

Pulsar News

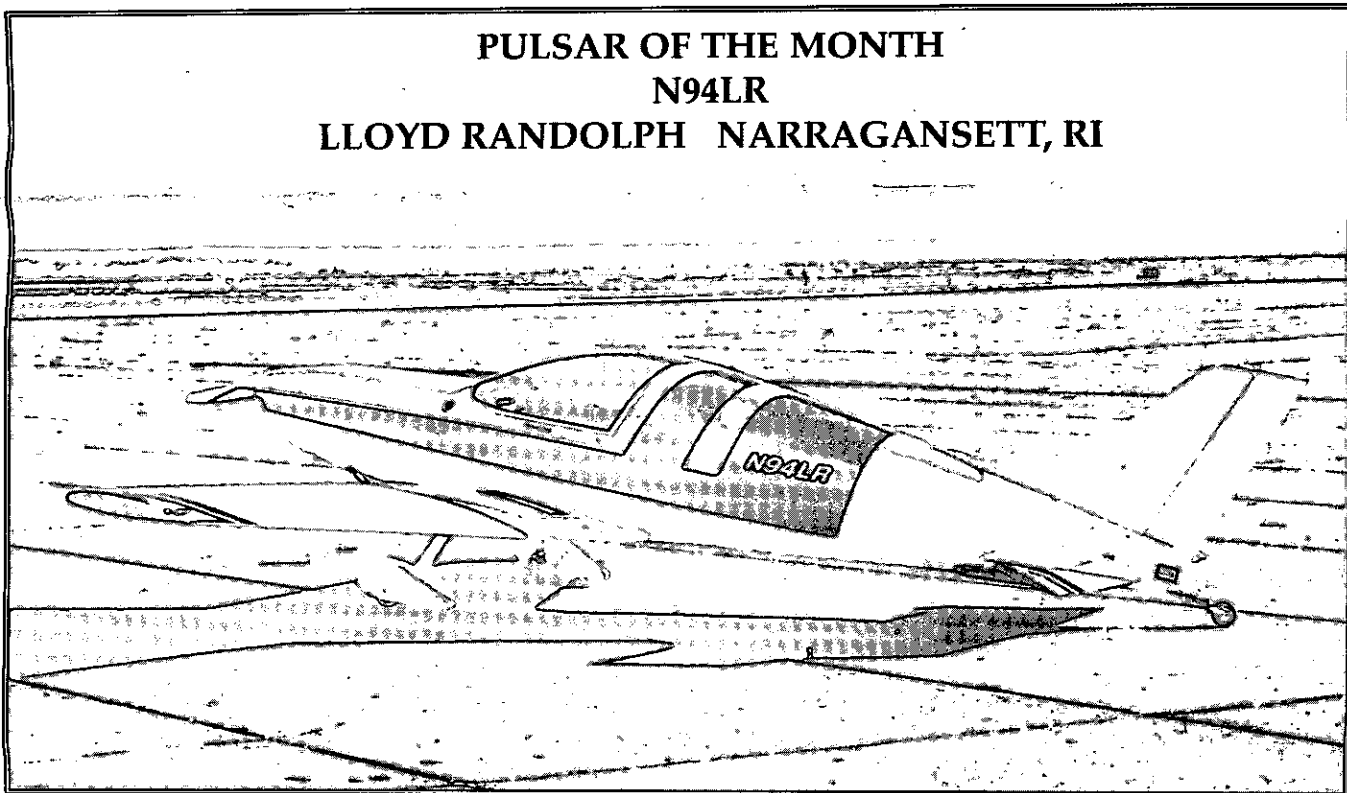
News, Updates, and Developments for Pulsar Builders and Owners

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PULSAR OF THE MONTH N94LR LLOYD RANDOLPH NARRAGANSETT, RI



The Pulsar of the Month for the month of January is another beautiful Rotax 582 powered Pulsar-N94LR. "Lima Romeo" belongs to Lloyd Randolph of Narragansett, Rhode Island. Kit serial number 249, the 149th kit delivered, arrived at Lloyd's house on December 24, 1991 (Merry Christmas Lloyd!). Construction time was 850 hours spread over 30 months. N94LR recently took to the air for the first time on October 10, 1994.

Here is Lloyd's story:

"Like so many others, what initially got me looking at kit airplanes was COST OF OPERATION. Flying certified General Aviation airplanes has just gotten too expensive, regardless of whether you rent or own. Especially expensive is the cost of maintenance. A \$2000 annual or two quickly makes you look for other

less expensive options to keep flying. The Pulsar's low cost of ownership and operation was the initial factor that got me excited about the airplane. Also, the airplane just looked good!

I knew I wanted an entry level, relatively low cost kit. In that market, my choices narrowed down between the Pulsar and the Kitfox. Wisely, before making a final decision, I flew in each airplane. WHAT AN EYE OPENER! There is no comparison in the performance capabilities of the two airplanes! The Pulsar is at least 30 MPH faster and has much more range and endurance. It is also much more comfortable to fly in, especially for longer trips. Immediately after the flight in the Pulsar, I placed an order.

When the crate containing my Pulsar arrived at my home on Christmas Eve in 1991, I must admit that I was a little bit apprehensive about the upcoming project.

CONTINUE PAGE 2

Even though I had been building remote controlled model airplanes for years, those flights were always made with my feet firmly on the ground! The Pulsar was the first airplane I would be building AND climbing into to fly!

I immediately unpacked the contents of the shipping crate into the cellar of my home and began building. My project was a little bit different than most in that I put the airplane together in the cellar, not in the garage. Only after the major components were completed did the project move up to the garage for finishing.

I spread the construction time of my Pulsar over a period of 30 months. Total time required to build N94LR was 850 hours. The process of building was very enjoyable to me. Even though this was my first attempt at a kit airplane, my experience in building remote controlled models came in very handy. The two areas that were somewhat tedious were the canopy frame and finishing the exterior prior to painting. However, the kit went together flawlessly and building the Pulsar was an absolute joy.

One item that I highly recommend is the composite wing skins. These skins are now standard in all new Pulsar kits, but they were not available when I ordered my Pulsar in 1991. My kit came with the then standard wood wing skins. When I heard about the composite wing skins, I immediately ordered a set for my Pulsar. This was a wonderful decision. The composite skins made covering the wings one of the easiest and most enjoyable jobs in the construction process. And the finish! My wing is absolutely wrinkle and wave free with the composite skins installed.

There is one tip I can pass along from my building experience. I used an EAA publication titled "Custom Built Sport Aircraft Handbook" as a guide for documenting and recording the building process of my Pulsar. By using this document as a guide, I had absolutely no trouble whatsoever with the FAA airworthiness inspection of my airplane prior to first flight. The FAA inspector was very satisfied with the documentation I provided him.

The only modification I made to my Pulsar was to move the main wheels forward 1 3/4" from their normal location on the gear legs. I wanted to do this on my taildragger Pulsar to put a little more weight on the tailwheel for improved ground operations. I proposed this change to Mark Brown at the factory and he

said it looked satisfactory to him. It has worked out just right.

After 30 months and 850 hours, it was time to fly! I have been flying since 1957 and have 4000 hours in all types of General Aviation airplanes. After brushing up my proficiency, I was ready to make my own first flight. What an absolute joy and thrill to fly in an airplane that you built yourself! The Pulsar has no surprises. It is very stable and is a real performer. Without sounding biased, I have to say that the Pulsar is one of the most enjoyable and satisfying planes I have ever flown.

Since the first flight, I have accumulated 18 hours in N94LR. Performance is just outstanding. Solo (I weigh 180 lbs), the Pulsar shows consistent 1500 FPM climb rates at 80 MPH IAS. At altitude, 75% power settings result in indicated airspeeds of 120 MPH.

One thing I have done is given my Pulsar a name. In honor of my wife Diane's tolerance with the entire project, I have given my Pulsar the name of "Patient Lady".

After flying off the required 40 hours of test time, I plan to use my Pulsar primarily for fun flying around the Rhode Island area. With the excellent cross country capability, I will also make some long distance flights. I plan to be at Sun 'N Fun 1995 with the airplane as well as at Oshkosh 1995. Hope to see you there. I will be the one with the big grin!"

MARKETING AND SALES NEWS

1995 SUN 'N FUN AIRSHOW APRIL 9-15

Calling all volunteers! Sun 'N Fun 1995 is just around the corner and we are still looking for Pulsar builders to help us at the Aero Designs display booth. So far, Dan Billings, Chuck Childs, Ben Hungerford and Arnold Lathrop have volunteered some of their time at the show to work with us answering prospective customers' questions.

If any of you are planning to attend the show and have some spare time, we would welcome your presence and help at the display. We pay \$50 a day for your time or we will credit your account by that amount. If you can't commit to a full day's work, that's OK. We can use your help on a 1/2 day basis.

If you wish to volunteer, call Bob Kromer at (210) 308-9332.

Working at the Aero Designs display is a lot of fun. You will really enjoy talking about your project to prospective customers and answering their questions.

This year we will also have our second annual Sun 'N Fun Pulsar Builders' Banquet. The location will be the same as last year: Quincy's Restaurant, 5216 South Florida Avenue, Lakeland (813) 6443758. This year we will be "going dutch". Each person will be responsible for their own bill. Quincy's isn't too expensive. A good steak and baked potato can be had for well under \$10. Be looking for an exact time and date for the Banquet in the March newsletter.

COMPANY NEWS

The big news from the company for this period is INCREASED PRODUCTION! We recently accelerated our production rate from one kit every seven days to one kit every four days. This has been quite a change for our company, but it added quite a few airplanes to the production schedule. We plan to build and deliver 63 Pulsar kits in 1995! This will be an all time high for Aero Designs! We are excited and very happy about this!

Sales are also on a record pace. Even with the accelerated production schedule, the next available kit is in late June, 1995. Potential kit builders are recognizing the Pulsar is an entry level kit but with advanced levels of performance and dependability.

More good news. The international market is buying the Pulsar in record numbers. Especially active is Germany and Switzerland.

Success in business is due to a lot of factors—a great product to sell, timing and lots of hard work. But for Aero Designs, the most important factor is a wonderful group of Pulsar builders and flyers. We rely heavily on your help and good word to promote the Pulsar. All of you have helped us be successful!

To everyone who takes the time to answer questions and help promote the Pulsar—THANK YOU! 1995 SHOULD BE A WONDERFUL YEAR!

FIRST FLIGHTS

As of December 30, a total 279 Pulsar kits have been delivered. Our best estimate of the number of Pulsars finished and flying is 67. Several builders recently finished and flew their Pulsars for the first time. They are:

1. Allan Tweedie-Brunei, Darrassalm. Allan reports he made the first flight of his Rotax 582 powered Pulsar on November 12, 1994. Allan worked on his kit on a part time basis over a 2 1/2 year period. He made his own first flight and reported no problems whatsoever - other than an airport staff member who wanted to charge him over \$1000 for a landing fee! After Allan convinced him that the Pulsar was somewhat smaller than a Boeing, the fee was dropped.

2. Joe Pridal & Alan Pirie-United Kingdom. These co-builders finished and flew their Rotax 582 Pulsar recently. All went well. As a matter of fact, it was Joe and Alan's Pulsar that won a commendation at this year's PFA Rally held once a year in England (this show is the UK's equivalent to Oshkosh).

However, we are sad to report that shortly after finishing the Pulsar project and winning the award, Alan Pirie died of cancer on September 27. Even though he is gone, he will not be forgotten.

3. Craig Muth-Florida. Craig's beautiful Rotax 582 powered Pulsar recently made its first flight in Sebring, Florida on November 5, 1994. Craig had his friend and experienced pilot, Terry Fuller, make the first flight. All went very well with the test flying and Craig is now checked out in the airplane. Craig reports his Pulsar required a total build time of 1250 hours to complete. Hopefully, his airplane will be at the Sun 'N Fun airshow this year for all to enjoy.

**CONGRATULATIONS
TO ALL
NEW PULSAR PILOTS!**

INTERNATIONAL NEWS

1. Germany-Frank Vervoorst, the Pulsar representative for Germany and Austria, reports interest is very strong in his territory. He has completed the construction of his Pulsar XP in Cologne and has finished all the necessary structural testing and analysis required in Germany before first flight. He is now awaiting the final government approval prior to flying.

Frank reports the Pulsar is a perfect airplane for Germany. The low fuel consumption, the ability to use auto fuel, low exterior noise levels and the trailerability of the airplane make it perfect for the flying conditions in his country.

2. Switzerland-Alex Jenzer, a new and very enthusiastic Pulsar XP builder in Switzerland, has organized a regular monthly meeting where all 20 Swiss builders get together and talk about their projects. Within the past year, interest in the Pulsar in Switzerland has dramatically increased-we have added approximately 10 new builders there in the past 6 months.

3. United Kingdom-Alan Gill, the Pulsar representative in the UK, has had a slow year for new sales. However, outside of the USA, the United Kingdom still contains the largest numbers of Pulsars. There are a total of 37 Pulsar kits in the UK-12 of these are already flying. At least 6 more airplanes will fly within the next few months. The fleet of flying Pulsars is large enough that there is "Pulsar Squadron" fly-in every year. This meet is held at one of the builder's (Terry Baker) private grass strip located on his farm. The next meeting is scheduled for July 9, 1995.

4. Canada-Dennis Simo, the Pulsar representative for Canada, reports that he now has 100 flight hours on his Pulsar XP demonstrator. The Pulsar is now approved under the 51% requirement for amateur built airplanes in Canada. There are a few minor changes to the basic kit required for Canadian approval. Dennis supplies the information for incorporating these changes to all Canadian builders. Dennis will soon be making a sales tour with his airplane.

PULSARS FOR SALE

We are aware of two Rotax 582 powered Pulsar kits for sale. Here is some information about them:

1. Bon Hartline-Anna, IL. Bon has a very nice tail-dragger Pulsar that he is selling. The reason he wants to sell his current Pulsar is that he is preparing to build a new Rotax 912 powered Pulsar XP. Bon's 582 Pulsar has 77 hours TT airframe & engine. It is white with blue trim. It is equipped for night flying. Bon has been flying with a hand-held VHF comm radio. There are no panel mounted avionics installed. Bon is asking \$19,000 for the airplane. Bon can be reached at home at (618) 833-2307.

2. Chuck Stroh-Oklahoma City, OK. Chuck has his nosegear 582 powered Pulsar for sale. The airplane was finished in late 1991 and has now accumulated 250 hours TT on the airframe and engine. It is equipped for night flying. Panel mounted avionics include a Garmin GPS, a Terra XPDR with mode C, and a Terra 720 channel Comm radio. Chuck is asking \$24,500 for the airplane. Chuck can be reached at (405) 722-4125.

PRODUCT IMPROVEMENTS

FACTORY DESIGNED CABIN HEATER FOR PULSAR XP COMING SOON!

We have recently been developing and flight testing a new cabin heat system for the Rotax 912 powered Pulsar XP. The system is nice and simple. An air collector box with a flapper door is mounted behind the coolant radiator. The flapper door is controlled from the cockpit with a simple push/pull knob. When cabin heat is desired, the cockpit control is pulled out.

Testing so far has shown good results. There is a tremendous amount of air that enters the cabin at the feet when the control is activated. The temperature of the air entering the cabin is very warm anytime the coolant temperature is at 180 degrees F or higher. However, we have noticed that the air does lose some of its heat if the coolant temperature drops down in the 160 degrees F range.

It has been difficult to find really cold air to test the heater in here in San Antonio. About the coldest OAT

we have tested the heater in is 39 degrees F. We want to test the heater at lower temperatures before we approve and produce it for the Pulsar.

When the heater evaluation is complete and we are ready to ship the system, we will let all Pulsar XP builders know. The heater will be retrofitable to any Pulsar XP, either under construction or finished and flying. We will try to hold the price down to well under \$100.

So for all Pulsar XP builders who have been asking for cabin heat-hang on for a few more weeks. We have a really good system coming your way!

BUILDING TIPS

PULSAR XP - SEALING AROUND THE COOLANT RADIATOR

Very seldom do you hear of getting something for nothing. However, we found a real performance and efficiency bargain recently while experimenting with the cabin heater installation in our Rotax 912 powered Pulsar XP demonstrator.

A visual inspection of the coolant radiator installation in the lower cowling of our Pulsar XP showed very poor sealing around the top and bottom edges of the coolant radiator. A gap of 3/8" was visible along the entire top edge of the radiator. Along the bottom edge, the visible gap was almost 1 1/2" in the center. These gaps were allowing a tremendous amount of air to flow around the radiator instead of through it. The gaps were also adding a lot of turbulence to the cooling airflow exiting the lower cowling.

We used 1/2" weatherstripping to seal the top gap. For the larger gap on the bottom of the radiator, we cut a small piece of flat composite to the shape of the gap and bonded it in place with clear sealant.

The results were amazing. We measured water temperatures at least 20 degrees F COOLER after the gaps were sealed. The radiator is operating much more efficiently than before since more cooling airflow is being forced through the radiator rather than around it.

But the big surprise came in flight. There is no doubt that our Pulsar XP is now faster with the radiator properly sealed. We conservatively estimate a 2 KT increase in true airspeed with the gaps around the radiator sealed.

So, the results of improved radiator seals were twofold. They drastically improved radiator efficiency resulting in lower engine operating temperatures and **THEY MADE THE AIRPLANE FASTER** due much improved aerodynamics inside the cowling.

So, if you want something for nothing on your Pulsar XP, **MAKE SURE YOU SEAL CAREFULLY AROUND THE COOLANT RADIATOR.** Your engine will run cooler and your Pulsar XP will be faster!

REMOVING PEEL PLY FROM THE ANODIZED ALUMINUM PLATES

A Pulsar kit contains approximately 18 anodized aluminum plates. Bonded to both sides of the plates is a layer of fiberglass. Finally, over the fiberglass is a protective layer of "peel ply". We mark these external layers of peel ply with a red "X". Any time you see a red "X", this means that you must remove the outside layer of peel ply prior to using the aluminum plates.

Our supplier of the anodized aluminum plates has recently been using a different type of peel ply on the anodized aluminum plates. This peel ply is sometimes difficult to remove. However, **DON'T FAIL TO REMOVE THE PEEL PLY FROM BOTH SIDES OF EACH ANODIZED ALUMINUM PLATE BEFORE INSTALLING IT.** You might have to use a knife to scrape the peel ply off of the plates, but make sure and do it.

The secret in removing the peel ply seems to be in getting a peel started. Try starting the peel away from a corner instead of exactly on a corner. We have found this works really well.

CORROSION IN A RUDDER PEDAL BOLT

We have received one report of surface corrosion on the bolt that connects the rudder return spring link to the rudder pedal. This bolt is part number AD 263A. The corrosion was caused by the fact that the bolt is zinc plated and the link it's attached to is stainless steel, resulting in high galvanic potential. Also, in the one case where surface corrosion was noted, large quantities of moisture were present on the bolt.

On all new kits, our solution to eliminate this corrosion potential has been to change the rudder return spring link from stainless steel to aluminum. This eliminates the high galvanic potential between the bolt and the link.

If you already have a kit, simply add this area to your inspection checklist for a once a year checkup. A good look at the AD 263A bolts once a year will catch any corrosion that might be developing. If you do find some corrosion beginning to form on a AD 263A bolt, call us for a new one.

CHANGE TO THE WING CONSTRUCTION MANUAL

Many of you have called to inform us about a change we need to make to the wing construction manual. Thank you. Based on these calls, we have upgraded all new wing manuals. For those of you with existing manuals, here is the change:

Look in the wing construction manual under the procedure titled "Aileron Controls". Step 7 of this procedure details the location and cutting of the aft spar for the aileron clevis fork. In the manual, we suggest cutting a 3/4" square hole in the rear spar for clearing the clevis fork. However, a 3/4" square hole is not big enough. You should cut a 1 1/8" X 1 1/8" square hole in the rear spar for proper clearance of the aileron clevis fork.

Sorry for the mistake. Thanks for the feedback.

BORROW OUR DRILL AND REAMER FOR DRILLING WING SPAR PIN HOLES

You might not be aware that we have a 19/32" drill bit and a 5/8" reamer that you can borrow to drill the holes for the main spar pins. Together, both the drill bit and the reamer would cost about \$50. We can save you this cost if you will just call us and ask to borrow one of our sets.

We only ask that you keep them about a week, which should be plenty of time to drill the holes. Then return the set to us as soon as possible.

To borrow the drill bit and reamer for drilling the wing spar pin holes, call John Hutson at (210) 308-9332.

OPERATIONAL TIPS

PROPER OIL FILTER FOR THE ROTAX 912

We have received several calls asking for proper oil filter information for the Rotax 912 engine.

We have been successfully using over the years an oil filter from NAPA auto parts. The filter is a NAPA GOLD 1348. It has worked very well in our Pulsar XP demonstrator and we recommend it.

THAT IS ALL FOR NOW.
KEEP BUILDING AND FLYING SAFELY.

MARK YOUR CALENDERS FOR
SUN'N FUN -
1995
APRIL 9-15, 1995!

All correspondence should be sent to:
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11910 Radium St.
San Antonio, TX 78216

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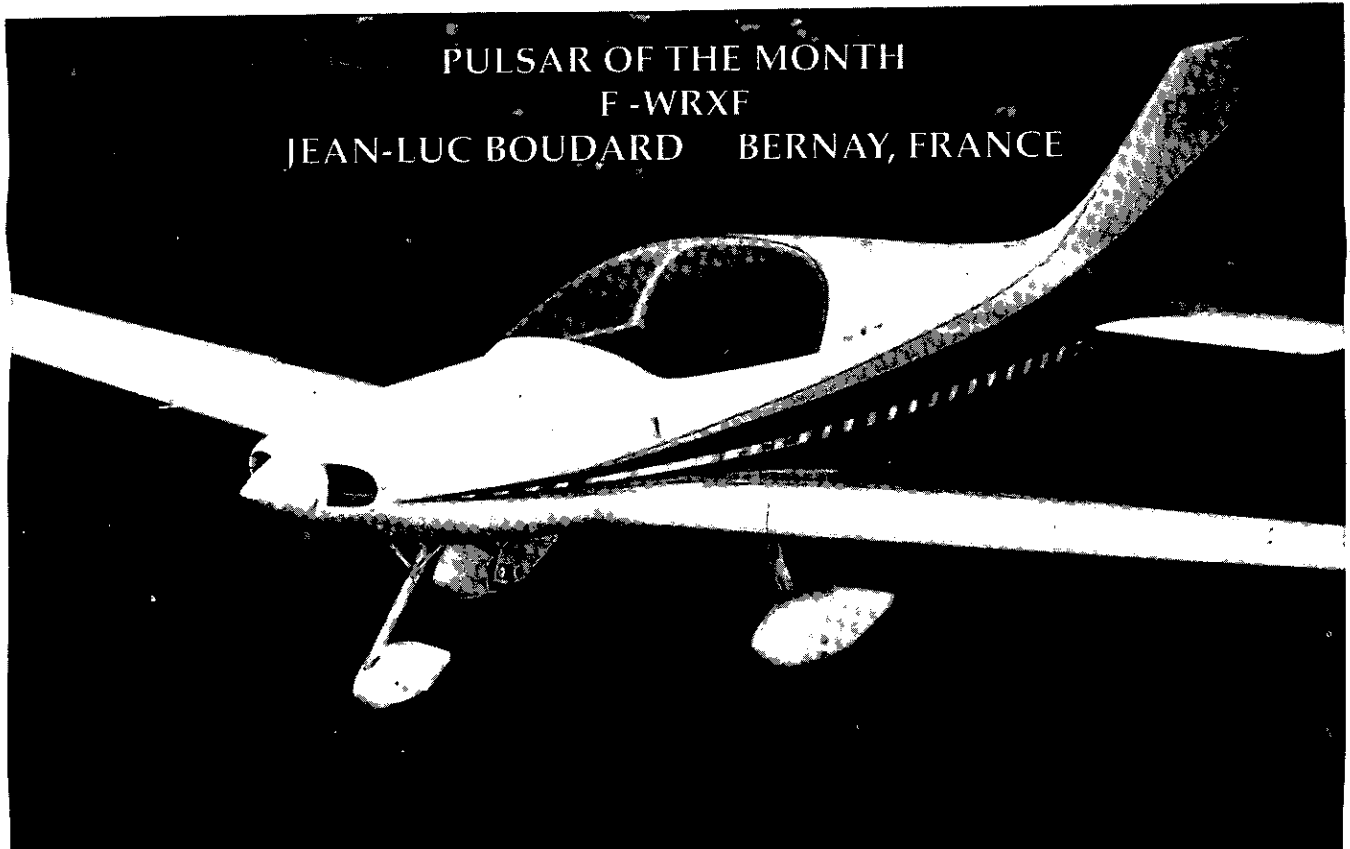
Pulsar News

News, Updates, and Developments for Pulsar Builders and Owners

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MARCH, 1995



PULSAR OF THE MONTH
F -WRXF
JEAN-LUC BOUDARD BERNAY, FRANCE

For this month's Pulsar of the Month, we travel overseas to the beautiful country of France. Pictured above is Pulsar F-WRXF. Xray Fox is kit serial number 207, the 107th Pulsar kit delivered. It belongs to Jean Luc Boudard and was delivered in July, 1991. After 18 months and 1200 hours of labor, F-WRXF made its first flight in August, 1993. Jean Luc currently serves as the Pulsar representative for France and has single-handedly obtained the approval of the Pulsar as an experimental kit in his country. He has also sold several Pulsars. Here is Jean Luc's story in his own words:

"I have been in love with aviation since I was a young boy. Over the years, I fed that passion by first building plastic models and then graduating to more complex radio controlled airplanes. I was able to obtain my Private Pilot's License in 1978, making me one of the

youngest pilots of the year in my country of France. My adventure with the Pulsar began in 1990 while reading a French aeronautical catalog listing various models of ultralight airplanes. In that listing was an airplane that was so extraordinary in performance that it did not seem to belong in the same magazine with the ultralights. This airplane was the Pulsar.

I have always dreamed of building my own airplane. But these dreams simply did not materialize until that picture of the Pulsar appeared in front of my eyes. The Pulsar looked really good and the performance just seemed too good to be true. We French are too skeptical to believe many of the things aeronautical we read! Even after a phone call to the factory, I still could not believe the airplane could perform as advertised. In December of 1990 I made the long trip over the

CONTINUE PAGE 2

Atlantic to find out for myself if the Pulsar was as advertised or not. One beautiful flight later and I was convinced. I had seen it with my own eyes. The Pulsar WOULD perform as promised. At that moment I knew that the Pulsar would take its place in my future family.

When I took that first flight I was engaged to be married and the marriage did take place afterwards. Little did Isabelle know that not only was she marrying me but she was marrying my Pulsar project as well.

The crate arrived in the port of Normandy in July of 1991. After unpacking the crate and seeing all those parts, I had that feeling of "what have I gotten myself into?" Looking at all the parts and hardware, there seemed to be so much work! And I was so eager TO FLY! - -

However, the secret for me was to take just one step at a time. I would always read and reread the next day's building plans BEFORE actually starting the work. For me, this was the key. By reading and studying ahead in the construction manuals, I was prepared for a particular job BEFORE DOING IT. I eliminated a lot of foolish, time consuming mistakes by simply being prepared.

As my Pulsar project progressed, I would occasionally cross the Channel and visit with Alan Gill, the Pulsar representative for England. I was with him for the first flight of his wonderful Pulsar in 1992. These visits with Alan really helped to boost my spirits as my project progressed. It helped me to maintain my enthusiasm and vision of the finished product.

As the end of my construction phase drew near, my excitement really began to peak. I was ready to fly! However, I had promised myself that I would take the time and really do a first class job on the external finishing and paint. I spent almost 200 hours making the outside of my airplane look good, but the results are worth it. I am very happy and take a great deal of pleasure with the way my airplane always draws favorable comments when I land and taxi in.

Finally, after numerous ground runups and taxi tests, F-XRFX was ready. For the first flight, I allowed my long time friend, teacher and flight instructor, Mr. Miette, to be the pilot. After all Mr. Miette had given to

me in training and confidence, the least I could do was offer him the thrill and honor of performing the first flight of something that I had worked so hard to finish. Besides, he is an excellent pilot that I really trust!

I must say that the first flight was perfect. I will never forget that day - August 16, 1993. The only problem was with my emotions. It was such a feeling of accomplishment, happiness and fulfillment to see that Pulsar fly! I was emotionally INOP the rest of the day.

After a few days rest I was ready to fly alone. My first flight was just as successful as Mr. Miette's. I was able to see that my Pulsar performed just as well as the factory's airplane. It was wonderful! The fact that I was able to fly the airplane, that it was safe and that the performance was good added to the emotions I was feeling. I HAD DONE IT!

Since that first flight, I have accumulated almost 100 hours of flight time in Xray Fox. There have been no problems. Today, I share the love of my airplane with some friends who also have a Pulsar flying nearby. We really enjoy early morning "patrol flights" and loose formation flying.

Currently waiting for better weather, my Pulsar is in a warm place enjoying a well deserved rest. I am using this time to improve the cockpit with the addition of an ergonomic control stick with a built in electric pitch trim control. I am also experimenting with a mechanical shutter control for regulating water temperature. Finally, a new instrument panel is being added which includes updated avionics.

My hope is that every new Pulsar builder will have as much pleasure as I have had. Pleasure not only from the Pulsar itself but from all of the people associated with it. There is not better group of people than Pulsar builders!"

*"Go on, breathe, I have now finished!
By the way, have I not been so long?"*

MARKETING AND SALES NEWS

1995 SUN 'N FUN AIRSHOW, APRIL 9 - 15

It's here! Sun 'N Fun is just around the corner. In the last issue of the newsletter, we asked for any of you that might be able to help at the Aero Designs tent on a day or 1/2 day basis to give Bob Kromer a call. We have had really good response with 10 builders scheduled to work some of the time with us.

However, we do need more help. If you can spend some time helping us, give Bob a call at (210) 308-9332. We pay \$50 per day for your time or we can credit your account by that amount. We will also pay for 1/2 days.

First day of the show is Sunday, April 9. The last day is Saturday, April 15. Our display this year is located at outside spaces 0-26 and 0-27. We will have a large tent and our Pulsar XP demonstrator in the space nearby.

Our builder's forum this year is scheduled for Monday, April 10 at 3:00PM. The forum location has been changed this year to a group of tents near the museum, so don't go to old location.

We will have a SECOND ANNUAL PULSAR BUILDER'S BANQUET again this year. We will have it MONDAY NIGHT, 6:30PM at QUINCY'S RESTAURANT. Quincy's is located at 5216 South Florida Avenue. Phone is (813) 644-3758. This get-together is informal, just a chance for all of us to get together and share thoughts and ideas. We have room for 100, so there is no need to make reservations. We will be going Dutch this year, each person is responsible for their own meal. You can pay at the restaurant. Quincy's is like a Bonanza, with prices about the same.

**HOPE TO SEE
YOU THERE!**

COMPANY NEWS

We have only one "problem" at Aero Designs - MANAGING GROWTH! Sales of the Pulsar continue at an all time high. Our production rate is also at an all time high; one kit every four days. Even at this rate, the next available kit is August 10!

We have delivered 291 Pulsar kits as of February 28. 71 Pulsars are currently flying.

FIRST FLIGHTS

1. Marc Cook - Long Beach, CA. Congratulations are in order to Marc. He recently completed the first flight on his Rotax 912 powered Pulsar XP on February 18, 1995. You may recognize Marc's name - he is the Senior Editor of AOPA PILOT magazine. Marc first visited us and flew the Pulsar XP for a feature story on the airplane that appeared in the August 1992 issue of AOPA PILOT. Marc liked the Pulsar enough that he decided to buy and build one! He took delivery of his kit in July 1992. After 991 hours of construction time, he made his first flight at the Chino Airport. Marc is now in the 40 hour flyoff period but hopes to be able to fly his completed airplane to the Sun 'N Fun Airshow in Lakeland, Florida in April. Congratulations Marc!

PULSAR KIT FOR SALE

1. David Kirkland - Keystone Heights, FL. Dave has his partially completed Rotax 582 Pulsar kit for sale. Dave's kit is serial number 134, the 34th kit delivered. This kit has the early wooden wing spars, the wood wing skins and has a nose gear type landing gear. The kit was first delivered in 1989. He estimates that he has about 50% of the construction work completed - the fuselage shells are joined and the wings are complete. He will also include with the kit a new Narco Model 810 Comm radio as well as a used STS C110 Loran. Asking price for everything is \$13,500.00. Dave can be reached at home at (904) 473-2372.

PRODUCT IMPROVEMENTS

CABIN HEATER FOR PULSAR XP - UPDATE

We are still waiting for cold weather down here in warm and sunny San Antonio. We just have not had a

chance to test the cabin heater in temperatures below 39 degrees F. This winter has been extremely mild. But the cabin heater remains a high priority with us. We will finish the testing as soon as possible and immediately thereafter will begin to ship heater kits.

Remember, the cabin heater can be installed on the Pulsar XP in any stage of completion. Certainly it will be easier to install during the initial installation of the Rotax 912 engine. However, it can also be fitted at any time, even on a finished and flying airplane.

LASER CUT INSTRUMENT PANELS FOR PULSARS

Dan Billings, one of our most innovative builders, has been customizing his Pulsar XP in several areas. He has developed a very nice set of wingtip lens covers to house both the nav and strobe light units. These wingtip lenses work on both models of the Pulsar. He has developed a set of baggage compartment side windows that add aesthetic appeal to both airplanes. And for the Pulsar XP, Dan has developed a very nice landing light installation that is mounted in the forward cowling.

Dan has made all of these items available to any Pulsar builder at very reasonable cost.

But Dan isn't finished yet! He recently called with the news that he is now able to offer computer designed and laser cut aluminum instrument panels for the Pulsar. Here is what Dan has to say:

"I am offering computer designed and laser cut instrument panels to all Pulsar builders. The standard panel I will make has a similar contour to the template supplied in the kit. All the builder will need to provide me is a sketch of how they want their instruments and avionics arranged in the panel. From that information, I will then do a precision custom CAD layout and have the panel cut from .090 6061 T6 aluminum sheet. Options will include special perimeter contours, alternate thickness and powder coating.

The cost of the standard panel with a custom instrument and avionics layout is \$325. Powder coating is a \$60 option. Shipping, special perimeter contours and alternate thickness are also extra and will be priced per order."

Dan can be reached at:

Dan Billings
102 Plymouth Lane
Dothan, AL 36301
Home Tel: (334) 793-6818
Work Tel: (334) 793-1343
Fax: (334) 793-2623

OPERATING TIPS

ALL PULSARS - HEAT SHIELDS FOR INSIDE COWLING SURFACES

One thing we believe is very important is the installation of heat shielding material on the inside surfaces of the cowling. This is especially important around the exhaust and muffler system. If a failure or large crack should occur in the exhaust or muffler/mufflers, the possibility exists of hot exhaust gases impinging directly on the inner surface of the composite cowling.

The composite pre-preg material used in the airframe and cowling of the Pulsar WILL NOT BURN. However, if subjected to extremely high temperatures, the foam core material between the two outside layers of fiberglass could melt or vaporize. This will result in a weakened area since the outside layers of fiberglass have no core material to adhere to.

The standard Pulsar kit is supplied with enough 2024-T3 .016" sheet material to cover the critical areas inside the cowling. The manuals are clear on where these heat shields should be installed.

However, in addition to these heat shields, take a look inside your engine cowling. With the engine and exhaust system in place, try to imagine what additional areas on the inside cowling surfaces would be subjected to direct exhaust impingement in the case of an exhaust/muffler system failure. Also look closely in the area where the tailpipe exits the cowling. If the tailpipe should crack or come loose, is there sufficient heat shielding in place to protect the surrounding composite structure?

Once these areas are identified, we recommend the installation of additional .016" thick 2024-T3 aluminum sheets on the inside cowling surfaces.

Any additional sheets can be bonded to the inside cowling surfaces using high temperature silicon caulk.

We have plenty of the .016" 2024-T3 aluminum sheets available. It sells for \$5.00 a square foot. 2 square feet should be plenty to cover any unprotected areas inside the cowling you might have. If you would like to order the 2024-T3 from us, call Steve Lindquist at (210) 308-9332. He will take care of your order.

Exhaust/muffler system failures are rare. But if you have one, a heat shield in the right place could save lots of time consuming repair work.

ROTAX 582 ENGINE-REVISED FUEL/OIL RATIO

Rotax now recommends a new fuel/oil mixture ratio for the 582 engine. This new ratio is 55 parts of fuel to 1 part of oil BY FLUID VOLUME. The previous ratio was 50:1. The new 55:1 ratio results in a little less oil being used by the engine. The new 55:1 fuel to oil ratio results in the following measurements:

FOR 1 GAL FUEL	ADD 2.3 FL OZ OIL
FOR 5 GAL FUEL	ADD 11.5 FL OZ OIL
FOR 10 GAL FUEL	ADD 23 FL OZ OIL

ROTAX 582 POWERED PULSAR - FUEL SIGHT TUBE/FUEL LINE CONDITION

We are aware of a situation in a Rotax 582 powered Pulsar where the fuel line from the fuselage fuel tank to the fuel sight tube hardened and became brittle over a period of time. Once brittle, the tube then cracked at the connection to the fuel sight tube. This resulted in fuel dripping in the cockpit.

In Rotax 582 powered Pulsars, it is important to periodically check the condition the the sight tube and the fuel line from the sight tube to the fuselage fuel tank. Over time, these tubes can become brittle and crack. Cracks in either of these lines can result in the very undesirable condition of fuel dripping inside the fuselage.

The best way to check for brittleness in these lines is to feel them and move them around. If they are brittle, you will feel it. If you find a brittle or cracked line or sight gage, replace it immediately.

FLYING TIPS

A DISCUSSION OF AEROBATIC FLYING AND GOOD JUDGEMENT IN THE PULSAR

We get a lot of questions about the aerobatic capabilities of the Pulsar. Many current builders and prospective builders want to know if the Pulsar is "approved" for aerobatics. What follows is the official company policy concerning aerobatic flying in the Pulsar.

When the Pulsar was originally designed, what the company had in mind was a low cost, fun flyer with enough speed, range and endurance for longer cross country flights. The Pulsar certainly meets those goals. The Pulsar is perfect for low cost, fun flying in the local area. But load some baggage, full fuel and two people in it and you have a great cross country airplane.

Certainly, the Pulsar's structure is designed for strength. There is simply no aerospace material with a better strength to weight ratios than pre-preg composites. Since the Pulsar's primary structure is pre-preg composite, it is one tough airplane.

Many static tests have been conducted on the Pulsar's structure. From the results of these tests, we have set an ultimate load factor of +6G's and -4G's.

However, aerobatic capability was not one of the original design goals for the Pulsar. Even though the Pulsar is docile, it is a relatively high performance airplane that shares one thing in common with other high performance airplanes - low aerodynamic drag. The Pulsar accelerates quickly in level flight - even quicker when the nose is well below the horizon.

We also knew that there would be vast differences in the levels of flight experience of pilots who build and fly Pulsars. We have literally 0 time pilots building Pulsars to learn to fly to 30,000 hour pilots building and flying for pleasure after a career as a professional pilot.

Because of these two items: 1) the vast difference in pilot experience and qualifications in the Pulsar builders' ranks and 2) the aerodynamic cleanliness of the design, we must take the conservative approach and say NO AEROBATICS are "approved" in the Pulsar.

Our worst thought is a pilot with no aerobatic training attempting his very first loop or roll in a Pulsar, getting the nose down while inverted and then performing an inadvertent split "S" maneuver. Airspeed would increase at a very rapid rate and recovery to level flight would have to be done carefully. This would be a high risk maneuver in any airplane.

So, as tempting as it might be, keep your Pulsar right side up. But don't forget that you are flying one tough airplane. The Pulsar will not let you down you as long as you respect the very high +6G and -4G limits.

But, NO AEROBATICS.

FIRST FLIGHT **CONSIDERATIONS**

We have seen a dramatic increase in the number of Pulsars finished and flying. We know of 71 Pulsars now on the register as licensed and in service.

Probably the number one question we receive as a project nears completion is: "Should I make my own first flight or have someone else do it?" This is a tough question.

It is our opinion that it is probably safer and wiser to have someone else make the first flight. We know this is a difficult answer. After spending so much hard work and effort on a project, it is certainly difficult to give up this crowning achievement. But just as Jean Luc Boudard did in the Pulsar of the Month article, it is probably the wiser choice to find a pilot you completely trust and let them take your airplane up for the first time. An unbiased and unemotional pilot is usually the best first-flight test pilot.

However, we must temper our answer with the condition that this decision has a lot to do with your experience and qualifications. If you have flown several different types of airplanes, have a lot of recent flight experience and are current, there is no reason you cannot make you own first flight. But it takes a special attitude and ability to step back from the emotion of the moment and say "I'm not going to do anything stupid."

Regardless of who makes the first flight, use the OPERATING GUIDE we supply with each kit as a checklist and follow it closely. It is conservative, but for good reason. Flying any new airplane for the first time should be done CONSERVATIVELY.

If you need some help or suggestions for making your first flight, give us a call at the factory. We know of some pilots we can recommend. If you are determined to make your own first flight, get yourself current and sharp again, and not in a Cessna. Find a low wing airplane to fly. Ideally, try to get some flight time in another Pulsar before flying your own. And by all means, step back before you fly and assume a non-emotional attitude.

Industry wide, first flights in homebuilts do not have a good safety record. By using good judgement with your Pulsar, you can avoid adding to this record.

**All correspondence should be sent to:
Aero Designs Inc.
11910 Radium St.
San Antonio, TX 78216**

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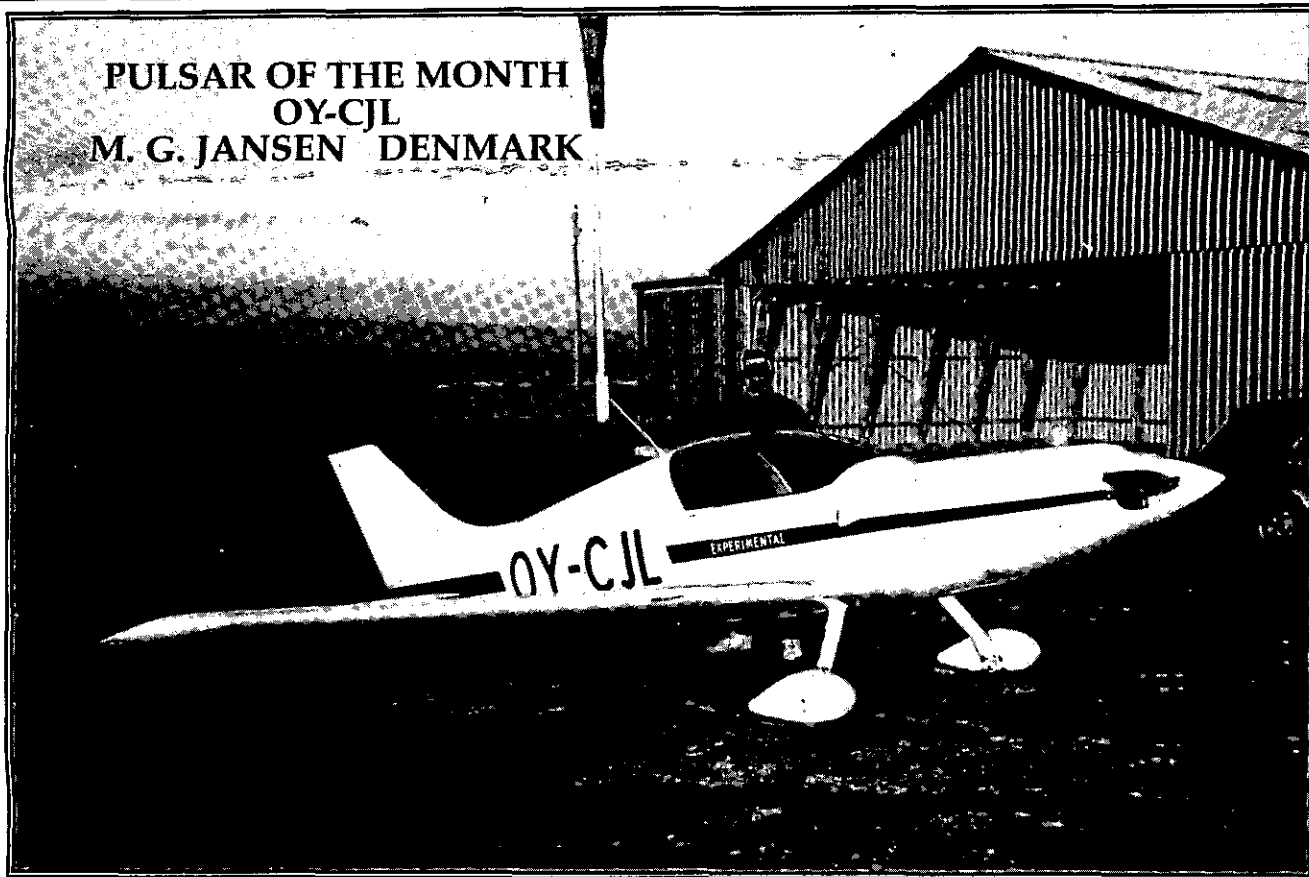
Pulsar News

News, Updates, and Developments for Pulsar Builders and Owners

Published by Aero Designs Inc.

Issue No.33

MAY, 1995



**PULSAR OF THE MONTH
OY-CJL
M. G. JANSEN DENMARK**

In almost any country in the world, you will find either someone flying a Pulsar or a Pulsar kit under construction. As an example, for this issue's Pulsar of the Month we are going to travel a long way from the USA to the country of Denmark. There resides Mr. M. G. Jansen. He lives in the town of Gjerrild. He has completed and flown Pulsar kit Serial Number 174, the 74th Pulsar delivered. This Pulsar is powered by the Rotax 582 engine. Here is M.G.'s story:

"After 1500 hours of construction time, my Pulsar was ready for flight. Part of the reason that I took 1500 hours to complete my airplane is that I had to accomplish several modifications in order to have the authorities here in Denmark approve it. Finally, the work was

finished and the first flight of my airplane took place on June 27, 1994.

For my first flight, I employed the services of a very experienced test pilot. His remarks after the one-half hour first flight was that the airplane flew nicely. A slight tendency to turn to the right was corrected with a trim tab on the left aileron.

I now personally have over 25 hours in my airplane. After some initial challenges learning how to land with the tailwheel, I can say my landings are now getting much better. With the tailwheel type landing gear, I initially tried to do three point landings in my airplane. Now, I make wheel landings. This way, the tail comes down by itself when the speed reduces in the landing rollout. Wheel landings work much better for me.

CONTINUE PAGE 2

Here are some details for my airplane:

Empty Weight: 226 kgs = 497 lbs.

Stall Speed: 45 MPH

Cruise Speed at 5800RPM: 120MPH IAS

On the whole, I am quite satisfied with my Pulsar! I look forward to many years of fun, low cost flying."

MARKETING AND SALES NEWS

OSHKOSH 1995

The dates for Oshkosh this year are Thursday, July 27 thru Wednesday, August 2.

Aero Designs will again be at our standard location at the intersection of Stone Road and Aviation Alley. We will have a display tent with the quick build option inside. Outside, we will have Dennis Simo's beautiful Pulsar XP on display. Dennis' airplane is from Canada and is the first Rotax 912 powered Pulsar to be completed and approved there. Our Pulsar XP demonstrator, N912XP will also be located on the flight line for viewing.

Again, we ask for any of you who might be interested in helping at the booth to contact Bob Kromer at (210) 308-9332. You can schedule with Bob for helping on any show day. We only ask that you be able to commit to 1/2 day increments (8:30 AM - 1:00PM or 1: 00PM - 5: 30PM).

We pay for sales help at the rate of \$50 per day or \$25 per half day. You can either be paid by check at the show or your account will be credited by the amount you work.

Talking to prospective customers about your experiences with the Pulsar is fun. If you would like to help us at the sales tent this year, give Bob a call.

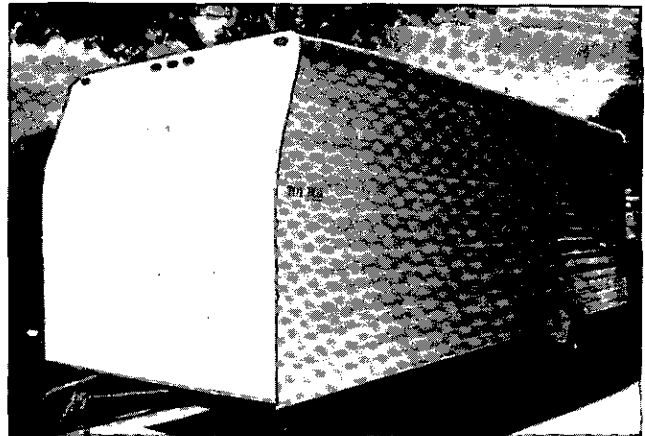
PULSARS/PULSAR KITS FOR SALE

1. Jonathan Wheldon - John's fuselage kit is for sale. This is one of the very earliest Pulsar kits delivered

(S/N 104). John says he has accomplished most of the work on the fuselage. He can be reached at 30303 Via Rivera, Rancho Palos Verdes, CA 90275. His home phone is (310) 377-1187.

2. Bon Hartline - Bon's flying Rotax 582 powered Pulsar remains for sale. The airplane has flown for 80 hours and has the tailwheel configuration. Bon's airplane was first advertised in the Pulsar newsletter in Issue No. 31 (January, 1995). Bon can be reached at home at (618) 833-2307.

ENCLOSED TRAILERS FOR PULSARS



We receive many requests for information on trailers for Pulsars. With the relative ease that the Pulsar's wings remove from the fuselage, many people ask which type of trailer would be best for transportation to and from the airport.

Many customers have their own trailers. They either build the trailers themselves or have someone else custom build them. The trailers can be as simple as a modified boat trailer or as complex as a custom built, fully enclosed model.

One of the best trailers we have personally seen here at the factory is shown in the photo above. It is a light-weight, fully enclosed model with a single axle. It seems perfect for transporting the Pulsar for long or short distances. It is very well balanced for hitching to large or small vehicles.

This trailer is made by Charlie Clark. Charlie can be reached at 3176 Palm Grove Drive, Lake Havasu, AZ 86404. His phone is (520) 680-4883.

Contact Charlie for latest prices and delivery dates.

Make sure and tell him you are the builder of a Pulsar kit airplane. That way, he will know exactly which trailer you need.

ROTAX ENGINE PRICE INCREASE

Well, it had to happen. With the weakening of the US Dollar against the German Mark, prices of new Rotax engines took a 9% increase beginning April 1, 1995. Here how that has affected our prices:

	PREVIOUS PRICE	CURRENT PRICE
Rotax 582 engine, exhaust and instruments	\$ 4350	\$ 4800
Rotax 912 engine, exhaust and instruments	\$ 8650	\$ 9300

All engine, exhaust system and instrument packages ordered from Aero Designs beginning immediately will be at the current prices shown above.

Please keep in mind that everyone at Aero Designs is very sensitive about higher prices. The whole reason we exist is to offer customers lower cost alternatives for owning and flying personal airplanes. We are constantly trying to keep the costs of building and flying a Pulsar as low as possible. But one thing we are not in control of is vendor pricing.

PRODUCT IMPROVEMENTS

STICKING FUEL VALVES ON PULSAR XP

We are aware of several high time Pulsar XP aircraft that have developed stuck fuel tank selector valves. Over time, the valves become so sticky that it becomes difficult or impossible to move the selector handle from one tank to the other. The sticking of these selector valves seems to be caused by the continued use of 100LL avgas instead of auto fuel.

When used over a period of time, 100LL avgas will leave a gummy deposit or residue inside the selector valve. It is this gummy deposit that makes turning the valve by hand almost impossible.

Premium unleaded auto fuel is the recommended fuel in the Pulsar XP for most operations. The Rotax 912 seems to operate better on auto fuel compared to 100LL avgas. Another benefit of using auto fuel is

that the chance of gumming up and sticking the fuel selector valve is eliminated. However, we now have an improved fuel selector valve that we recommend. It is a direct replacement for the existing valve and has internal changes that greatly reduce the possibility of the valve becoming stuck while using 100LL avgas.

This replacement valve costs \$45 and can be ordered directly from Aero Designs by contacting Steve Lindquist at (210) 308-9332.

McCREARY TIRES AND MATCO WHEELS - EXCHANGE PROGRAM

The following exchange program is for those of you who have Pulsar kits with the optional large main landing gear tires (McCreary) AND hydraulic brakes (Matco).

We originally felt that the large McCreary tires would hold air on the Matco main landing gear wheels without tubes. We were wrong. The McCreary tires do not seal properly on the Matco wheels.

For the McCreary tires to work on the Matco wheels, you must have the following:

1. Inner tubes for the two main gear tires
2. A different wheel that accepts an inner tube valve stem.

Here is what we suggest:

1. Disassemble the left and right Matco wheels you have. SEND US BACK THE GOLD WHEEL RIMS ONLY. ~~The wheel-rims must be in new, unused~~ condition for us to honor the exchange program. Also return unused o-ring kits.
2. We will send back to you a new set of Matco rims (silver) with proper valve stem holes. We will also send you two new McCreary inner tubes, as well as replacement "nyloc" nuts.
3. When you receive the new rims, reassemble the wheels with the inner tubes and tires in place.
4. Your total cost for the this exchange will be \$55.00, which is the cost of the two inner tubes.

Your contact for this exchange program is Steve Lindquist here at Aero Designs. He can be reached at (210) 308-9332 or 308-5915.

ROTAX 912/GSC PROPELLER HUBS - EXCHANGE PROGRAM

The following exchange program is for those of you who have received the GSC propeller as part of your Pulsar XP kit but have not yet ordered your Rotax 912 engine.

Beginning April 1, 1995, Rotax revised the hole patterns in the prop mounting flanges on all of their new 912 engines. All new Rotax 912 engines now have propeller mounting flanges with new hole patterns (the holes are also larger and unthreaded).

This means that if you have a Pulsar XP kit with a GSC propeller but have not yet received your engine, the hole pattern in your propeller hub will not fit the hole pattern in the prop mounting flanges of the new engine when you order it.

To solve this problem:

1. Send us back your entire propeller (hub and blades). Use the existing box the prop came to you in if you wish. Also include the propeller mounting bolts.
2. We will send back to you at no cost (exchange) a new propeller that will fit on the new Rotax 912 engines. We will also send new mounting bolts (AN5-36A).

Again, contact Steve Lindquist here at the factory for your propeller exchange.

BUILDING TIPS

FILLING PINHOLES IN COMPOSITE SURFACES

Phil Durieux, our Shop Manager, is one of the most experienced guys around when it comes to finishing composite surfaces.

For this issue of the newsletter, we asked him to write down his suggestions for filling pinholes in the composite surfaces of the Pulsar. His answers follow:

"The first step in filling pinholes in the Pulsar is to lightly sand all surfaces with a 320 grit sandpaper. What this does is open up all the pinholes and to remove any mold release material left on the composite surface when the parts were manufactured. After

this overall sanding process, the composite surfaces should be cleaned with a wet towel to remove dust.

Next, we suggest narrowing your area of filling down to 1 square foot sections done one at a time. Over the one square foot area to be filled, apply an initial layer of Superlite epoxy filler using a stiff metal putty knife. A 3" wide putty knife is best for large areas. A 1" wide knife is best for difficult areas.

The best technique for spreading the Superlite filler is to scrape the filler in one direction first over the one square foot area and then scrape in the opposite direction. Try to remove as much excess material as possible during the scraping process. This greatly reduces the amount of sanding required later.

The importance of scraping in the filler IN OPPOSITE DIRECTIONS cannot be overemphasized. Applying the filler by scraping it into the surface in opposite directions is the best method for filling the pinholes evenly and completely.

Allow the Superlite filler material to set up for 3-4 hours or until it is still slightly tacky. Then apply a second coat of filler. Use the exact method as before of applying the filler with the putty knife by scraping it in IN OPPOSITE DIRECTIONS. If you cannot apply this second coat before the first coat of filler sets up completely, you will have to scuff sand the first coat with 180 grit sandpaper. This will insure that the second coat of filler will adhere to the first coat.

Make sure both coats of filler have cured completely (usually 16-24 hours). Then, wet sand with 180 grit sandpaper until the surface is completely smooth. Look at the sanded surface carefully in the sunlight to make sure that there are no squeegee marks or streaks left in the surface.

Incidentally, I also recommend the use of the Superlite filler to fill in the larger voids in the composite surface caused by the manufacturing process. Superlite is perfect for this task.

However, never use Superlite over another type of body filler (Bondo or Rage). These products are not compatible. Superlite will not adhere to Bondo or Rage.

Using a medium grade Scotchbrite pad, rub the K-36 vigorously onto the surface until only a fairly thin layer remains. Apply the K-36 in this method until the entire surface that you are working on for the day is covered (example: one half of the fuselage or the upper surface of one wing). Let this application of K-36 cure for at least one hour. Then wet or dry sand (wet preferred) with 220 grit sandpaper until smooth.

Now we are ready to spray K-36 onto the surface. Begin by spraying 2-3 spray coats of K-36; 1-2 mils per coat. Allow 15 minutes drying time between spray coats. Allow 1-2 hours of curing time for the sprayed coats of K-36 before sanding. Wet or dry sand the sprayed coats of K-36 using 320 grit paper (wet or dry, wet preferred). You can use 220 grit paper to break the coat then use 320 grit to finish.

Even after your best efforts, you will still find occasional, random pinholes in the surfaces. These last remaining pinholes can be spot filled with K-36 using your 1" putty knife to spread. Spot sand the K-36 after 1 hour drying time.

After you have carefully inspected each composite part for any hidden pinholes, you can apply a final spray coat of K-36. This last spray coat should be applied about 2 mils thick. Sand this last coat with 320 grit sandpaper until smooth.

You are now ready to apply the DP 50 white primer coat!"

To summarize the surface preparation process:

1. Lightly sand the surfaces with 320 grit sandpaper. Clean the surfaces after this initial sanding.
2. To one square foot sections, apply Superlite epoxy filler using putty knives.
3. Allow the first coat to dry about 3 - 4 hours. Then apply a second coat of Superlite.
4. Allow the two coats of Superlite to dry completely (16 - 24 hours). Then wet sand the Superlite surface with 180 grit sandpaper until smooth.

5. Next, apply the first coat of PPG K-36 primer surfacer with a medium grade Scotchbrite pad. After 1 hour, wet sand this first K36 application with 220 grit sandpaper.

6. Now, spray 2 or 3 coats of K-36 (1-2 mils per coat). Allow 15 minutes between coats. After 1-2 hours curing time, wet sand the surface using 320 grit paper.

7. Don't be discouraged if you find random pinholes remaining in some of the surfaces. You can spot fill these using K-36 and a putty knife. Spot sand these areas after one hour of curing.

~~8. A final spray coat of K-36 can now be applied.~~
Apply this final coat of K-36 about 2 mils thick. After 2 hours, wet sand with 320 grit paper until smooth.

9. You are now ready to apply the primer coat (DP 50 white).

UV PROTECTION - PAINTING RECOMMENDATION

Here is some good news concerning painting your Pulsar:

For many years, we have been advising the use of a black, carbon based primer coat as the initial coat over the composite surface. We felt this initial coat of black primer was needed for a 100% Ultraviolet (UV) block to protect the underlying composite surfaces from the harmful effects of UV.

However, every automotive or aircraft quality paint that we are aware of now has 100% UV protection built into it.

Therefore, we see no need to continue the initial black carbon based primer coating on the airframe. The UV protection this primer provided is now taken care of in the actual paint.

So, if you want to save some time and money in the finishing of your Pulsar, do not apply the black primer. The paint you use will provide the 100% UV protection you are looking for.

OPERATING TIPS

FALSE WATER TEMPERATURE READINGS - ROTAX 582 POWERED PULSAR

Ernie Diviney, a Rotax 582 powered Pulsar builder and pilot in Gainesville, Texas, reported that he was constantly bothered by erroneous water temperature readings. He knew that these indications were wrong, but everything he tried would not correct them. Finally, he decided to shield the white water temp probe wire on his 582 engine installation. This simple fix solved the problem! He now enjoys accurate and steady water temp indications.

If you are experiencing erroneous and inaccurate water temperature indications in your Rotax 582 powered Pulsar, try electrically shielding the white water temp probe wire.

NOSEWHEEL SHIMMY

We are aware of several Pulsar pilots who have experienced nosewheel shimmy with their Pulsars. Nosewheel shimmy is serious in the Pulsar and you should not continue to fly if you experience it in your airplane. Stop flying and fix it.

Nosewheel shimmy, if allowed to progress to a serious stage, will break the nosegear castor fork.

Remember, shimmy will not occur in the Pulsar nosegear if everything is installed and adjusted properly. Especially important is the amount of friction set on the nosegear castor fork. Make sure to tighten the nut under the castor fork until it takes about 5 pounds of force to move the castor when pushing on the aft end of the wheel pant. This force should be 10 pounds if you have the larger size wheels and tires installed.

How to set and measure nosewheel castor fork friction is detailed in the Engine Construction Manual. Look under the section titled "Nose Gear Installation".

PROPELLER LEADING EDGE INSPECTION

An important item to preflight on any airplane is the condition of the leading edge of the propeller blades.

This is especially true for the GSC propellers used on the Pulsar, as Dale Schonmeyer found out recently.

Dale was on the takeoff roll in his Rotax 582 powered Pulsar when he felt a strong vibration coming from the engine. Immediately, he aborted his takeoff, returned to the ramp and got out to investigate.

Dale was surprised to find that one of the blades of his GSC ground adjustable propeller was missing the leading edge urethane insert. This insert is installed to protect the leading edges of the prop from rock strikes and water erosion. The insert had completely separated from one of the wood blades of his propeller. The loss of the leading-edge insert and some of the wooden blade structure around it caused a significant out-of-balance condition during the full power, full RPM takeoff roll.

We sent Dale a new blade overnight and he was able to continue his trip without further incident.

This is the only incident we have ever heard of this nature. The GSC ground adjustable prop is an excellent one that gives superb service. However, from Dale's experience, we strongly suggest a thorough inspection of the leading edges of your GSC prop before each flight. Especially important is the security of the urethane leading edge insert. A separated insert can ruin your day.

SAFETY REPORTS

Dale's experience brings up an idea that we will begin to present in all future issues of the newsletters - SAFETY REPORTS.

If any of you have experiences with the operation of your Pulsars that others can learn from, please take the time to pass them along to us. Especially important is your input where safety is concerned. If you have seen something in operating your airplane that someone else may benefit from, please call or write Bob Kromer or Mark Brown at the factory and pass your experience on. We promise that legitimate experiences concerning safety will end up in the next issue of the newsletter.

So, pass those experiences and safety reports on! Someone could really benefit from what you already have learned.

BLACK AND BLUE #1 WING RIBS - WINGS WITH FUEL TANKS

Several of you with kits having wing fuel tanks have called with a question concerning the #1 aft foam wing rib. This is the wing rib that is installed aft of the spar in the wing nearest the wing/fuselage fillet. There is one #1 aft rib per wing.

It seems that in several kits we sent both black colored and blue colored # 1 aft foam wing ribs. The blue rib is made from polystyrene, the black rib from PVC foam. The black rib is fuel proof, the blue rib is not.

If you have both blue #1 foam ribs and black #1 foam ribs and are installing wing fuel tanks in your Pulsar, **DISREGARD THE BLUE ONES. DO NOT INSTALL THE BLUE #1 AFT FOAM WING RIB IF YOU HAVE WING FUEL TANKS. ONLY INSTALL THE BLACK #1 AFT FOAM WING RIB.**

THAT IS ALL FOR NOW.

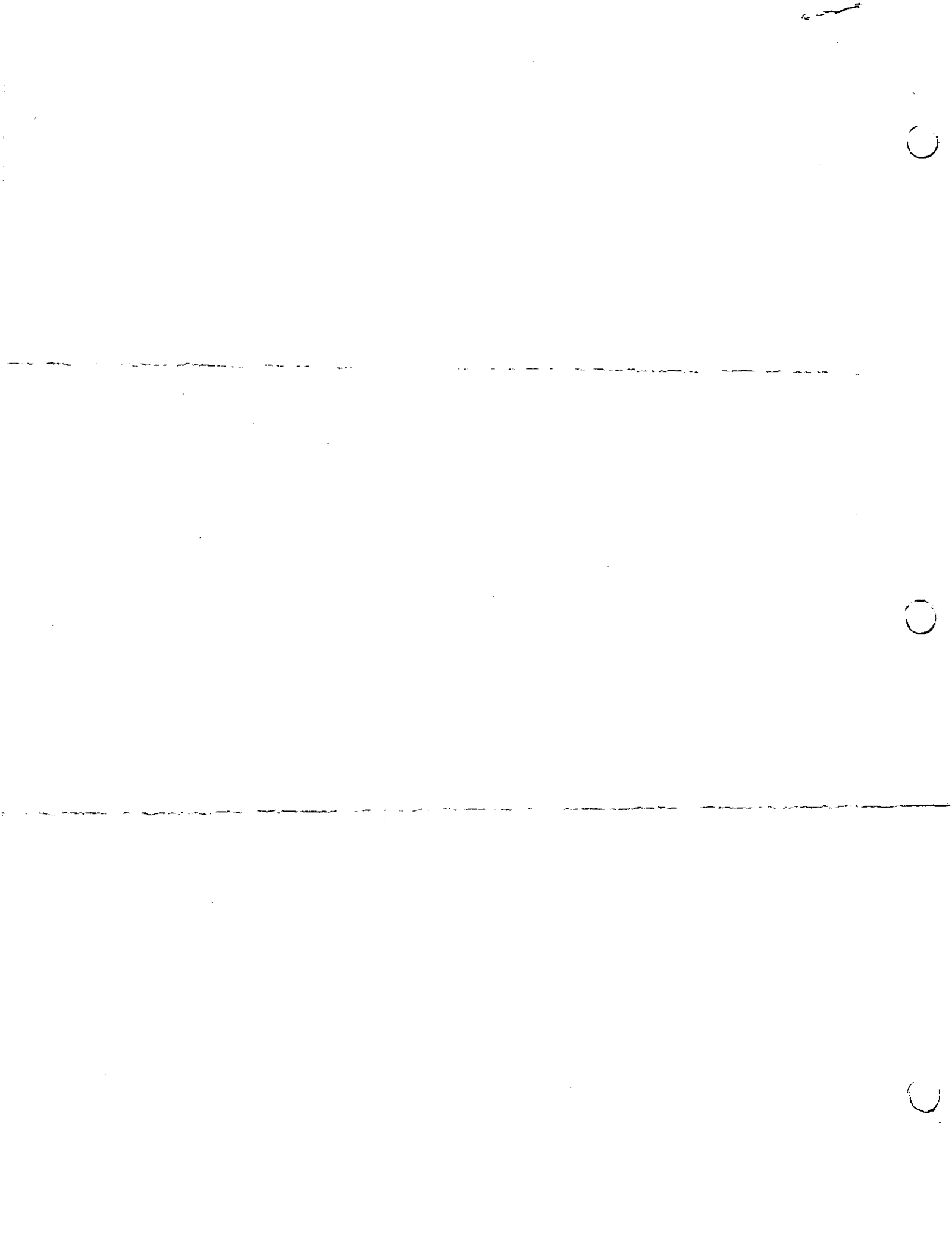
**THANK YOU FOR
BEING SUCH
WONDERFUL
CUSTOMERS!**

**YOU ARE
THE REASON
WE ARE HERE!**

All correspondence should be sent to:

**Aero Designs Inc.
11910 Radium St.
San Antonio, TX 78216**

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Pulsar News

News, Updates, and Developments for Pulsar Builders and Owners

Published by Aero Designs Inc.

Issue No.34

JULY, 1995

PULSAR OF THE MONTH C-FRXB DENNIS SIMO MILTON, ONTARIO CANADA



The Pulsar Of The Month for July is the beautiful airplane shown above, built by Dennis Simo of Milton, Ontario Canada. C-FRXB is the first Rotax 912 powered Pulsar XP to be built and flown in Canada. C-FRXB is also the first Pulsar XP to be approved by the Canadian Department of Transportation in the amateur built category. Only minor modifications to the airplane were required for the Canadian DOT approval. Here is Dennis' story:

"In Canada, building an amateur category kit airplane has a few more restrictions than those in the USA. There is a bit more involvement by the Canadian Department of Transportation during the construction phase than by the FAA for a similar project in the States. But due to the proven track record of

the Pulsar, my approval was straightforward and relatively painless.

The Pulsar XP is the first composite kit I have built. My company, Aircraftsmen, had completed many ultralight type projects in the past. But these airplanes were tube and fabric designs. The Pulsar XP was our first "real" airplane project.

We spent 7 months and approximately 1200 hours completing the Pulsar XP. We built the airplane following the standard construction manual instructions supplied by Aero Designs. We did add several innovations, however - a modified pitch trim lever, a cabin heat system, a landing light and a full set of nav/strobe lights. C-FRXB is equipped for day and night VFR flying.

CONTINUE PAGE 2

Our avionics package consists of a VHF comm radio, a transponder with Mode C and a panel mounted GPS.

Overall, we completed the construction process without any surprises. There were some corrections and suggestions we had to the construction manuals. The factory was always helpful and receptive to incorporating our ideas and suggestions. The support team at Aero Designs was always only a phone call away.

When our Pulsar XP was ready to fly, so was I! I made the first and subsequent flights myself. I found the Pulsar to be delightful. Especially impressive is the hands-off stability.

Performance numbers for our airplane came out exactly as advertised by Aero Designs. We use the standard GSC ground adjustable pitch propeller supplied in the kit. At 5200 engine RPM (75% power), we flight plan a cruise speed of 140 MPH TAS. At 4800 RPM (65% power), cruise speed is 130 MPH. Fuel burn at 4800 RPM is 3.2 GPH!

We use the airplane for cross country flying all over Canada. Our longest one day trip, however, has been in the States. We flew from New York City to Ft. Myers, Florida with only one fuel stop at Charleston, South Carolina. What a trip!

Since we are now Aero Designs' representative in Canada, we use the airplane for customer demonstration flights. Pilots new to the Pulsar XP just can't believe there are only 80 horsepower under the cowling. The airplane performs and feels like it has much more power.

C-FRXB will be on display at the Aero Designs' booth this year at Oshkosh. I hope that all of you will come by and see the airplane. I will be glad to show you some of the improvements I incorporated.

For anyone who would like to talk about buying, building and approving the Pulsar XP in Canada, I can be reached at Aircraftmen, 7503 Bell School Line, RR #6, Milton, Ontario, Canada L9T 2Y1. Tel: (519) 228-6355. Ask for me, Dennis Simo.

I'm usually there. Unless, of course, I'm flying my Pulsar XP!"

COMPANY NEWS

On June 30, Pulsar kit serial number 413 was shipped to Germany. This is the 313th kit delivered from our factory doors.

The next available delivery position for a kit is October 24.

100% of our sales are now Pulsar XP's. It seems everyone is currently deciding in favor of the Rotax 912 engine.

Sales in the USA have slowed a bit. Maybe everyone is on vacation, but we have seen a temporary slowdown in retail sales activity here in the States. ~~If you have the time, don't hesitate to~~ "talk up" your project whenever you can. A prospective customer just might be listening!

Our hottest international market is Germany. Outside the USA, Germany is currently the #2 market for the Pulsar.

FIRST FLIGHTS

1. Frank Vervoort - Cologne, Germany. Frank, the Pulsar representative for Germany, recently completed and flew the first Rotax 912 powered Pulsar XP in Germany. The first flight was accomplished after a lot of coordination with and approval by the German equivalent of the FAA, the LBA. Static tests of the structure were required. All primary structural components were loaded to 4 G's positive with absolutely no problems. After the final paperwork was received, a professional pilot made the first flight. The airplane flew hands off and really impressed the pilot with its performance.

This Pulsar XP joins a Rotax 582 Pulsar as the first two completed and flying airplanes in Germany. Frank's efforts with the first Pulsar XP will really help other German builders who follow, and there are 25 other kits now being built in Germany. Frank can be reached at TEL: 011 49 221 5 95 16 95 or FAX: 49 221 5 95 15 95.

2. Rick Thomason - Memphis, TN. Rick has completed and flown his Rotax 912 powered Pulsar XP. Rick's airplane is equipped with a tailwheel and a fantastic instrument panel. Rick built an award winning Avid Flyer before building the Pulsar. By the looks of his completed Pulsar XP, he has another award winner! This is one beautiful airplane - his Pulsar XP with a tailwheel looks like a mini-P51!

Rick completed his own first flight and all flights that have followed. He says that his best landing so far was his first!

CONGRATULATIONS TO EVERYONE!

PRODUCT IMPROVEMENTS

CABIN HEATER FOR PULSAR XP NOW AVAILABLE

It's finished! We have completed testing and now have available a cabin heater for the Rotax 912 powered Pulsar XP. Our system collects warm air from behind the coolant radiator and ducts it into the cockpit. A push/pull knob mounted on the panel regulates the amount of warm air flowing into the cabin. The warm air enters the cockpit in the area of the rudder pedals.

We really like this system. It greatly reduces the chance of carbon monoxide contamination since we use the radiator as the heat source, not the engine exhaust system.

The heater can be retrofitted to a Pulsar XP during any stage of construction. It is easier to install on a partially completed airplane without the engine installed, but it can also be installed on a completed airplane.

If you would like to order a cabin heater for your Pulsar XP, give Steve Lindquist a call at (210) 308-5915. The heater costs \$65, including shipping (\$75 for customers outside the USA).

PROPELLER PROTRACTORS

Several of you have requested more accuracy when setting propeller pitch angles. The standard propeller supplied with either model of the Pulsar is a GSC ground adjustable pitch model. The process for setting the blade pitch angles involves using pitch template blocks supplied in the kit. This process is satisfactory, but not as accurate as some of you wish.

To provide more accuracy, we now offer a propeller protractor made by a company named Warp Drive. We have used the protractor and really like it. It takes out all the guesswork and results in very accurate blade angle settings.

To purchase a prop protractor from us, contact Steve Lindquist at (210) 308-5915. The cost is \$45, including shipping inside the USA (\$55 outside the USA).

OPERATING TIPS

ROTAX SERVICE BULLETINS

By now, everyone who has received either a Rotax 582 or Rotax 912 engine for their Pulsars should also have received a full set of Rotax Service Bulletins for their respective engines. We initiated two mailings - the first was a full set of previously issued bulletins. The second mailing contained several newly published bulletins. With these two mailings, everyone should be up to date.

In the future, expect to see more Rotax Service Bulletins arrive in the mail. We will keep you updated as we receive them.

To verify you have received all Rotax Service Bulletins to date, here is a complete listing for each engine type:

Rotax 582 - 4 UL 87, 6 UL 87, 11 UL 87, 2 UL 90, 4 UL 90, 1 UL 91, 3 UL 91, 8 UL 91, 9 UL 91, 1 UL 93, 6 UL 93, 1 KUL 94, 2 KUL 94, 4 UL 94, 5 KUL 94, 6 UL 94, 6 KUL 94, 8 UL 94, 12 UL 94, 13 UL 94, 14 UL 94, 22 UL 94.

Rotax 912 - 4 UL 87, 6 UL 87, 6 UL 91, 8 UL 91, 3 UL93, 3 UL 94, 3 KUL 94, 4 UL 94, 5 UL 94, 7 KUL 94, 18 UL 94, 20 UL 94, 21 UL 94, 26 UL 94, 27 UL 94, 1 UL 95, 2 UL 95.

If you do not have the Service Bulletin numbers listed above for your engine, call Steve Lindquist at (210) 308-5915. He will send you any that are missing.

NOSEWHEEL SHIMMY

We received another report of nosewheel shimmy on a Pulsar being taxi tested prior to first flight. The shimmy was severe enough to cause a crack in the nosegear castor fork.

Shimmy in the Pulsar nosegear **SHOULD NOT OCCUR** if everything is installed and torqued properly.

First of all, make sure that a castellated nut is used to attach the castor fork to the nose gear leg. Early kits were supplied with a fiber-lock nut, but they were replaced with a castellated nut. **DO NOT USE A FIBER-LOCK NUT TO ATTACH THE CASTER FORK TO THE GEAR LEG. IT COULD LOOSEN AND CAUSE SHIMMY.** If your airplane has a fiber-lock nut, call us for a replacement castellated nut.

Next, make sure to properly set and continuously check the tightness of the castellated nut holding the caster fork to the nosegear leg. The latest construction manual instructions on how tight to adjust the castellated nut are as follows:

"NOTE: TIGHTEN THE NUT UNDER THE CASTOR FORK UNTIL IT TAKES ABOUT 5 LBS TO MOVE THE CASTOR WHEN PUSHING ON THE BACK OF THE WHEELPANT WITH THE NOSEGEAR OFF OF THE GROUND. A 10 LB FORCE IS REQUIRED FOR THE LARGE NOSE WHEEL."

Nosewheel shimmy can ruin your day. Call us if you are experiencing it in your Pulsar.

COOLANT CAPS - 14 PSI OR 7 PSI?

Dale Schonmeyer, a Rotax 582 Pulsar builder and pilot, called to point out an area of confusion in our recommendation of coolant caps.

He noticed that Rotax recommends coolant caps with 14 PSI capacity be used in their engine coolant systems. Aero Designs has been supplying 7 PSI caps. Which is correct?

The answer - 7 PSI. Arnie Lepp, Rotax's service representative for North America, says that the low engine operating temperatures in the Pulsar allow the use of the the 7 PSI caps. The low operating temperatures and the use of 7 PSI caps has a major advantage - lowering the stresses on the coolant line fittings. Lower stresses lessen the chance for a fitting failure.

So, with either the Rotax 912 or Rotax 582, the Pulsar can be flown with 7 PSI coolant caps.

Arnie can be reached at (604) 542-4151

BUILDING TIPS

ELEVATOR BELLCRANKS (AD 234) FIT ON ELEVATOR TORQUE TUBES

(reference "ELEVATOR CONTROLS" in the wing construction manual)

Don Kovacs from Atlanta, Georgia identified an area of confusion concerning the fit between the two elevator bellcrank fittings (AD 234) and the elevator torque tubes.

While installing his elevator control system, Don observed a gap of 1/8" between the clevis ears on the bellcranks and the torque tubes that fit inside them. He was wondering if this much gap is acceptable and if not, what to do about it.

That much gap is not acceptable. The elevator torque tubes should fit snug inside the clevis ears of the bellcranks. There should be no gap.

To eliminate any gap, it is acceptable to clamp down on the AN4-12A bolts until the clevis ears of the AD234 bellcranks are compressed against the torque tubes.

Just be careful and don't overtighten the bolt to the point where you begin to deform the elevator torque tube itself.

ROTAX 912 THROTTLE INSTALLATION - CABLE STOP (reference "THROTTLE INSTALLATION" in the Pulsar XP engine manual)

We see the need for the "cable stop" to have additional structural strength. To do this, after bonding the cable stop to the side of the fuselage with micro per the instructions in the manual, ADD GLASS REINFORCEMENT around this piece.

This added strength will insure throttle cable security and operation.

THAT IS ALL FOR NOW.

KEEP BUILDING AND FLYING!

All correspondence should be sent to:

**Aero Designs Inc.
11910 Radium St.
San Antonio, TX 78216**

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Pulsar News

News, Updates, and Developments for Pulsar Builders and Owners

Published by Aero Designs Inc.

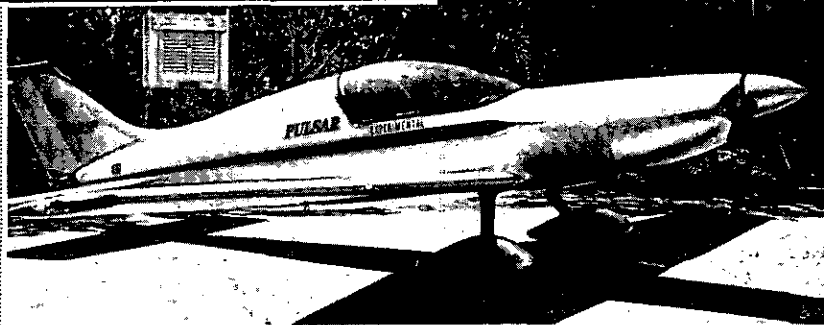
Issue No.35

SEPTEMBER, 1995

PULSARS OF THE MONTH N72BH & N795P BON HARTLINE ANNA, IL



N72BH



N795P

We don't have just one Pulsar of the Month this month- we have two. What's remarkable about this is that these two Pulsars are from the same builder! That's right, TWO from the same builder! Bon Hartline from Anna, Illinois is the first customer in the USA to complete and fly TWO Pulsars - the first a Rotax 582 powered Pulsar and the second Rotax 912 powered Pulsar XP.

Even more amazing is the fact that these two Pulsars are not the only airplanes Bon has constructed. Over the course of several years, Bon has built five Kitfoxes in addition to these two Pulsars! This must be some sort of record. SEVEN airplanes built by one man! WOW!

Bon's first Pulsar kit, a Rotax 582 powered model, was completed in 1000 hours and 6 months of

full time work. This airplane is shown above on the left. Bon completed N72BH and flew it for over 80 trouble free hours. He used the airplane mainly for cross country flying, complementing his Kitfox Speedster which he uses for local flights.

In January of 1995 Bon got the bug to build another Pulsar with even better cross country capabilities. This time he decided on a Rotax 912 powered Pulsar XP. He sold his first Pulsar and his second Pulsar kit was delivered in late January, 1995. Exactly six months and two weeks later, taxi testing began. N795P is currently ready for its first flight and is shown above on the right.

Bon is especially proud of this newest Pulsar XP, N795XP. It is probably his best building effort yet.

CONTINUE PAGE 2

The airplane is simply beautiful. Bon believes that the best looking Pulsar XP configuration is with the tail-wheel landing gear. With that long, sleek nose in the air, the airplane looks like a little P-51. Bon's 3-blade in-flight adjustable pitch Ivoprop adds to the "fighter like" appearance. Other options include large tires and fairings and lots of avionics in the panel.

Bon painted N795P himself; He used PPG automotive metallic paints. The base color is called "Evergreen Frost" and the stripes are "Medium Forest Green". These colors are both used by Ford and are available from PPG. To complete the exterior finish, FIVE coats of clearcoat were applied. Talk about a deep finish!

Bon says he is impressed with the improvements that have been incorporated into the Pulsar kit over the years. Building an early kit and now a later model kit gave him a firsthand appreciation of these improvements. He gives high marks to the composite wing skins (now standard in the kit) and to the new Quick Build Option (which he ordered with his Pulsar XP). He says that the sealing of the fuel tanks alone was worth the price of the Quick Build Option!

After flying off the 40 hours of required test time, Bon plans to use his new Pulsar XP for lots of cross country trips. With the in-flight adjustable pitch Ivoprop, Bon is expecting at least 150 MPH TAS in level flight at 75% power. With 4 hours of endurance with reserve, this makes for a good, long range cross country airplane.

Bon's only difficulty will now be deciding which airplane to take out of the hanger and fly - his Kitfox or his Pulsar XP. If judging by looks alone, his Pulsar XP should be in the air a lot of the time

PULSAR ACCIDENTS

Over the years we have been very fortunate to enjoy an excellent safety record with the Pulsar. With 80 airplanes completed and flying all over the world, we have enjoyed one of the best safety records in all of Sport Aviation. However, this past Summer, two fatal accidents occurred within a two week period. One was in the United Kingdom and involved a Rotax 582

Pulsar. The other occurred here in the States and involved a Rotax 912 powered Pulsar XP. The accident here in the States hit us especially hard. Involved in this crash was Rick Meyer, a former Aero Designs employee and close friend to everyone here at the factory. You may remember Rick's voice since he provided many of you with Builder's Support on the telephone. Rick had left the employment of Aero Designs about one year ago to return to college for a Masters Degree. He was flying the Pulsar XP he built, N912XP, at the time of the accident.

The CAA in the United Kingdom and the FAA here in the United States have completed their investigations into the causes for these accidents and the official release of their reports is due very soon. Preliminary indications are that both accidents involved loss of control due to stall at low altitude. In neither case did the CAA or the FAA indicate any fault or failure with the Pulsar.

The Pulsar is an extremely easy and forgiving airplane to fly, but it is still an airplane and loss of control at low altitude can lead to serious consequences. Remember when flying any airplane that safety of flight is the NUMBER ONE concern. Whenever you fly, make sure the airplane is ready to fly AND make sure that you are ready, qualified and competent to fly. If you don't feel competent to make a flight - DON'T MAKE IT.

The number one killer in all of General Aviation continues to be pilot error. Don't become a statistic - maintain good judgement and competency. Flying Pulsars is great fun. Just remember that it is also serious business.

MARKETING AND SALES NEWS

OSHKOSH 1995

Another Oshkosh has come and gone, What a great show we had this year!

Many thanks to those of you who helped us at the display booth. All if you worked really hard and the results are now coming in - we have taken 6

new orders this past month as a direct result of these potential customers talking to you at Oshkosh!
THANK YOU!

We also want to thank Dennis Simo for his efforts in bringing his demonstrator Pulsar XP from London, Ontario, Canada to be at our display booth. Dennis' airplane is simply beautiful and the crowd loved it. A good looking airplane remains our best sales tool - we certainly had a good one this year!

KERRVILLE 1995 October 20, 21 & 22

We again plan to participate at this regional show this year. We will have a Pulsar XP on the line for demonstrations. We want to invite all of our builders in the local five state area to come see us in Kerrville. This is a small show compared to Oshkosh, but we do have a good time. Come and see us in Kerrville!

COMPANY NEWS

Sales and production continue on a record pace!

We are currently closing out 1995 in record fashion - we believe that 70 kits will be sold, fabricated and delivered before year end. This is a record for Aero Designs and we are really proud of it. Most other kitplane manufacturers we have heard from have had a slow year. Not Aero Designs! We will set a new record for sales and deliveries in a single year.

We still believe that our success is due to all of you who are building and flying Pulsars. You are the best sales team any company could have and we certainly say THANKS for your support and loyalty this year.

As of September 11, we have delivered 327 Pulsar kits. Our latest estimate is that 80 Pulsars are currently finished and flying. Another 20 should be flying within the next six months judging by the number of engines shipped within the last 30 days.

PRODUCT SUPPORT FROM ROTAX

If you need any technical help or support for either your Rotax 582 or Rotax 912 engine, here is the telephone number of the product support division for Rotax engines in the USA and Canada:

KODIAK RESEARCH CANADA, LTD
TEL: (604) 542-4151
FAX: (604) 549-7111

We have found this division to be extremely helpful and knowledgeable concerning the operation and maintenance of Rotax engines. They are also well versed on the Pulsar installations.

So, if you need help in keeping your engine running properly, parts support or warranty issues, give Rotax in Canada a call. And remember, they are on West Coast time.

SERVICE BULLETINS FOR ROTAX ENGINES

By now, those of you that have received either your Rotax 582 or Rotax 912 engines should have received the applicable service bulletins for your respective engine. The initial mailing was made by us and the bulletins should be in your hands by now.

For those of you who have 912 engines, be prepared for several more bulletins coming your way. The newest bulletins currently being mailed are: 18 UL 94, 20 UL 94 REV 2, 1 UL 95 REV 1, 2 UL 95, 3 UL 95 AND 4 UL 95.

The above bulletins will be mailed to Rotax 912 owners only and should be out by the end of September. If you have not received them by October 14, call Steve Lindquist at (210) 308-5915. He will make sure you get a set.

URGENT SAFETY CONCERN - FUEL LINE QUICK DISCONNECTS

Recently, two builders called with the news that the quick disconnects used in the fuel lines

between the left and right wing fuel tanks and the fuselage were not working properly.

Specifically, the problem seems to be that when the quick disconnects were first hooked up and made operational with fuel in the lines, the rubber seals inside the disconnect fittings swelled and restricted fuel flowing from the wing fuel tanks to the engine. One builder, Bon Hartline, reported that the restriction was severe enough to cause the engine to stop during his taxi tests.

Obviously, this is a serious report and we immediately began to investigate.

Our tests here with auto fuel and 100LL avgas did result in the rubber seals in the quick disconnects expanding and restricting the amount of fuel flowing through them. The restriction was more severe with auto fuel than with 100LL avgas, but either type of fuel caused an unacceptable restriction to the fuel flowing through the quick disconnect fittings.

This seems to be an isolated problem. Many Pulsars with wing fuel tanks have been flying successfully for years with the same fuel line quick disconnects that we use today.

The manufacturer of the quick disconnects assures us that their fittings should not have this problem - they are approved using any type of fuel. However, since we have had two reports from builders and duplicated the problem in our own tests, we must make the following action MANDATORY:

WE URGENTLY REQUIRE THAT ANYONE OPERATING A PULSAR OR A PULSAR XP WITH WING FUEL TANKS CEASE FLIGHT OPERATIONS UNTIL REPLACING THE QUICK DISCONNECTS IN THE FUEL LINES COMING FROM THE WING FUEL TANKS. THE QUICK DISCONNECTS MUST BE REPLACED WITH A REPLACEMENT KIT SUPPLIED BY AERO DESIGNS FREE OF CHARGE.

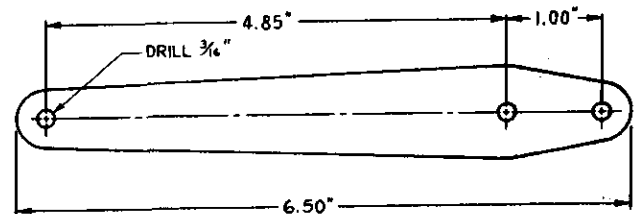
CALL JOHN HUTSON AT (210) 308-9332 OR FAX HIM AT (210) 308-9329 FOR INFORMATION ON ORDERING, SHIPPING AND INSTALLING THE REPLACEMENT FUEL LINES.

THOSE OF YOU WHO ARE CURRENTLY CONSTRUCTING A PULSAR OR A PULSAR XP WITH WING TANKS SHOULD NOT INSTALL THE QUICK DISCONNECT FITTINGS. DELAY THE INSTALLATION OF THE QUICK DISCONNECTS IN THE WING TANK FUEL LINES. IF YOU HAVE ALREADY INSTALLED THEM, YOU WILL HAVE TO REMOVE THEM AND INSTALL THE FUEL LINE REPLACEMENT KIT SUPPLIED BY AERO DESIGNS.

The fuel line replacement kit supplied by Aero Designs will maintain the ability to remove the wings from the airplane while holding fuel in the wing tanks.

GSC IN-FLIGHT ADJUSTABLE PITCH PROPELLER HARDWARE MODIFICATION

CONTROL ARM MODIFICATION FOR GSC IN FLIGHT ADJUSTABLE PROPELLER



For those of you with Pulsar XP aircraft who order the in-flight adjustable pitch propeller from GSC, there is a modification that you must do to the control arm that comes with the propeller, The standard control arm must be shortened and a new single hole located per the drawing shown above.

PREMACHINED MAIN LANDING GEAR AXLE EXTENSIONS FOR TAILWHEEL CONFIGURATION

Several Pulsar customers who have built the tailwheel configuration have expressed an interest in moving the main gear axles forward slightly. This results in more weight being placed on the tailwheel for improved ground handling characteristics.

Chuck Price, one of our builders in Houston, called to say that he now has pre-machined brackets available to any Pulsar builder with the tailwheel configuration. These brackets, when installed, will move the main gear axles forward 1.75 inches.

These brackets are the ones described in the July 1995 newsletter and their installation has the approval of Mark Brown.

The brackets that Chuck is selling are manufactured by a professional machine shop. They are built on a mill with an accuracy of + and - .0005 inches. Each complete bracket set includes the two steel brackets and two aluminum backing plates.

A set of these brackets can be ordered for \$50 (includes shipping inside the USA). To order a set, call Chuck Price in Houston, Texas at (713) 729-9858. This is a home telephone number, so you should call in the evening.

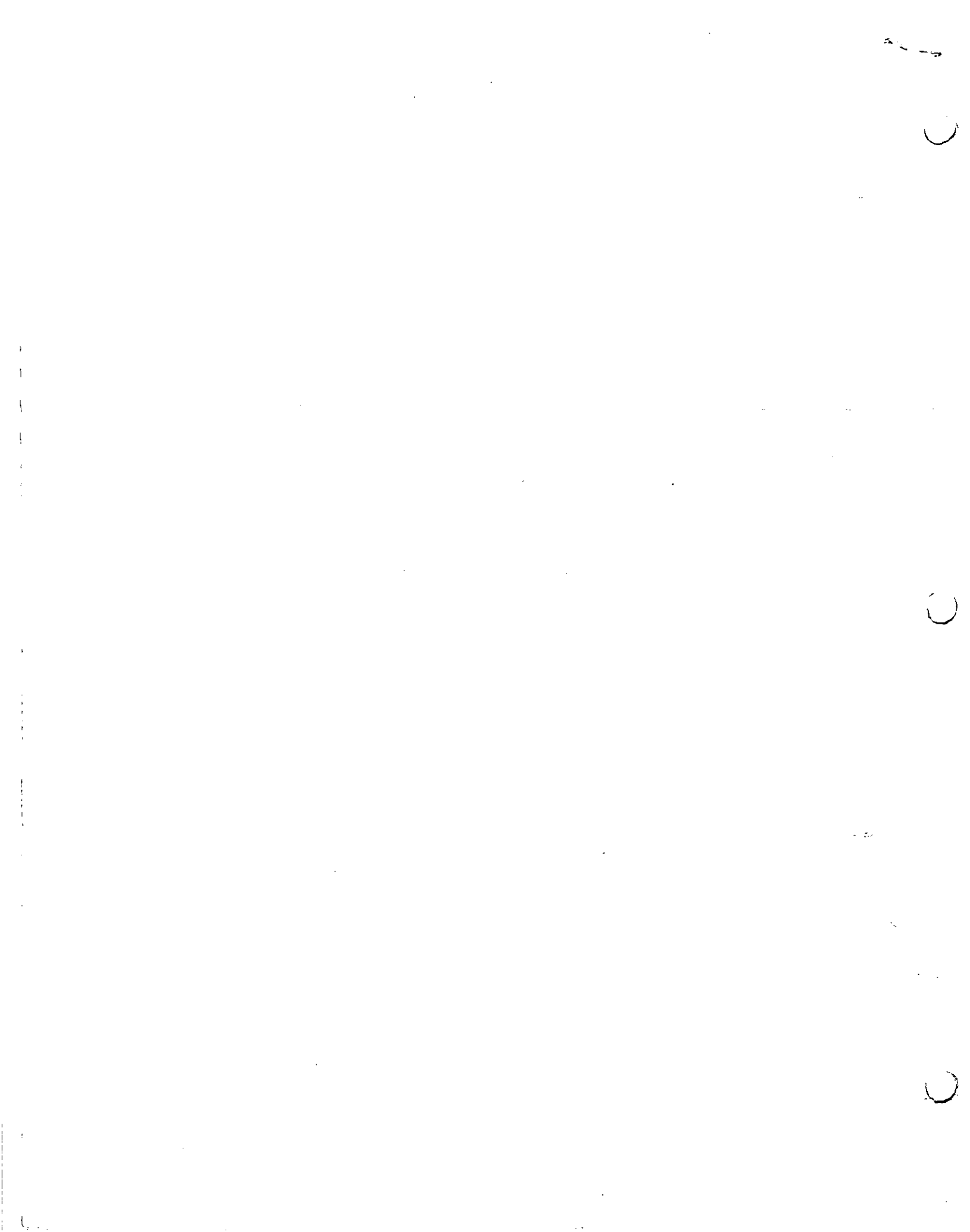
THAT IS ALL FOR NOW.

**KEEP BUILDING AND
KEEP FLYING.**

**THANK ALL OF YOU FOR
A WONDERFUL 1995!**

**All correspondence should be sent to:
Aero Designs Inc.
11910 Radium St.
San Antonio, TX 78216**

Pulsar News is published 6 times per year. Subscriptions are available for \$10.00 per year (U.S.) and \$15.00 (foreign). All subscription requests should be sent to the above address. Complete back issues packages are available to interested persons for \$25.00 plus shipping (\$3 U.S., \$5 foreign).



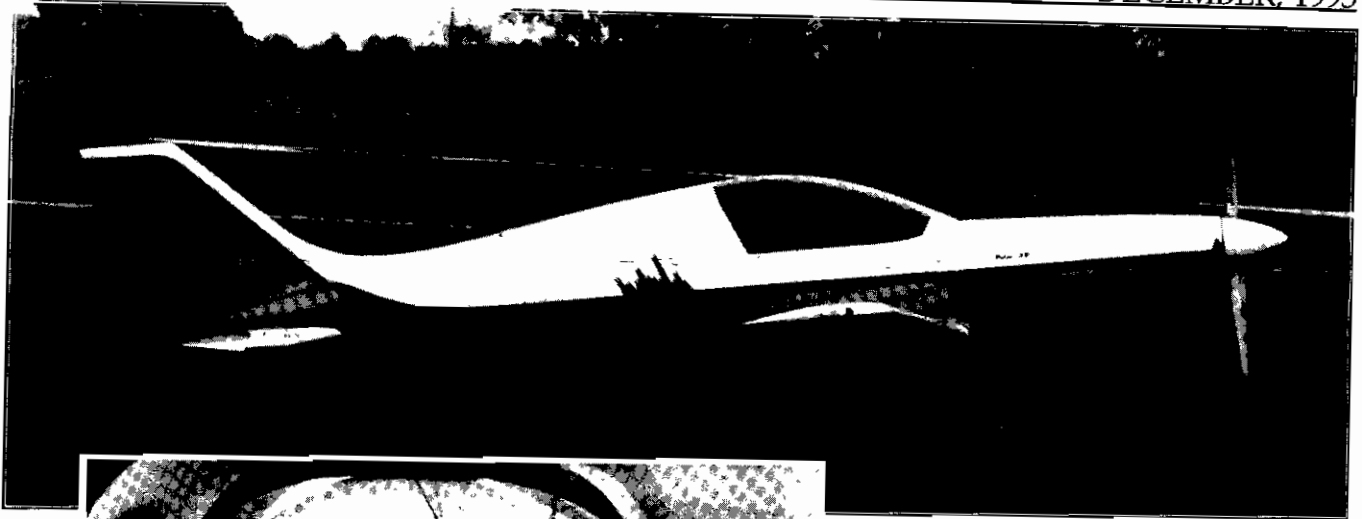
Pulsar News

News, Updates, and Developments for Pulsar Builders and Owners

Published by Aero Designs Inc.

Issue No.36

DECEMBER, 1995



PULSAR OF THE MONTH N54RT RICK THOMASON, COLLIERVILLE, TN

Our Pulsar of the Month is the beautiful airplane pictured above. It belongs to Rick Thomason of Collierville, Tennessee. Rick purchased his kit in September of 1993. Twenty four months later he was finished and flying. Rick describes his project in the following narrative:

"The decision to purchase a Pulsar XP was made after carefully evaluating several kits. I had an Avid Flyer (with the "heavy hauler" wing mod) and was very happy with that airplane for fun flying. However, my Avid would only cruise at 85 MPH with it's Rotax 582 set at maximum cruise power. After a few trips with headwinds where the cars on the road below were passing me, I decided the Avid just did not have enough cruise performance for useful cross country

flying. I had to have something faster.

In my price range of \$30000 to \$40000, the Pulsar XP seemed to offer the best combination of economy and useable cross country performance. After a trip to San Antonio, Texas to see the factory and fly the airplane, I was sold. I could not believe that the Pulsar could fly at 140 MPH on only 80 horsepower - but it did. I left a \$500 deposit and awaited my kit delivery.

My kit was delivered on September 10, 1993. With the experience of the Avid Flyer under my belt, the process of building the Pulsar XP went smoothly. My kit was delivered with composite wing skins (now standard in all kits), but I did not order the quick build option.

CONTINUE PAGE 2

I spread the construction of my Pulsar XP over a 24 month period. My build time was 1500 hours, with 500 hours of that time spent on the exterior finish and paint job. I did my own painting. I used PPG Concept 2000 paint, which is PPG's top of the line acrylic.

As you can see from the photo, I also spent a lot of time on the instrument panel. I made up my own panel and did the complete instrument and avionics installations. My airplane is moderately equipped with an ICOM 821 comm radio, a Garmin 55AVD GPS, a Terra transponder and a PS Engineering intercom. I have the intercom wired to a portable CD player.

Other optional equipment installed on my airplane are hydraulic brakes (now standard in all kits), toe brakes (my own design) replacing the standard heel brakes, an engine driven vacuum pump, the factory supplied cabin heater, strobe and nav lights and a 6 gallon aux fuel tank in the fuselage. I am currently using the standard ground adjustable 2 blade GSC propeller.

With considerable experience in the Avid Flyer (also a taildragger), I felt confident to make my own first flight. It went perfectly! Probably my best landing to date was made on the first flight!

I find that my airplane is slightly faster than the factory claims. I flight plan for 145 MPH TAS (126 KTS) at 5200 engine RPM (2200 prop RPM). At this speed, I am using 3.8 GPH of fuel. I prefer to use premium unleaded auto fuel to save a little money.

My wife Shirley and I use the Pulsar XP for traveling all over the Southeastern USA. With the 6 gallon auxiliary fuel tank, I have a useable fuel supply of 24 gallons. This is enough fuel for 5.3 hours of flying with one hour's reserve. In no wind conditions, range is easily 700 statute miles.

We recently made a trip from Collierville to Gatlinburg to see the beautiful trees this time of year. From 1000 feet, the colors were breathtaking! We covered the 620NM round trip in 5:05, resulting in a block-to-block average speed of 122 KTS (140 MPH)! We used 20 gallons of auto fuel! Try that in a Cessna 172 or Piper Cherokee!

I really enjoy the tailwheel in my Pulsar. With the larger tires and fairings, I am confident landing at most airports with grass runways. I approach at 65MPH and

generally perform wheel landings. Landing distances of under 1000 feet are common with light braking. Once on the ground, taxiing is easy and precise.

As equipped, I estimate my airplane cost \$35000 finished and flying. For that money, there is nothing that will touch the performance and economy of my Pulsar XP."

PULSAR SAFETY **BULLETIN PROGRAM**

There are almost 100 Pulsars flying throughout the world and we estimate that the fleet has now accumulated over 5000 flight hours.

With that much experience, more and more operational and safety related information is surfacing. Some of this information is very good and should be shared with other pilots. There is no reason for new Pulsar pilots to relearn what has already been discovered by experienced Pulsar pilots.

For that reason, we are implementing an official SAFETY BULLETIN PROGRAM.

As soon as the factory hears of an important operational or safety issue, we will issue a Safety Bulletin. These bulletins will not be sent on a scheduled basis – they will be mailed as necessary. They will be distributed to all Pulsar builders and pilots whose airplanes are affected.

The first bulletin has been sent. This bulletin concerns two subjects: 1) a quick disconnect replacement program in effect for all Pulsars equipped with wing fuel tanks and 2) proper routing of the carburetor bowl drain lines on Rotax 912 engines. This bulletin was mailed to all Pulsar owners whose airplanes have wing fuel tanks or Rotax 912 engines. If you are in this list and did not receive your bulletin, please notify us at the factory.

All future safety bulletins will be mailed in an Aero Designs envelope with "IMPORTANT SAFETY INFORMATION" marked in bold letters on the outside. Make sure you read these bulletin when you receive them. The information inside could be important to the safe operation of your airplane.

Remember, our goal is to have the best safety record in the industry. Implementing this Safety Bulletin Program will help everyone learn about safety related issues quickly and accurately.

FIRST FLIGHTS

Our latest count shows approximately 100 Pulsars now flying throughout the world. An Additional 250 kits remain under construction. However, many engines have been ordered and shipped recently. We expect another 30 Pulsars could be flying on or near Oshkosh 1996!

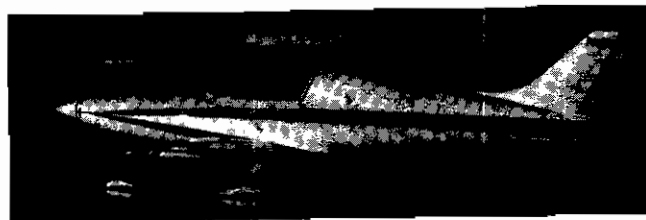
The latest Pulsar builders to experience flight are:

1. Al and Sondra Romero – Tulsa, Oklahoma. Al and Sondra built a beautiful Pulsar XP and are currently flying it. The aircraft is registered as N4AS. Al reports approximately 15 hours of trouble free flying. Al used the services of a professional test pilot for the first and following initial flights. Al also flew in the right seat with the test pilot to get some experience with the Pulsar prior to serving as pilot in command.

A nice touch on Al and Sondra's airplane is the installation of a set of custom baggage compartment windows that compliment the overall shape of the canopy. Congratulations Al and Sondra!

2. Doug Witkowski – Austin, Texas. Doug recently finished and flew his Rotax 582 powered Pulsar. You can't miss Doug's airplane! His Pulsar is painted a very bright yellow trimmed with a Royal blue stripe. The airplane is simply beautiful. It is a taildragger and Doug reports excellent ground and in-flight handling characteristics. We saw the airplane at Kerrville 1995 and it always had a crowd of admirers around it. Good job Doug.

3. Greg Smith – Lawrence, Kansas. Greg recently flew his Rotax 582 powered Pulsar. Greg used another Pulsar builder and pilot, Mark Burrow, to make the first several flights. He then flew the airplane himself. After Greg flew, he sent us a letter detailing his thoughts and impressions of the airplane during his own first flight. We thought the letter was very insightful and many of us could learn something from his experience. We present the letter next for your enjoyment.



GREG SMITH'S FIRST FLIGHT IMPRESSIONS

As noted earlier, Greg recently flew his Rotax 582 powered Pulsar. His airplane is pictured above. Greg sent us the following letter describing his impressions of his first time as pilot in command:

"On October 29, 1995, Mark Burrow took my Pulsar for its maiden flight. The following weekend, Mark came back and did some additional flights to assure everything was OK. It was now my turn.

The following Saturday it rained most of the day, clearing in the afternoon. A friend and CFI took me out for a checkout in his Grumman Yankee. The Yankee is perfect for potential Pulsar pilots. It gave me a feel for a low wing aircraft, more responsive controls and faster final approach speeds than I was used to in the rented Cessna 152.

November 18, 1995 brought us a very foggy morning – It is Kansas! I went to the airport anyway and spent an hour inspecting N163GD while I waited for the fog to lift. At 10 AM, it had cleared and I told my friend, fellow Pulsar builder Larry Eubanks, that I was going out to do some high speed taxi work, something I had been performing often during the past month.

As usual, I aligned N163GD down the runway and started my roll. I brought in full power while monitoring the engine instruments. Suddenly, the airplane felt unusually light and skittish. I glanced at the airspeed and it read 70 MPH! This is 15 MPH faster than I had previously been during my high speed taxi runs. I quickly brought the throttle to idle, but it was too late. I was airborne! I could have landed straight ahead – it was a 5000 ft. runway. But I was overcontrolling pitch and decided the best thing to do was to get away from the ground. Full power and we were climbing out at 80 MPH at 1000 FPM!

It felt just like I had imagined during all of those times in the basement when I sat in the cockpit and moved the controls. I quickly got the feel of the airplane and stopped the initial pitch oscillations that were drawing beautiful French curves in the sky. I turned to remain in the pattern. That's when I heard all the words of congratulations come over the radio. Since everything was going well, I decided to depart the airport. I turned out of the pattern and headed to the practice area.

Quickly I realized how this airplane loves to fly! The first thing I did was trim to straight and level flight. This required setting a cruise throttle setting and a resetting the pitch trim. Next, I slowed down to 80 MPH, then 70 MPH, my planned final approach speed. At 70 MPH, I got a feel of the controls and checked the position of the horizon in the canopy for the proper descent attitude. Once comfortable with these things, it was time to return to the airport for my first landing.

I was calm, although very excited about the flight. I was not nervous. This airplane has very good manners and instills confidence quickly.

Entering downwind, I slowed to 80 MPH. This required almost idle power! Turning base leg, I was a little low. Adding power immediately corrected that. Now turning a 3/4 mile final and slowing to 70 MPH. So far, everything looked good. The pattern was clear – everybody in the area knew this was my first flight and the airport was mine. Over the numbers at 30 feet. No need to set it on the numbers – this is a 5000 ft. runway. Continuing to hold it off and keeping the nose straight with the rudder. I settled on the mains very smoothly. Finally the nose settled and I was a Pulsar pilot.

I put 7 hours and 9 landings on N163GD this first weekend. Most of the landings did not measure up to the first, but all were acceptable. The only thing I would change about that 30 minute first flight was the beginning – the airplane was ready to fly before I was. I was used to high speed taxiing – but I let it get too fast. I was prepared to fly and the plane was ready, but I had not planned to leave the ground at the exact moment the airplane decided to. The initial overcontrolling I was doing could have caused some problems.

Nevertheless, to fly in an airplane you built is a great feeling! The Pulsar inspires a lot of confidence.

It is so stable and predictable. This is what flying is meant to be!

My advice to others reaching the first flight stage – DO NOT RUSH! Get somebody to check your work. If possible, use an experienced Pulsar pilot for the first flight and try to get some stick time in your airplane with the experienced pilot on board. Then plan your own first flight carefully. Perform a lot of taxi tests before flying. This is a great way to get the feel of the airplane. That way, when it does leave the ground, you will be prepared.”

PULSARS FOR SALE

With so many Pulsars now in service, it is natural to see several come up for sale. If you have a desire to sell your completed or partially completed airplane, do not hesitate to give the factory a call. We will announce your desire to sell in the next scheduled newsletter. Here are the Pulsars that we know are currently for sale:

1. Larry Hairston – Plano, Texas. Larry has put about 150 hours into completing his Pulsar XP project, but is selling it. His business has doubled over the last year and he simply does not have the time to work further on the project. Larry took delivery of his kit in August 1994. His kit is the latest configuration Pulsar XP and includes the Quick Build option. If you are interested, contact Larry during the day at (214) 422-4388.

2. Bill Lynn – Alice, Texas. Bill has a beautiful Rotax 582 powered Pulsar for sale. This particular airplane was built by another builder and was an award winner at Oshkosh, 1993. The airplane was featured in the March issue of Sport Aviation magazine. The airplane has a full panel with a King comm, Apollo Loran and Terra transponder/encoder. Bill says the airplane has always been hangared and has 85 hours TT. Call Bill at (512) 664-7432 after 5PM.

3. Bob Vaughn – Red Bluff, CA. Bob has a very nice Rotax 582 powered Pulsar for sale. The airplane was completed in 1992 and has flown only 57 hours. The airplane is well equipped with a Narco MK 12E nav/com, a Narco 150 Xpdr/Enc, ELT, Azure Loran and a Sigtronics intercom. Bob's airplane is unusual

in that he built it with the ability to easily convert from a nose gear to a tailwheel type landing gear. Bob is asking \$20000 for the airplane. He can be reached at (916) 529-1302.

4. Jim Martin – La Pine, OR. Jim has his Rotax 582 powered Pulsar kit for sale. Jim has completed 70% of the airplane. The airplane's fuselage, wings and engine installation are all completed. Jim's kit is serial number 208 delivered in April, 1991. Jim can be reached at (503) 656-9999.

PULSAR TEST PILOT

Al and Sondra Romero used a very experienced pilot for the first and subsequent flights in their new Pulsar XP. We think this is a smart idea. Having an experienced pilot fly the airplane and thoroughly check it out before checking you out is a safe and conservative way to get your airplane in the air.

The pilot Al and Sondra used is Gene Smith from Mexico, Missouri. Gene is a very experienced pilot. He has an ATP/CFI certificate with 4500 hours flight time. He has built, flown and currently owns a KR2, so he knows how to fly an airplane similar in feel to the Pulsar.

Gene will travel to your airport in his KR2 or on the airlines and perform the first and subsequent flights in your Pulsar. He will also fly with you in the airplane after he checks it out to give you a feel of the controls while he watches over you. His fee is negotiated on a case by case basis.

Gene Smith can be reached at home at (314) 581-1422. His mobile number is (314) 473-4407. His address is 621 S. Walnut; Mexico, Missouri 65265.

REPLACEMENT LANDING GEAR POLICY

There has been some confusion concerning the pricing policy on replacement main landing gears. This is the all composite U-shaped main gear section that bolts to the lower fuselage.

Very early kits (serial number 100-188) were shipped with main landing gears that had thick foam cores covered with glass layers on the outside. In service, especially for airplanes operated continuously off rough runways, these early foam core gears developed surface cracks.

When we found out about this, the main gear was redesigned to reduce the thickness of the foam core as well as add several glass layers to the outside surfaces.

All main landing gears beginning with kit serial number 189 (the 89th kit delivered) in December of 1990 had these improvements..

Since the early main landing gear was a source of potential problems, we established the policy of replacing them at our cost. We did not think it fair for any customer to pay a profit on these replacement gears.

However, like everything else, costs of materials have gone up since 1990. We are therefore required to raise our replacement landing gear prices beginning immediately.

Therefore, if you own a kit prior to kit serial number 189 and are replacing the main landing gear for any reason, the new replacement gear kit will be sold at our new cost (no profit) of \$300. This \$300 includes a new main landing gear and all hardware required to install it. Shipping will be extra and will be paid by you when the gear arrives (freight collect).

If, for whatever reason, you are replacing a newer style main landing gear (after kit serial number 189), the replacement cost will be \$400. Again, this includes a new main gear and all hardware required to install it. This \$400 price is our normal main gear replacement price. Shipping will be extra.

To summarize:

1. If you are replacing a main landing gear on any Pulsar earlier than serial number 189, the newer style solid composite replacement main gear kit is \$300.
2. If you are replacing a main landing gear on any Pulsar after kit serial number 189, the replacement kit cost is \$400.
3. Shipping is extra in both cases (freight collect).

MASTER SWITCH REPLACEMENT

Bill Coleman, a Pulsar XP builder in Michigan, called to inform us of confusion and a potential problem with the electrical master switch supplied in most Pulsar XP kits.

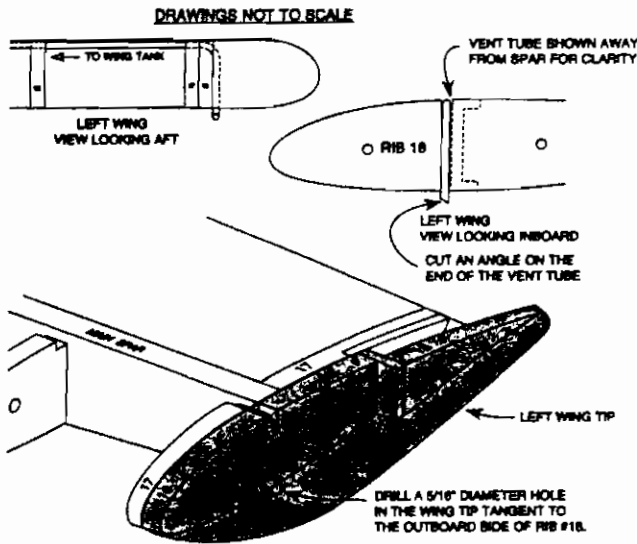
The standard master switch we supplied in most Pulsar XP kits is rated for 6 AMPS, 125 volts AC. This master switch will handle the electrical load for the Pulsar XP only if it is used in conjunction with a continuous duty solenoid. Without a continuous duty solenoid, the master switch is inadequate to handle the electrical load.

Recently, we began supplying a new master switch rated at 16 AMPS, 12 volts DC. This switch will handle the load in the Pulsar XP with or without the solenoid.

So, if you have the old style 6 AMP master switch, it can be used, but it must be used with a continuous duty solenoid.

If you want the latest 16 AMP master switch, give John Hutson or Steve Lindquist a call at (210) 308-9332. They will supply you a newer style master switch at no cost.

PROPER ROUTING OF FUEL TANK VENT LINES



We have received several questions recently from builders concerning the proper routing of the vent lines from the wing fuel tanks to the outside of the wing tips. There seems to be some confusion on how to do this properly.

First, we want to emphasize the importance of properly routing the fuel vent lines. The lines must exhaust OUTSIDE THE WING TIPS. If they are allowed to vent inside the tip, fuel vapors could cause damage to internal wing components and structure.

The diagram above shows the proper installation and routing of the fuel vent lines. This diagram is found on page 70 in the latest revision of the Wing Construction Manual. If you install your vent lines per the diagram, proper venting of the wing fuel tanks is assured.

MATCO HYDRAULIC BRAKES - SHORTAGE

Several of you have been waiting patiently for your hydraulic brake option. In some cases, this wait has been several months.

Matco, the brake manufacturer, has had a difficult time completing and shipping their brake systems to us. For Matco, it has been one shortage item after another.

However, there is good news. We now have 20 sets of brakes enroute from Matco. These 20 sets should eliminate all the backorders and get us back on schedule.

Thank you for your patience with the hydraulic brakes. The problem should be eliminated shortly and you should be receiving your brakes in the month of December.

THAT IS ALL FOR NOW

SEE YOU AT

SUN'N FUN - 1996

APRIL 14-20,

IN LAKELAND, FLORIDA.

All correspondence should be sent to:

Aero Designs Inc.

11910 Radium St.

San Antonio, TX 78216

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