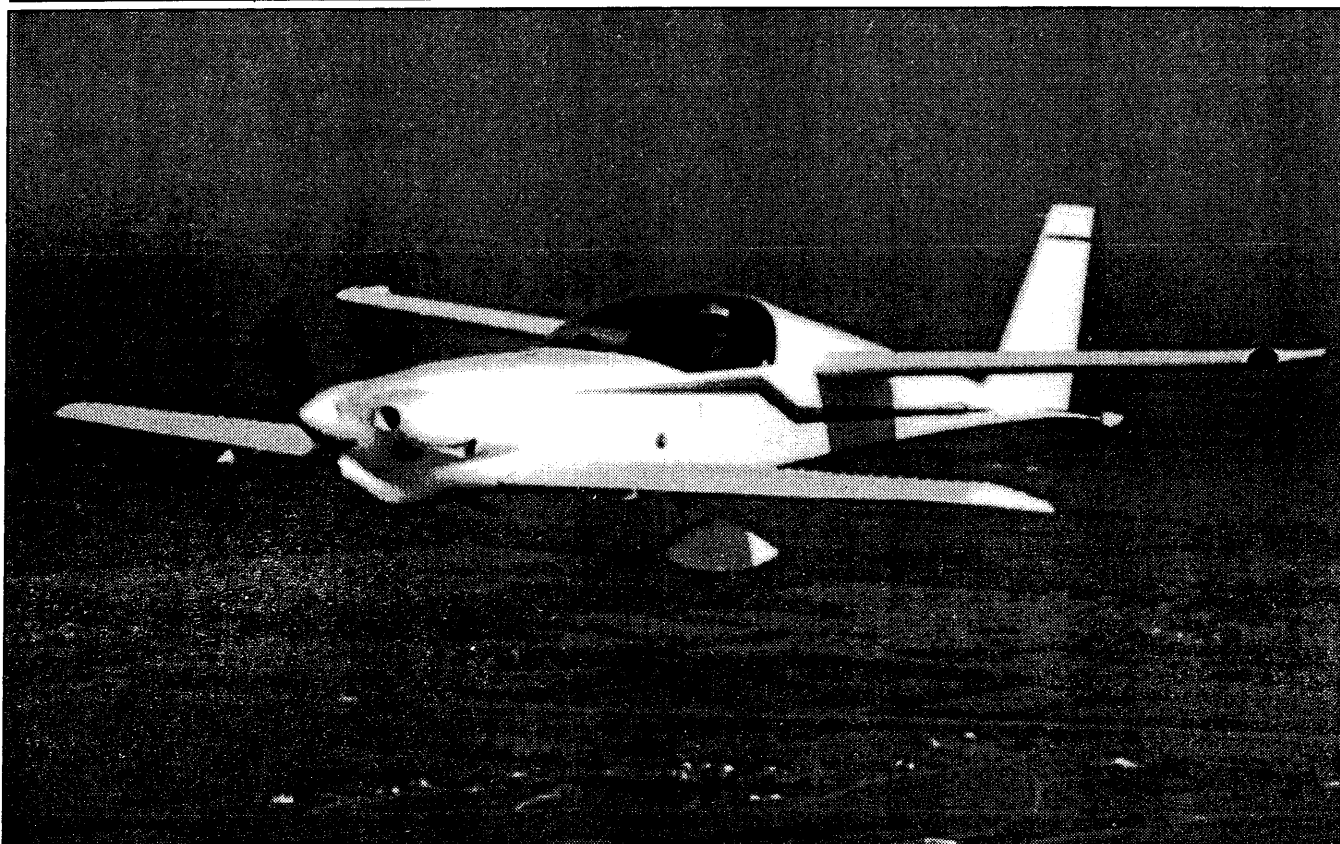


DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

THE OFFICIAL VOICE OF DRAGONFLYERS ALL OVER THE WORLD

VOLUME 81

SEPTEMBER -OCTOBER 1999



Terry O'Neill of Carlyle, II Mark II Dragonfly

This information is passed along, to be of possible interest to builders /flyers of Dragonflies with engines using magnetos for ignition -Terry O'Neill

In September I replaced the old Slick 'throw-away' magnetos on the Continental A-80 in our Mk II Dragonfly with electronic ignition by Light Speed Engineering...same as

used by Klaus Savier in his O-200-powered 239-mph VariEze. Why? It's a short story.

Cynthia and I own Dragonfly Mk II N189SM, which was built by Stan Meleski. It first had a VW engine, which Stan removed after it lost a crank flange and prop over LA and he had to land on Interstate I-5. He decided to install a 50-yr. old

Continental A-80.

When we were buying N189SM Stan found the A-80 had a 4" long crack in the case, and had it repaired by Skeezix Adkisson of Atwood, IL, a guru antique airplane rebuilder and pro mechanic since WW II with the Army Air Force in England... so you know he's OLD... but feistey. He disassembled Stan's A-80 and built up a 'new'

one on a replacement case, replacing everything that was out of specs, like rod bolts, wrist pins, etc.. He reset the timing on the Slick mags, but couldn't test them, as I had kept the carb and other accessories at our hangar in Salem. I reassembled and installed it, and in the next two years Cynthia and I put about 150 hours on the plane, with trips from Illinois to Texas, Colorado, South Dakota, Wisconsin, and Indiana.

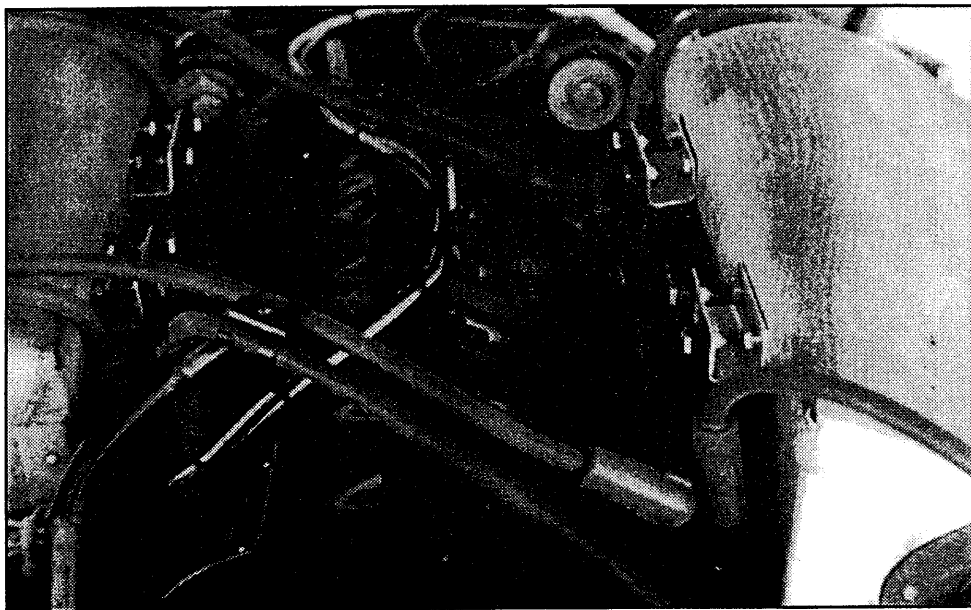
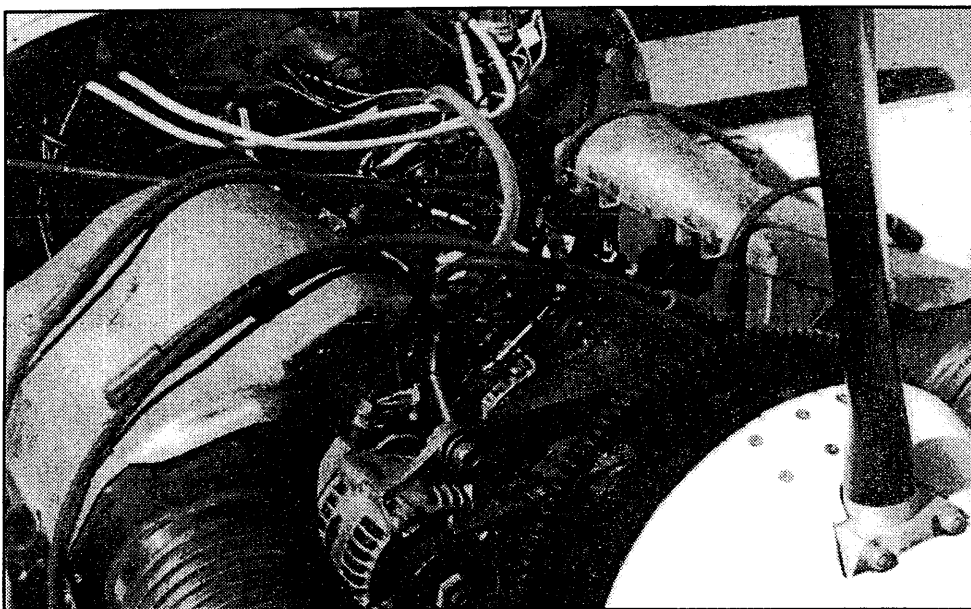
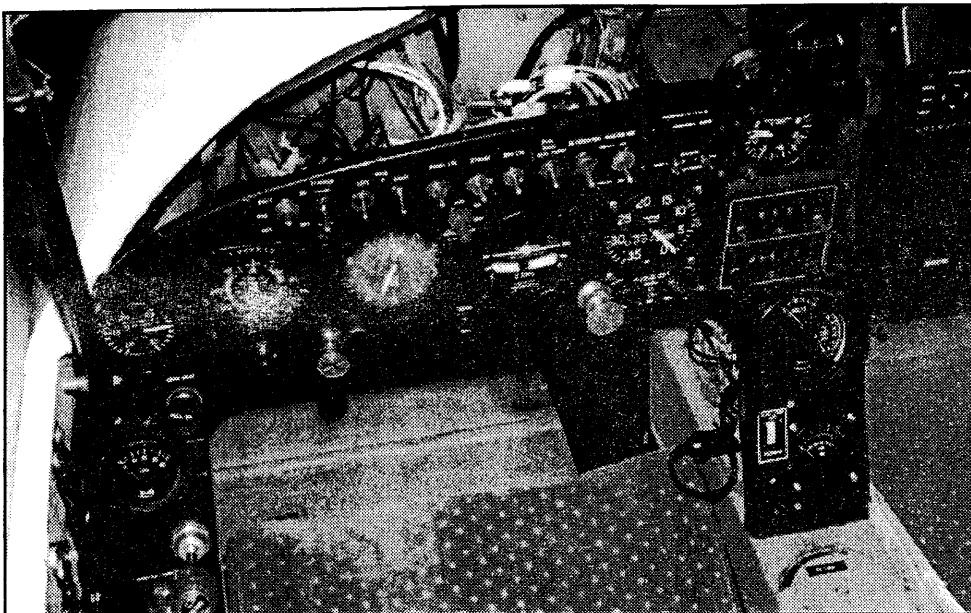
One Reason To Change Ignition

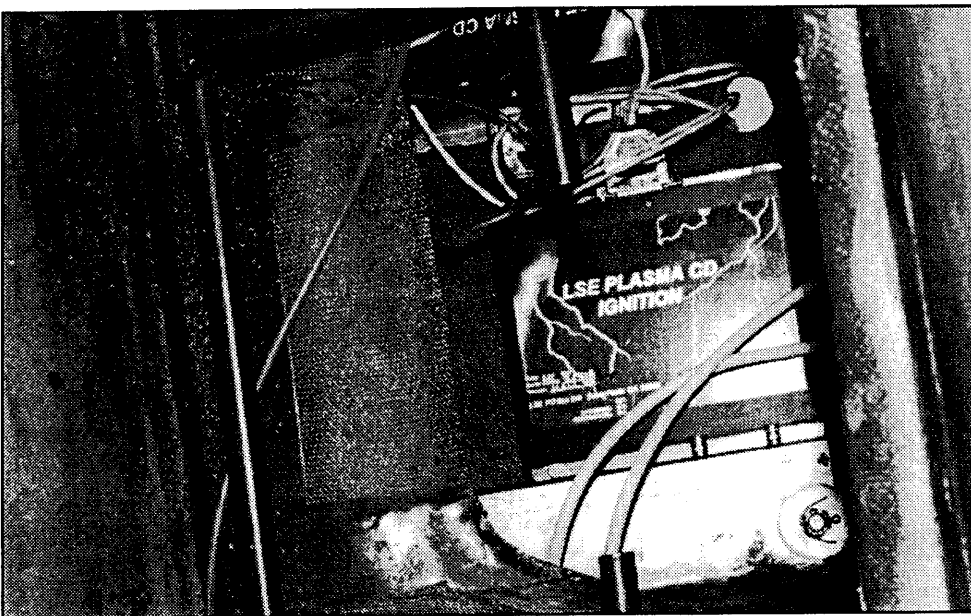
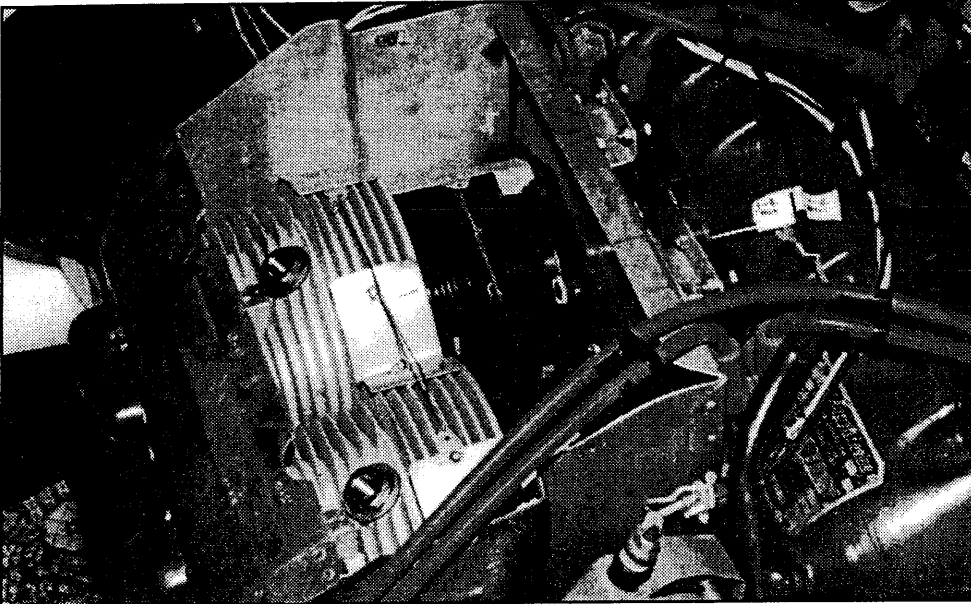
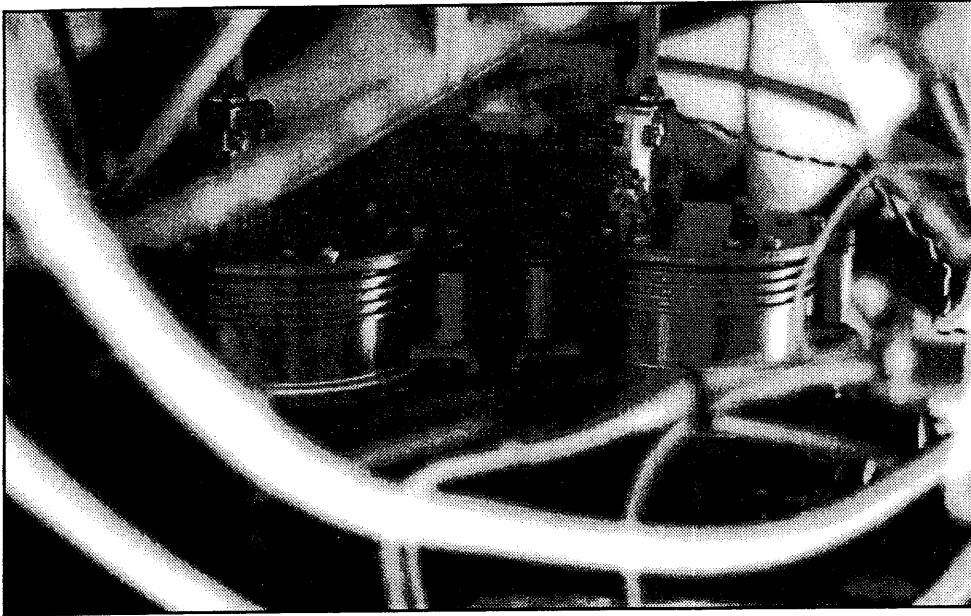
Last July we loaded up (one small bag) the Dragonfly to go to Oshkosh, about 350-miles north. Twelve minutes later, as we were crossing the airport at Vandalia, the engine missed a beat or two, and kept doing it, as I circled the airport. I thought it might be carb ice, as the humidity was nearly 100-percent, but carb heat didn't help. So we landed and left the Dragonfly there, and drove to the show instead. On returning, I took tools to the plane and checked everything, and fixed a plug wire that might have been shorting. On test-flying, it still acted the same; and after circling the airport, gaining altitude for the 11-minute dash back to the home hangar, I finally thought it was running smooth enough to get home... and did. After talking to Skeezix it seemed very likely the mags were going bad, scatter-firing, so I pulled them off and took them to the aviation shop for Southern Illinois University at Carbondale, and on the invitation of a neat guy, Charlie Rodriguez, an instructor there.

He picked up one and began saying stuff like "Oh, that's bad.", or "It shouldn't do that." when he wiggled the shaft. The bearings were worn on one. He put them on a tester, and we could see the irregular sparking of both of them.

"These are the old Slick Model 4030 'throw away' mags... designed to be used about 400 hours and then pitched," he said. "They can't be rebuilt."

"Awhile ago Slick had a promotion accepting these as cores if you bought their new mags, which are better, but they don't accept them anymore." 'Bummer', I said. So the Slick mags were Kaput.





Other Mags

I called Mattituck, El Reno and others mag guys, including some Trade-a-Plane ads, and got some derogatory comments about Slick, which has now been bought by another company. Turns out my old Slick mags didn't count as cores, because nobody would accept them. I would have to spend a couple of hundred dollars to buy cores, before I could buy mags... totalling about \$1200, if I bought new Slicks. Not likely.

I was told Eisemann mags were good, but parts were hard to find. Bendix mags were supposed to last the longest, but cost the most..about \$1600. Seemed like a lot. So I began considering electronic ignition, like Klaus Savier's Light Speed Engineering units. Klaus has a VariEze that posted a competition dash speed of 239-mph! using this system, and some other mods he has done to his O-200, and I found a number of other planes which are now using the Light Speed CDI units.

I downloaded a lot of Klaus' info from the internet, and then called him and talked over whether it would be possible to apply LSE ignition to our 50-year-old Cont A-80, which turns the mags to the right (instead of to the left, like the later C-85s). He said yes.

Electronic ignition looked good... but was about double the cost of the Slick mags, but probably would last longer much with less maintenance, and better performance.

Investment in Reliability

We bought two complete systems, for redundancy. Klaus usually installs one CDI system with an existing mag system remaining... but sometimes dual systems are installed.

We also put in an additional battery, separate from the electrical system, charged automatically through a Schottky diode and a 10 amp circuit breaker.

I decided to route the batteries' electricity to a selector switch so I could normally draw from the main electrical system,

but could switch to the auxiliary battery.

If the electrical system goes out....?

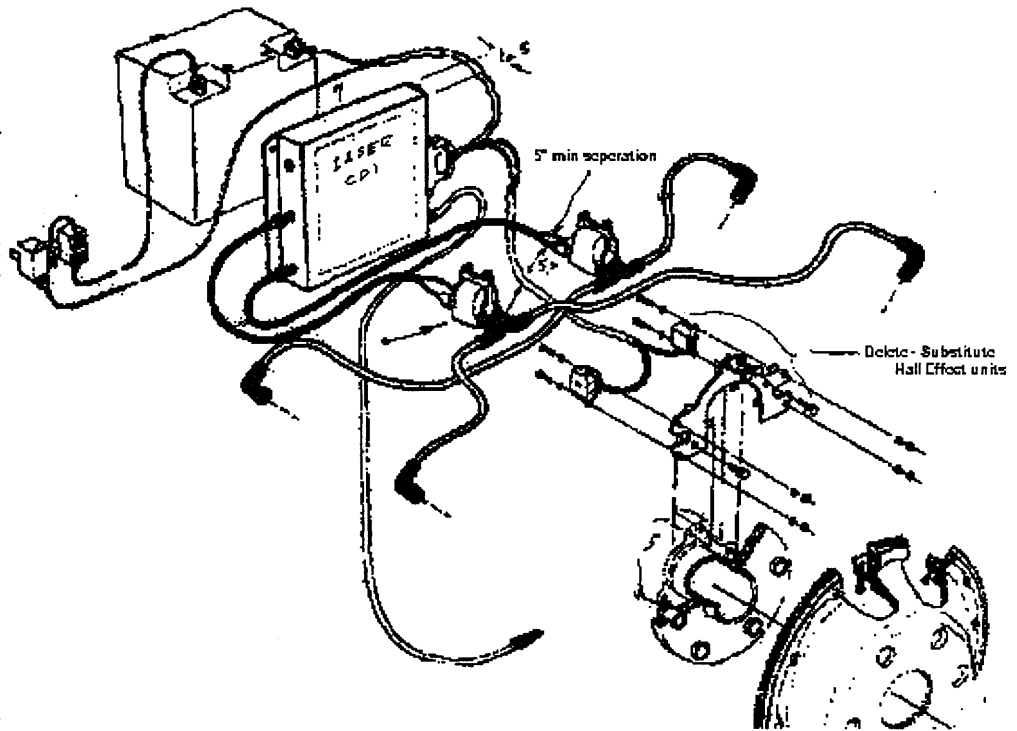
The CDI units draw about 1.3 amps/hour each. Klaus had sent me a diagram that ran the power from aux to only one of the CDI units, and I asked him why. "That's to increase the endurance from a smaller 4.5 amp-hour battery," he said, to save weight. A teutonic approach to performance. "...we have ways to assure your endurance!" I thought that if I wanted to increase the endurance, I could just switch off one of the CDI units myself, and opted for a 9 amp-hour battery instead, which only weighed about a pound more than the 4.5 amp-hour size job, for double the endurance.

How LSE Works

The LSE system automatically sparks at TDC when starting... so it's easy to hand-prop... perish the thought. Then as the RPMs get to around 600, the timing advances to about 40-degrees... varied by the manifold pressure (Tees into the MP gage line) and the RPM. Pulling off the MP line to the CDI module retards the spark to full retard, about 15-18-degrees BTDC.

Another option Klaus offers is a Hall Effect crank sensor, a little round aluminum cylinder that just plugs right into the magneto holes in the case, and includes its own timing light. It costs more, but on our old Continental there was no room for LSE's basic timer coil plate that is standard for the CDI system. We have starter and alternator in the way.

I put the main CDI units on the cool side of the firewall. The ignition coils, one for each two sparkplugs — top cylinders 1 and 2, and cylinders 3 and 4, (and same for bottom plugs) I put on the cooling baffles boxes. I worried this might be warmish, I added a small bleed hole for cooling air behind each coil. The original ignition coils were limited to 180F, but the new ones are



okay to 220F. This all proved to be unnecessary because when I later checked the temps with a cheapo water temp gage in the coils' zone they stayed under 120F, and after shut-down they heated to about 150F.

The whole installation was simple, and easy to time, using Klaus' instructions sheets.

Timing It

To time the system I put the crank at 48 degrees before TDC (because of right hand rotation of the mags; normal for the HE units on left-hand rotation mag engines is to set it with the crank at TDC), and then with the ignition on I rotated each Hall Effect sensor clockwise till its little green light came on, and locked it down. Then with the sparkplugs out I cranked the engine and checked that the timing for startup was at TDC.

Next, with all wiring connected and the plugs in, and the help of my friendly A&P, I checked the timing with the engine running — to be at 40-degrees BTDC, as required, and he made the required logbook entry.

LSE recommends changing to NipponDenso high quality automo-

tive plugs to get an .032" gap for the higher voltage. We did this, and now have two sets of barely used aircraft massive-electrode sparkplugs. (Any offers?)

The engine starts immediately and runs evenly. It seems to make a little more RPM static now, and the CHTs are a few degrees hotter. Before take-off I just check that each CDI system is firing by switching off/on what used to be the mag switches; and also check they'll run on the aux battery. There's no drop on one CDI... its a hot spark.

I talked to the FAA's local FSDO and later mailed him a written notice of the change, and said I would test fly it for an hour before leaving the local airport. He felt this was adequate, since this was not a change that affected the aerodynamics or the structure of the aircraft, but only improved the reliability.

He added that Lycoming is now working on electronic ignition, spurred, he said, by the homebuilders getting ahead of them.

I'm to see the newsletter up and running again. I will try to contribute on a regular basis on the benefits to this new ignition.

Terry O'Neill

Multicom!

DBFN is Back!

Hello Gang, Spud Spornitz here!

When I was wrapping up the last issue of DBFN 79/80 in December 1998 I never thought I would have the opportunity to be able to harass you folks into building some Dragonfly's again! Well.. That just goes to show ya how much I know!

After that last issue I watched in the back ground to see how the Taylors and the Mike Puhl of Slipstream was going to continue the newsletter support, etc. After nine months I contacted Mike and more or less told him the "Natives are getting restless"! Mike had been "up to his ass in alligators". He also had purchased the Genesis Aircraft factory which is a full tilt three ultralight aircraft manufacturing company that he moved from Iowa to Wisconsin. Now this had turned out and still is a much bigger project that he had maybe originally bargained for, thus this is where the time had slipped away.

I talked with Mike several times over a couple of weeks trying to find a solution to the newsletter support problem. Well to make a long story short, Mike & myself would both like to announce that I am your new (or should I say Re-new or Rerun or Recycled!) editor and publisher of the Dragonfly Newsletter. I am pleased to say that "Dragonfly Builders and Flyers Newsletter" (DBFN) is back and ready to again be the voice of over 300 Dragonfly builders & flyers around the world.

Mike has done something very cool to show his support to all those builders out that sent in their subscription dollars way back last December & January and who have been patiently waiting for this first issue to show up in their mail box. Mike has put together a newsletter bonus package for all of those of you that have patiently waited. You'll receive the Sep/Oct issue & Nov/Dec. issue for 1999 and also receive all 6 issues for the year 2000. So basically you'll get 8 issues for the price of the regular annual 6 !!!

What's next...The number #1 priority is Newsletter contributions.

I've talked to over 25 DBFNer's over the last 45 days and its great to see that the enthusiasm is still just as strong. All of you said that you were glad to see DBFN and myself back on track and I thank you for those kind words. You asked what you could do to helpThe most important thing we can do now to help DBFN get back up to take off speed is to contribute something. Now we all bring something to the dance. Some of are sharp in the composite, some in the electrical, some in the electronics, some in the VW, some in the Subaru, some in the Corvair, some are welders, some have aeronautical degrees, some of machinists, and on, and on and on. We have all sorts of ways in which you may communicate with DBFN. Of course the most popular way is still writing a letter.

Let's do a quick review how we can handle your information. You can hand write or type your letters in any shape or form. We have a good portion of people out there that have some excellent ideas and information to share with group, but they say writing, setting down with pen and paper just isn't their "cup of tea" or they just plain hate to do it. Some people are concerned about spelling and punctuality, don't worry about that I'll try to correct what I can (Sure Spud, who's going to correct your gibberish!). Also if the subject isn't too lengthy I'll be glad to take your notes over the phone. I guess what we are trying to say here is that we don't want information held back for one reason or another.

In the next issue..

We'll check out Wayne Ulvestad's Mark I & his new electronic elevator trim system. We'll look at Mark

Snow's electronic fuel injection & electronic ignition Continental powered Mark II. A closer look at this years Dragonfly/Quickie fly-in in Ottawa, KS. We'll get our first update from Mike Puhl of Slipstream industries as he kicks off "Mike's Corner", More on the upcoming February "Mountain States Canard Wing Fly-in 2000" in Arizona.

Future issues

An update were we'll take a closer look at what's new in the engine department on VW's Corvairs, Subaru's and certified aircraft engines.

Award winners at Ottawa 99

Wayne Ulvestad of Volga, SD took "**Overall Best Dragonfly Award**" with his Beautiful Mark I

Mark Snow of Carlsbad, New Mexico took "**Long Distance Award**" at 575 nautical miles to the event.

Mark Snow took the "**High Timer Award**" at 935 hours!
Wayne Ulvestad was runner up at 796 Hours!

Mark made his third home run when he took the "**Best Innovation Award**" for his Electronic Fuel injection/Electronic Ignition package.

A brief overview on this years Fly-in from the "Head Kahoona", Don Stewart...

Ottawa attendance was down this year due to two factors: 1) a change of date always screws up somebody's vacation plans and they can't change them, 2) the weather.

By holding the event in October for the next couple of years, item #1 should rectify itself somewhat - some folks regrettably will not be able to fit Ottawa into their schedule, and others, new to the event, will be added.

Regarding Item #2): The weather AT Ottawa wasn't the problem as much as

the weather everywhere else in the US. Ottawa weather didn't burn off until around noon Friday, then everything turned glorious for the whole weekend (not withstanding Paul having to walk to the airport in the early morning fog on Sunday).

My job is to increase the number of air hours AT Ottawa. Last year it declined due to the oppressive heat (even with good plane count). That I attempted to remedy by moving the Fly-In to cooler weather. It worked. Lots of air hours (albeit with fewer planes), performance run and check rides. No one complained to me about being too chilly this year either.

The weather around the US during the Fly-In I can't control. This kind of thing is going to happen no matter when I schedule the event. Heck, last year we missed a tornado that passed through the airport at Ottawa by one week!

So for the next couple of years, the Field of Dreams Fly-In will probably be Columbus Day weekend in October unless some real ugly trend rears its head. Then we'll all regroup and cogitate if another change is necessary.

The long haul you guys from the West fly your projects to get to Ottawa is to be admired. But the majority of type aircraft flown to Ottawa are from the Central, Eastern and Southern states. Pushing Ottawa together with Oshkosh seems to cause grief for most of the attendees of Ottawa.

That's basically why I'm trying to see if the Mountain States Fly-In in Laughlin NV (er, excuse me, Bullhead City AZ) can help those of you in the West to get together to laugh, scratch and point to each other's funny looking aircraft without the stress of a long haul back home. Of course, it doesn't hurt to have the folks from the Central states notice that there is less snow at Bullhead City than outside their front window at home in February.

I'm about to put a website together for the Mountain States Fly-In at <http://www.si-inc.com/MSFlyIn2000/>, give me a week to get past my present project before it shows up. Also, the AZ Dragonfly Club Newsletter I do at <http://www.si-inc.com/dragonfly/df-club/> will start a running commentary on the Mountain States Fly-In in the next issue.

As I said, more later on the Field of Dreams Fly-In Ottawa99.

Best Regards, Don Stewart

The Classifieds

Great Plains Aircraft Supply Quality Aircraft Parts. Excellent Service & Support at Reasonable Prices Since 1982 - We have a full line of assembled and tested VW based aircraft engines, short or long block component packages - assembled or in kit form. We have individual components, quite a few replacement parts for HAPI and Revmaster engines, props and many accessories. The 64 page catalog and technical manual still only \$4.00!! Send for yours today. Our business hours are Monday through Friday 8:00 AM to 6:00 PM and Saturdays 8:00 AM till NOON Great Plains Aircraft Supply P.O. Box 545 Boys Town, NE 68010 Phone (402) 493-6507 Fax (402)333-7750

For Sale: Dragonfly Mark II project - 100 TT. Aircraft was purchased approx. tw years ago, less FWF. One gear box and steel gear leg damaged. Project includes an EA 81 Subaru Turbo. O time on engine and turbo. All appropriate engine parts balanced, also includes the fuel injection and related components. Engine mount, custom radiator, starter, ring gear and alternator mounted. Cleveland wheels and brakes, instruments. First \$5,900.00 takes it. Contact Robert Bircher, PO Box 71, Hinckley, MN 55037-0071 (320) 384-7566 E-mail robertc@pinenet.com

For Sale: "Snap" Dragonfly MKIIH hoop gear project for sale. 75% complete. Fuselage built. All bulkheads in place. Fuel tank in place. Wing, canard, aileron, and elevators completed, ready for primer and alignment to the fuselage completed. Most everthing to compete the project: tutle decks, canopy, hoop gear, verticle fin/rudder, tail wheel assembly, tubing, bellcranks, VW engine mount, etc.. No engine or instruments. \$5800.00 OBO. Located in Omaha NE. Ask for Doug "Hawkeye" Humble Call weekdays 402-558-1211. See photo's at
<http://hometown.aol.com/hawkidoug/myhomepage/sale.htm>
I

For Sale: Viking Dragonfly MK I - N413PH. In storage ready to transport. Covered to belly gear. Cruise 145+ mph on 4.5 gph. 1835cc Hapi VW conversion 65hp. New paint in & out in 1995. Transponder w/ mode C, RT563a Nav/com, ELT. Asking \$10,000.00 negotiable. Needs some work - have the aprts, don't ahve the time. Must sell. Contact John Baker RT #1 Box 234-5, South Coffeyville, OK 74072 Phone (918)255-6334 E-mail jpbaker@terraworld.net

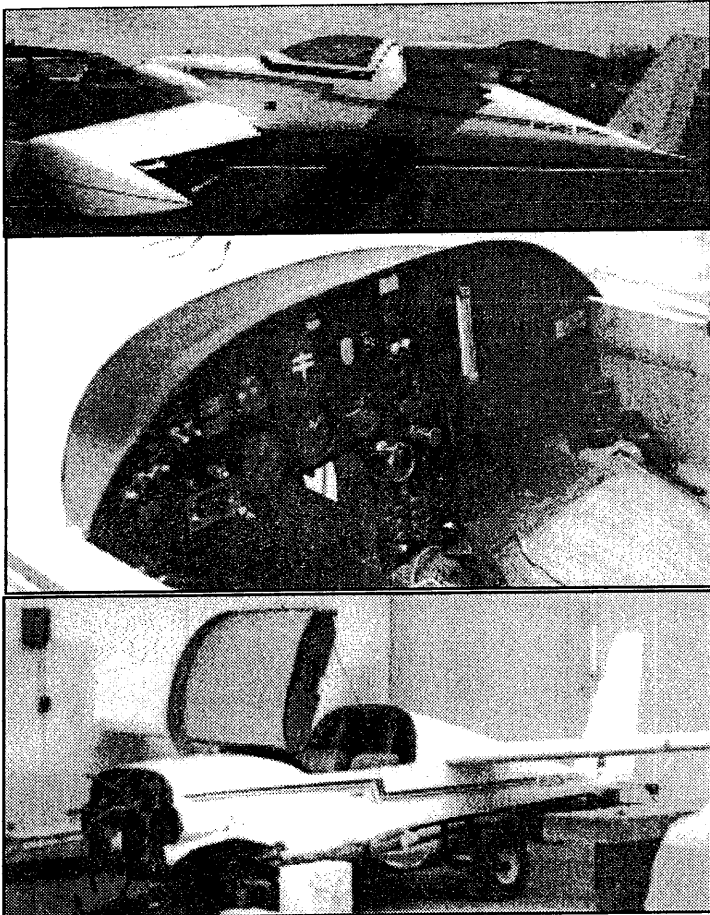
For Sale: Prefab Dragonfly Kit - \$5,500.00. Fuselage assembled with tail fin, rudder, fire wall, motor mount angles, upper-lower seat back, intercostal-tail bulkheads, fuel tank & consoles installed. Pre-cut canard and wing cores, fiberglass cloth, some carbon fiber, engine cowling, Mark I wheel pants, some hardware. Wayne Ulvestad, Volga, SD work (605) 627-9291 home (606) 627-5365

"Classifieds" continued

For Sale: Inboard Mark II "Hoop Style" Gear Plans - Full size hoop gear template drawings for making the mold and instructions on how to mount to the fuselage. \$14.00 (\$18.00 outside of U.S.) Mail your checks to: Bill Spornitz, 1112 East Layton Drive, Olathe, Kansas 66061-2936

For Sale: Dragonfly Firewal forwardpackage. 1835 HAPI 60 2DM with Great Plains heads, Extra set of heads, mount, matched prop & spinner, exhaust, Super carb, Baffling, Hapi alternator & regulator. Call for more details \$3,000.00 of best offer. Contact Wayne Ulvestad - Volga, SD (605) 627-9291 days or (605)627-5365 evenings & weekends.

Wanted: New or gently used Dragonfly canopy and/or frame. Please contact Mark Jones at (414) 542-9561 (after 6 pm central time) or 2710 Meadowbrook Rd. Waukesha, WI 53188



For Sale: Del Bradley's (see the 3 above photo's (and Len Griffins) Mark I Dragonfly. 120 TT. VFR, Transponder with Mode C, dual controls, ELT, forward and rear hatch, nice interior. Needs canard, wheels and brakes of choice, Cowling, engine and prop of choice. Minor fuselage repairs. Get a head start! Save 1000+ hours \$5,700.00 with transponder or \$5,000.00 without transponder. "N# has been decomssioned and is being sold as "Pieces". For more details on this aircraft Contact Spud Spornitz after 7:00 PM CST or weekends. (913) 764-5118 or E-mail dbfnspud@aol.com

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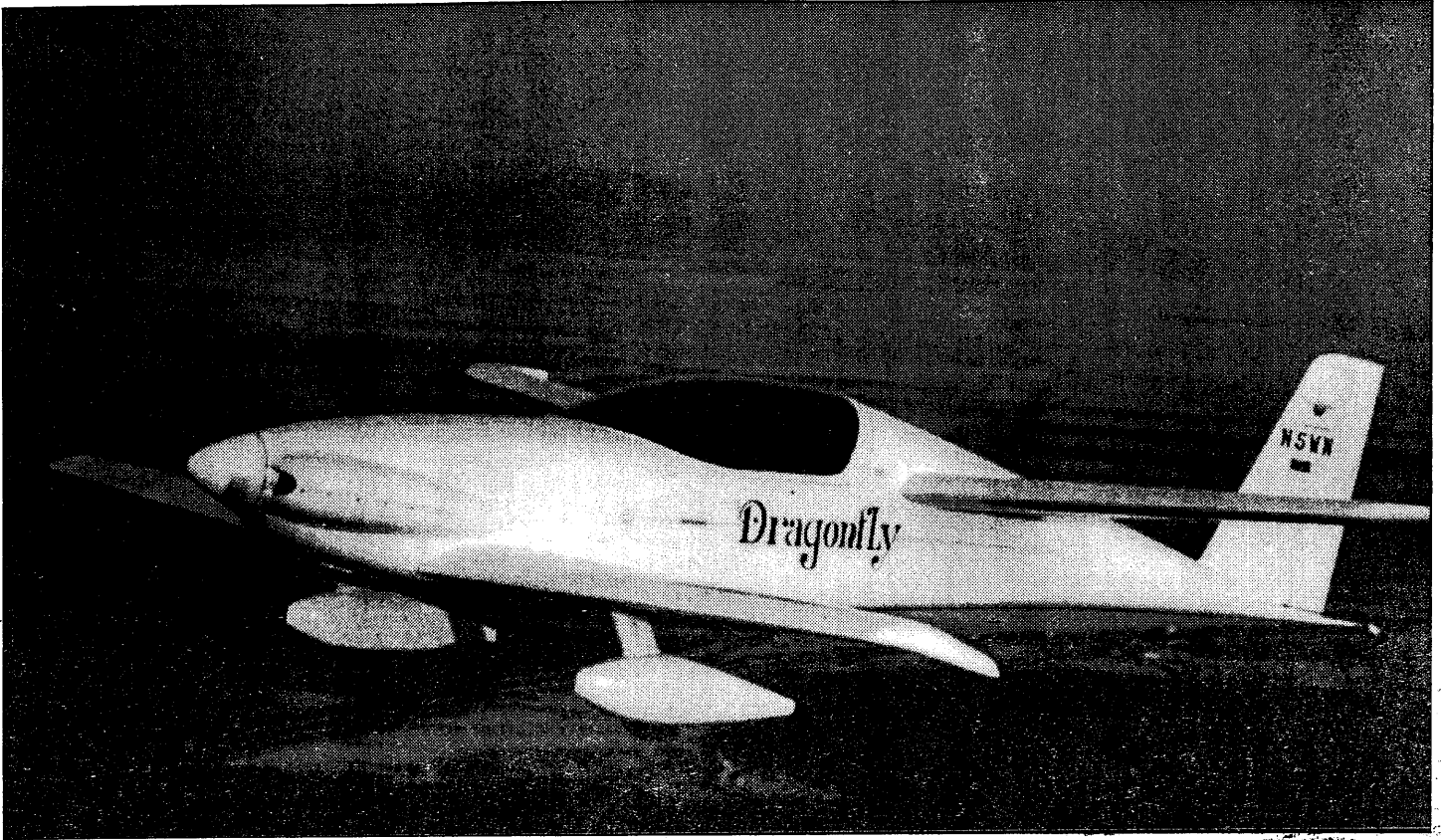
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The plane that started it ALL! The Dragonfly Mark II

DRAGONFLY BUILDERS AND FLYERS NEWSLETTER

The Official Voice of Dragonflyer All Over The World

Bill "Spud" Spornitz - Editor/Publisher

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