

Budget Oxygen System

by Patrick Hildebrand

I have enjoyed my Dragonfly immensely, it has been a wonderful ship for cross-country trips. Some of the legs for those trips have been as long as 3 hours. Turbo-charged power in the Dragonfly basically translates to this statement . . . "Higher and Faster". The higher I go, the higher the true airspeed. I keep the manifold pressure at 28-29" right up to 16,000 feet.

Altitude	KTAS
4,000'	150
8,000'	160
12,000'	170
16,000'	180

When I shopped around for a good oxygen system, I found that I needed to budget \$600 to \$1,000. That's a big number for a Dragonflyer. So I procrastinated. Then I was having lunch with a friend who owned a Mooney. He told me he flew regularly at the 10,000 to 14,000 feet altitude level. He put together a system for a few hundred dollars, he had my attention. The system is based on medical oxygen components. Veteran aviators sometimes question the use of medical oxygen in aviation applications. It's important to know some of the history on this issue.

Until about 10 years ago, aviation oxygen was processed differently because it is used under different operating conditions. When aircraft were flown in cold temperatures or at high altitude (cold temperature), moisture in the oxygen would freeze up in the bottle, regulator, or face mask. Consequently, aviation oxygen was passed through a drying/dehumidification process in order to resolve the issue. Medical oxygen could still be used, but the bottle would have to have been stowed in the cockpit to keep it warm. In recent years, all oxygen is dry.

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You've probably noticed now that hospitals use in-line humidifiers when administering oxygen to patients. My friend actually visited the company that refills both medical O2 and Aviation O2. He says they're filled from the same valve.



Portable aviation oxygen systems available today employ an altitude compensating regulator. This is a great feature in that, once the oxygen is turned on, the pilot can climb and descend without having to worry about the O2 system. However, if you don't mind turning one dial, there is an economic alternative.



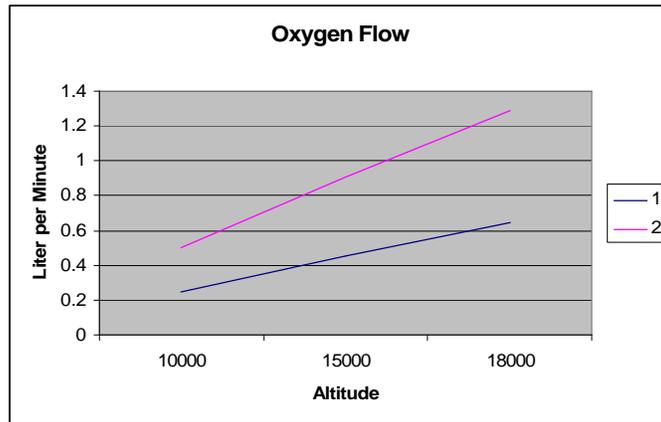
I started with the decision to use the Oxymizer® mask. It's claim is to use 75% less oxygen on average. Therefore, I needed a regulator capable of supplying .25 to 1.0 liters per minute flow rate. If I wanted to share the system with two people, the flow rate had to be between .25 and 2.0 liters per minute. I chose the SlimLite II pediatric regulator made by Victor Medical (victor part #07813323). See web url:

http://www.thermadyne.com/vmed/literature/pdfs/68-9902_p1.pdf

Order it from the local medigas company or welding shop. It has a great flow range and is reasonably light. I also bought an inline pediatric "liter meter" flow meter from a respiratory therapy company. That way I could see that oxygen was flowing at a glance.



The bottle is a "C" size. At 10,000 feet I get about 14 hours on it. The refill is cheap at about \$12. So it costs less than \$1 per hour to run it. The flow rates I use are as follows:



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For you high altitude flyers this would make a great addition to your airplane—THANKS Patrick!!

Jeff

Total Equipment List/Price	
D med-ox bottle	\$80.00
Slim-Lite II	\$100.00
Oxymizer mask	\$32.00
Flow Meter (optional)	\$30.00
TOTAL	\$242.00

Fly-In Schedule

Sun 'n Fun EAA Fly-In

Sun 'n Fun is scheduled for April 12-18, 2005

Mountain States Canard Wing Fly-In

The Mountain States Canard Wing Fly-In will be held at Bullhead City/Laughlin International Airport (IFP) April 29-May 1, 2005. For more information visit:

<http://www.siinc-sources.com/MSFly-In2005/>

Tandem Wing Spring Fling

The second Tandem Wing Spring Fling at the Southern Illinois Airport (MDH) is on! Sam Hoskins is the event coordinator again this year. This will be a great chance to see Quickies, Q-200s, Tri-Qs and maybe a Dragonfly or two. The dates are May 20 through May 22. Be sure and put it on your "A Priority" list. Name of airport: Southern Illinois Airport (MDH). Located between the towns of Carbondale & Murphysboro, IL about 90 miles SE of St. Louis, Mo. They have plenty of runway, 100LL and Mogas, as well as an air conditioned terminal and lounge area.

Southern Illinois Airport (MDH) is home to Southern Illinois University's Aviation Technologies (A&P school) and flight school, though there will be very little SIU activity since summer school doesn't start until June 14th. [SIU Aviation](#) The tower will be operational, even though school is not in session, but local traffic will be very light. We will likely have access to the SIU Aviation Technologies hangar for indoor parking. We can either push the [B-737](#) out of the hangar, or just park under the wings.

On Friday night we'll have most of a big room at the Old Depot restaurant, a converted train station. Saturday night will feature dinner at the four time barbecued ribs world champion, [17th Street Bar & Grill](#). Best barbecued ribs in the world. We'll shoot for dinner around 7:00 on Friday night and 6:00 on Saturday night. If you get to Murphysboro and need further directions to the restaurant, just call my cell phone, listed below.

As usual, we would like to have some kind of idea how many folks will be able to make it, however, given the large facility at SIU, the more the merrier. I'd appreciate a note if you're flying or driving, but if you just show up – that's great too!

Here's some contact info for Sam:

email at shoskins@mchsi.com

Home 618-684-5094

Mobile 618-967-0016

Work 618-833-3784 extension 246

For more information visit:

<http://home.mchsi.com/~shoskins/springfling.html>

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EAA Air Venture

No need to waste much space talking about Air Venture. The event will take place from July 23-31, 2005.

Livermore Tandem Wing Fly-In

Bob Farnam and Jim Patillo are planning the Fifth Annual Tandem Wing Fly-In at Livermore Airport (LVK) in northern California (near San Francisco) on August 19-21, 2005. All tandem wings airplanes, owners, builders, and "I got to get me one of those" people are invited. The fly-in will get started on Friday afternoon and evening with a no-host dinner at Beeb's Restaurant on the field starting at about 6:00 pm. This is an informal fly-in aimed at getting to know some of the names you've seen in the newsletter and email list. There will be rides, lots of talk about these birds and why they are so wonderful, and a late afternoon and evening BBQ on the North side of the airport.

Bob has an event web site with lots of details located at:

<http://www.farnamengineering.com/LivermoreTandemWingFlyin.html>

15th Annual Tandem Wing Field of Dreams Tandem Wing Fly-In

Well guys we are getting closer to the big event, of course I am talking about the 15th Annual Tandem Wing Field of Dreams Fly-In. Everything is on track for the 23-25 September event at Sullivan, MO (KUUV). All of the big moving pieces and parts are in stone, but as with most functions like this there are several little things that still need to be ironed out.

I will probably be needing a little help with various things at the event and will thank everyone in advance for helping out. If you have any comments or suggestions please feel free to email or call me. Initial comments indicate that we may have as many as 20, or more, tandem wing planes in attendance!!! I am really looking forward to seeing everyone at the fly-in!!!

You can visit the fly-in web site at:

<http://www.fidnet.com/~letempt/index.htm>

I welcome you to join the Tandem Wing Fly-In email list on Yahoo Groups if you would like to provide input about the event. The group is located at:

http://groups.yahoo.com/group/TandemWingFly_In/

Last year we had 14 tandem wing planes and about 10 conventional airplanes that flew in for the event. I think we could see 25 tandem wing planes show up this year if the weather cooperates. If you have any questions about the event you can email me at Jeffrey.letempt@us.army.mil or call me at (573) 364-2545 before 9 pm CST.

The Wall

by Dave Richardson

Perhaps you have noticed a gap in your builders log since you last worked on your project. Perhaps this gap could be measured in months or even YEARS! Well, you might be experiencing what has been affectionately called "The Wall." I first heard this term used by marathon runners as they neared the end of their course. They would feel physically and mentally spent, doubting they would be able to finish the race.

Marathon runners may have various goals when they run. One goal may be to "finish the race".

Another may be to "run the race as fast as they can and beat somebody else" or "beat their own best time." I tend to see the actual flying of the Quickie as a builder's "finish the race" goal. I realize that there is a new "race" that begins after you are flying, but I'm on the "Pre-Flight" side of the curve so that's my current perspective. Fortunately, and unfortunately, there is no real "fast as possible/beat someone else" aspect to building your plane. It is fortunate because you can easily let errors creep into your project if you go too fast. It is also unfortunate because there is no real way to control when the "race" is finished. Imagine a marathon between point A and B where the competitors could set up their own course. Some may take the straight route and finish in hours while others might go "sightseeing" and finish days or weeks later. They may even get lost along the way and never make it to point B. When you build your plane per the plans, you have the chance to take the shortest route. When you make up your own "plans", you are almost guaranteed to see the sights and run the risk of taking much longer or not finishing at all.

The building process is fraught with many built-in factors for delay. They may take many forms or combine themselves as you progress through your project. Here are just a few examples:

- 1) **Fear.** Early in the building process you may have concerns (rightly so) about breaking something or ruining materials. You might even begin to ask yourself if the "Nay Sayers" are right when they ask, "You're going to fly in something you built?"
- 2) **Money.** I would be preaching to the choir if I reminded you that aviation is not a cheap hobby, so I won't. For many of us, the creativity in locating appropriate raw materials is very challenging and can cause delays when the coffers are empty.
- 3) **Time.** Building an airplane requires a significant amount of time and there seems to be less of to go

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Dave in his Tri-Q2 getting ready for his maiden flight

around as the years go by.

4) Knowledge. There are many skills needed to build a plane and many have an aviation twist. While you may be proficient in a similar skill when working on an automobile, the aviation difference can almost make the process foreign.

5) Wrong Decisions. When tackling a new portion of the project, you may have questions as to proper procedures or you may make some wrong decisions from lack of experience. This can really lock up your progress since so many things are interdependent.

6) Physical. Perhaps your arms are so tired that you are saying things to yourself like “I just can’t sand any more...” or other similar statements.

7) Lack of Family Support. Families and spouses need your time, too. If you just got an elbow to the ribs and a finger pointed to the previous sentence by someone reading over your shoulder, your life may be out of balance in the way you work on your project.

8) Scope Creep. We use that term in the software development business when you find you are spending a lot of time on things that were not in the original contract. If you are trying to locate the optimal location for your radome, you might be experiencing Scope Creep.

Jim Masal (former Quickie Newsletter editor) said that you will learn more about yourself during the building process than you will about building airplanes. When facing “The Wall,” it is very important to learn what it takes for you to break down, jump over, go under, or go around it. The QAC (Quickie Aircraft Company) manual states that only 20% of projects will be completed and I believe “The Wall” plays a major role in why so many projects languish.

As part of our interview for the “Pilot Profiles” published in each issue, we asked these successful builder-pilots if they ever hit the wall and what they did to overcome the problem. We have had almost as many different responses as we have had interviews. We have heard everything from “Oh YEAH! I have hit the wall.” to “Not really” and everything in between. We listened very carefully to their solutions. Here is a list from some of those who have successfully finished the race and are enjoying the rewards of flying their plane. Don’t expect each item listed to be a 20-pound sledge for your wall. You may have to combine ideas to act as a wedge and hammer to help work through your obstacle.

1) Visualize your goal - Post photos of finished and flying planes like yours where you can easily see them every day, especially in your workshop. See the future - Be the future.

2) Read or re-read all the back issues of Q-Talk and Quicktalk (or the Dragonfly Builders and Flyers Newsletter in this case). As you progress through your project, your radar will be tuned to find solutions to problems you may not have been aware of earlier on in your development.

3) Remember you are not alone or the first one to deal with a particular issue. Use the combined knowledge of the group to your advantage.

4) Remember - given enough time and money, anything on the plane can be replaced. This is very freeing when you dread doing something.

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- 5)** Make a copy of the manual so you can have it with you when you are away from the workshop and have some free time.
- 6)** Mix Business with Pleasure - Use Grandma's Rule - do the tough job first and then move on to the fun stuff before you finish working for the day. Once begun - the job is half done.
- 7)** Ask yourself, "How much better than good enough does it have to be?"
- 8)** Make room for the rest of your life. Be sure to schedule time for your family as well as your project. When you are with your family, do not plan what you are going to do on your project.
- 9)** Get up at 5 a.m. and work several hours on your project before you begin your regular day.
- 10)** Think of all the people you have told you were building a plane and what their reaction would be if you quit.
- 11)** Have your project inspected by another builder/flyer. A visitor to the workshop can really help motivate you to clean up the hanger and complete items on the list before they arrive.
- 12)** Put yourself in the presence of the plane. In other words, do not avoid going to the workshop. Be near the project until you can pick up that wrench or sanding block again. There are consequences to out of sight is out of mind.
- 13)** Quit your whining and finish your plane. (Your mother sent that one in.)
- 14)** Think of all the time and money you have invested in the project.
- 15)** Use your lunch hour as a planning session to prepare a game plan for your next visit to the workshop.
- 16)** Celebrate milestones!
- 17)** Avoid Analysis Paralysis. Follow plans. Do not chase ghosts that might not even exist. Build the plane and fly it. If there are problems, fix them.
- 18)** When it comes down to it, these planes are like dirt bikes. Build it, go out there and have fun.
- 19)** Remember that building a plane is not a huge a project when you consider it is made up of 1,000 smaller projects. Manage the subprojects.
- 20)** Attend fly-ins and get a ride in a plane similar to yours. Nothing pumps the soul like looking out of one of these birds and flying along at 175 mph (in a Q2, but not most Dragonfly's). Feel what you are missing by not working on your project.
- 21)** Focus on what is important. Make lists of what you need to do and use some sort of A-C or 1-5 rating system to help you prioritize your efforts.

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- 22) Ask yourself if what you are wasting time on helps keep you in the air and if it is required by the FAA.
- 23) The more you work on your plane, the more you want to work on your plane. The more you want to work on your plane, the more you want to finish your plane.
- 24) Develop a mentor relationship with another builder/flyer. Experience is priceless.
- 25) Involve your family and make it fun.
- 26) Import some help when you need it. Many hands make light work and when those hands have done hundreds of layups, you are bound to accomplish something quickly.
- 27) Ask for help. For many lone wolf types, this can be a hard thing to do. Do not consider asking for help as a sign of weakness, but rather a sign of intelligence because you understand your limitations and realize you can tap into the experience of others who have been through this challenge before.
- 28) Email or call other builders/fliers on the phone to get advice.
- 29) Involve others in your project that have a positive attitude and respect your dream.
- 30) Do not forget to make it serviceable. You may have a neat feature but it could be a real maintenance problem.
- 31) Schedule a regular time to work with others on your project. Sometimes it is easier to just work on the plane than to have to call off.
- 32) Join a building group that meets regularly. Work in a common area and socialize as part of your regular pattern.



Dave and Suzie Richardson after the first flight of their Tri-Q2

33) Hunt in packs - help do layups for others in a small group of fast glass builders. The owner of the project would act as the supervisor and everyone else would work as laborers. As you move from project to project, everyone would have a chance to play both roles.

If you were paying attention, you noticed that almost half of the suggestions involved other people. If there was one "Wrecking Ball" idea to break "The Wall" down, it was to get others involved. The QBA (Quickie Builders Association) or the EAA is a good place to look for assistance. Perhaps a friend who restores cars would be interested in learn-

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ing how to build a plane. If you are having trouble making progress on your project, your first goal should be to find someone to help.

We hope that at least one idea from the list above will help you break through your wall and successfully complete your Q (or Dragonfly). Remember, the advice came from Q builder/pilots who have finished the race and are flying their planes. Together we build better planes.

Dave Richardson from Stow, OH has built a very nice Tri-Q2 that he flew for the first time in 2004. Dave was the Q-Talk Newsletter Editor for several years. I hope he and his wife Suzie get to fly their Tri-Q2 to the Field of Dreams Fly-In in September. I think the World of Dave and Suzie, they are two of the nicest people I know. Thanks for your newsletter contribution Dave!!!

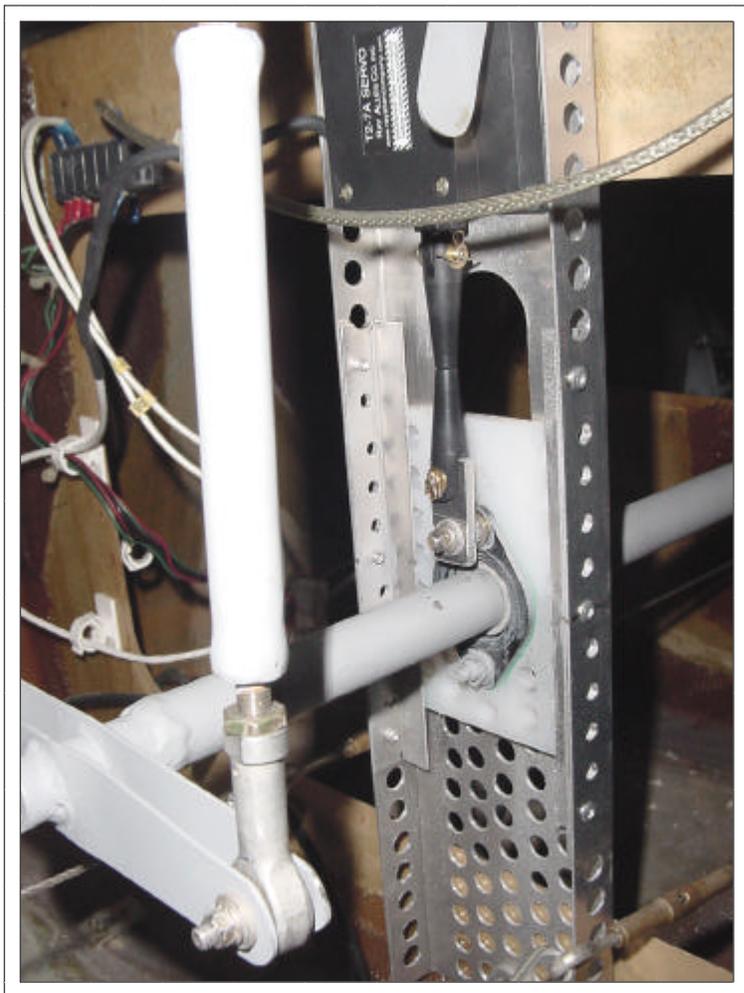
Editor Ramblings

Well once again I am a few weeks late getting the newsletter out to you.....I am sorry. I do have a good reason, but I will not bore you with a long sob story. I will tell you that the last few months have been very stressful with my retirement from the Army and finding a new job. Everything worked out perfect for me, but I was very uneasy about the transition.

Thank you for continuing to support the Dragonfly Builders and Flyers Newsletter. I look forward to serving you during 2005 as your newsletter editor. There are several of you who have decided to take advantage of the reduced cost electronic only subscription. We will see how it goes this year. I do not anticipate any problems, but only time will tell.

I have been flying and modifying my Dragonfly MK-IIIH. To date I have about 45 hours in my Dragonfly and it is getting better each and every flight. Last week I installed a reflexor of my own design. I only have one flight with the reflexor installed, I will give you more details in the next issue after additional flight testing. I will tell you that it performed just as I thought it would and I am very happy with the preliminary results.

I hate to tell you that I used some of the "A" word material in my reflexor.....aluminum. Here is a picture primer. This photo is looking towards the front of the airplane. It looks like the aileron torque tube continues aft, but it does not. I used a Ray Allen servo and you might notice that I have eliminated the motion changers. This complete system added about 1/2 pound of weight.



Classifieds

For Sale: 1836cc engine complete from prop spinner to firewall for a Dragonfly. All new engine with four hours run time. Dual ignition (one slick magneto and one electronic). Exhaust system complete with heat muff and carburetor heat box, Hapi ultra carburetor, Spin on oil filter, hydraulic lifters. The engine cowling also goes with this, so you will have a complete firewall forward for a Dragonfly. A&P built. \$3000.00 OBO. Call Joe Anthony at (636) 398-6211 or email hjoe@acer-access.com for pictures or additional information.

For Sale: Continental PE-90 engine (a rebuilt GPU engine) 0-315. This engine has been started to be converted to aircraft use, dual plugs, oil tank and intake started but not finished welding. One magneto, all continental accessories will fit this engine. \$1500.00 Call Joe Anthony at (636) 398-6211 or email hjoe@acer-access.com for pictures or additional information.

For Sale: NACA Flush Inlets designed for 1/2" sandwich structures. These make a good looking functional inlet to replace the hand carved per plans ones. Inlets are \$40 per pair, plus \$4.00 shipping. Note: Spinners no longer available. Contact Charlie Johnson, 2228 East 7875 South, Ogden UT 84405 (801)-479-7446 or e-mail: OneSkyDog@aol.com

For Sale: Dragonfly Type 1 converted to hoop gear. Porsche 1800 engine (big VW) converted to 2400 with parts from Great Plains. Airframe complete & wings & control surface mounts are finished. Cleveland wheels & brakes. Ed Sterba prop. Very nearly complete. Asking \$10,000. Call 815-397-1533 or email stiegrinding@aol.com



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