

Dear Fellow Pulsar Builder:

Three quick thoughts:

- 1. We'd love to hear from you and about your Pulsar. All input, suggestions, modification descriptions, trips you've made in your Pulsar, etc. are welcome and encouraged.**
- 2. If you like the newsletter, I'd ask for your support via a subscription. Since neither Aero Designs nor SkyStar support our efforts, we're on our own.**
- 3. Starting with Issue #40, we're going to have a full color page featuring pictures of Pulsars, Pulsar people and their building techniques. Send us your pictures!!**

Thanks to all and safe flying.

**Mike McCann
Pulsar Builders Association**

Dear Mr. [Name],

I am writing to you regarding the [Topic] that we discussed in our meeting on [Date]. The information provided is as follows:



Pulsar News

News, Updates and Developments for Pulsar Builders and Owners

Published by the Pulsar Builders Association

Issue No. 39

May, 1997

A Learning Experience

by Greg Smith

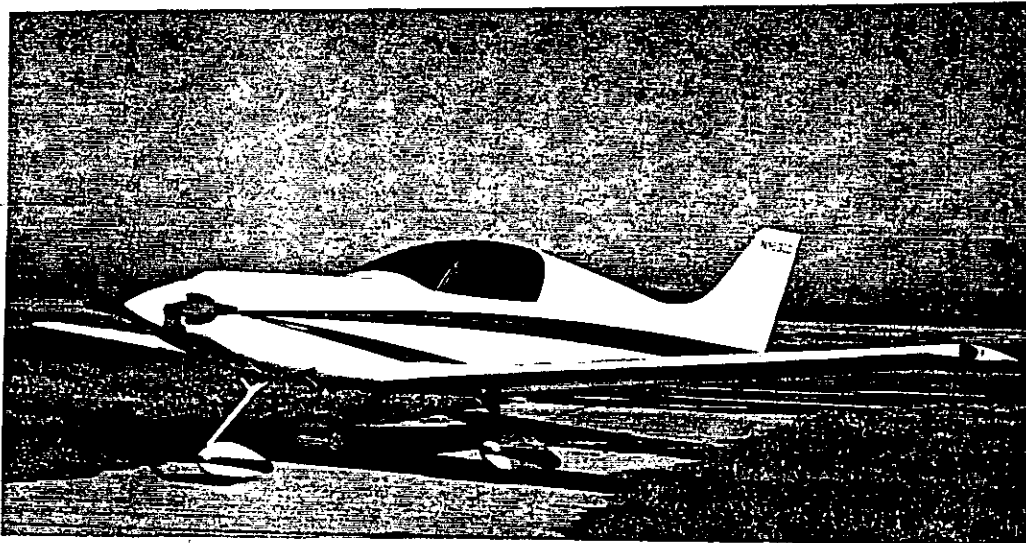
"It took me five years to build my Pulsar, working a full-time job and raising a family. It was a challenging and extremely educational experience. I had always wanted to build an airplane, since attending my first Oshkosh and seeing Burt Rutan fly that different looking plane, the Varienze, I was hooked.

Thankfully, after several months, and the addition of our first child, more rational ideas prevailed and I eventually ended up building and manufacturing kit cars. Then in 1988, I camped at Oshkosh with an old high school friend and we both got the bug again. This time we had almost settled on the KR-2. In 1989, we met Mark Brown, and that all changed.

One demo ride in the Pulsar, with Mark at the controls, over Oshkosh, and I was hooked. I wrote him a check for the down payment as soon as we landed. I was finally going to fulfill a life long dream. But boy, on the drive home from Oshkosh, I worried that I would never be able to build something that would fly.

At Oshkosh, I met Bill Baltes, one of my best friends today. Bill was waiting on the delivery of his Pulsar and lived right down the road from me in Sandusky, Ohio. I offered to help Bill with his building to gain the experience of building a Pulsar. He accepted, and that was the beginning of a great friendship. We meet every year at Oshkosh.

With the fuselage finished, so was the job in Cleveland, so everything went on a trailer for Milwaukee. Things could not be better, one hour from Oshkosh. The wings were finished in Milwaukee, in fact, I talked Rick Meyer into coming down from Oshkosh and inspecting the workmanship. Rick was another nice person I met through building the Pulsar.



With the completion of the wings, so was the job, so on to Lawrence, Kansas where the engine would be installed. This time, we built the house to fit the project. No more uninsulated garages. This time we had a walk-out basement with a garage door. The perfect set-up for building, however, but not so good when it came time for sanding. The dust went everywhere!

The completed project went to the airport in October, 1996. The Pulsar passed the FAA inspection and many taxi tests followed. Then Mark Burrow, a Wright Brothers Award winner with his Pulsar, came down to do the initial flight test. It flew with no problems except one nervous builder watching from the ground. Six months earlier, Larry Eubanks, my hanger mate, had flown his Pulsar, so I had plenty of experienced eyes looking at this project. I decided I would conduct all of the flight tests myself.

Waiting for the right conditions, I taxied up and down the runways. Saturday morning, sun shining and calm winds, the perfect day to do my first flight. One fast taxi for confidence, then I would take-off. Wrong--there is no such thing as a fast taxi in a Pulsar. Going down the runway at full throttle, for the first time, I was watching the engine gages when all of a sudden, the thing started dancing all over the place. This took me by surprise as it had always been very solid feeling in taxi. One look at the air speed, 65 MPH told me I was in trouble. Back on the throttle to idle and suddenly, I was 15 feet above the runway. Now I was over-controlling with the rudder and I was afraid to do anything with the stick. I had heard too many stories about PIO. Plenty of runway to land, but could I calm down

enough to keep it straight? No way, so full throttle ahead and a turn around the pattern. If this baby was going to get dinged, we were first going to fly!

On downwind, I was able to get rid of the jitters, but I noticed that when I killed the throttle it had little affect on air speed. Time to go out to a practice area and try those landings in the sky, just like Mark Brown said to do. Thirty minutes later, I was ready to try my new skills at the airport. One perfect, no flaps landing and I joined some great friends in the very exclusive Pulsar pilots fraternity.

~~I have 250 hours now on my Pulsar now,~~ including a memorable trip to Oshkosh '96 in a flight of four Pulsars. After that trip, the engine developed some difficulties which ended in a forced landing in Atchison, Kansas, the home of Amelia Erhart. Unfortunately, I missed the runway by one quarter mile and ended up in waist high soy beans. Mark Brown has designed one safe airplane. I put it in the beans at about 50 MPH, nose high. The beans took the main gear, but the rest was OK, including the prop. The seat belt did it's job. No problem, I had the original gear that had a lot of problems, so I was going to break it sooner or later, but just before the Pulsar fly-in, poor timing.

Building and flying the Pulsar has been a very rewarding experience. I have gained so many new friends, the best reward of all. I have new confidence as a pilot, and the thrill of flying your own airplane cannot be compared to anything else.

John Hutson Is Back!

Anyone who is a Pulsar builder very likely knows John Hutson. John was the builder support voice at Aero Designs for a long time and his help (and patience) made a big difference for many builders.

Well John has gone on to pursue new business opportunities, but he remains devoted to Pulsar builders through an agreement with Skystar. As

such, John can be reached after 6:00pm at 210-824-0107 (please no late night calls). John is also on the Internet (email name 2pulsar@concentric.net). For those of you who don't have a computer, or simply want questions of a lower priority answered, I am happy to forward those to John and will put his replies in the newsletters.

Many thanks go to John for his continued interest in helping Pulsar builders become Pulsar pilots.

Internet Crash Survival Information

Experimental pilots are always up for information on crash survival. "Equipped to Survive" is an Internet site (<http://www.equipped.com>) that offers information on survival equipment and techniques for pilots. The site has reviews, evaluations and recommendations of brand-name survival equipment. The site also offers information on ditching and ways to improve your odds as well as information on what to include in a personal survival kit. [Taken from 2/97 *Flying*].

Star Lite Newsletter

I was recently contacted by Nelson Amen of Kenai, Alaska. Nelson is the editor of the Star Lite Newsletter and is interested in sharing information between Star Lite and Pulsar builders. For anyone who doesn't know, the Star Lite was Mark Brown's single seat predecessor to the Pulsar design.

Nelson says there are over 60 Star Lite builders. Anyone interested in subscribing to the Star Lite can send \$15 for a year's subscription (4 issues) to:

Nelson Amen
P.O. Box 357
Kenai, AK 99611-0357

Email: POPCORN1@PTIALASKA.NET

Skystar Announcement

(The following announcement was released on 5/14/97 by Phil Reed)

"Pulsar I Nose Gear - Our replacement nose gear for the Pulsar I has been released to production. The strut is a 4130 streamlined tube and spindle size has been increased to 3/4". Bellville washers with a castle nut are used to adjust turning

friction. The unit is a bolt-up replacement to the A/D design. Some minor additional clearance is required in the lower cowl and the nose gear wheel pant. The unit requires modification to the heavier nose wheel fork supplied by A/D. If you send back your fork, we will modify it for the new strut. The fork is line drilled in a jig to 7/8" then a 3/4" bushing is installed. The strut itself is powder coated white. The new system utilizes the existing compression device and weighs slightly less than the original A/D design.

Flap Universal Kit for Pulsar I. We have packaged a version of the Pulsar II flap universal joint system for those Pulsar I builders who are interested in installing universal joints in their flap actuation system. The flap system requires about 700 inch pounds of torque for actuation or 350"# per side. We use solid pin universals rated at 1180"# per side. 2 - 3/16" bolts secure each end of the universal to the torque tubes. For easier wing removal, a 1/4" bolt can be used on the inboard end of the joint. For those of you designing your own system, make sure the universals you select have a torque rating considerably above the 350"# required for EACH SIDE. If the system uses roll pins, safety wire the pins to prevent the possibility of them sliding out. Asymmetric flap deployment is VERY DANGEROUS.

Pulsar I Stainless Steel Exhaust System - 2 prototype units are on their way to 2 builders who will do fit checks. If everything fits we are prepared to start production immediately. We expect to get the feedback we need by month end.

For those who are interested, please call Dave Morris for pricing and delivery information."

Thanks, Phil Reed at Skystar

Builder Input

1. Pulsar Nose Gear

(Dan Elkins):

" My Pulsar XP is flying with 57 hours on it. It is in the primer paint stage and has plenty of sanding yet to do. It flies great and burns 4 gallons of high test gas per hour. That's the good news. Now the bad news.

After 13 take-offs and landings, my nose gear broke. I had not experienced a hard landing at all. The nose gear broke where the stud that holds the nose gear fork was welded to the nose gear. This is the stud that takes the castellated nut and thrust washer to adjust side pressure on the nose gear to keep it from shimmying.

Upon investigation I found that after being welded in place, the nose gear strut wasn't re-tempered thus crystallizing the stud. It tested over 60 on a Rockwell. Fortunately, I was taxiing when it broke. When it collapsed it broke the prop, spinner, spinner backplate, fuel pump (dented), and bent and tore the composite lower cowling.

Aero Designs did send me a new nose gear and I had it tested. It had been retempered properly and Aero Designs furnished most of the repair parts (at no cost to me).

My main concern is how many more nose gears are hanging on Pulsars out there with a similar weakness. I would hope that mine was the only one shipped that was not tempered properly. I have contacted EAA and Kitplanes about the nose gear problem. If anyone has any questions about all of this, please contact me at:

7580 East County Road 600N
Twelve Mile, IN 46988
219-664-3751

[Editor note: Dan also reported in his letter that AVEMCO settled his claim with no problem and said there were great people to work with. It's

nice to hear since you never know how good your insurance is until you make a claim].

2. 912 Lower engine cowl and engine mount installation

(Casey King).

"First it took me much longer than anticipated! I thought it was going to be an afternoon like thing and it took longer (I think it spread out over a couple of weekends)! Not to be confused, the lower cowling install was straightforward. The engine mount install was what took some time for me.

I used an engine hoist and also an adjustable cable attached to this. The adjustable cable is rotated with a 1/2" drive ratchet and allowed great rotational control of the engine. The engine hoist ranks right up there with my favorite new tools, and the best thing about it is I've had it on loan from a buddy for at least a year now, so it didn't cost me anything but a dinner.

The front engine mount is a very close fit. I actually believe that I moved it back a smidgen from the plans and then noted on Dennis Simo's plane later that he had moved his back by quite a bit (1/2" - 1"). I can slip a piece of sandpaper between the cowl and the front corners of the front engine mount, but not much more.

An alternative that I heard about, but have never seen is that somebody has (had) a fake engine block that was very light and exact in the measurements. That would be the ticket in my opinion ... if the confidence in the mounting holes and front plate dimensions was there. That way, there is no fuss in putting it in the cowl, in addition no concern of excess weight during cure on the lower cowl.

Finally, my spinner still sits up above the top cowl by about 1/4" or so. I had asked Mark about this at Kerrville and I had proposed building up the upper cowl with rage to match, but he said no need. The engine should settle a bit during the

first few hours and if there was still a problem then a couple of washers on the rear mounts should tilt it down a bit with no adverse effects. This all remains to be seen though".

Flash Update from Casey--5/14/97

"It has turned out that the alignment of the spinner is darn near perfect. I attribute this to 3 factors really. First is I noticed that the bolts securing the front part of the engine (via the angle iron like piece) to the front mount in the engine were bottoming out on the aluminum mount. So I turned these bolts upside down. Normally I avoid at all cost the insertion of a bolt upside down, but in this case the bolt is entirely captive by the forward engine mount. This resulted in an immediate drop of at least 1/8". Second is that the compression of the shock mounts allows it to settle even more. And third and most important is luck!!"

Builder Questions & Requests:

William Buffe (361 Nob Hill Dr. Akron, OH 44303) is looking for a test pilot to check out both his Pulsar and himself. Also, William would like to hear from other Pulsar builders in his area. Please feel free to contact him and he looks forward to hearing from all.

Builder Progress Reports:

John Kieffer (Wheatland, Missouri)

"My son and I (both retired) are building a Pulsar XP. We are about 60% done and have the engine and prop ordered.

Colin McKinley (Salem, North Carolina)

I have Schweizer rudder cable adjusters in my Pulsar from a wrecked glider. These were

probably used on all 2500+ Schweizer sailplanes. They allow about 3-4" of rudder pedal adjustment.

Pulsar Internet Information:

1. Pulsar XP muffler system design.

Several XP builders report problems with the original exhaust muffler design. Skystar is aware of this and has reportedly designed a new stainless exhaust system. Contact Skystar for further information.

2. Powder coating instrument panel.

Wallace Judd provided good information on powder coating the Pulsar instrument panel. Wallace says you can locate local providers of powder coating by looking in your Yellow Pages. He paid \$79 for a custom color and noted that a standard color would have been \$21 less. He says to be sure to use a company which will blast the panel with glass beads as part of the prep process (usually no extra charge).

Wallace also strongly recommended using a "light crinkle" finish. This finish won't have a glare problem and looks much better than the "big crinkle" finish. The "glossy" finish is a real glare problem for aircraft.

Wallace also powder coated his front landing gear fork and says it looks great (and cost only \$40).

3. Pulsar tach accuracy.

Several comments have surfaced about possible inaccuracies of the Pulsar tachometer. Not to belabor the point, but the resulting recommendation is to have your tach verified by a local FBO or someone with a tach verification tool. The value of having your tach accuracy checked is to insure that you don't exceed the Rotax maximum RPM.

Pulsar Builder Options Available:

As many of you know, Dan Billings has offered Pulsar builders wingtip lenses as well as side windows for the Pulsar. Dan recently contacted me to let me know that he still offers those options for Pulsar builders:

"As a service to Pulsar builders who prefer the Lancair style window, I will still provide the original window kits. The windows should work on the series II as well as the series I. I have lowered the price to \$89.95 to match Skystar's pricing on the window design Mark put in the turbo and Skystar is now marketing.

The wingtip position light/strobe lenses are still available at \$74.95 per pair. They are now made of a damage resistant (DR) acrylic on improved molds. These make a lot slicker looking aircraft than just hanging the all in one units on the end of the wing, but do take some effort. These also should work on the Series II as well as Series I.

The landing light kits are also still being made available for the Pulsar I builders. They could be adapted to a Series II, but unless I can get a fiberglass contouring from the new cowling I won't have the correctly shaped lens for them. The price for this kit is \$64.95.

Shipping and handling in the US is \$5.00 per kit. Overseas is on a per order basis.

Dan's address is 108 Stonegate Drive, Headland, AL 36345. Dan's phone and fax is:

Day (334) 793-1343
Night (334) 693-0351
FAX (334) 793-2623
Email: Chieftv18@aol.com

Next Issue Information Needed

In Issue #40 of the Pulsar News, we plan to cover in detail various trim systems builders have developed for the Pulsar. These systems include both manual and automated for rudder, aileron and elevator systems. I would appreciate hearing from builders who have developed systems and photos/drawings are very much appreciated.

Mike

--Notice to all readers--

All information provided in this newsletter is for educational purposes only and has not been verified or tested for accuracy or flight safety. Use of any of the published information is strictly at the reader's sole risk. The editor and the Pulsar Builders' Association take no responsibility for the information published herein.

All correspondence or subscriptions can be sent to:

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Fax: 602-482-7882

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PULSAR

Skystar



-News-

MARCH 1997

ISSUE 1

**The Newsletter for all
Kitfox and Pulsar
Enthusiasts**

Inside:

Sun 'n Fun Forum Schedule

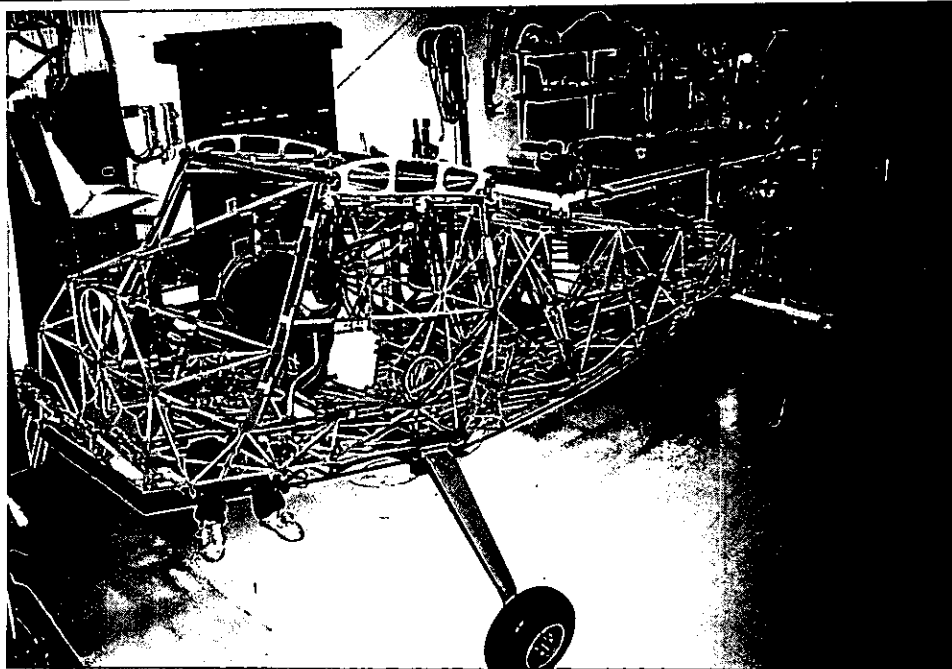
Doctor Fox

The New IO-240B Evaluated

New Family Members

Fly into the Swiss Alps with a Rotax 582

SkyStar is Moving

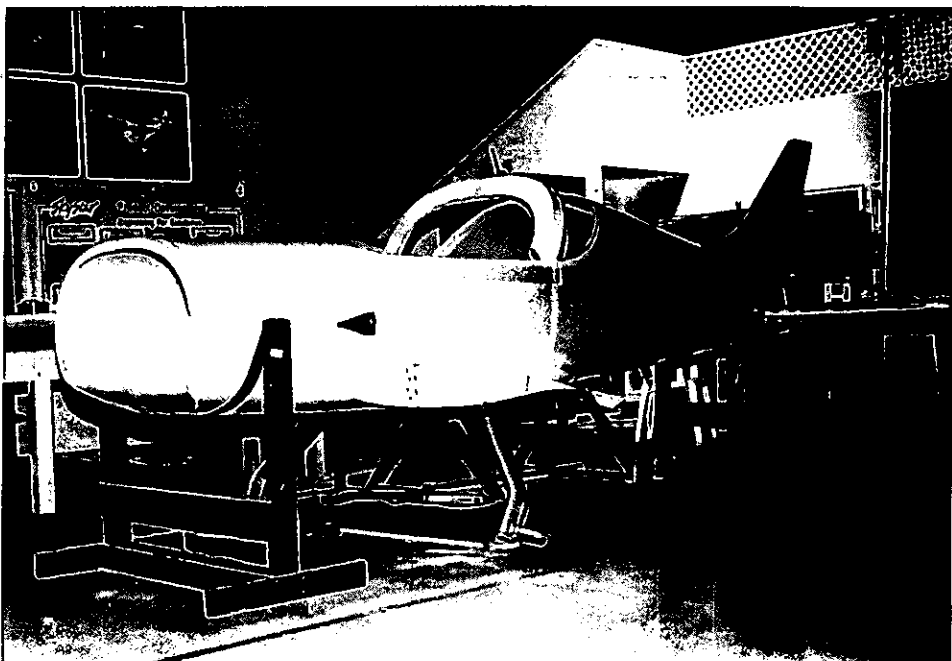


*Patrick Rediker works on the new Vixen demonstrator.
"...almost ready to cover!"*

Nampa, ID. - Like a maker of fine wine grafting the finest branches onto his root stock, SkyStar Aircraft Corporation has brought Pulsar Aircraft up from Texas and joined it with the backbone of the kit industry, the Kitfox.

Now the best of two worlds in the light aircraft industry, tube and rag and composite, are both under one roof. The SkyStar team is never ending in its cutting edge technology, always finding a way to get more out of their aircraft and giving more to the consumer.

Whether you want sleek and fast or romantically nostalgic and versatile, your choice got more difficult. The most trusted name in the homebuilt arena can now offer you both. Comfort and reliability is the name of the game, backed up by cutting edge technology. SkyStar aircraft has never backed down from the goal of producing the best aircraft in the business.



SkyStar constructs a Pulsar II demonstrator and revises the Builders Manual.

From the Cockpit

by Phil Reed

*SkyStar
is
moving*

*New
Pulsar
and
Vixen
demonstrators*

To:
All Kitfox and Pulsar Builders and Enthusiasts,

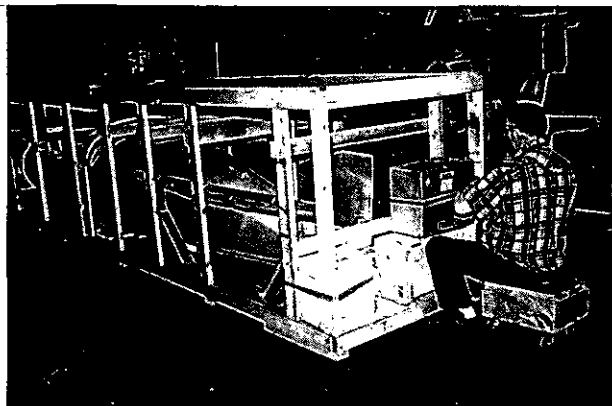
First and foremost, on behalf of all of us here at SkyStar, WELCOME to Pulsar builders and enthusiasts everywhere. The SkyStar Family is now larger by 410 Pulsar owners and, if the past few months are any indication, the enthusiasm of this group is a good match with the Kitfox clan!

It has been an exceptionally busy winter for us here in Idaho and there is a lot of news to cover in this newsletter.

The BIG NEWS for us has been the integration of the Pulsar aircraft into our operations in Idaho. Since purchasing the rights to this very exciting design in September '96, we have been extremely busy relocating operations from San Antonio, Texas to our plant in Nampa. We started producing parts in Nampa in November, and our first Pulsar II kit shipped last month. In the Sales Hanger a new Pulsar II demonstrator aircraft is under construction and should be flying by May or June of this year. Our original intention was to have it flying to Sun 'n Fun, but we are rewriting the assembly manual as we build, so the project is stretching out a bit. Our current plan is to trailer a finished fuselage to Florida to show some of the changes and upgrades that have been made to Mark Brown's original design. The transition has been challenging, but has been exciting also because of the patience and support of the Pulsar builders. The Pulsar is incredible and it's turning out that the builders are the same!



As you can see by the new masthead, the KITFOX TIMES now becomes the SKYSTAR NEWS to accommodate our new Pulsar family members. The newsletter format will include articles on both Kitfox and Pulsar as well as the usual features on what's happening at the factory.



Bill Chidester packs and secures parts into a crate for shipping the first Pulsar kit from SkyStar.

SKYSTAR IS MOVING! After a wonderful 13 years at the airport in Nampa, we are moving operations to Caldwell, Idaho 6 miles west of our current location. Construction on a new 30,000 square foot facility located at the west end of the Caldwell Municipal Airport will begin in a few weeks and we hope to begin the move itself in June of this year. The new facility will allow us all to work together in a common building rather than the three buildings we currently occupy in Nampa. Dan Denney who designed the Kitfox and built Denney Aerocraft into the leading producer of kit aircraft before selling operations to SkyStar in 1992, is ready to start production on his carbon 3/4 scale P-51 and will be moving into our old location as soon as we can make it available. We have been leasing these buildings from Dan and it's exciting to know that they will be used to build another exciting kit plane company under Dan's leadership.



A new VIXEN DEMO aircraft is also under construction in the Sales Hanger and should be in service by early summer. This plane will show off the latest developments from the Kitfox "skunk works" and should be an outstanding performer. Look for it at airshows this summer!



PATRICK REDIKER, our Chief Pilot, has received an appointment to join the prestigious RED BARON Stearman Squadron aerobatic team on the airshow circuit and will be leaving SkyStar shortly to begin this new adventure. Patrick has been with us for 6 great years and in that time has safely flown thousands of prospects, given familiarization flights to a hundred more, and has received honors from the EAA for his leadership activities in the Young Eagles Program. He is loved and respected by the SkyStar team and people throughout Sport Aviation, his full time presence at SkyStar will be missed. The good news is that Patrick will be doing what he loves best and he has promised to work with us when he is not on the road. Patrick will be at Sun 'n Fun this year to help with the program there.



We have been working with ROTAX for the past year on the development of a 100 HP normally aspirated version of the 912. Such an engine would weigh the same as the existing 912, but turn out a good 100 HP on auto gas. The engine would be a great match for the Series 5 and Vixen builders and enable them to have a 750-800 pound useful load and maintain the outstanding performance available with the Continental and Lycoming engines. The

(continued - next page)

engine would also be good as a high performance option for the Pulsar II. We'll keep builders posted on the progress of the development program.



This issue of the SkyStar News contains a review by Mark Budak of the NSI CAP (Cockpit Adjustable Propeller) currently adorning the front of our 912 powered Speedster. This well built unit looks like a reasonably cost-effective way to enhance performance and should be available in quantity shortly.



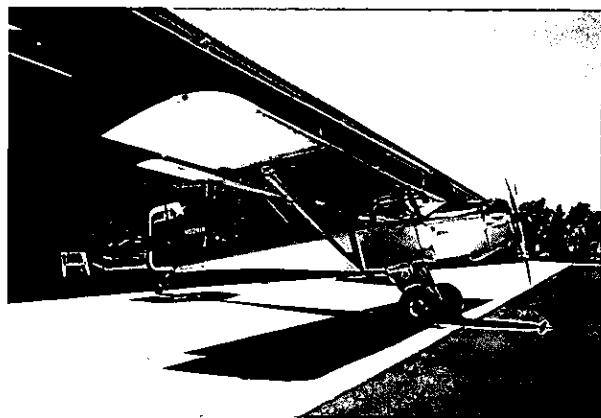
It's difficult to believe we're starting the summer airshow season in a few weeks. Between airshows, building a new facility, moving, and staying ahead of things in general, it will be a busy year. As always, we appreciate the suggestions and advice that we receive from all of you, and the patience you exhibit as we meet the challenges ahead.

Best regards,

Philip L. Reed, III

President

SkyStar Aircraft Corporation



Model IV-1200 / Rotax 912
Michael Gunn - Poway, CA.

"The project was great fun and a valuable learning process. FAA Airworthiness Certification sign off was Jan, 7, 1997 with the first flight the following week. No problems. Thanks for your help and support during the project."

Sun 'n Fun Forums:

Monday April 7, 1997

10:00 AM - Pulsar

Tuesday April 8, 1997

1:00 PM - Kitfox

SkyStar Builders Dinner

Tuesday April 8 - 7:00 PM

**Location - The President's Events Tent on
the Lakeland Airport**

From the Cockpit

(continued)

Where to find us:

Airshows

&

On line

ON LINE!

*SkyStar can be reached, on line, with the World Wide Web at its own web site address;

www.skystar.com

*SkyStar can also be reached through E-Mail. The E-Mail address to subscribe to the Kitfox Mail List is:

LISTPROC@lists.colorado.edu

Leave the subject blank

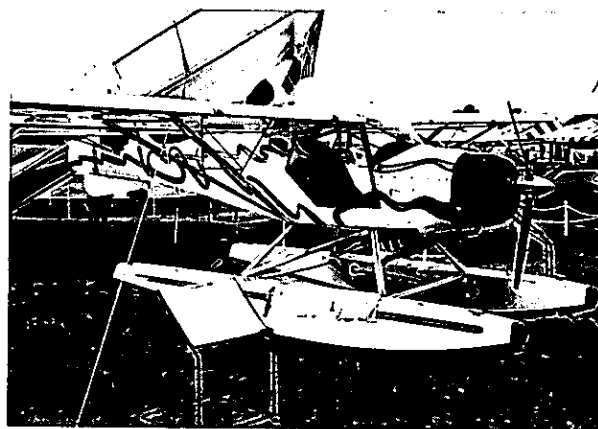
Put: Subscribe Kitfox (your name) in
the body of message.

*The E-Mail address for Pulsar Mail List is:

Pulsar_builders@ink.apple.com

*Rotax also has a web site that contains service letters, it is at:

www.rotax-owner.com



Sam Goodall of Oregon, WI. like his set of 1102
amphibious floats so well that he bought the
manufacturing rights.

For information - Ph: (608) 835-0400

Builder Profile

Myron Truex shares his ideas of what flying is all about.

"I whooped and hollared for ten minutes...this is what the Pulsar is all about."

The Celebrated Flight

(Oh yeah. What flying is all about.)

Yuba City, Ca. - The following are excerpts taken from Myron Truex's description of one of his early test flights in his Pulsar Series IXP, Serial #439, and his feelings, which are familiar to all of us.

Another bolt by bolt inspection and out the hanger I went. This time things would be different. I taxied up and down, stopped and swung the compass while the Rotax warmed up. I idled down to the run up area, this time determined to get up to altitude. Back to the run up area, check list in hand, mags checked, fuel pump on, canopy latched, seat belt fastened.

This time I was not going to climb out at full throttle, I intended to climb out at 5000 rpm or less. I smoothly applied the throttle, much slower than previous flights. The speed came up quick and I gently raised the nose. Now rising off the runway I applied more throttle. I held the throttle at 4800. No noise or vibrations yet. I tapped the brakes to make sure the wheels were not spinning. UP, UP, UP, it went. Now at the end of the runway I was 300-400 ft. Nice attitude for looking out the nose. I was running between 80-95 mph. I was just feeling it out. Now a gentle turn back toward downwind. No other airplanes out here this early. UP, UP, UP, it was still climbing and no vibrations. I rolled right on up to 1200 feet. Pulling the throttle back I yelled out in the cabin, "now that's more like it". Idling back to 4000 rpm it wanted to climb and go past 100. At 3800 rpm it sealed it in at 100 mph.

Now, heading downwind I called my position. Closed pattern, touch and go. No way, I was not going to let this precious altitude disappear beneath me so soon. This was the highest touch and go (...go around you ever saw). I continued in the pattern at 1000 feet. I was actually getting to look out the window this time, I just wanted to depart the area and go flying.

I kept making notes of temps and pressures. I looked down at the fuel filter, nice and full. This is a neat place to have the see through filter since it will give you a visual on the fuel as well as the instruments. All was well. Twenty minutes flew by (yuk, yuk), time to set down.

I extended my downwind leg this time, going to make a nice long approach. There was a 10 mph head wind so I decides on 10° of flaps. I aimed down the runway, not trying to make the numbers. Slowly pulling power I looked at the GPS and was doing 67 mph ground speed. Should make for a nice touch down.

This was the celebrated flight, I let out a shout and wanted to jump up and down. Taxiing back there was no one that had witnessed the flight. I pulled back to the hanger to pull the cowl off for another inspection. Well, I did jump up and down on the tarmac after I got out. Someone would have gone for the net if they had seen me. I whooped and hollared for ten minutes. Oh yeah, this is what the Pulsar is all about.

I thought I was alone, turns out a friend had seen me. He said it sure looked pretty in the air. He couldn't believe how fast it went down the runway when I did my fly-by. I told him that I was only doing 100 mph and had lots to go. He couldn't believe it. Neither can I.

Having a chance to look out the window, I fell in love with flying again. I remembered why I do this. The visibility today was unlimited. You could see Mt. Shasta, Mt. Lassen, the Sutter Buttes, Sacramento, the coastal range and of course, the Sierra's. The visibility out of this plane is remarkable. Pattern work is a no brainer with the low wing profile. The wings are short enough to see out over the ends. Even the view to the rear is good.



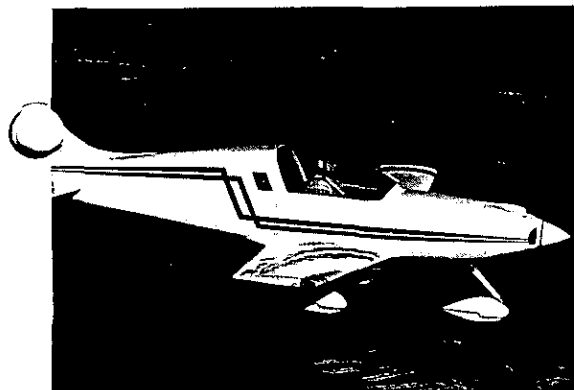
Mod. IV / Rotax 912
Jim Hakes - Deerwood, MN.

Dear SkyStar,

"There was never trouble and my 40 hours were completed in eight weeks. I built 100% of the plane, but it couldn't have been done without your support. You were always there with a positive attitude and sound advice. The whole experience will always be a special memory for my family and me."

Up & Flying

*We welcome the
Pulsar builder
completions to
the SkyStar
family*



Top Speed "147" mph Rotax 582!

N167DS Pulsar I
Dale Schonmeyer - Buford, GA

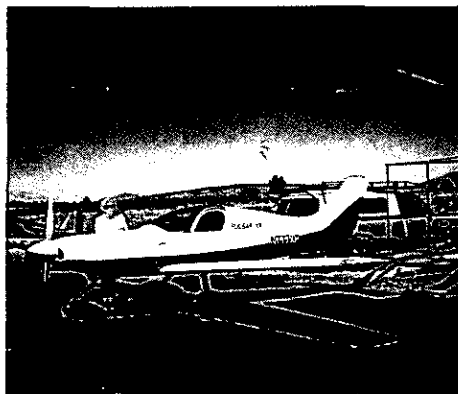


Model IV Speedster / Rotax 912 Walt Creigh - Los Altos, CA

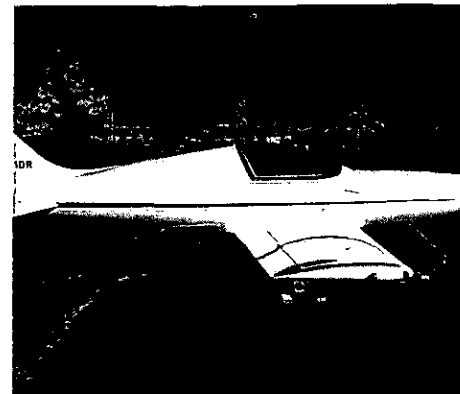
*"After 2 1/2 years, I flew the maiden flight on
4/24/96. Note the tail number! Same as my WWII
8th AirForce Bomb Group N457BG!!"*



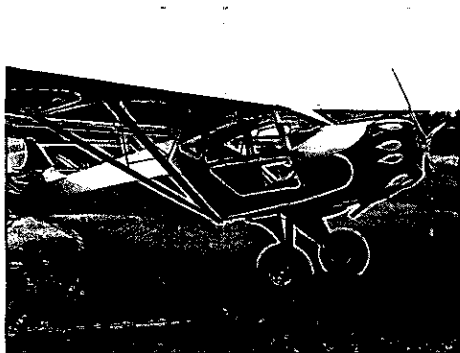
Talk About Classics Speedster / Rotax 912 John Lipscomb - Freedom, PA



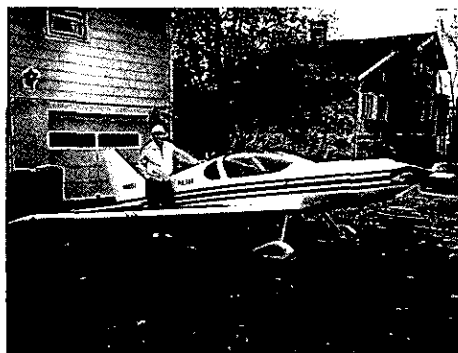
Pulsar XP / Rotax 912 Harold Welburn - Bend, OR



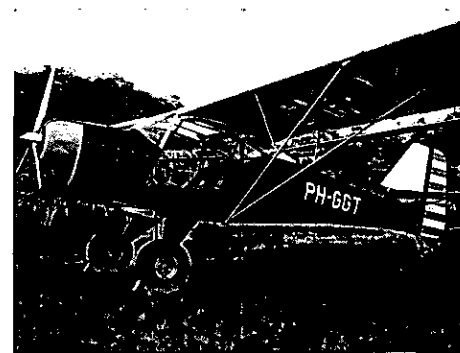
Pulsar I / Rotax.912 Dan Drake - Harpers Ferry, WV



Mod. IV-1200 / Rotax 912 Owen E. Bess - Davis CA



Pulsar I / Rotax 582 Wayne Johnson - Emmaus, PA



Mod. III / Rotax 912 J. Neistadt - The Netherlands *"It flies great."*

Improvement Is Never Ending

(the doctor is in...finally)

It's been awhile since the last issue of the Kitfox Times (now SkyStar News), so I thought this time around I would fill everyone in on what's been going on in terms of product development here. As you know, we are always trying new ways to improve the performance and durability of the Kitfox line.

One of the most exciting projects has been a rework of the Classic IV landing gear. We have incorporated an adjustable toe-in/toe-out feature on this gear, to help the Kitfox track even straighter with less effort during takeoff and landing. The diagonal brace extending from the axle cluster up to the shock cord attach area has been relocated to eliminate a potential failure point on the shock cord arm, and we are looking at ways of improving the strength of the gear around the gear attach points.

We are currently flying this new gear on N193TF, our 618-powered Classic IV. So far, even my landings haven't phased the gear, and the ground-handling has been exemplary. We hope to have this new and improved gear available soon.

Those of you who are flying with the NSI propulsion systems firewall forward kit are already familiar with the quality of work that NSI does. One of their latest developments is the CAP-140 in-flight adjustable propeller. We have installed one of these propellers on N194KS, our Classic IV Speedster, and are pleased with the results. This new propeller is a 3-blade, 72 inch diameter unit using warp-drive blades in the NSI hub. The propeller blade angle is changed via an electric motor and jackscrew arrangement in the hub. The motor receives its power via slip-rings and brushes.

So far, we have noted approximately a 10 mph increase in cruise speed, and about 250 fpm increase in climb. During one takeoff roll, I inadvertently allowed the engine to exceed red-line (up to about 6,100 rpm), and it was the closest thing to a point and shoot takeoff that I have ever done, the ground roll was almost nonexistent. Please do not try this with your 912, as valve float can be a problem above red-line. On the minus side, the spinner for this prop is disproportionately large (a smaller one is in the works), the prop is not quite as smooth as the warp-drive, and it weighs quite a bit more than any ground-adjustable prop. The extra weight significantly offsets the pitch trim, so that on final, with the power off, more back pressure must be held on the control stick to maintain the proper approach speed. There is still plenty of elevator authority for full-stall landings, though.

So, for those of you who like a couple of extra switches to play with and have some extra money burning a hole in your pocket (say, just under three grand or so), you

can now wring the last drop of performance from your 912 no matter if your climbing, cruising, or anywhere in between.

Just so we wouldn't leave any airplane in the hangar untouched, we just had to put 8.00 x 6 tires and the bigger 8" pneumatic Maule tailwheel on N965TD, our Series 5 taildragger which is now flying with the Continental IO-240B engine. This has rendered the aircraft much more suitable for rough-field work, as the larger tires roll over clumps and clods with much more aplomb than the 6.00 x 6's did (Hey Phil, could we film part of that new video at Soldier Bar now?). The penalty in cruise speed seems to be minimal, somewhere on the order of 2 or 3 mph.

One other thing that we have done on the Series 5 is to use two full length tailwheel springs to attach the tailwheel to the fuselage, rather than just one with a helper spring on top of it. This was accomplished by slotting the tailwheel attach hole on the upper spring, to allow plenty of tailwheel travel without putting a shear load on the attach bolt. A few Series 5 pilots have reported problems with the original setup not holding up well on unimproved strips. We have flown this modified spring setup all over the Idaho back country without any problems at all.

While we are on the subject of tailwheels, I should mention that you want to keep a close eye on the tailwheel spring attach plate way back at the end of the fuselage, especially on the heavier Series 5 Kitfoxes. This plate can take quite a beating on unimproved strips, and should be inspected regularly for cracks where it is welded to the longerons. New production Kitfoxes will have a gusset plate welded from the aft portion of the spring attach plate to the bottom of the tailpost.

A New Face

Those of you who have been calling SkyStar Technical Support may have noticed a new voice on the other end of the line. **Dan Hansen** has now joined our SkyStar family, and adds his A&P skills, plus his years of experience as a tech rep for McDonnell-Douglas to our builder support team. Dan has been a pilot since 1980, and is rapidly becoming quite an asset to the SkyStar team!

Doctor Fox

by Mark Budak

*The doctor is in
and
talking about
everything from props
to landing gear.*

Doctor Fox

(continued)

Builders Tips

"..for those who have scratched your head in wonder..."

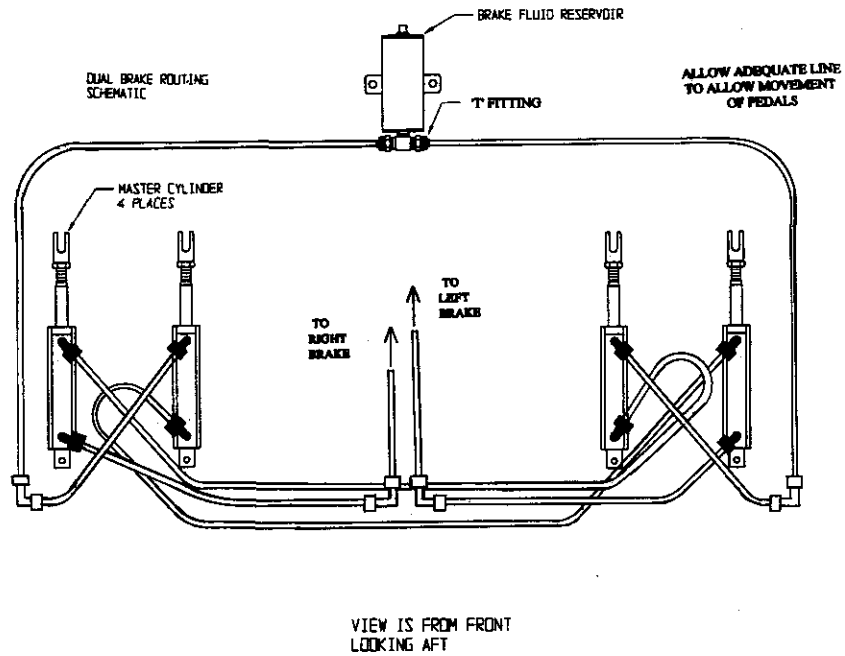


FIGURE #1

Routing Dual Brake Lines

(A better way of routing the brake lines to your dual brake setup.)

Attention Series 5 and Vixen builders! For those who have scratched your head in wonder (as I did) when routing brake lines for the optional Dual Brake Installation, I have an option that may be worth considering.

The lower forward center section of the Center Console gets crowded real fast-what with the Adjustable Rudder Pedal's four Return Springs and four Pulleys, along with the Firewall crowding you into a very tight space. What we at SkyStar came up with is an alternate method of routing the Brake Lines which helps ease some of the tight bends in the Brake Lines, and helps to keep them out of harm's way. This method requires moving the Reservoir location, drilling a few holes in the Rudder Pedal Mounting Brackets and adding four Elbow fittings.

The first thing to do is drill 13/64 in. dia. "Routing Holes" in the Pilot's and Copilots Inboard Master Cylinder Brackets. This gives you someplace to route the brake lines where they will be kept away from the Rudder Pedal Adjustment Pulleys and Pedal Return Springs. The Pilot's Inboard Master Cylinder Bracket has three holes in a triangular arrangement - the dimensions are not critical, just leave an edge distance of 3/16 in. from the edge of the bracket between holes (see photo). The Copilots Inboard Master Cylinder Bracket has only two holes aligned parallel to the horizontal leg of the bracket - similar to the bracket on the Pilot's side. Also, a 1/16 in. dia. hole was drilled in the outboard leg of each Outboard Torque Tube Bracket to secure elbow fittings with safety wire.

The next thing to do is relocate the Brake Fluid Reservoir to the center of the uppermost horizontal tube of the Firewall Bulkhead (illustration above). The same mounting hardware and "T" fitting is used, the location has just changed. This revised location eliminates the requirement for sharp bends in the Brake Line tubing.



Example of three brake lines through a cylinder bracket.

IMPORTANT ROTAX 912 SERVICE INFORMATION

**Doctor
Fox**

(continued)

**ATTENTION
ROTAX
912
OWNERS**

"...procedure which insures adequate lubrication during engine startup."

Rotax has issued some important service information relating to the 912 engine. After investigating an engine seizure on a brand new 912 installed in a Pulsar, it was determined that improper pre-oiling procedures were a contributing factor in the lack of lubrication which caused the seizure. Pre-oiling is necessary when starting a brand-new engine for the first time, or whenever all of the oil has been drained, such as for an oil change or engine storage.

It is extremely important to fill all of the oil line from the oil tank to the oil pump with oil, so that on initial engine startup the oil pump has an immediately available supply of oil to pump to the engine. Engine installations incorporating an oil cooler in the line between the oil tank and the oil pump require additional attention, since the oil cooler represents a large volume which must be filled with oil in order for the oil pump to work properly.

Rotax has developed a procedure which insures adequate lubrication during engine startup. This procedure should be followed any time the oil has been drained, or on the first start of a new engine, as mentioned above. This procedure requires a clean oil container (one gallon capacity will work fine), some hand tools, and an air pressure source that is regulated to between 15-30 psi.

oil cooler, and into the container.

5. Continue to apply the regulated air into the oil tank vent, taking care not to run the oil tank dry of oil. If the oil tank is run dry, then the procedure must be started over. A steadily increasing stream of oil should be observed flowing from the oil feed line as the air bubbles are purged from the oil cooler and feed line. This procedure should be continued until no air bubbles are observed coming from the oil feed line.

6. Once all of the air has been purged from the oil feed line and the oil cooler (7), reconnect the oil feed line to the oil pump. Hold your finger or thumb over the end of the line until it is reconnected, to prevent oil loss from the line. Also reconnect the oil return line to the oil tank.

(Refer to Fig. 1, and make sure that the oil lines have not been reversed, as this will cause oil-starvation on engine startup.)

7. Make sure that the oil level in the oil tank is at the "full" mark on the dipstick. Remove the top spark plug from each cylinder.

(continued - next page)

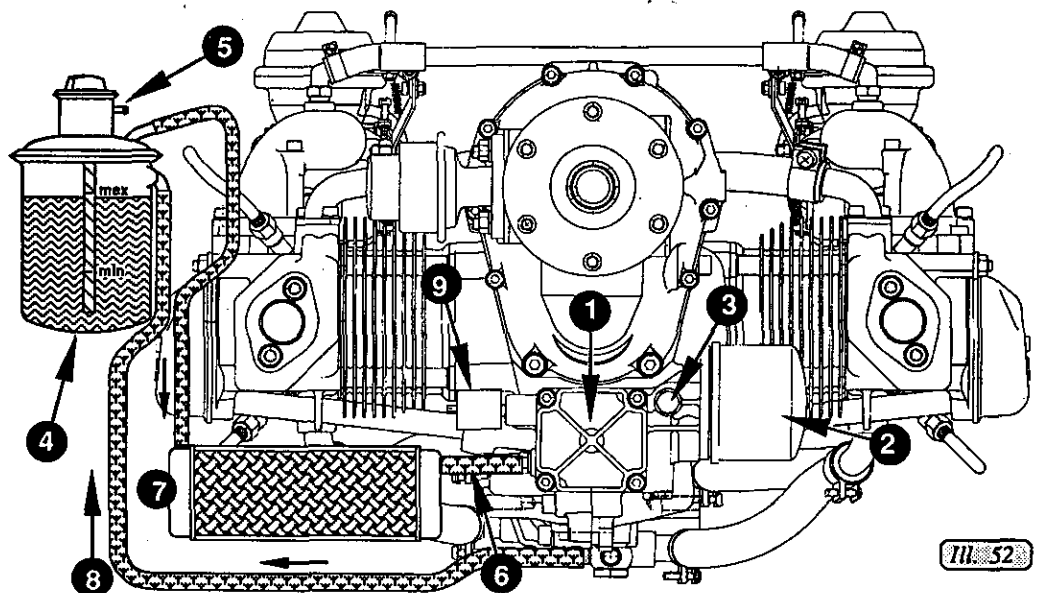
6.16.1) Oil circuit:

1. Refer to Fig. 1. Fill the oil tank (4) with clean oil up to the "full" mark on the dipstick.

2. Disconnect the oil feed line (6) at the oil pump (1). Route the disconnected end of the feed line into the clean oil container.

3. Disconnect the oil return line (8) from the oil tank, and plug the empty fitting at the oil tank. It may be necessary to slip a short length of oil hose onto the empty fitting, and plug this short length of hose with a clean bolt secured with a hose clamp.

4. Make sure that the oil filler cap is on tight. Apply the regulated (15-30 psi) compressed air into the oil tank vent hose at (5). Oil will be forced from the tank through the oil feed line and



① oil pump
② oil filter
③ oil temp. sensor

④ oil tank
⑤ oil tank venting
⑥ oil feed line

⑦ oil cooler
⑧ oil return line
⑨ oil pressure sensor

III-52

8. MAKE CERTAIN THAT BOTH IGNITION SYSTEMS "P" LEADS ARE PROPERLY GROUNDED (MAGS SWITCHED OFF), and that the fuel valve is in the OFF position. Rotate the propeller by hand in the normal direction of engine rotation until the oil pressure gauge indicates 30 psi.

9. Re-check the oil level in the oil tank, and top it off if necessary. Replace the spark plugs, turn the fuel valve on, and start the engine. If there is no oil pressure indication within 10 seconds, immediately shut down the engine and diagnose the problem.

Also, be certain that your oil system installation conforms to Rotax Service Information 20 UL 94 (Oil System for all ROTAX 912), and be sure to read and understand the Rotax 912 Operator's Handbook.

As a related matter, field experience has shown that on Kitfox Model III through Classic IV 912 engine installations, a potential exists for oil starvation during startup of a previously serviced engine. This is due to the oil siphoning from the oil tank through the oil pump and into the crankcase after engine shutdown. This leaves most of the oil in the crankcase, where it is not immediately available to the oil pump on engine startup, as it must be first scavenged back into the oil tank. This only happens on the Model 3 through Classic IV engine installations, since the oil tank was lowered on Series 5 engine installations. Generally this only happens after the engine has been sitting idle for some time, and is easily noticed during preflight, when the oil level does not register on the dipstick.

As a precautionary measure and to avoid potential engine damage, we recommend the following:

1. If during preflight it is noted that the engine oil has siphoned into the crankcase, first ensure that both ignition switches are in the OFF position. Then, pull the propeller through by hand in the normal direction of engine rotation to check for hydraulic lock. If hydraulic lock exists, the propeller will not rotate freely on the affected cylinder(s). Remove the lower spark plugs from all of the cylinders, and rotate the propeller by hand until all of the oil is purged from the affected cylinder(s).

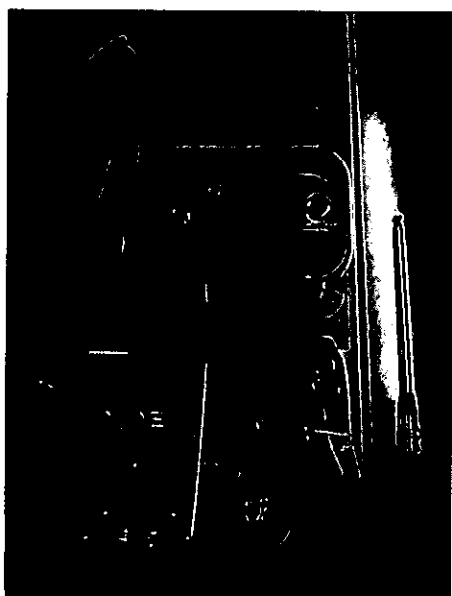
2. If hydraulic lock is not present, start the engine, and observe the oil pressure gauge as always. If oil pressure is not registered within 10 seconds, shut down the engine immediately and proceed to step 3. If oil pressure is registered, watch the gauge closely for the first 30 seconds of engine operation to ensure that the pressure does not drop. If the oil pressure drops, shut down the engine immediately and perform the following procedure.

3. If proper oil pressure has not developed after engine startup, remove the banjo fitting at the oil return line on the bottom of the engine, and drain the crankcase oil into a suitable container. Pour this oil back into the oil tank, replace the banjo fitting, and start the engine, observing the precautions listed above in step 2.

Doctor Fox

(continued)

*As a precautionary
measure*



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**For use on Kitfox Aircraft*

A Pilots Story

Get out your world atlas and follow the flight of Johannes Sautter into the Swiss Alps.

Flying the Swiss Alps in a Kitfox

Johannes Sautter tours the Alps in his Model III Kitfox powered by a 65 hp Rotax 582

Kusterdingen, Germany - The following are excerpts taken from Johannes Sautter's account of his Kitfox adventure through the Swiss Alps. Maybe this will help some folks believe (once and for all) that there is nothing wrong with a 2-cylinder, 2-stroke.

The weather looks good and the television forecast is for no clouds and superb visibility. The autumn colors are beautiful and the Swiss Alps are in sight well before reaching the airfield. With 15 gallons of fuel and a 200 lb. passenger on the seat beside me, we are ready to take off.

At noon local time, maxed out with a gross weight of 1050 lbs., I push the throttle forward and we climb out with a solid 600 foot per minute climb. My Kitfox III is equipped with a Rotax 582 2-cycle engine turning 6500 rpm. I am going to fly into terrain where there is almost no chance for an emergency landing. But I'm very pleased with it.

With a GPS handheld to calculate ground speed, we cross the Lake of Konstanz and proceed south along the river Rhine, just at the borderline between Austria and Switzerland. Soon it becomes obvious that we have chosen a warm day, the temperature gauge shows ISA + 15° centigrade. Even with max power we only climb 100 ft/fpm. Will the little screamer make it to a safe altitude to cross "Julier Pass" at 7400 ft. My minimum for safety is 9000 ft. "Hey Heinz, are you sure you only way 200 pounds?" There is only light turbulence and the Kitfox is able to maintain altitude. Due to a strong headwind it takes quite a while to reach the Julier and by the time we cross the summit we are at 10500 ft.

I call Samedan tower to let them know our location and our planned sight seeing route. In front of us we have a superb view of 13300 ft. high mountains. We cross the Engadin Valley, overflying the village of Saint Moritz, meeting point of the rich. On the other side we overfly the "Corvatsch" a view point 11300 ft high. My Kitfox is flying along at 11500 ft. with full power and still climbing. The Rotax doesn't have a mixture control and runs quite rich in that altitude, but this helps to keep it cool, since we have been running at max power for 30 minutes!

Approaching Piz Rosseg Peak, we have 12100 ft. on the altimeter. I could gain maybe 200 ft. by reducing speed to 55 mph, but I feel more comfortable with 65 mph so close to the snow covered giants. The GPS show a 20 mph tailwind during the fly by at Piz Bernina, but the wind is parallel to the mountain ridge and there is no turbulence. Now we pass the famous "Biancograt", a must for mountaineers. Unfortunately there are none today, maybe 2:00 pm is to late and they are on their way back down.

To continue to Piz Palu we have to cross the ridge now. As the wind is blowing across it we have to expect a vortex behind it. Yup, here it is - light turbulence in a Kitfox is experienced a bit more intensively and a few seconds later we find ourselves at 11500 ft. But no sweat; the Diavolezza glacier is well below. Go half a mile south and you are in Italy. All around the Piz Palu we have turbulence and I decide not to go too close. Another snapshot and we go back to the valley, leaving the breathtaking panorama behind.

We Made it! We are in Samedan! In 2 hours of flight time we used 9 gallons of fuel. Remember, full power most of the time. Paying about \$35 landing fee (as I told you; it's a bit more expensive...) After fueling and relaxing in the sun with a cup of coffee it is soon time to go home.

With a density altitude of 7500 ft. we took off to head home. This was the first time I had taken off in that altitude with a Kitfox. There was a significant delay before the tail came up and the acceleration (yes, there is acceleration in a Kitfox) is somewhat slower than normal, but soon we are airborne. With a climb out of 300 ft/fpm there is no need for climbing turns. We have a safe altitude in reaching the "Julier" summit. With a tailwind, it only takes 1 hour and 30 minutes to go back home.

For those who want to do a similar trip, be careful. I did this trip several times before in conventional Cessnas and Pipers, so I knew the area quite well, Be well prepared and expect special hazards in mountain flying. Flying for a living, with several thousand hours on airliners, I enjoy flying in a basic homebuilt airplane like the Kitfox, it is an ultimate flying adventure.

SkyStar Evaluates The New IO-240B

(by Patrick Rediker)

Sky Star Aircraft Corporation first flew its Kitfox Model 5 Safari demonstrator aircraft in March 1996. The airplane was originally equipped with a 100 HP Continental O-200 engine. The company accumulated over 300 hours with this configuration, including a flight to Sun 'n Fun in Florida, a couple of trips to southern California, and the annual pilgrimage to Oshkosh. Additionally, the airplane made several flights into various back country airstrips in the mountains of central Idaho. As a result, Sky Star gained valuable real-world experience with the Continental O-200 installation.

Last Fall, the company decided to retrofit the airframe with a new Continental IO-240B, rated at 125 HP. The change over took about one week, and utilized the original cowlings, spinner, and Warp Drive propeller. Some performance predictions were made, but the test flights revealed that the numbers were conservative.

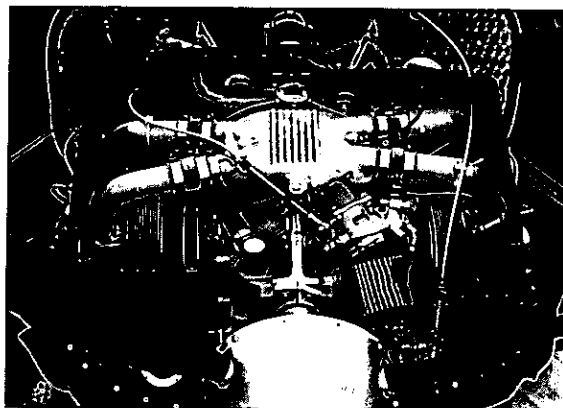
In fact, the performance difference was surprising. The initial test flights were made solo, using a three-blade, Warp Drive ground adjustable propeller set at 13 degrees. This combination yielded the following numbers:

Empty Weight	953 pounds
Fuel	156 pounds
Pilot	150 pounds
Rate of Climb	1800 ft/fpm @ sea level
Cruise Speed	124 MPH (true airspeed @ 7500 ft MSL)

With the Warp Drive propeller set at 15 degrees, the following performance was achieved:

Rate of Climb	1500 ft/fpm @ sea level
Cruise Speed	132 MPH (true airspeed @ 7500 ft MSL)

The takeoff performance is exciting. At solo weights, it is easy to break ground in 150 feet. We recently removed the wheel pants from the spring aluminum landing gear and installed 8.00 x 6 tires. This will make the Model 5 a great airplane for flying the Idaho back country beginning this Spring. Many of the mountain strips are situated in narrow valleys over 6000' above sea level. With the IO-240B, even some of the more challenging airstrips will be within the performance capabilities of the airplane. We now have the ultimate RV for a weekend outing.

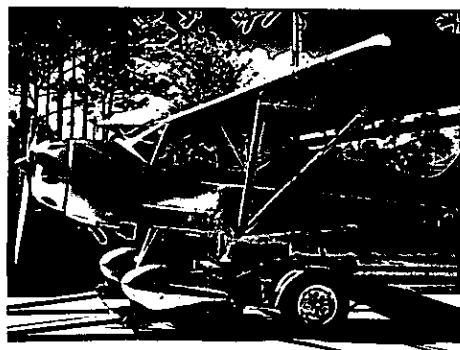


Series 5 with IO-240B installation.

Research & Development

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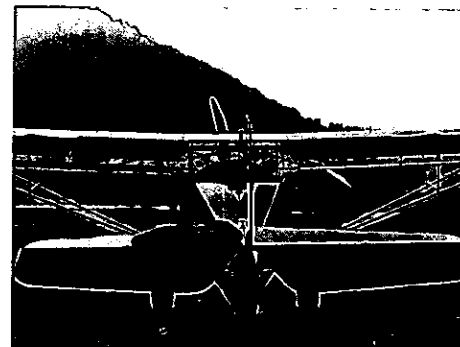
"...the ultimate RV for a weekend outing."



Model IV / Rotax 582
John & Kim Hitte - Melbourne, FL



Series 5 / Rotax 912
R. M. Winkles - Ardmore, OK



Model III / Rotax 582
Alois Luond - Switzerland



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