E#1) has been run briefly multiple times in a no-load condition on a test stand. Although very promising, some technical adjustments are still underway to satisfy requirements for starting, oil consumption, and fuel control. E#1 is now undergoing dyno testing. E#1 was mounted on the Velocity for flight test sensors; flight testing can begin shortly after the engine is returned to the aircraft. "I am not expecting any surprises from the dyno testing," said Doers during a telephone interview. "Once the engine returns from St. Louis (dyno testing site), we should be able to start flight testing right away," continued Doers. Doug also said that he has started the next three production engines and expects them ready for testing by the end of February.

Initial deliveries (prior to certification) will be under the experimental status for Velocitys. If you are interested in this engine, write to Doug Doers at Universal Tech, 10698 South 76th Street, Franklin, WI 53132 and ask for an information package and to be placed on their mailing list. We will continue to report any information to you as Doug reports his progress.



by Duane & Scott Swing

when deciding between an overhauled Lycoming and a new Franklin.

Scott

Avionics Shop News

I have been with Velocity since August, 1995, and I have enjoyed every minute of it. The amazing part is really appreciating how dynamic this company is. Not so much in size as in operation. In four months, we have added no less than 6 dealerships for product lines in my department alone! But the best part is both the people I work with and the customers I work for.

I would like to take this time to pass on to you of some of the policies that have come about since the Avionics/Electrical Department has come into being and some that have been in place.

First, if enough people ask for a particular product, we will pursue becoming a dealer for that product. Our goal is to be able to provide 'one stop shopping' for your aircraft needs. If I can't get it to you as cheap as the mail order places, or at least within a couple of bucks, I'll tell you up front.

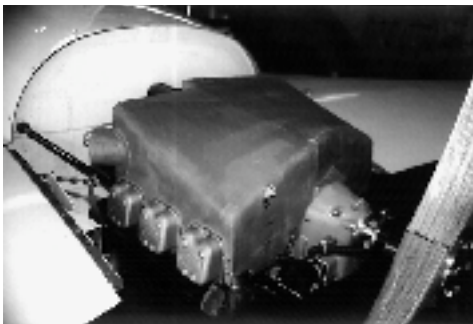
Second, since some of these mail order houses sell in quantity a month what I might sell in a year, they get a better price from the manufacturer. To say Velocity, Inc. is selling radios, engine instruments, and electrical supplies at a bare bones profit is an overstatement. Since we, as every other merchant, have to pay a percentage of sales to the charge card companies, we must ask that purchases from the Avionics/Electrical Department not be put on a charge card. We gladly accept cash, checks, money orders, and wire transfers!

Third, because of the broad range and assortment of products we now offer, panel assembly charges will be based on the products we sell. If you have something you want installed in your panel that was not purchased through Velocity, a small additional installation charge will be included for that/those

Continued on page 4

Franklin Engine Project

The engine installation in a Velocity RG standard has been completed and is being flight tested to determine performance. Weight and balance came out about the same as a IO360 Lycoming. The pictures



show the departure from norm in the baffle as we elected to forego all the standard aluminum/rubber stuff and instead make a high temp fiberglass cover. The obvious advantage is the simplicity of installation and consistency in cylinder temps. We will be working on a price for the Franklin Installation Package and it will be complete with everything needed for normal installation. We haven't finalized the exhaust system but will probably offer two different



systems. One will be with the exhaust exiting the lower cowl just ahead of the firewall. It will be two separate exhausts (Right and Left) made out of stainless steel. The other option would be a full muffler system with the exhaust routed out the upper cowling. It would also be of Stainless and provide a heat muff

for carbureted engines. Our engine is using the Airflow Performance Fuel Injection system, and with the exceptions of some initial idle problems, is working OK. One problem with the fuel injection system is the need for an engine driven high pressure fuel pump. We had to modify a Ramco pump for this purpose and the OH pump cost us \$675.00 plus the time to modify. It will be necessary to find a more suitable alternate if the Fuel Injection system is to work. Perhaps one of you know what has been successful on the Franklin engine from previous experience. What we need is a pump the can be driven off a Vacuum pump drive pad with the normal Vacuum pump spline drive. We also need a pump that can be run



at 1:65 crank speed, This is approximately 4600 RPM at the max. 2800 crank RPM. Dual electric pumps are also a possibility with one running continuously and a backup battery pack for emergency. The engine has two Vacuum drive pads to work from. We are using a special 2 1/2" prop extension made for us by Woofter which has the advantage of converting the rather odd ball Franklin crank flange to the standard Lycoming type with drive lugs built into the extension. The Lycoming prop can be bolted directly to this extension. We are using a Performance 3 bladed prop and will be making some comparisons with an IVO 3 bladed adjustable prop.

Overall we will have over \$17,000.00 invested in this project, excluding our R & D time and the cost of the prop. Keep this in mind

Factory News

Continued from page 3

item(s).

And finally, all avionics and engine instrument sales require a minimum 50% deposit prior to ordering equipment, and must be paid in full prior to Velocity shipping equipment to you.

NOW! Just a sampling of our current dealerships and our product line: AVIONICS: Bendix / King, Terra, Northstar, Trimble, Insight (pending), Century Flight Systems, S-Tec, P.S. Engineering, FlightCom, SoftComm, Peltor.

ENGINE INSTRUMENTS: Vision Micro Systems, JPI, VDO, SkySports
 PRODUCTS: Flight Instruments (all), engine instruments (all), avionics (all), hobbs meters, clocks, prewired switch panels (aircraft and gear), annunciator panels, dimmer circuits, dimmer breakers, switches, terminals, wire, coax, coax connectors, crimping tools, etc.

If we can't get it, you don't need it
 Wishing you Safe and Speedy Construction,

Martin A. Hadley

Velocity Etiquette

Ve loc i ty \ proper noun 1: a 4 passenger canard pusher home-built composite aircraft

Ve loc i tys \ plural of Velocity

Ve loc i tite \ a person that builds or flies a Velocity

Ve loc i tites \ plural of Velocitite

See pages 12 & 13 about the first ever Velocity Florida Fly-in

A Message from Bonnie about the Sun 'N Fun Velocity Banquet

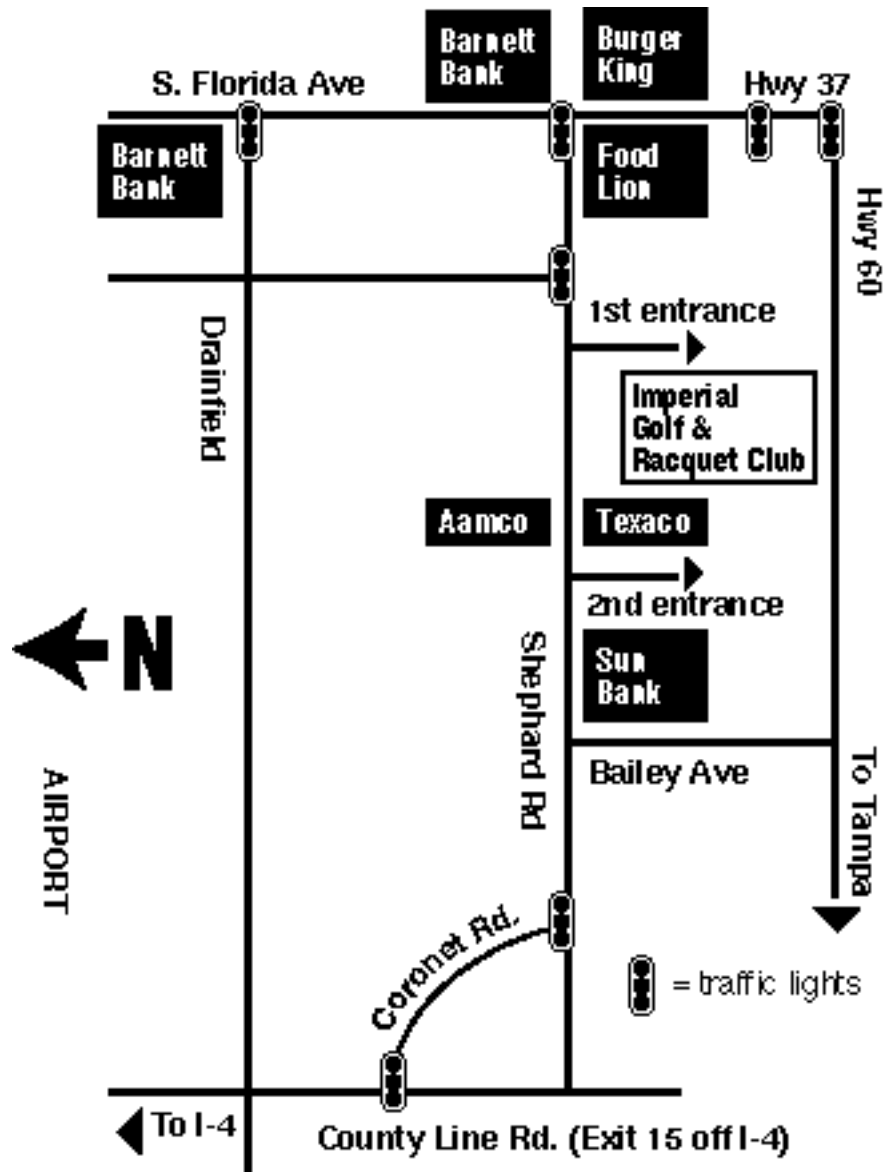


Bonnie

Sun 'N Fun '96

Sun 'N Fun is being held from April 14 - 20. Velocity will hold its annual banquet on Monday April 15th at 6:30 pm with dinner starting at 7:00pm. This year's banquet is at a new and much better location. The Imperial Golf & Racquet Club is located at 6 Country Club Lane in Lakeland Florida (see map below). Please RSVP asap but no later than Sunday April 14th. Adults @ \$20 each, with Kids (age 10 or younger) @ \$10.

If you need a ride, be at the Velocity booth by 5:30 and we will get you there. If you have a car with extra seats, please stop by the booth to help us shuttle people to the banquet.



Factory Friendly Faces

For those Builders that can't get down to Sebastian Florida, I thought it might be nice to highlight Velocity's customer service people. This way when you are talking on the phone, you can match a friendly face to that voice on the phone.



Duane, Bonnie, and Scott Swing are the owner/operators of Velocity Inc. Duane and Scott field a large number of builder calls, as their expertise and experience in building 9 Velocities is unmatched. Duane is an A&P mechanic and handles most of the sales, advertising, customer service... "and sweeps out the hangar on Saturdays and gives demo rides on Sundays," Duane added when asked about his duties. Scott is without a doubt the composite expert at Velocity Aircraft and serves as the firm's President. Bonnie manages the office and financial aspects of the factory. She gives both Scott and Duane a hard time when appropriate. "And don't tell me your wife doesn't do the same," joked Duane.



Martin Hadley runs the avionics and electrical shop. Call Martin to order any avionics, electrical supplies, flight & panel packages. Martin also has a rich experience in building Velocities & other composites. You'll find him to be an excellent contact for builder Qs. He is also an A&P mechanic and a pilot. Refer back to Volume 3 page 11 for a great article on electrical systems written by Martin.



Pat Bloomfield often answers the phone. She is a real "go getter" and is involved in a variety of business functions, including maintaining the builders records and computer files.



Daren Johnson is the production supervisor. He is the man to speak with when you need a kit part, or you have a production scheduling issue. Daren has been with Velocity since 1988.



Jeff Baker is the Purchasing Manager. He is a knowledgeable Velocity builder, as he came down from Ohio from the Swing's former enterprise. Jeff is also a pilot and conducts many of the Velocity demo rides. Jeff's involvement with the new manuals and his composite experience make him a good source for builder Qs.



Gail Gavin is the receptionist. She answers the phone three days a week and performs various office duties.

Views from the West



Mark and Nancy Machado manage Velocity's West Coast Service Center

Greetings everyone. The West coast office of Velocity has now been in operation for about three months and all is going quite well. The office space construction is complete, the hangar/shop area is organized and the company's new 173 FG Elite is well under construction. In addition, kit sales are starting to originate from this location. To date, we have added future builders to "our family" from Idaho, Nevada and Southern California. Most importantly, based on our telephone, fax and E-mail activity, builders are increasingly finding another resource for support within the Velocity family. Certainly one of the main reasons the Swings opted to establish a West Coast office was to increase the availability of builder's support, especially for those builders located in the Western US. We invite all to avail themselves of the services available through Velocity West. We're here to help! All of us at Velocity (both here at

Lincoln and I'm sure in Sebastian) are certainly aware that one of our most important assets are the builders and flyers we deal with on a daily basis. A solid support system is just one way we intend to protect that asset.

Building a Velocity for the second time certainly is more relaxing than the first time. After flying N131MM around the country for almost two years now and encountering most every weather system, air turbulence type and air pocket configuration imaginable, one gains a great deal of respect for the airplane built. Don't get me wrong here, this doesn't give us license to be sloppy in our work, but it certainly can reduce the "worry" factor in the work. The end result for me personally is the work is going a lot smoother, with the anxiety level close to nil.

We started work on the 173 on November 7th and as of today, December 1st, the canard, wing and winglets are complete. Next week we will be attaching the winglets to the wings (the prep work is already done), with the goal of starting on the fuselage by mid December. In addition, we are video taping the entire process! This is the only reason the anxiety level isn't zero! One comment here: "If you haven't tried it, don't criticize it!" Truly try to imagine yourself attempting to look "professional", knee-deep in epoxy, with uni-directional cloth not doing what you hoped it would do and your cameraman (camerawoman Nancy in this case) whispering to you that the audio has just failed, but she's still "rolling"! Believe me, it's a new kind of stress! I sincerely have a new found respect for Dan Maher the actor, after video taping about 100 hours of our activity so far!

We had our first "First Saturday of the Month Open House" here at Lincoln on November 4th. About 50 people attended and we generally had a good time. At a minimum, everybody left with bellies full, if not a better appreciation for the Velocity aircraft. This will be a monthly event here at Velocity West, with future



open houses each having a pre-planned "theme". We don't mean to diminish the social aspects of our Saturday Open Houses, but the main objective is to be informative and educational. Along these lines, our tentative schedule for the next four months is as follows:

• January 6, 1996 General Open House: On-going construction of the 173 will be highlighted with emphasis on the fuselage and the center keel.

• February 3, 1996 How does the RG work?: We'll be "tearing apart" N131MM and placing it on jack stands so all can see "first-hand" exactly how the system works. We'll wear out a battery for you!

• March 2, 1996 Surprise guest from Sebastian!: Don't miss this opportunity to speak "up close and personal" with one of the owners of Velocity. Guaranteed to be a familiar face. Should be fun and "rare" (they don't visit the "out-back" often).

• April 6, 1996 The trials and tribulation of Upholstery: A representative from Sacramento Aviation Upholstery (our hangar partners) will be on-hand to discuss the upholstering of your Velocity. Come learn the latest techniques. We have some new concepts in the works!

Should you be planning to come to one of these events in the future and you're traveling a good distance, please call first to confirm any changes in the schedule. We don't want any disappointments here!

Finally, we would like to discuss our activity with the development of an improved shimmy damping arrangement. We are actually testing two concepts presently, one involving a reconfiguration and redesign of the belleville spring arrangement and the second involving a neoprene sandwich affair that would replace the bellevilles entirely. We have been personally testing the modified belleville arrangement on N131MM for over a year now with very good results. In addition, Mr. Kirk Lindberg, one of our flyers in Minnesota, has most recently tested not only the modified belleville system, but also the neoprene system on



Speaking of actors, yes, the rumor is true, John Travolta paid us a visit recently. For you non-believers, take a look at the picture. Does he look intense or what? He really liked the lines of the airplane and was quite impressed with the available room inside N131MM. John currently owns and personally fly's three jets, (one Gulfstream II, one Lear and a Canadian Tudor. He even named his 3 year old son Jett) so it was just a matter of time before he would ask if the Velocity would support a jet engine. After a long pause and a big gulp, I said "maybe". After thinking about this for a bit, such a Velocity wouldn't have much range, but it certainly would get to altitude quick. Fun to think about!!

He voiced an interest in a ride someday, so an invitation was given and if his schedule permits, we'll make it happen. If you're wondering why John Travolta would visit Velocity West, he's filming in the area and has been using the Lincoln Airport to fly in-and-out from. Becoming aware of this, I strategically place N131MM on the ramp where only the totally disinterested would miss it. The rest is history. For those of you who are wondering, this man is truly a "nice guy".

his Standard FG. His very valuable feedback has given us a good idea of what we will ultimately be recommending. We do wish to thank Kirk wholeheartedly for his help here. It's hard to find a good guinea pig these days especially when he built the guinea pig himself! Thanks again Kirk!

Before we finalize our recommendations, we would like any additional input from current flyers who have experienced a shimmy problem with the nose wheel and any comments on what they did, if anything, to fix the situation. Your feedback would be greatly appreciated. Regardless of what Velocity ultimately recommends, the downtime and cost should be minimal. We can be reached at any of the following:

Mail: Velocity Inc. West
Lincoln Regional Airport
1410B Flightline Drive

Lincoln, CA. 95648

Telephone: (916) 645-6866
FAX: (916) 645-6944
E-Mail: CompuServe 102714,3303

In closing, we would like to invite each and every one of you to visit the facilities here at Velocity West. If you have a question, comment or concern, don't hesitate to get in touch. Remember, we're here to help!

Mark and Nancy Machado



Kit Plans Changes "KPCs"



KPC 001

Pitch trim system change

Affects: RGs & recent Fixed Gear kits that have the new molded keel that extends all the way to the canard bulkhead.

Manual section: 12.1.2

The pitch trim servo (actuator) mounts on top of the canard. If the trim spring breaks and the servo falls down, it could interfere with the forward movement of the stick. This would obviously mean that you had a failure of the servo as well, since you could just trim it out of the way. As unlikely as it is to have a double failure, it is a good idea to make sure that if the spring does break, the actuator cannot fall down.

Expose the pitch trim actuator (above canard) and run your trim to the full aft (nose up) position. Place a wooden spacer between the bottom of the actuator and the upper skin of the canard and lock in place with some silicone between the canard skin and the spacer. This spacer is used to prevent the actuator from dropping down in the event of the trim spring breaking and jamming the actuator

against the trim spring attach bracket. The diagram below should be adequate to accomplish this task. Also refer to the mandatory service letter in the "Safety Corner" section of this newsletter.

Also, there has been some question as to how much tension you should have in the trim system. We put a fish scale on the edge of the elevator and pulled up about 1". At this point we were reading about 17 lbs. Our other airplane shows about 15 lbs. We wouldn't go any less than about 12 lbs and no more than 18 lbs. We checked it at 1/2" and it was a little less than half of the 1" value. With this information, you should be able to fine tune your trim spring to give you this feel.

xxx

KPC 002

Nose gear door

Affects: RGs

Manual section: 6.1.1

The way we mold the fuselages now, you shouldn't have to add any foam to the nose gear doors when you are making them. On the front side of the nose gear doors you could add a little to reach to front hinges but we have found that the door is fairly stiff between the end of the foam and that forward hinge and that the 1" or so of foam would not be needed. If, after you are done with the door, you feel it needs to be

stiffer, you can add foam between the hinge and the existing foam and glass over with one bid. An alternative would be to just extend the glass that you attached the hinge with, onto the existing foam on the door.

xxx

KPC 003

Affects: Elite RG's

Rod ends and bellcrank clearance caution

Manual section: 9.4.4

The main gear hydraulic cylinder end with its washer and spacer just clears the aileron bellcrank as it passes underneath. As you cycle the gear, artificially turn the connection of the three rod ends when the gear is up to make sure that as it comes down, it rotates to clear the bellcrank. If it seems there could be a problem here, make a guide that will keep the three rod ends flat as they come under the bellcrank.

xxx

KPC 004

Affects: 173 RG's

Drain valve

Manual section: 14.5

The sump tank in the 173 RG just fits between the spar and the floor. We put our fuel drain forward and over to the side as we used to do by using an 1/8" pipe to 1/4" tubing elbow off the bottom of the tank. This is so tight that you may want to just drill a hole in the floor of the fuselage directly under the fuel drain position and put the CAV 110 drain valve directly into the tank. This would still leave it flush or slightly inside the fuselage. You could use this same method in the std RG Elite by just lowering the sump tank until the drain valve is just less than flush with the bottom of the fuselage.

xxx

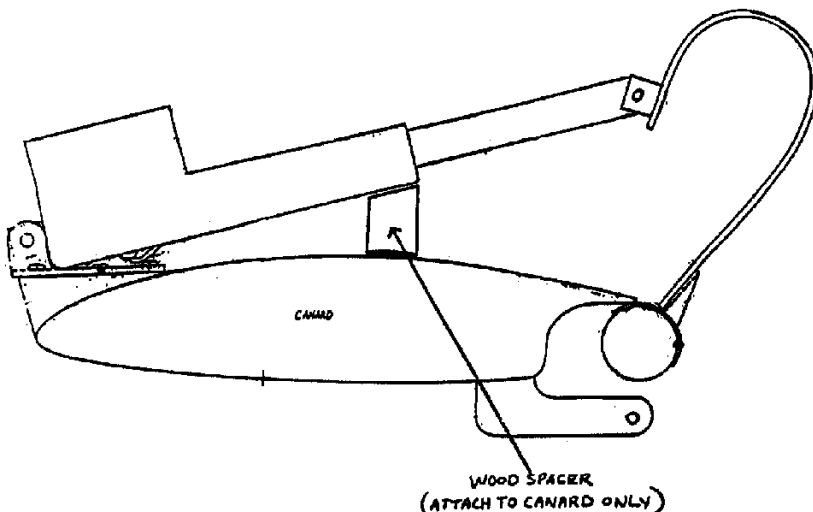
KPC 005

Wiring of RG hydraulic pump

Affects: RGs

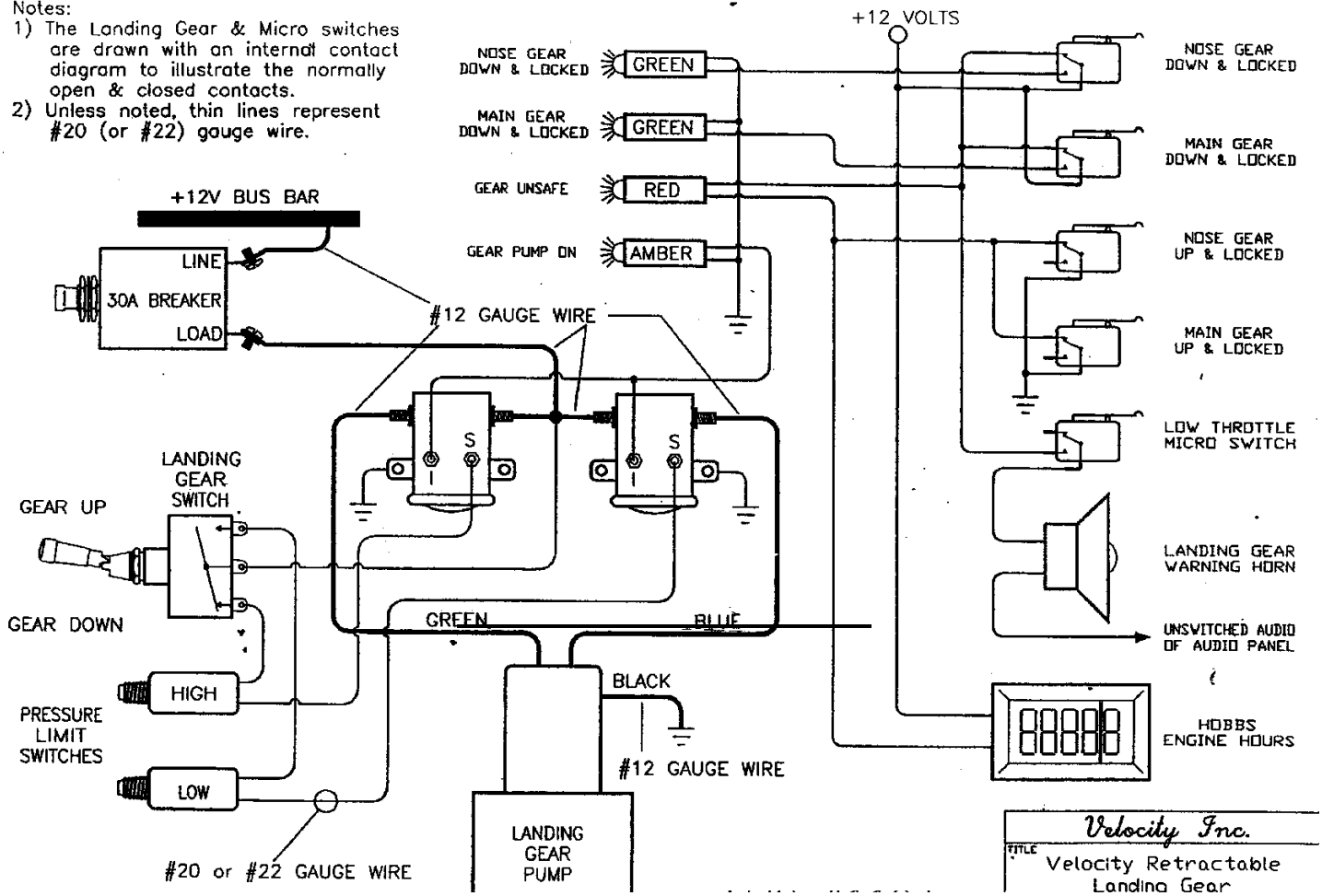
Manual section: 9.6.4

There has been some confusion about the wiring of the hydraulic



Notes:

- 1) The Landing Gear & Micro switches are drawn with an internal contact diagram to illustrate the normally open & closed contacts.
- 2) Unless noted, thin lines represent #20 (or #22) gauge wire.



pump in the RG's. The wiring diagram (above) shows the correct method. The main problem was the green and blue wires coming from the pump. We had one pump that was internally wired wrong and needed to have the green and blue wires switched but this is not normally the case. The green wire goes to the gear up solenoid, and the blue wire goes to the down solenoid. Refer to diagram above.

xxx

KPC 006

Winglet positioning
Affects: 173s
Manual section: 3.2.1

The reason for this KPC is to optimize control and stability for 173 models. The manual cites measurement "X" as between 121" to 122" range. Change this to between 122" and 124" range. The idea is to get measurement "X" the same for both wings.

The manual goes on to say that

the difference between measurements "X" and "Z" should be 9-1/2" to 9-3/4". To get the best combination of control and stability this should be changed to 10".

As a cross-check, bolt the wings to the main (center) spar. Measure and record the distance between the "Forward points" of the winglets. Now measure the distance between the trailing edges of the rudders. The difference between these two measurements should be 1/2".

Assuming that measurement "X" is equal for both wings, the winglets will now be symmetrical and at the optimum trailing edge "kick-out".

xxx

KPC 007

Aileron cut dimensions & counterweights forward 1/16"
Affects: All models
Manual section: 2.3.2

We have found from experience that lighter aileron control and better balancing can be achieved by mov-

ing the aileron counter-weights forward 1/16". This is best accomplished by changing the bottom aileron cut dimension by an additional 1/16". The outboard cut dimension is shown as 5-7/16" and should be changed to 5-1/2". The inboard cut dimension is shown as 7-7/8" and should be changed to 7-15/16". The counterweight installation dimension is shown later as 5-11/16" & should be changed to 5-3/4", and 8-1/8" & should be changed to 8-3/16". Any additional references to these dimensions should be changed to prevent confusion.

xxx

KPC 008

Door aluminum tab installation change
Affects: All "non-Elite" models
Manual section: 15.3.1

Sometimes the aluminum tab that is glassed into the door loosens

<PC's

Continued from page 9

with use. There are two easy fixes for his:

A) If you haven't installed it yet, cut two notches into it as shown in the diagram below. The notches will 'grab' onto the microglass and keep

it from working loose.

B) Tap through the 3-BID door flange up into the aluminum tab for an 8-32 countersunk screw (see diagram below to the right).

xxx

KPC 009

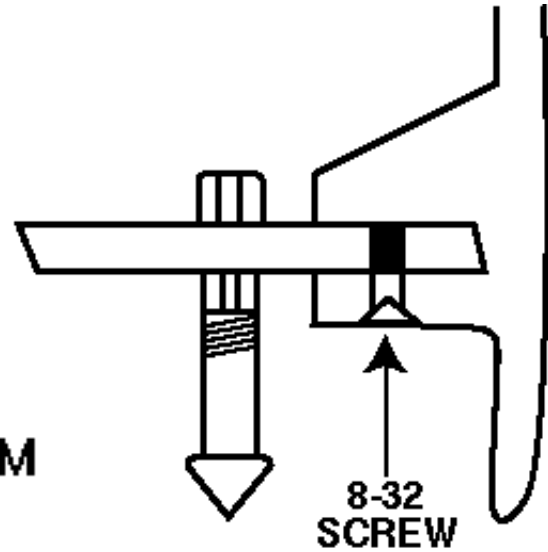
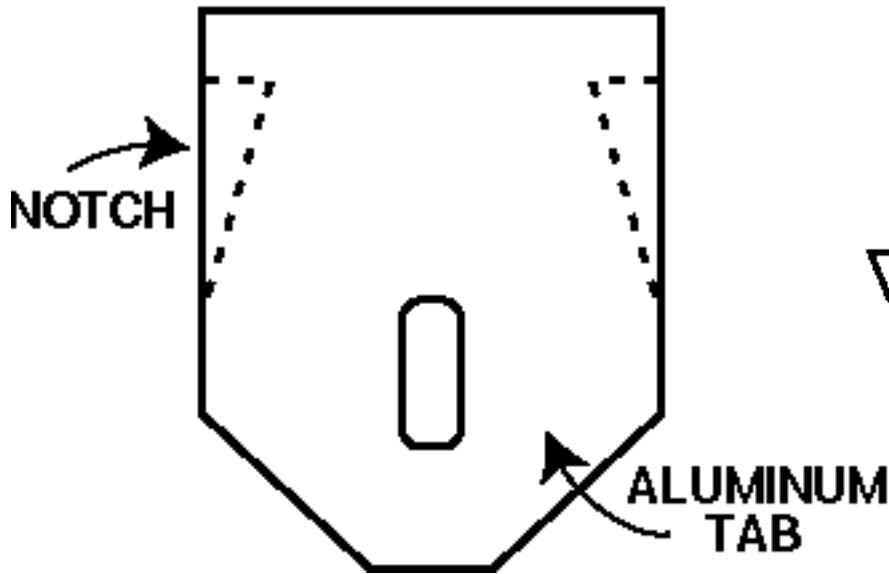
Rear shoulder harnesses attach

Affects: All models

Manual section: 19.2.6

Rear shoulder harnesses can be attached to the angled bulkhead that spans between the spar and gear bulkhead. Use a wide area washer on the bottom side.

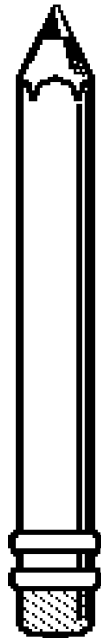
xxx



Correction on Elite Test Data

In newsletter volume 4, page 7, I gave you some information on the final testing of the Elite. I made reference to a calculated expansion of 1/4" at 200 kts indicated air speed, and 3/8" at 250 kts. These numbers reflect what we should see on our special device rigged in the fuselage to measure deflection. This device amplified the actual stretch by a 2 to 1 ratio. That is, if I see 1/4" on the special device the actual fuselage stretch was 1/8", not 1/4". The reason for the 2 to 1 ratio is simple, I'm getting old and it was much easier for me to see a 1/4" deflection than 1/8". Sorry for any confusion this might have caused.

We have over 130 hours on the Elite and can honestly report that we just fly. Other than an oil change now and then, we have done nothing to this airplane. Almost all our



Jeff Baker and Martin Hadley have some fun demonstrating the incredible strength of the Velocity's Canard on the factory prototype 173 RG Elite.

demo rides are done in the Elite and our tires, brakes, etc. look like at least another 100 hours are possible.

We still have not done the deep stall tests on the Elite, partially due to the Franklin engine project, but hope to start soon. One of our Velocity builders, Sam Desilva, will

be doing these tests. Sam is an experienced Velocity pilot who worked with Dan on some of the early deep stall tests. Sam has a big advantage over me, he weighs about 145 lbs. Just about right for aft CG testing.

Duane



Safety Corner

Accident & Incident Reports,
Maintenance & Service Difficulties

The experimental fleet of aircraft is growing at a rate of about 10 to 1 over certified general aviation planes. Last year about 200 small aircraft (Piper, Mooney, etc.) were sold; almost 2000 experimental aircraft took their first flight during this same period. High growth has many rewards, but also has many drawbacks, chief among which is **accidents**. We have seen a lot of experimental aircraft accidents this past year and no particular model is more prone to accidents than another. One of the more notable was Steve Wittman and his wife. They were killed when his modified Tailwind went out of control. Then we had a heavy Long EZ that tried an unsuccessful take off from a 2300' strip, killing the pilot and critically injuring the passenger. A Cozy suffered a similar fate after being loaded over gross and was unable to "clear the fence". Then we have a North Carolina Lancair IV P that caught fire in flight as a result of an improper Turbo installation, killing the pilot and passenger. Bruce Tift and his wife were killed when a mechanical problem caused an unsuccessful off airfield landing. Bruce was a prop builder of some success and was flying a Long EZ. A longtime friend of mine, Doug Spears (designer of the Nav Aid Autopilot) and his passenger were killed in an apparent stall/spin accident in his Mustang II. Rick Fessenden was killed when the Berkut he was flying in an airshow routine suddenly went out of control and crashed. It isn't known if he suffered a "black out" due to a high "G" loading or a canard stall or possibly some other cause. You can probably add a few more names or events to this list, but my point is this: we don't want anyone hurt or killed in his or her airplane, Velocity or any other kind. Pay attention to what you are doing, do your best in

building to eliminate stupid errors, keep your airplane in the best mechanical condition possible. Fix things immediately when a problem is noticed. Don't fly when weather says "stay put". Above all, don't change the design unless you are willing to suffer the consequences if something doesn't work. We don't want to add your name to the above list.

All this brings me to **Chris de Brichambaut**. Chris was a young French Velocity RG builder who lost his life recently when on his second flight at about 5000 feet, he was observed doing several loops prior to ground contact at a high rate of speed. We don't know for sure what caused the loops, but can speculate as a result of some facts. Chris was a small pilot and had added a fuel tank above the canard with a transfer pump, so, when solo, he could pump the tank full of fuel as ballast. In order for him to do this, he had modified his pitch trim system. Note: on the RG the trim motor is located on top of the canard. In Chris's case, we do not know where he put it, as the ballast tank was placed where the trim should have been. Fire consumed the aircraft after impact, possibly due to the tank just above all those solenoids. Another fact is that he had removed the canard after the first flight to make some "adjustments". An observer noted that he did not finish putting everything back together until just prior to his second flight. We have asked the officials to look for the bolt that holds the pitch trim actuator to the pitch trim spring to see if it had a nut (remember the fire).

Our speculation: the pitch trim bolt (no nut) worked loose, allowing the trim actuator arm to jam between the arm and the spring attach bracket, causing full nose up elevator. This is the only scenario we can think of that would have resulted in a loop. It

should also be noted that a ground observer said he had completed as many as 5 loops prior to ground contact and that the engine was reving high.

I built and flew a bi-wing acrobatic Skybolt for a couple of years and find it hard to believe one could do more than one loop if the throttle was retracted as soon as the loop was started. In Chris's case, if more than one loop was completed, he must have added full throttle instead of pulling power off. I'm sure, with power off, the Velocity would have eventually established a pitch buck at around 60 kts and a controlled landing could have been made.

Speculation aside, Chris is no longer with us. **Was it his modification?** (You can see why designers have such a fit when a customer wants to make a change.) Was it his negligence? Was it his lack of experience? Was it a design flaw in the Velocity? Questions that have no easy answer.

We are always looking for ways to improve our airplane and ask for your help. If you see something that doesn't look or seem right, talk to us about it. We want you to build the safest airplane possible. If you are thinking of making a design change, send us some drawings of your ideas and let us help you. In the case of Chris, we have no idea what he did.

In the meantime, let's all do our best to build accurately, fly safely, and maintain our airplanes precisely. I don't want to write another letter like this.

Duane

ServiceWarning:

We are issuing this mandatory service warning to prevent a possible catastrophic pitch trim failure. We have no concrete evidence that this could or would happen, it's just some common sense engineering.

This work should be accomplished before further flight.

Expose the pitch trim actuator (above canard) and run your trim to the full aft (nose up) position. Place a wooden spacer between the bottom

Continued on page 1.

Safety Corner

Continued from page 11

of the actuator and the upper skin of the canard and lock in place with some silicone between the canard skin and the spacer. This spacer is used to prevent the actuator from dropping down in the event of the trim spring breaking and jamming the actuator against the trim spring attach bracket. Time to complete should not exceed 30 to 45 minutes. Reference: also see KPC 001 & diagram.

If you have any questions, please call.

Service caution:

Make sure that when you remove the canard to work on the avionics or what ever, that you remember to add weight to the nose before doing so. A few of you can speak from experience, it is easy to get the plane to fall on its tail if you don't heed the warning.

Service caution:

Heat dissipation on Matco Brakes. We have had a couple of customers melt the ends of their gear legs because of excessive heat buildup of the brakes. Although mainly due to too much use of the brakes when they are not needed (especially during testing and when you are learning), this problem has been around since the early Varieze days. Even though we oven cure the gear legs, you can still over heat them. The Matco brakes have a disc that ends up far away from the gear leg. This used to be a problem for the Clevelands since the disc was very close. The problem lies in the heat generated by the brakes transferring through the bearing and through the axle into the gear leg. When this happens, through lots of braking, the gear may bend just above the axle.

THE CURE

Since not everyone has this problem we don't want to sound like this is for everyone but it definitely has merit. The matco axle is much thicker at its bolt on flange than it needs to be for the weight of our airplane.

You can reduce the flange to no less than 7/16" (The size of the axle we were using with the Clevelands). If you are doing this to a flying airplane you would remove 1/8". This would make your flange a little thicker than 5/8". The reason for removing this material is to leave room for a 1/8" thick plate that would be fairly big and with slots in it. This plate would be for heat dissipation. The idea is to dissipate heat off the axle to reduce the heat transfer into the gear leg.

Another idea was to drill a 3/8" or 1/2" hole up into the gear leg from the bottom to about 1-1/2" above the top position of the axle. Epoxy a 3/8" or 1/2" grade 8 bolt (piece of) into the hole. This would allow the the gear leg to get soft without bending.

We will be trying one or both of these things in the future and will let you know what we find out.

Service note:

Alternate trim spring shape
One of our more creative builders has come up with a new trim spring shape that we will be trying shortly. It is in the shape of a helix. The reason for this change was that the wiring on his panel interfered with the standard one so he made this new one. Necessity is the mother of invention. Actually this new shape may be something we go to in the future because of its attributes. If it works out like I think it will, we will include a template in another newsletter with a lay-up schedule and you can lay-up your own.

Service note:

To get more leg room for the copilot side passenger, one builder cut off his rudder pedals on the vertical portion and installed a sleeve so he could re-attach them with a bolt later.

Service note:

We are going to try some stainless steel tape on the strake where the Elite door rubs it on our prototype. If any builder has a problem with the door rubbing, the tape may be the answer.



About our dinner speaker Jim "Zoom" Campbell



Jim "Zoom" Campbell formed US Aviator magazine several years ago to bring a certain amount of honesty to the reporting of news events and flight reports. With the attitude that no one can buy an undeserved good report with advertising dollars, he has taken an enormous amount of heat from kit manufacturers that feel he blackballs their product with negative reporting. I know that this is not true because long before Velocity started advertising with US Aviator, Zoom gave us a very good flight evaluation.

He has also taken to task the US Government and has proposed an Airman/Pilot's "Bill of Rights", to fight unfair practices by the FAA and other Government agencies.

Jim has flown about everything with wings or rotors including jumping out of perfectly good airplanes for the thrill of free fall. You may want to ask him about some of his more bizarre thrill seeking, like jumping off the World Trade Center.

Jim and his lovely pilot wife Vicky will be a delight for us to have as our evening event guest speaker. If you are within flying range, or can drive to Winter Haven, you will not want to miss this day. We look forward to seeing you there.

Duane



- Saturday Feb 24 & 25
- Winter Haven, Florida
- “Fantasy of Flight”
- Lunch & Dinner
- Zoom Campbell
- Overnight

Duane Swing has planned a fun day for Velocityites. It involves all the things I love to do; flying, meeting with old friends, making new friends, eating, and the excitement of being at an airport with a bunch of Velocityites! Here are the details:

• Who should go:

Anyone flying, building, or dreaming of a Velocity (and of course your spouse or guest).

• When:

Saturday Feb 24th through Sunday, Feb 25th

• Where:

Winter Haven’s Gilbert Airport
Identifier: KGIF

• Arrival Time at GIP airport:
10:00 am Saturday Feb 17th

• Saturday’s Activity:

- Leave by bus @ 11:00 am for “Fantasy of Flight”
- Lunch at “Fantasy of Flight”
- Afternoon at “Fantasy of Flight”

• About “Fantasy of Flight”

- A museum started by Kermit Weeks that houses a collection of old airplanes. There are over 50 WW2 aircraft alone.
- Off of Interstate 4 in Polk City (about a 25 minute bus ride from Winter Haven).

• Overnight Lodging:
at Holiday Inn at Winter Haven

• Saturday Night Dinner:

- Social hour starts at 6:00 pm
- Dinner at 7:00 pm at Holiday Inn with Zoom Campbell of US Aviator Magazine as our guest speaker.

Cost:

- \$75.00 per person, or
- \$100.00 per couple (includes: Saturday’s ground transportation, “Fantasy of Flight” fee, dinner, lodging)
- Children \$20.00 each if staying in parents room.

• Reservations:

- ASAP but no later than Wednesday, January 24th
- Velocity Inc. will do it for you. Just be sure to call the factory (ask for Bonnie, Gail or Pat) to get on the “Florida Fly-in” reservation list.
- Feel free to call me or Duane with any questions.

• But my Velocity is not finished yet:

Don’t feel like you can only go if you are flying a Velocity. Rent a 172 or bum a ride, or God forbid, even drive! Judy and I will be slumming it in our Long EZ.

Hope to see you there.
Rick

WINTER HAVEN'S GILBERT. GIF. 146'. 3NW. (IAP). 28°03.7'N 81°45.2'W. (813) 293-2501. Att days; ngts on req. F-100J. S5. Bcn. Seaplane base adj W. Ultraights. Hicptrs. Calm-wind (5 kts or blo) rwy 4. Pole rwy 22. *PCL: 122.7 - 4/22 (3x med; 5x hi), VASI (3x).

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| CTAF | APC/DEP |
| U-122.7 | Tampa® |
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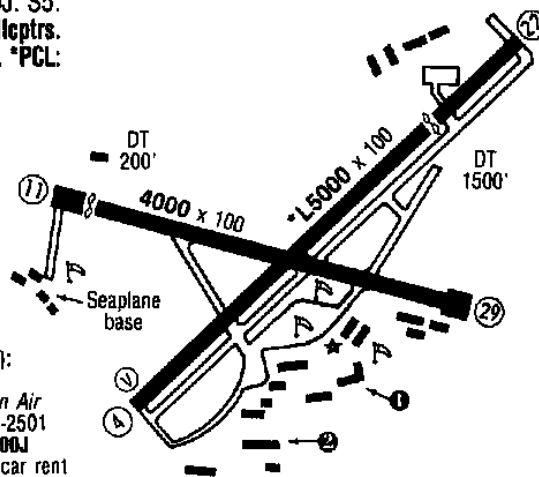
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| TPA |
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| ORLANDO |

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- ②



P.S. I was speaking with Duane and asked how he was able to negotiate such a good rate (\$100 per couple for the package excluding lunch)??? His response was “I didn’t, I’m subsidizing it to keep the price down - I’d rather have to kick in some cash and have higher participation”.

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.

Building Antennas

From Larry Coen, Overland Park KS

I have built com antennas into my winglets that are easy to build, dirt cheap and have a SWR that never exceeds 2:1 across the entire com band. The only materials that you will need are some 1/2 inch aluminum tubing, eyelet solder terminals and some coax.

For each antenna, cut two 20.3 inch lengths of tubing. They are buried in the flat or outboard side of the winglet before glassing. The lower end must be far enough forward so that it doesn't interfere with rudder and hinge mounting. The top end is located to give a near vertical orientation. The tubes should be spaced 1/2 inch apart at the center. Solder eyelets to the shield and

center conductor of the coax feed line. Attach the feed line to the aluminum tubing with 6-32 screws and nuts. This is a lot easier to do before you micro the tubes into the foam.

A simple 1:1 balun can be made by cutting a 20.5 inch length of coax and soldering the shield to the center conductor of the feed line. Enlarge the feed line foam recess and lay this length of coax parallel to the feed line. Then expose the shield on the feed line and solder the two shields together. The center conductor of the balun is not used.

The reason for using 1/2 inch tubing is to increase the antennas bandwidth. The purpose of the balun is to prevent RF currents from flowing in the coax shield. This reduces the tendency of the shield to radiate RF during transmit and pick up interference during receive.

Dave Blacks' excellent article in the previous issue is based on the pre-built wings. I think that there is something more going on in those winglets than is described in the manual. I spoke with Dave on the phone and he tells me that the antennas are actually located near the leading edge of the winglet. He also believes that the rudder root is carbon fiber. This might explain the very strange performance of these antennas. The tape antenna in the plans won't work as well as the tube antenna I described above but it should work reasonable well (2.5:1 SWR). If you do chose to use the tape antenna I would suggest that you lose the ferrite beads and install the coax balun.

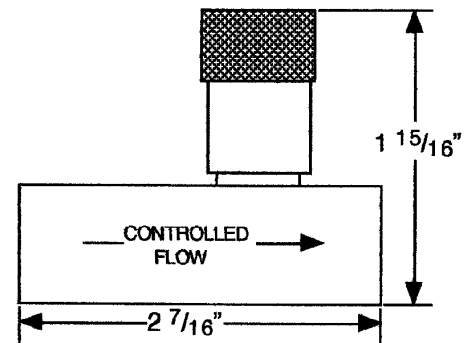
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Nose Gear Control Valve

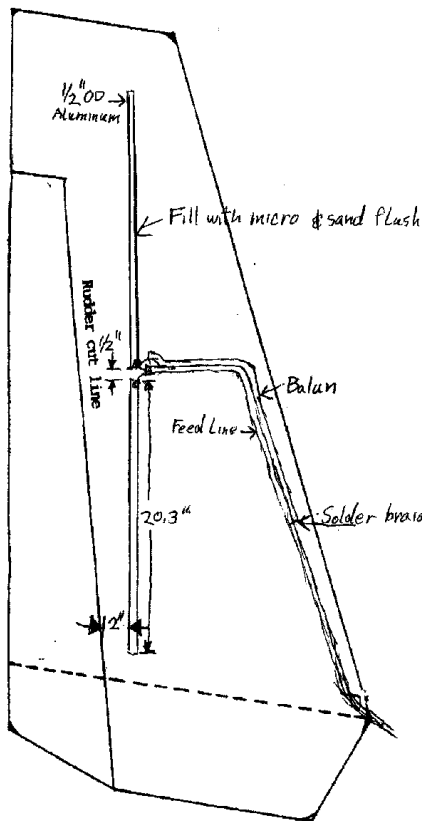
From Mark Means, Lebanon, PA

Wanted to write to tell other builders about my experience and hopefully save someone some time. I

read about Lynn Gallup's hydraulic flow control valve to slow nose gear door closure in the last newsletter. This sounded like a great idea so called him for some advice on the construction and then spent several days scrounging up the appropriate fittings (and a hand drill to make the .020" orifice) and wound up with what appeared to be a functional valve. I proceeded to install this and got things plumbed back up. I was so excited about this that I called a fellow builder in Maquon, Illinois to give him some advice on some construction problems I had so when he made his valve it would go more smoothly (I just knew he would want one!).



Of course, he questioned the long-term strength of the brass assembly and informed me that he had found an adjustable commercial flow control valve at a hydraulic supply store that is made of steel and is rated for 5000 psi. I couldn't easily come up with any strength numbers for the brass fittings, and that seed of doubt was planted so I decided to scrap my handiwork and order one for peace of mind. Ordered it from a hydraulics supply outfit in the Yellow Pages and it cost \$34.41 including tax and shipping. I have since received the valve which is the size of the accompanying drawing



and weighs about 5.5 ounces. It has 1/4" NPT both ends, and the knurled knob makes for easy adjustments. I have not tried it yet but Dave tells me his works well. The valve I have is a DE-EF20S made by Deltrol Fluid Products, Bellwood Illinois (The valve Dave used is interchangeable and is a Parker F4OOS). This is just one more example of why we call Dave "the EXPERT".

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Bank Trim System Modification

From Bill Wade, Unity Maine

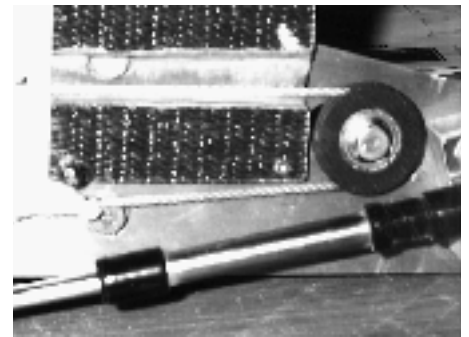
I'm writing about a modification for the bank trim system. I didn't like the slippage in the original setup, and I also wanted to get a position indication. I replaced the original trim motor with a MAC 8A servo system which provides positive trim input and also allows a display of how much trim has been selected. Be aware that this has not yet been flight tested and the information is provided as an alternative for you to consider.

To start, drill and tap the mounting plate for an AN3 bolt near the motor mounting hole. The idea is to have it at the same height as the original pulley. The coordinates I used were 2-1/16" from the end and 1-5/8" from the bottom. You'll need to purchase another AN210-1A pulley, an AN3-6A bolt, an MS21042-3 stopnut, and a couple of washers. Mount the pulley in the tapped hole using

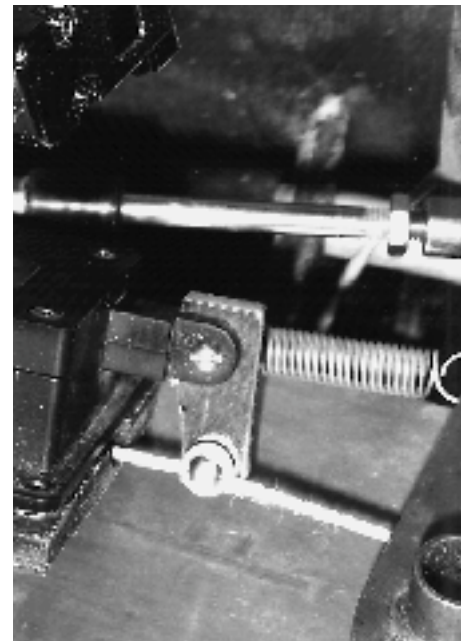
one washer as a spacer between it and the mounting plate and one under the head of the bolt. Secure with locknut.

Using the servo as a guide, make a support plate from suitable material. I used 1/4" plywood glassed with 1 triax on each side. Tap the holes for 6-32 screws. The lower screws need to be longer as they also penetrate the control mounting plate. You may need to open the holes in the servo slightly, but a tight fit acts as a friction washer. Drill and tap two 6-32 holes in the control mounting plate, one located about 1-1/2" from the right-hand pulley end and the other spaced to fit the servo. Both are 1-3/16" from the bottom (check that the servo arm is centered in line with a string run between the tops of the pulleys). Make sure the edge of the servo support plate will clear the pulley. Put the plate in position and run a string between the pulleys. Mark where it goes across the support plate. Also mark the location of the upper bolt for the mounting plate. Make a channel across the face of the (wooden) support plate to provide clearance for the string. Drill a hole or make a cavity on the back to clear the support bolt head.

Fabricate a control arm using scrap fiberglass or aluminum. The servo end fits tightly against the servo arm to provide a rigid connection. Note that one edge is angled to clear the servo base when fully

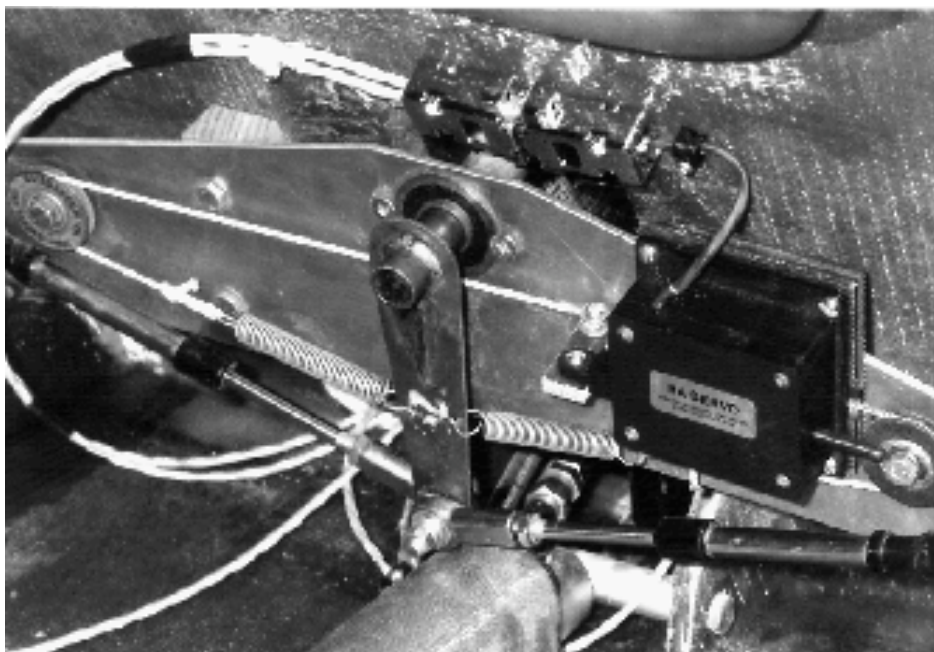


retracted. Tap the control arm and secure with a 6-32 x 1/2" screw. The other end just clears the control mounting plate. Drill and tap for a 6-32 x 1/2" screw. Locate so that the screw is slightly aft of the string. Install screw using two washers and a piece of tubing as a spacer for the string. Put a jam nut on the underside.

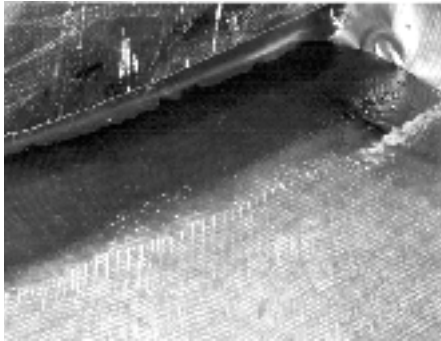


Now for the tricky part. Center the servo and the aileron bellcrank. Run the string around the pulleys and center it. Mark the bolt location on the string. Put the string around the screw on the control arm and tie a square knot so the knot is toward the front of the plane. Tie the string to the bellcrank springs so that there is suitable tension, making sure that the stick has full range of movement when the servo is set all the way to either side.

The control mounting plate/torque tube assembly is installed first. Then put the servo plate behind the string, attach the servo to it with the upper screws and both to the



nounting plate with the lower screws. It may help to keep the control arm disconnected from the servo until everything else is in place. Put a jam nut under the control arm. That's basically it- make the servo connections per manufacturer's instructions. Use AMP or Waldom connectors instead of the ones shown.



Also, I used a different method than Hugh Hyde to keep the lower strake ends aligned with the wings. I put duct tape on the wing cutouts when made a ramp of microglass/flox mixture and glassed over it with 1 triax followed by 1 fine BID extending 1-1/2" on the strake. Slip the duct tape between the strake and wing joint to keep them from sticking together. When aligning the strake, I raised it slightly so that when the duct tape was removed there would be a little room left for microballoons and Cabosil. After it's set trim to 3/8-1/2" overhang and proceed with strake installation. I plan to keep this on the finished plane as a way to reinforce the wing/strake junction, but it could be rimmed off after the strake is done, if you prefer.

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New Fuel Venting System
From Hugh Hyde, Houston TX



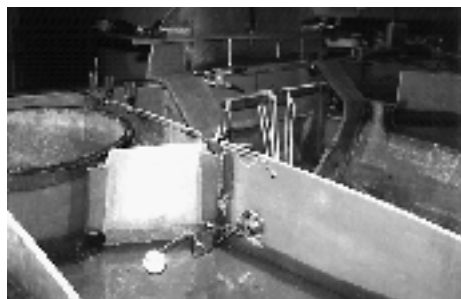
Enclosed are a few pictures that



relate to my interpretation of Scott's new air vent system for the fuel tanks. The noticeable difference in the picture of the sump tank taken before the cover was glassed on is the elimination of the vent line from the left main tank to the sump tank and the addition of a vent line to the top of the tank. That line connects to the bottom fitting on the manifold that is pictured on the firewall.



The picture of the bottom of the fuselage is to show the entry point for air to vent the system. The 3/8 inch tube is cut at a slant 1/2" from the fuselage on the front and 1" on the rear with two 1/16" holes drilled near the fuselage into the back of the tube.

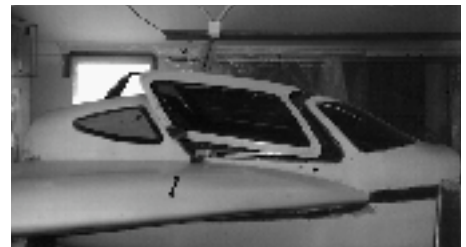


The picture of the baffles on my left strake is to show the vent line placement (note the lack of the 180° bend with holes drilled) and the method I used to micro the lines in place. (Refer to Volume 4 Page 5 KPC "Fuel Tank Vent System")

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Sliding Canopy Mod & More
From Del Moore, Jarvis, Ontario

It is interesting to see the various modifications that builders are incorporating into their "dream machine". I'm no different. Even before starting my 173 RG, I was determined to have entry to the cabin from both sides. I called Duane and he agreed the airframe was strong enough for my intended change. It was then that I learned they were in the process of making a similar, though more ambitious, change to improve entry. After many hours of plotting-planning-measuring, etc., I took a deep breath and cut both sides to make one large sliding canopy. The pictures show



the result. The rear of the canopy lifts first and remains higher through the first quarter of travel. This should provide adequate ventilation during taxi. Devising the mechanism to guide the front of the canopy through a gradual linear arch was a

challenge, and, like all contributors to *Velocity Views*, it is a "use at your own risk" modification. The canopy movement in the first 3 photos is driven by a linear actuator (elevator trim and speed brake) and the last 2 are by hand. The hartwell latches lock the rear of the canopy down and are operated from about the same location as the normal canopy lock. The front is secured by 3 pins that slide into a hole. A keyed lock secures the latches when closed.

Since I live in a climate where winters can be the most beautiful for flying – but cold – I felt that it was necessary to make a seal where the nose gear pivots. This is a piece of tire inner tube secured to the nose gear channel and bottom of the fuselage and supported by a small piece of .025 aluminum.

A seal between the elevator torque tube and fuselage has been devised using thin plasticized fabric and alum.

Heat is a must in winter so I concocted a hot and cold air mixing system for feet and defrost. One lever moves up for heat or down for cold. The other lever moves up for defrost or down for feet.

My first ride in a Velocity (thanks to Don White) convinced me that a modification to the nose wheel swivel was a must. This is a spring loaded pin in an aluminum body, secured to the flat steel plate (ring) that is welded to the gear arm for the wheel fork pivot. A thin steel wire inside a nyloflow tube runs up to the center console beside the control stick. An over-center lever positions the pin either UP for taxi and beginning of take-off roll, then locked DOWN for take-off, flight and landing. I have provided about 5 degrees of swivel on each side of center when the pin is locked. Since I am using a 500-5 nose wheel, the fork is larger and I have only 1/8 inch clearance on each side as my fork to fuselage as the gear is raised. This makes it absolutely necessary that the nose wheel be STRAIGHT during gear up and down so the lock pin will secure that if I operate the lever properly.

During the testing of my under-carriage, one of the solenoid contacts

welded together so that the pump would not shut off. I had to disconnect the battery cable. I hope nobody has experienced this in flight. I called Scott and he said they would send me a replacement, but I said no thanks. I have a friend who works for Mack trucks who suggested I get a relay like they use. These are rather expensive compared to the old solenoids, but they are rated at 75 amp (12V), continuous duty, and weight about 1/4 as much. It is a Bosch # 0 332 002 155. I bought another low cost 70 amp relay that I would not use. It is 1/3 the size and the contacts are too small to handle the load in my opinion. I agree with Lynn Gallup that the front gear door closes with a bang, so I added a simple tapered aluminum pin into the hydraulic line. It slides into the A N fitting during door close to restrict flow and slides back out during door opening. A big improvement.

Like many others, I have minor back discomfort, so I'm working on a lightweight (!!) method of adjusting the front seats up-down and forward. I'd be pleased to hear from any other builders who have made similar modifications. and share any ideas. All of the above modifications. work well IN THE SHOP. If any do not pan out during flight operation I'll let you know when I get the new diesel engine.

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Antenna Update & Nose Gear Door

From Dave Black,

Woodbridge, VA 703-590-2221

Since writing of my antenna experiences in *Velocity Views* #4, I have evaluated the antennas in several additional airplanes.

- The one other Velocity I checked had antennas virtually identical to mine. Not surprising, since they were built at the same factory. I'd give those antennas (and mine) a D-.
- A long-Ez with antennas installed to the same specs shown in the Velocity manual. It had an SWR ranging from 1.5:1 up to 3:1. (Remember that 2:1 is usually considered the highest acceptable.) Nevertheless, this antenna would

work, so I'd give it a C+.

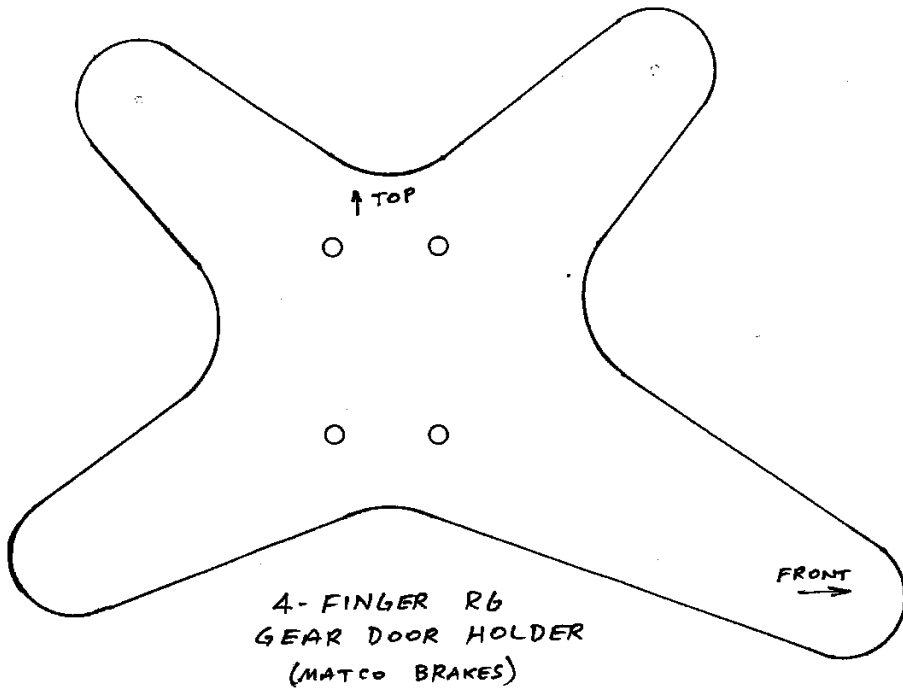
- A Long-Ez project which supposedly had antennas in the winglets apparently had none at all! It gets an F.
- And finally, a Vari-Ez with SWR ranging from 3.5:1 up thru 6:1. As expected, the owner confirmed he was having difficulty transmitting and receiving. D-.

As I mentioned in Volume #4, the folks who built my wings told me my antennas had been constructed to the Velocity Manual specs. I had therefore assumed the performance I was seeing was typical of all Velocity antennas. But upon OPENING MY WINGLET TO REPLACE the Comm antenna, I discovered the installed antenna bore no resemblance to the one shown in the manual. Mine had been installed with many errors, INCLUDING ANTENNAS CUT TO WRONG LENGTH, USE OF POOR-QUALITY CO-AX, AND routing the co-ax right along the antenna element.

This explains why most Velocity builders have not experienced this problem. The antenna described in the manual - while still not a proper design - is nevertheless considerably better than the ones built into my wings. The Velocity antenna's performance should be very similar to the C+ rated one, above. Not as good as an antenna ought to be, since it has no Balun. But it should work and SOME owners might not care about the reduced performance. Thus I owe Velocity an apology.

Still, this serves to emphasize the importance of testing your antenna installation before glassing it in place. The performance of any antenna is affected by how and where it is installed, as well as what is nearby. Unless you check it with an SWR analyzer, you really do not know what is good and what is bad.

Incidentally, I am replacing the original Comm antenna with a Sportcraft 008, and the poor-quality co-ax with RG-8x (Belden 9258). The new co-ax has lower loss and better shielding which should help reduce pickup of strobe and ignition noise. Its center conductor is stranded (not solid), making it less susceptible to



Gear Door Holder:

After installing the main gear doors on my RG Standard I noticed the wheel cover at the lower of the door was slightly flimsy. When retracted, it would not stay in position flush with the strake bottom. Since the problem was greatest at the lower front, I designed a 4-finger gear door holder to replace the 3-fingered one (see drawing). It works! This makes a sturdier door holder, and allows more accurate positioning of the wheel cover.

.....

breaking in the vibration experienced in aircraft.

If you have any questions, please telephone or fax me at (703) 590-2221.

Nose Gear Doors

When I first installed my nose gear doors, I observed the same effect Lynn Gallup described in Volume #4. The doors would close only part-way until the main gear was fully retracted. Then the nose doors would SLAM shut. This can also be observed in the Velocity tape showing the retract cycle.

In a hydraulic system, whatever requires the least effort will be completed first. Serious force is required to operate the pushbutton on the sequence valve. If the sequence valve is actuated by the head of the shock (as described in the manual) insufficient force is available to hold the pushbutton in and the valve opens. The pushbutton is initially depressed by the momentum of the nose gear retracting. But the continuous force applied is not enough to keep the button depressed. The shock "bounces" off the valve and the valve closes again. This stops nose door movement midway, with the shock head resting against the sequence valve pushbutton. Once the main gear is up, very high pressure builds on the whole hydraulic

system. This pressure is sufficient to finally push the shock head into the pushbutton and re-open the sequence valve. The extremely high pressure is also sufficient to SLAM the nose doors, producing the familiar effect. You can confirm this by "helping" the nose gear up that last half inch. Once you pull the gear fully up, the doors close. If you do it slowly, the doors close slowly.

My solution was to simply relocate the sequence valve, without adding any hardware. I mounted the sequence valve inside the pilot's side of the console about two inches from the top, where its pushbutton could be actuated by the ball at the head of the air spring. This location has the dual advantage of much greater leverage against the pushbutton plus slower action. With the sequence valve located here, the nose gear now comes up, the doors close completely without slamming, and finally the main gear comes up. Neat.

During Oshkosh, in describing this to Scott Swing, I used Doug Doers' plane to point out the new sequence valve mounting position. As I reached into the console to point to the new location, my finger touched Doug's sequence valve! Guess I'm not the first one to figure this out.

Velocity Florida

Don't miss it!

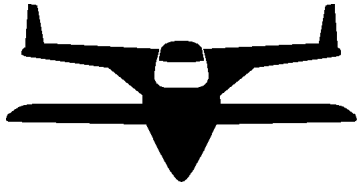
- Go to pages 12 & 13 for all the details.
- Sign up with the factory ASAP but no later than Wednesday, January 24th

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Second Annual Event! Make Plans & Sign up now Velocity Bahamas '96 Fly-in



The second annual Velocity Bahamas Fly-In is scheduled from Friday, May 17th with return departure on Tuesday, May 21st. Pamela has blocked off all ten rooms at Coconut Cove, so make your reservations early by calling 1-809-336-2659. Feel free to alter (early or late departures) the schedule to fit you needs. You do not have to fly in a Velocity to attend. Judy and I flew over last year in our Long EZ. You just need to be part of the Velocity family (builder, etc.). For particulars on room types, etc., please refer back to Volume 1, page 9. If you plan on attending, book ASAP by calling Tom or Pam at Coconut Cove. Once the 10 rooms at Coconut Cove are full, Tom will book any overflow at the "Beach Inn", which is right next door to Coconut Cove.

Just about every back issue has information on the Bahamas Fly-in (info on the resort, how to obtain permission to fly an experimental into the Bahamas, etc.) If you are interested in going, please take a few moments to review this data, then give me a call to get on my list. Color brochures of Coconut Cove are available for Velocitites interested in attending.

We most likely will be leaving in two groups from Florida. For pilots departing from southern Florida, Jean Prudhomme's home airport (Hollywood) will be a good jumping off spot. For the rest of us, we can leave from Ft Pierce. Final plans will be published in volume 6.

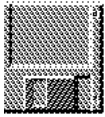
Join the fun, make new friends, and plan on lots of relaxation!

Rick

Submission Deadlines

| Volume | Date |
|--------|-------------|
| 5 | December 1 |
| 6 | March 1 |
| 7 | June 1 |
| 8 | September 1 |

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

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