

# INAV-INK

November/December 1986

Dear Friends,

Here we are late again--Betty's absence as our editor for INAVink has "promoted" me to editor by default! Oh well, I'll give it the old best shot until we have a permanent replacement. I know, "excuses, excuses"!

Although much as been happening here, there are only a limited number of items I am able to pass on at this time. The gloomy period in the aviation marketplace and the winter season here certainly doesn't help give flight to our spirit, but the sun shines when I receive the many notes and pictures of our builders' projects and first flights. The exhilaration and pride of accomplishment expressed through them gives me a lift and the reassurance that the desire to fly for the joy of it still burns in most of us--and we're willing to work for it!

On a far less philosophical side, during the past months I have received from builders two accounts of canopies opening during flight. Each on a different aircraft (I Moni, I Sonerai). One involved damage to the airplane and injury to the pilot. We're happy to report he is recovering and talking about rebuilding. We cannot emphasize enough the importance of double checking the canopy latch system when building it and using it.

I, personally, have had a few "hair loosing (as any one who has seen me will attest) experiences" with canopies coming open at very awkward times. Once at the M.E.R.F.I. fly-in in Ohio, I was flying my Sonerai I in close formation with two other racers. We were making a low level, high speed fly-by (about 180 to 200 m.p.h., after a slight dive). Midway down the runway "Bang"! I felt like I was hit in the face with a "scoop shovel"! The canopy latch simply wasn't latched properly (on my Sonerai I, I could not see the front latch and it was difficult to "catch").

Fortunately, I pulled up, slowed down, and got matters under control, but it was scary and could have really ruined the day. The kicker was, just prior to take off, Greg Erikson radioed me from the Sonerai II to make sure my canopy was closed (he knew it was difficult to close since he experienced a canopy opening while he was flying my "I" earlier that year). As I recall I made some "smart" remark like "yes mother".

The 3 point latch systems used on Moni and Sonerai II were designed to be improvements over the marginal 2 point latch in the Sonerai I. When you are building the canopy and latch, make sure the fit is proper (pins should be rounded not pointed), the springs are of proper "heavy" tension (if not add a second spring to keep the latch closed), and make sure the inside handle cannot be inadvertently opened by other control movements, vibration, clothing catching, et cetera. The latch handle should be easy to reach in emergency, yet out of the way of routine cockpit duties.

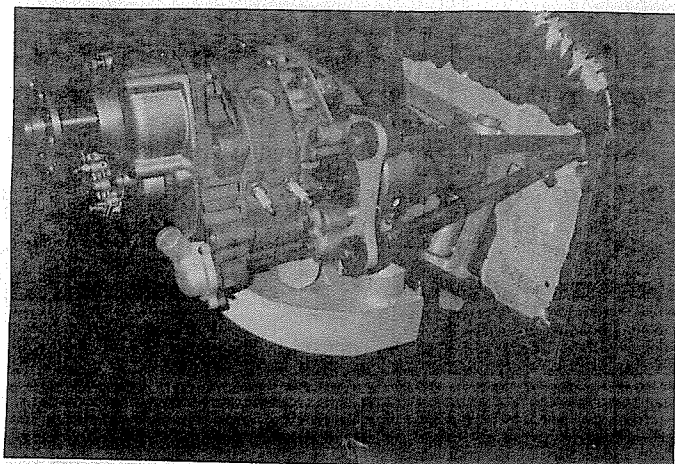
I do not necessarily believe in secondary catches. They work great until you have to get out quickly in an emergency situation. That decision is up to you. (See Fred Keip's article in the Sonerai section.)

Nuff said!



## Moni/Norton Project

We are currently installing a single rotor Norton rotary engine (38-40 h.p.) in a Moni airframe. This combination is for test purposes only at this time. The wings are fitted with tip extensions and "speed limiting" dive brakes instead of the standard "top surface spoilers". The modifications are part of our learning process and may someday become one of those refinements that steadily improve our present and future products.



## Mercury Progress

Our fearless "komposite kid", Brian Bristol, traveled to England in November to review the work proceeding on the Mercury. A great deal of energy has been spent on the refining and static testing of this design. The challenge to produce a ready to fly, high tech, inexpensive aircraft in today's market is a formidable task, but it is being met by a dedicated crew of hard workers bent on success.

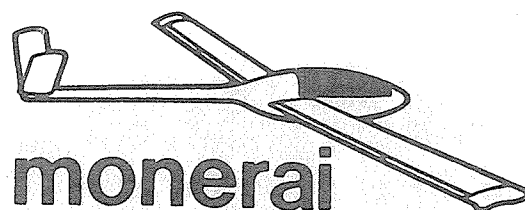


## Trivia Contest

We are happy to report we had two winners of the July/August Trivia Contest: Bob Ohlson of Edison, New Jersey, and Van I. Arenos of Elgin, Wisconsin. Since the prize was a new style polo shirt, we'll be sending 1/2 to each winner, or maybe two childrens sizes--just kidding. The shirts are on the way and the answers are below.

1) 1981 - 24, 1982 - 23, 2) Bill Gustafson, 3) 1985, 4) O'Day, 5) 1982 - 4, 6) Belly Dancer, 7) 1978, 8) 1983, 1986, 9) John Caldwell, 10) Ed Sterba.

One last question: what will Betty be getting for her surprise this fly-in?



## News from Builders

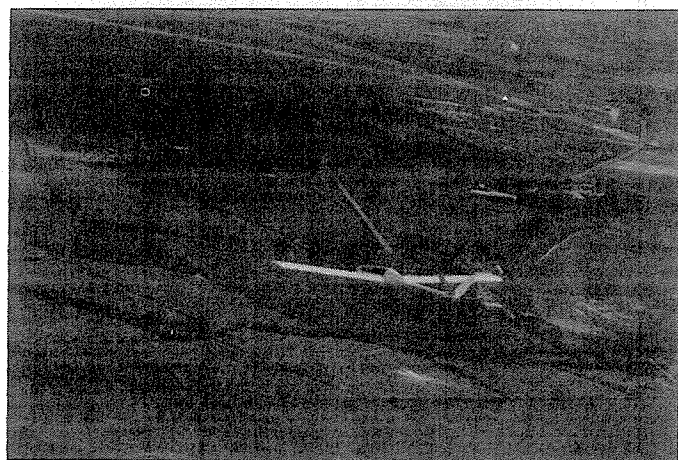
Loudon Blair #312  
39 Ballycraigy Rd., Larne  
Co Antrim. BT40 2LE  
NORTHERN IRELAND

Excerpts taken from a newspaper article in the Times Series. "Grand new heights have been reached by two Larne men who built a Monerai glider--the first of its type to be constructed in the British Isles.

And not only have they built it, but, perhaps more importantly, the glider has just been successfully test flown, proving its air worthiness.

The all-metal American designed glider was built in Larne by Mr. Loudon Blair and Mr. Mervyn Farrell. The test flight took place from the Ulster Gliding Club's airfield at Bellarena near Limavady.

On the first test flight, with Mervyn at the controls, the glider was towed to a height of 3,000 feet by the club's tow plane and was soon soaring high above the cliffs at Bellarean, which overlooks Lough Foyle. The glider landed after one hour.



Mervyn was able to report that the glider flew exactly as expected, was very responsive and showed good performance."

Ray Bussey #56  
6363 Pineridge Rd., NE  
Calgary, Alta.  
CANADA T2Y 1M4

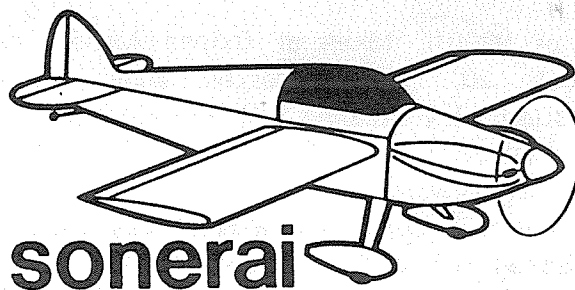
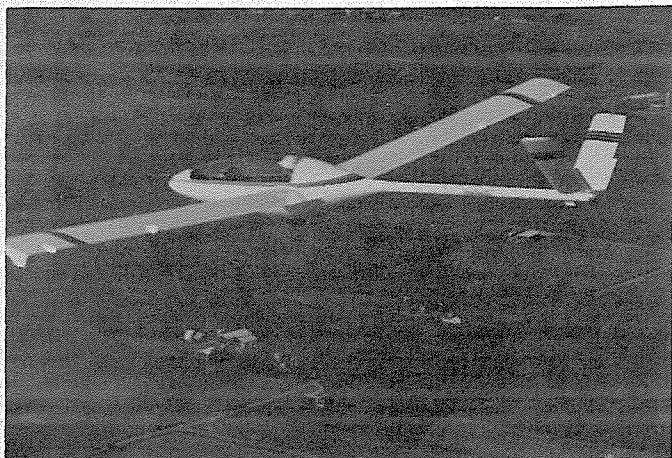
I'm making fairly good progress on my Monerai at this time. I have enclosed a couple of progress photos you may wish to include in the newsletter.



## First Flights

Russell E. Cederholm #285  
7116 W. Freistadt Rd.  
Mequon, WI 53092

Russ writes: "...maiden flight was 7/26/86. The day was great from the weather to the 1st flight. Things went very smoothly from takeoff to touchdown. I must say I am very happy that I have a great deal of hours in tail draggers as one could get behind very quickly. I can see why people ground loop either on takeoff or landing. To date I have just over 14 hours in the ship and a best altitude gain of 5200 ft AGL."

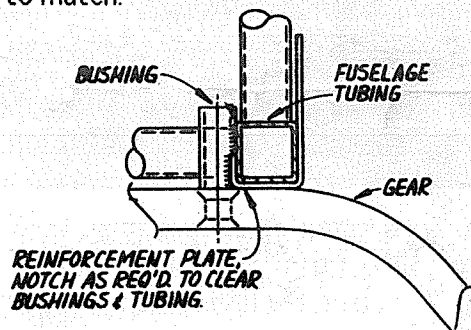


## Sonerai Plans Correction

Page 11 Standard Sonerai and Page 13 Stretched Sonerai. The horizontal stabilizer spar (stab. hinge tube) should be 1-1/8" x .035 4130 not 1-1/8" x .059.

## Main Gear Attach

Builders can directly bolt the main gear to the fuselage longerons instead of using gear retaining straps. We have used this method (as shown in drawing) on our original low wing and all of our tri-gear models. All that is required is to change the mount bushing location on the fuselage and drill the gear to match.



## First Flights

Tony Castellano SII#1600L  
30 Windmill Road  
New Fairfield, CT 06812



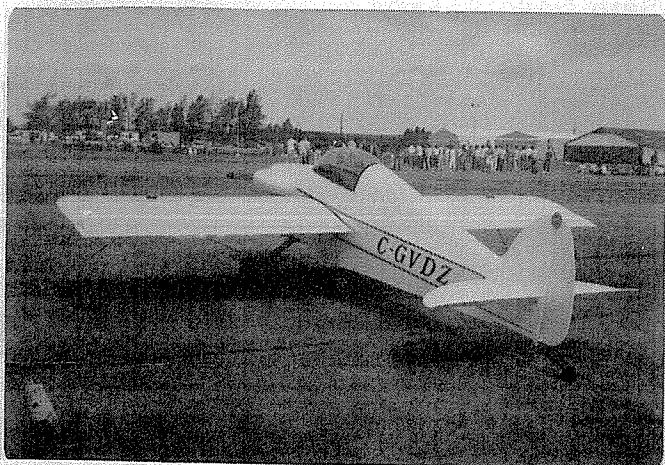


"Photo of N400TC taken at Oxford Airport on November 20, 1986, shortly after F.A.A. certification. The striping will have to wait for warmer weather."

"I test flew my Sonerai on New Year's Day and was very pleased with its performance. Controls were very sensitive, stalls were docile (like a J3) and with the exception of needing less horizontal stab incidence, trim was perfect."

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Gilbert Drew SII#78  
182 Sumner Ave  
Monoton, N.B.  
CANADA E1C 8A5



Gilbert Drew completed Sonerai II, 1600 VW, 130 m.p.h. at 3200 r.p.m. Stalls 60-62 m.p.h., rate of climb is 700 f.p.m. sea level. (Editor: A rerigging of the ailerons will produce a slower stall.)

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Kenneth E. Wasielek SII#1366L  
39W153 Janet Court  
Naperville, IL 60565

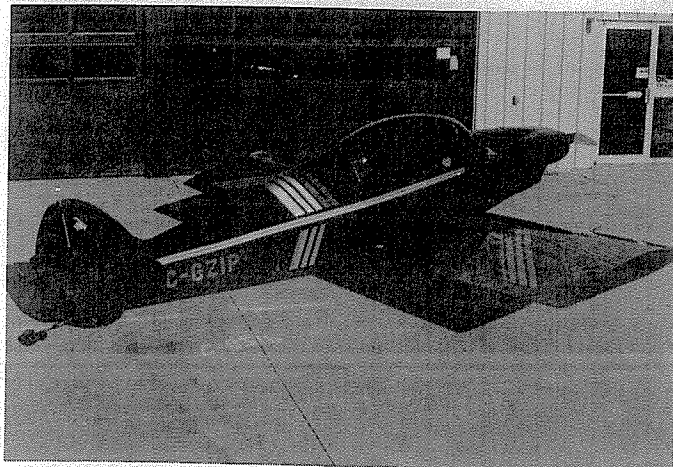


Ken writes: "Just a note to let you know that my

Sonerai IIL-N48KW is now flying. I first flighted it on Saturday, October 11, 1986. I'm using a homebuilt 1835cc engine and swinging one of Ed Sterba's beautiful props. Enclosed is a picture of my plane with my daughter waiting patiently til the day she can have a ride."

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Erv Hamilton SII#255L  
27 Ross Heights Place  
Medicine Hat, Alberta  
CANADA T1B 2E5



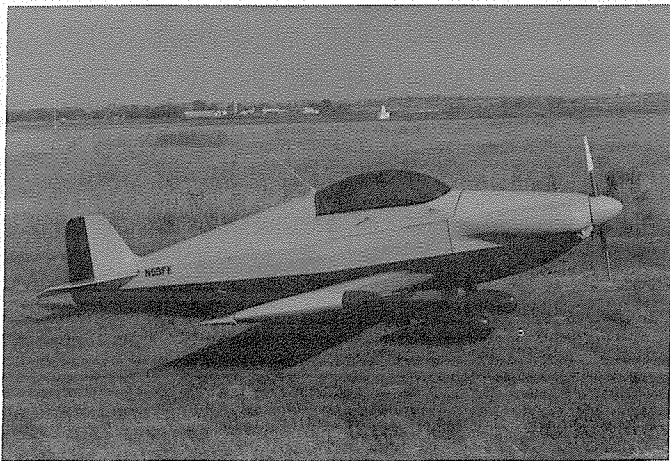
First flight was 20 January 1986. "The Sonerai is one of the most pleasant conventional geared light aircraft I have flown."

"I've heard many critics of the Sonerai complain of the ground handling qualities, and having flown the aircraft with the 1/2 inch undercarriage and expanding shoe brakes, I would agree that in this configuration the ground handling leaves much to be improved. However, after modifying my aircraft to the 5/8 inch undercarriage and Hapi disc brakes, we've made a bear into a pussy cat. I would suggest that the combination of your heavy gear legs, the disc brakes, and the tiller tail wheel steering make the Sonerai one of the best conventional geared aircraft for ground handling, both in take off and landing."

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Fred Keip SII#356L  
11428 Six Mile Road  
Franksville, WI 53126

"She flies!!! For a long time now I've anticipated writing this particular article about my first flight in Sonerai IIL N99FK. I thought I'd be able to talk about a reasonable uneventful flight, some performance figures, a normal landing and then the party afterwards. Well, as is usual in my life, things did not go as I had planned them.



To give you a short preview of my first flight, here's my log book entry for 8 June 1986: "Aircraft - Sonerai IIL, N99FK; Time-0.2 Hrs; From ENW-LCL; First Flight! Normal takeoff, canopy opened, off airport landing". Interesting wouldn't you say?

The flight started out normal enough at Kenosha on runway 06 into about a 5 to 10 MPH wind directly down the runway. I started the takeoff roll, brought the tail up at 40 MPH indicated, rotated at 65 and commenced climbing out at about 80. The airplane seemed to be very stable laterally with no wing heaviness but she exhibited some nose heaviness. By the time I got over the end of the runway, I was already at 1500 ft. MSL (800 AGL). I thought, "Boy, she's climbing like a bandit. This is great!" I then made a shallow 90 degree turn to the left intending to stay over the airport. At this point I remembered to check the CHT and it was showing 400 degree F which was acceptable. Then all hell broke loose.

**BANG!!** The canopy blew open. My first reaction was to try to close it, but when I released the stick, the airplane nosed over about 45 degrees. At that point, I said, "Screw the canopy, fly the damned airplane". I grabbed the stick, leveled out and found that although the cockpit was very breezy, the airplane didn't seem to mind having the canopy open. She was flying nice and straight.

At this point, I decided the best thing to do was to put the airplane on the ground as soon as possible before anything else could go wrong. I was flying essentially a downwind to runway 14, so my first thought was to try and land there, crosswind or not. As I started my turn though, I realized that I was much too close and too high. So much for using the runway. Fortunately, the Kenosha Airport is surrounded by farm land (one of the reasons I fly from there) and as I finished turning toward the "runway" I was lined for a landing on a newly planted farm field.

I decided to go for it, flew a normal approach and flared in a three point. The airplane dropped about 3 feet, bounced once and stopped in 100 yards or so. After a few seconds the shock of the events began to wear off, so I shut the engine down and got out. Amazingly, the airplane came through it

all without even a scratch, except for the wheel pants which got beat up in the dirt and a broken crossbar in the canopy frame.

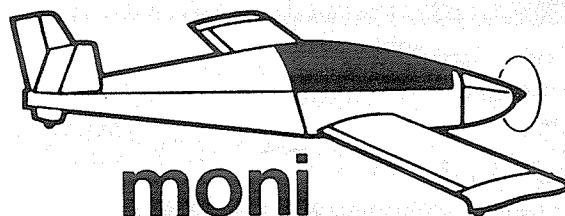
So, I guess you could say that the flight was a success. There was certainly a lot of good luck (I know God likes me) and I apparently have more flying skills than I thought I had.

And most importantly, the Sonerai IIL is one hell of a fine airplane. She was honest, stable, and pulled no tricks even with the canopy open. John Monnet deserves all the credit for designing her and he will forever have my appreciation.

Now you ask why the canopy came open. First, it was latched when I started the takeoff roll. If it hadn't been it would have opened as soon as I brought the power up. What we finally determined was that the latch pin spring that I had installed was far too weak and allowed the pins to back out. Air flow over the top of the canopy apparently tries to force it open and this loading along with the lead-in taper I had filed on the pins and the general vibration backed the pins out against the spring. Unfortunately, my canopy did not have a safety latch like is found on a Vari-Eze to stop it from opening all the way. Believe me, before she flies again there will be stronger springs installed and a safety latch."

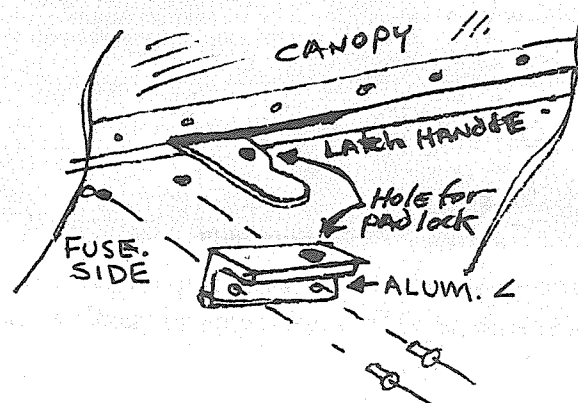
Since then I've just been trying to build up time and get comfortable with her. She's proven to be very honest and a real joy to fly. As of this writing I have just over 14 hours logged."

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## NEWS FROM BUILDERS

Robert Doeblen Moni #277T  
66 Dapplegray Road  
Canoga Park, CA 91307



Bob sent us this tip on a canopy lock system.

Hordur Hjalmarsson Moni #10  
Lynghaga 17  
107 Reykjavik  
ICELAND

Hordur writes, "I want to thank you for the party you gave in Oshkosh. It was a great pleasure meeting you and other Moni builders. I have had many joyful moments building and flying my Moni which is registered as TF-DNI. The total flight time was 64 hours and 7 minutes in 58 flights. Approximately 12 hours were flown in thermals and waves with the engine off."

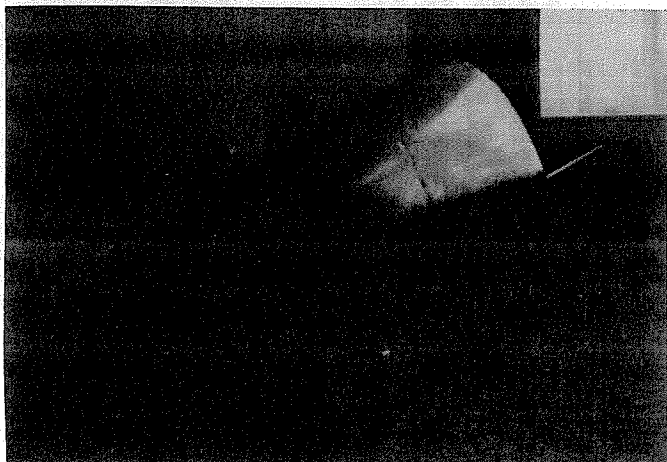
"In my last flight in my Moni, the canopy came open at an altitude of approximately 100 feet. Then she took a dive to the right. At 30 feet I managed to level her off but turbulence from the canopy and the open cockpit made her hard to control. My first thought was to cover the cockpit, I succeeded but I had to hold the canopy with my left hand. In order to reduce the engine power before landing, I had to let go of the joystick. When I tried to get a hold of the stick again, I missed. My distance perception had apparently been affected by the wind such that after closing the canopy things appeared further away. Instead of catching the stick, I hit it with the back of my hand turning it all the way to the right. The plane went down in a barrel roll and hit the ground at an angle of approximately 38 degrees with the left wing a little ahead."

"I am not dead, only my ankle is broken and I have cut on my head and one eye is not working right. The Moni is a good aircraft for flight and crashes, but the canopy lock needs improvement."

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John Bennell Moni #258T  
32 Windmill Lane  
Widmer End  
High Wycombe

Bucks  
ENGLAND



John recently sent these photographs and a note: "The fuselage is in the livingroom and makes a good conversation piece--Oh, this is an aeroplane I'm building. You know what a Spitfire looks like, well this is rather similar..."

## First Flights

Alan J. Littlewood Moni #248  
1480 Shaffer Drive  
San Jose, CA 95132



"Christmas day 1983 was when I began construction on my Moni, serial number 248. I had expected to be able to build it in twelve months, however, that was not to be. (Like any other estimate that I ever make). Two years and nine months elapsed time, totaling about 1250 hours of construction. (Including untold hours of looking for tools which I had temporarily misplaced, so one word of advice is "be organized").

The only "special tools" purchased were, drill press, rivet gun, dimpler and a belt sander. A band saw and a sheet metal brake would have been very beneficial.

Several articles have been published about the construction sequence, the quality of the kit, plans, factory support, ect., and my experiences has been the same. I think the Moni is an excellent value for the money. I followed the plans as faithfully as I could. Initially I was worried stiff if a hole was not quite in exactly the right place, but my confidence grew and overall I think I've done a reasonable job. When the riveted wing superseded the bonded wing, I agonized for a long time over whether to go for it. I seriously considered staying with the original bonded construction, however in the end, discretion prevailed and I proceeded to build the riveted wing. This accounted for a great deal of extra building.

I managed to put some of my own design into the instrument panel and crammed in a few extra instruments. For a radio I fitted a Narco HT 800 portable radio between my legs in front of the fuel tank. This is receiving very well but has virtually no transmit range so I have yet to solve that problem. My gross weight came out to 520 lbs.

Unsolicited, the F.A.A. gave me registration N1AL, a nice personal touch, which I felt very pleased about.

The big day for first flight testing was on October 24th. I have read articles which argue that it is safer to blast off



into the sky and do the testing at high altitude, but I decided that I would try some taxiing, increasing the speeds and do some little hops a few feet off the ground, etc., to get the feel of it before really going up. (Here I will mention that I'd had the previous benefit of having flown Jim Ferguson's Moni N167JF for about 3 hours.)

Hollister, California, is where I am flying and it has two intersecting runways, 30 and 23. While the active was 30, I did my fast runs and hops on 23 and all went well. After about an hour, the other traffic changed over to 23, so I went over to 30. At this point I should have called it a day, but to my regret did not. Naturally I was concerned about the amount of runway available and didn't want to run into the cross traffic, but went ahead and made a run at 30.

Feeling bold I lifted positively off the ground and before I know where I was, found myself at 10 to 20 feet off the ground. Stupidly I throttled right back and dropped like a brick, ruining the main wheel bearing.

The moral to this story, which I relate for the benefit of those yet to fly is, "do not do your test flying under any pressure or constraints" and NEVER kill the power near the ground, until you have sufficient airspeed!

Keeping the aircraft straight on the single mainwheel is tricky, particularly during takeoff. As the wings are leveled and the tail raised to get into a straight and level attitude, one has to concentrate hard on directional control otherwise it is easy to lose it.

A week later after repairing my mainwheel problem, I was ready for real flying. Takeoff was fine and I climbed out thinking as I went up "I'm actually flying this thing at last and it seems to be holding together." At 2300 feet I throttled back to about 5000 r.p.m. to give the engine a break. Then after a minute or so, the engine sputtered and stopped. I tried for a while to restart it but no go, so I became a glider a little earlier than I had planned. I landed back on the runway with no problem and when stopped gave the engine another go and it fired almost straight away. So, I thought its just that the engine is not run in yet and not finely tuned, but it runs well at full power and I felt confident about gliding the craft so up I went again. This time I climbed out to 5000 feet and played around for over an hour and a quarter. Slow flight was pleasant, with straight and level stall speed at about 46 m.p.h. indicated, with a prestall buffet at 49 m.p.h. indicated. Minimum sink speed appears to be about 2.5 knots at 55 m.p.h. indicated. I dived it up to 140 m.p.h. and found nothing unpleasant. At this time I was just enjoying the plane and will do some serious performance testing later.

After an hour I had to think about landing and was at 1500 feet when the engine r.p.m. dropped without any help from me from 6000 to 4000 r.p.m. No matter what I did, it would not go above 4000 r.p.m. so I prepared for another landing without power. The engine did continue to idle and this makes quite a difference to the glide angle I discovered.

This, coupled with the Cessna 172 on my tail for landing, caused me to overshoot the approach to runway 30 so I crawled around at 200 feet and 4000 r.p.m. to land on 23, keeping one eye on the fields around for a forced landing in case the engine died completely. It turned out that one side of the ignition coil had gone bad so the engine was running on one cylinder! Today I still marvel that the engine can do 4000 r.p.m. and one cylinder. (At this it will hold altitude but not climb.) Purchased new coil.

The next time I flew I did four hours and four landing and went to 8000 feet on a glorious day and thoroughly enjoyed it. Now I am looking forward to many hours of cheap flying, fulfilling the whole purpose of the project.

I would like to extend my thanks to all the people at INAV who have made it possible for me to complete an ambition I had for over ten years and never expected to be able to attempt. Aviation needs companies like you and I wish you long life and success.

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Dave Ruminski Moni #359T  
Route 1, Box 149B  
Oakdale, PA 15071



Dave writes, "I have wanted to write and contribute to the INAVink newsletter but have been spending all of my free time flying my Moni instead of writing about it."

"Moni N359DR took 834 hours to build. The first flight was on May 10, 1986. The first flight was exciting. The Moni did not want to rotate and leave mother earth until a bump was hit on our grass runway and then she jumped into the air. Once airborne the Moni flew just as she should with no trim needed. First flight lasted 46 minutes and most of that was to relax and get the feel of the new bird. I did a couple of stalls and was pleased with them. From reading of other experiences with first landings I made the first landing dead stick. Being a glider pilot this felt quite natural. After the first flight, weight and balance was done again to determine what the take off problem was and after some checking the problem was determined that I had installed the main gear backwards (Editor's note: The tapered portion of the landing gear is taper to the trailing edge.) The main gear was rotated 180 degrees and the next take off was as it should be with a nice easy rotation and a very gentle lift off.

The Moni flies great! Stalls are predictable. Control response is sharp and crisp. Cruise at 100 m.p.h. is normal at 5000 r.p.m

In over 100 hours there has been only one problem and that was with the engine at 60 hours which the great people at INAV took care of for me while I was enjoying Oshkosh 86. Thanks again for the quick service.

The most fun you can have is to take off on a nice day without the need of a tow plane, climb to 2000 ft. AGL and switch off the gizmo that turns the prop and play in the thermals with just the sound of air in the vents. My best soaring flight consisted of a powered climb to 2000 feet agl then power off and worked the thermals to an altitude of 5200 ft. AGL. The power off soaring time was 2:28 minutes. Since the first flight in June, I have logged 108 hours of fun flying and soaring in my Moni.

The party at INAV during Oshkosh 86 was great. It was great fun to talk to other builders and compare notes. Hope there is another in '87. HINT HINT."

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### Builder's Workshop

The date for our next aircraft builders workshop will be Saturday, February 21st, starting at 9 a.m. We will finish about 3:30-4:00 p.m., and lunch will be served. Registration is from 8:00 to 9:00 a.m. and the cost for the seminar is \$25.00 per person or

\$35.00 for family (spouse or child). Since we have a minimum registration requirement and a maximum number we can handle, please write or call to reserve a place. If you need information on local accommodations, we will be happy to help you.

## INAV WORKSHOP REGISTRATION FORM

PLEASE PRINT

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE NUMBER (\_\_\_\_) \_\_\_\_\_

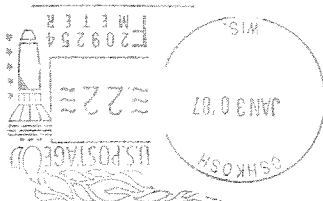
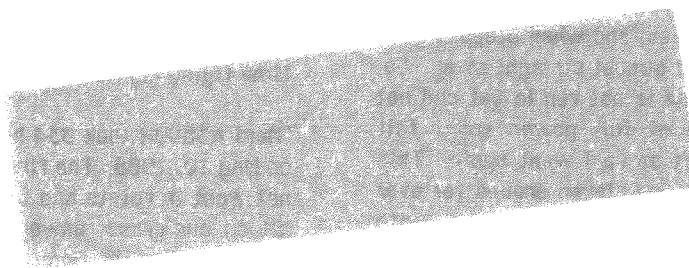
BUILDING: Sonerai \_\_\_\_\_ Monerai \_\_\_\_\_

Moni \_\_\_\_\_ Other \_\_\_\_\_ Not Building \_\_\_\_\_

\_\_\_\_\_ Check Enclosed

MC/VISA# \_\_\_\_\_ EXP \_\_\_\_\_

Please send me info on motels, restaurants, ect. \_\_\_\_\_



Oshkosh, WI 54903  
P.O. Box 2984

