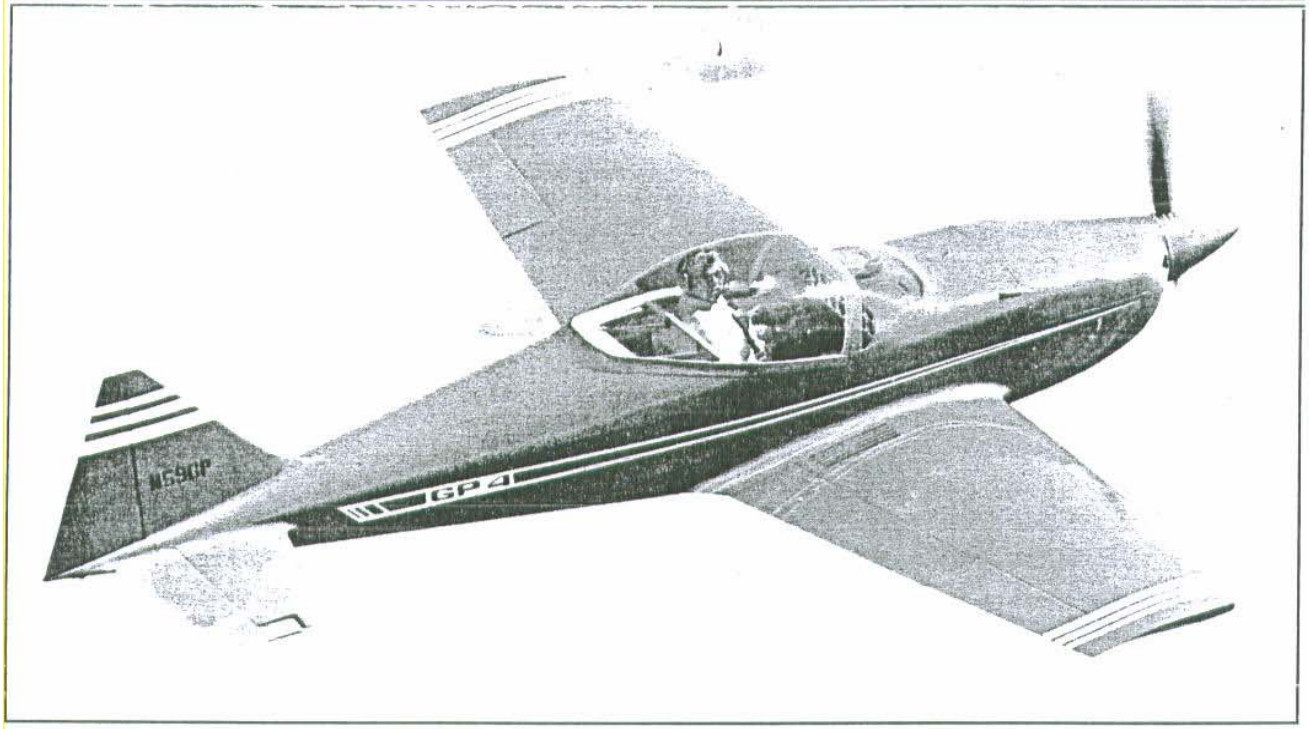
BUILDERS & FLYERS
GP4
NEWSLETTER

THE OFFICIAL VOICE OF GP-4 BUILDERS ALL OVER THE WORLD

Volume 32 Third issue of 2000



George out with his GP-4 on one of his early test flights

An update from Mike Traud

Dear spud & fellow builders:

Geez,, I had planned to get this letter to you much sooner, but the job, holidays and family have kept me busy.

My project is moving forward with the top fuselage skins attached to be followed by those skins around the canopy base. Incidently,, the fuselage skins around the canopy base are the only ones where there exists a compound curve on the fuselage. Specifically, the area skinned just below the canopy base from STA 78 forward to where the canopy base meets the top longerons.. Prior to skinning the top fuselage, I installed four (4) antennas (Com 1, COM 2, NAV 1 and GS)) using the materials and design specified in the drawings. Working with the RG-58 coax and copper tape is fairly easy. The COM 1 antenna is mounted in the vertical stabilizer (per drawings); NAV 1 is in the upper center fuselage area (per drawings); COM 2 is on the port side of the fuselage using STA 78

as the vertical surface and two small T-battens for the angled horizontal surfaces, the top surface angled aft towards STA 88, the bottom angled forward under the baggage floor towards STA 55B; the GS antenna is located under the canopy base, centered just aft of STA 78. Careful consideration was given to the location and routing of the RG58 coax to keep the RF interference to a minimum. All coax is run on the lower port side of the fuselage and then routed to the center at STA 78 where it continues under the baggage floor to the center console where the avionics suite is located. I fabricated special cable mounts using L-04 nut plates riveted to 1/16" mahogany ply with a small spruce base. These were then glued, using T-88, to the various locations on the fuselage where the coax is routed. The coax is attached to these mounts using #4 machine screws and U-shaped plastic clamps. I am also using these "cable mounts" to attach other wiring to the aircraft structure.

As you know, George has assisted me with the fabrication of-wing center section (span wise) which includes the installation of the hydraulic main landing gear. This process went very smoothly and resulted in a successful and functional main landing gear system. The original hydraulic gear system George designed incorporated a few complicated machined parts. This was not a problem if you're an experienced machinist or if Darry Capps was making the parts. Since Darry has retired from fabricating GP-4 parts and since not many of use are experienced machinists, George has "redesigned" these parts so that they can be fabricated using a drill press and other common tools we all have in our shops. I have seen these new parts (installed and working on my wing) and can report that they work very well and are easy to fabricate. George is developing a revision to the hydraulic gear plans that reflect these changes. Stay tuned.

By the way, it is not often that a builder can seek the guidance and assistance of the designer on a first hand basis. From flying the prototype to building wings and other assemblies, I have had the distinct privilege of George's help and friendship the entire way. It has made my experience of building this machine very worthwhile.

Still on the subject of landing gear, the nose gear system is complete and working very nicely. If there are any builders out there with questions, please feel free to call.

As I mentioned at the beginning of this discussion, I have just completed skinning the top fuselage from STA 178 to STA 78. Instead of using two pieces of 1/16" ply for the aft top fuselage section between STA's 149 1/4 and 178, choose to skin this section using one piece. After hearing from George how challenging it was to form these aft skins in such a tight area, I thought that if you could use one piece wrapped around, that might make the process easier. Here is how it went: First, a detailed pattern and jig were made to "pre-form" the skin. The skin was cut, fitted, scarfed, soaked and then clamped to the jig. After the skin was pre-formed, it was glued (T-88) and clamped in place. Once dry, the bottom fin rib was used as a guide for making the notch for the fin. The notch was traced on the skin and cut; battens were installed on the bottom fin rib to provide a gluing surface for the aft top skin and the bottom fin rib was glued in place using clamps through the holes cut in the rib. The fin was installed after this process was complete. Piece of cake. The result was a very smooth skin in a tight area.

That the status for now. I'll try to be more proactive with the updates in the future.

Kind Regards,
Mike Traud - s/n 193
Gold River, California

MULTICOM!

Dear GP-4 builders:

I have some very sad news. Peggy, George's wife, died on May 26th, she succumbed to complications of her stroke from 3 years ago. This was just 2 days before their 50th year of marriage. She will be missed by many people and certainly enjoyed the people and builders of George's airplanes. Hers was a colorful and fulfilled life.

Our thoughts and prayers are with George and his family at this tough time in their life.

Spud Spornitz

Update from Jake Jackson...

Hi Spud

I changed back to AOL for my E-mail. The Address is the same as it was J7200@aol.com Please let the troops now of this change.

Sorry I haven't sent you any articles for the news letter but I been up to my butt in projects. I been putting in a Koi Pond and it's a lot more work than I thought. My whole yard is torn up. When I finish working in the yard my butt is dragging and all I want to do is sit down with a cool one, eat, and go to bed. Boy, this getting old is not all it's cracked up to be.

When I finish with this project I have to finish up with the repairs on my GP-4. I guess you heard I made a hard landing and the right gear folded on me causing minor damage to the right flap and horizontal stabilizer. This folding of the gear was due to not having a strong enough spring to hold the scissors on center. I guess I was lucky because I went off the runway and into some soft dirt and the nose gear stayed down so there was no prop or

engine damage.

Regards,

Jake Jackson
Rio Linda, California

A Builders Tip

I was finding myself in need of something more flexible than a sanding block, and not needing a sanding jig yet, I tried something just for fun and was surprised at its utility... I put on a vinyl glove, sprayed adhesive on it and stuck my hand to a sheet of 36 grit. WOW..worked great, I can feel the imperfections and concentrate pressure there while starving other areas, it's hard to loose, and it will contour to most any shape.

David Burkes

Jim Simmons does some excellent homework...

I had contacted George and asked him if anyone ever published (or drafted) a GP-4 Operating Handbook? If so, I'd love to get one. I'm looking to learn the various V-speeds for Airspeed Indicator markings. I believe that individual aircraft may vary slightly, but I'm confident they would be close.

Specifically, I'm looking for each of the applicable speeds for the GP-4 as follows:

Va - Maneuvering Speed
Vfe - Max. Flap Extention Speed
Vle - Max. Gear Extention Speed
Vmc - Minimum Controllable airspeed
Vne - Never Exceed speed
Vs0 - Stall Speed, landing config.
Vs1 - Stall Speed, flight configuration
Vx - Best Angle of climb speed
Vy - Best Rate of climb speed.

Assuming the figures are available, I certainly believe that it would be a good item for placement in the GP-4 newsletter.

Sincerely,

JIM SIMMONS,
Plans #366

Great suggestion Jim! You'll see these numbers shared with group in this issue of "George's Corner" - Regards, ***George Pereira***

Jim you did good! - Spud

Bits & Pieces from "http://GP4.listbot.com"

Good morning all, Our little group has been a little too quiet lately, I hope that's because everyone has been using the spring weather for building planes. The list continues to grow, we're up to 22 members as of Saturday. I had hoped to have a few more by now, hopefully the information I sent to Spud about joining the list will hit the next issue of GP4BFN and we'll get some new members. In the meantime, both my website and Patrice's have moved. If you have them bookmarked mine is now at http://hammer.prohosting.com/~gp-4
and Patrice's can be found at http://w3.arobas.net/~gp4/index2.html Also be sure to stop by the Osprey site at http://www.ospreyaircraft.com from time to time, the new webmaster is still working on updates.

Ted Fontelieu

Phone: (972) 284-4319
Pager: (800) 759-8888 Pin 1357859
Fax: (972) 284-4223

Greetings fellow GP4 builders,

Just a note to introduce myself and give a little update on my GP4 project. First, I live in Owatonna, MN and have worked as a manager for a local tool company for the past 28 years. I have been a commercial instrument pilot for twelve years and presently fly a Piper Arrow that I have part ownership in.

Two and a half years ago I decided I wanted to build my own airplane. After much research and deliberation I decided on the GP4. Ordered the plans and while waiting for the plans to arrive I prepared my garage for the project.

Just a little over two years into the build I have about 75% of the fuselage completed and starting to plan for the wing. I have decided to use the Mazda RX7 13B engine as my power plant, This has been a very reliable power plant for Tracy Crook out of Clearwater FL, in his RV4. Tracy has a great deal of experience with this engine and information about this and other components necessary for a conversion are available at www.rotaryaviation.com that's all for now. hope to hear from other builders soon.

Regards,

Jim Christian - P355
Owatonna, Minnesota

Hi Guys,

Four more of you have joined the list as today so thought I better reply. I signed up a week or so ago and all has been quite since. I am not sure how it all works yet!
I am 600 hrs or so into my GP4 project here in NZ. I purchased part of the Wicks Kit and have another consignment on the way.

I started on the wing last October & made great progress through our summer getting the wing all set up with tanks in place. However weather got to cold before I could get ailerons & flaps done. Am now working on the metal fittings and learning to TIG weld. I think George's plans are great, have found a few minor mistakes and several areas a little hard to interpret but nothing major.

I am going the Hydraulic U/C way and think it looks a much better set up than the manual. We have one other builder in New Zealand who lives some 500 miles south of here, He has just taken delivery of his

Wicks kit and keeps in touch via e-mail.

Its a great project ,sorry I can't make it to Oshkosh, have a good time one & all

Cheers
John Evans

From Gordon in ND.
I purchased my planes about 4 years ago since that time I've compleated the horizontal stab & elevators . Have the fuselage frame about 95% some metal work ready and am working on rudder alignment. I've also made a mold for main gas tank , patterns for the wing ribs : I made the patterns out of 1/8" Masonite but wish that I had used 1/4 : I have cut wing ribs with a router , does a nice job also cuts down on forming and chipped edges on the plywood .

At the same time I purchased a flying airplane and this of course has drained away some of my funds so going is slowed but am still plugging away at the GP-4 . My next project will be to mount the motor mount plates then I can work on the nose gear and rudder linkage . I seem to spend almost as much time on jigs and making tools as I do on the plane

Gordy Valgren
North Dakota

George's Corner con't from page 5

wraps (Thermo Tec, etc) are just "too efficient"; they will reduce a mild steel exhaust system's life to less than 200 hours if wrapped all the way to the exhaust flange and a stainless steel system to less than 500. If you have to use these try to start the wrap 8 to 10" down stream from the exhaust port flange. Every failure I have seen has been within 10" of the cylinder head and/or at the sharpest point in a bend. (The steel just starts to turn unto a whitish powder).They do work excellent in reducing heat at the cowl exit or close to the fuselage floor.

Very Best Regards,
Spud Spornitz

GP-4 V-SPEEDS

Vso	54 KIAS	The stalling speed or minimum steady light speed in the landing configuration.
Vs	64 KIAS	he stalling speed or minimum steady flight speed at which the airplane is controllable.
Vref	83 KIAS	The speed at which the airplane is flown, in a stabilized condition after the final approach fix is passed while con ducting an instrument approach proce dure, or during a visual approach (3 degree descent path), to the point where speed is reduced for flair and touchdown.
Vf	100 KIAS	The design flap speed.
Vfe	100 KIAS	The maximum flaps extended speed
Vle	100 KIAS	The maximum landing gear extended speed. * (see note)
Vlo	100 KIAS	The maximum landing gear operating speed
Va	180 KIAS	The design maneuvering speed.
Vdf	223 KIAS	The demonstrated design diving speed.
Vne	223 KIAS	The never- excede speed.

* Note: The manual operated landing gear can start extention at 130 KIAS. After the speed drops to 100 KIAS, the gear can be fully extended into a locked down position.

The hydraulic landing gear has a maximum extended speed of 125 KIAS.

GEORGE'S CORNER

Fellow GP-4 builders:

I recently inspected my mild steel exhaust system and found some pretty thin spots around the slip joints and where the curved exit area is, at the tail end of each 4 pipes. This area has eroded some, after 700 hours. Not too bad for a mild steel set of pipes.

In George's corner, volume 23, I talked about my 4 pipe, mild steel exhaust system, and now I would like to cover the exhaust hangers and a possible way to extend the longevity also improve the looks of the 4 pipes.

I tried several types of connectors for the slip joints, and finally came up with one that seems to work well. The old IO-360 4 banger really shakes while getting started, so it is imperative that the exhaust slip joints are able to move, and that the hangers which hold the tail of the pipes be somewhat flexible. The attenuation of the pipes for hours on end while running, can set up a harmonic which can crack welds and hangers unless dampened with some flexibility. The thought of a broken exhaust pipe inside a fiberglass cowl can really give you insomnia. I have included some sketches or design studies that have worked well on my prototype for the past 600 hours or more.

To increase the longevity of a mild steel system, you may care to contact JET HOT COATINGS at 55 East Front St. Bridgeport, Pa. Phone -800-432-3379. They have a hot coating system available in several colors, including chrome. It stops most of the corrosive rust problems brought on by exhaust gasses. Jake Jackson recently had his pipes treated, and they look great. I suppose time will tell how it works out. JET HOT has a brochure if you write or phone.

Some of you have asked about a tuned exhaust system for a power increase. I am no expert in this field, however, I have talked to the "hot rod" community, and here are some of their comments.

At 2700 rpm a tuned system doesn't help much over a good 4 pipe system that we are using. It would be most difficult to get 4 pipes all the same length and into a single efficient outlet. The GP-4 is simply cowled too tight! They did say that the 4 pipe system is more efficient than the collected system that the "store bought" use. Spud is an old hot rod expert, perhaps he has some comments.

Regards to all,

George

Space is too restrictive in this issue to get into it to far, but hear are a few bits & pieces:

Big is not necessarily better! Shorter isn't better either!

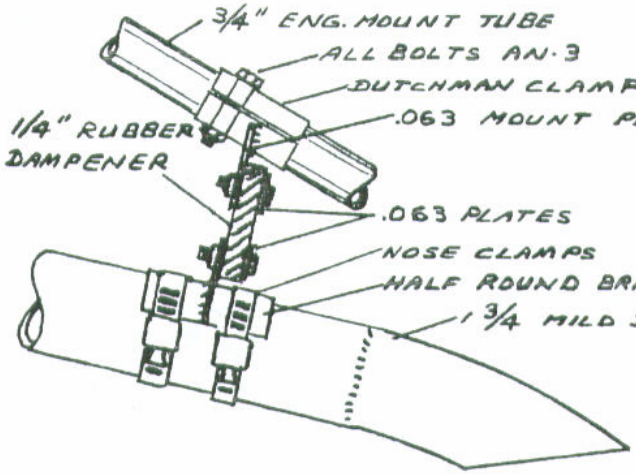
I have run into several people over the years (not GP-4 builders) that have figured bigger has got to be better, not so. They have installed a primary exhaust tube of 1 7/8" and one shortened the length of the primary tube dramatically, less than 18". All they did by this was reduce the backpressure and move the (shift) peak torque range up by 400 to 600 rpm (Est.). And of course this is just the opposite of what we want to do. If anything, if one wants to experiment with George's system is to add 4", 5", 6" or 8" lengths (In stages) sections too see if you can pull a few more lbs. of torque.

The modest performance increase may be cancelled by the increased drag of modifying George's sleek cowling to allow for a fully tuned exhaust system.

Exhaust wraps

The Jet Hot type coatings are a much better approach in controlling under cowl temperatures and looks much better too. The asbestos type

Continued on page 4



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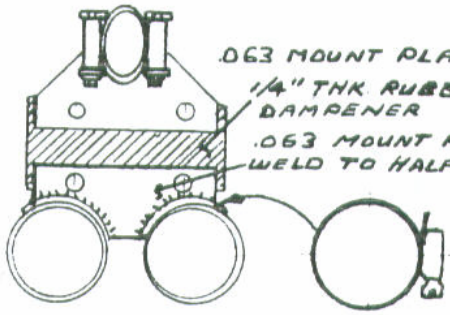
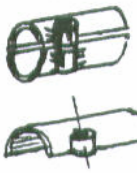


HOSE CLAMPS 4 REQ FOR EA. SET OF 2 EXHAUST PIPES

DUTCHMAN CLAMP FOR 3/4" ENG. MOUNT TUBE. STEPS 1, 2, 3, & 4

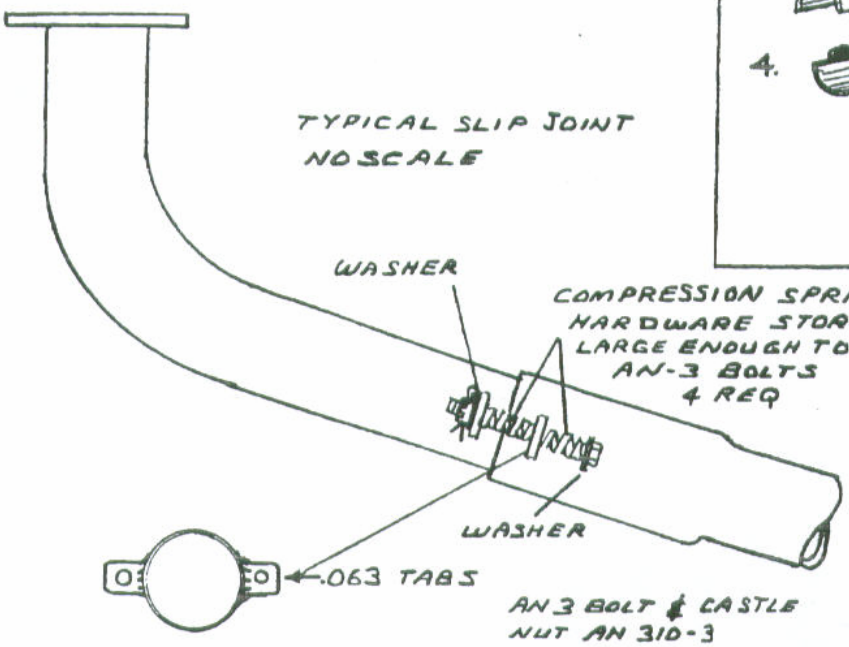
1. 
7/8"X.058 X 1 1/2 TUBE RAT TAIL A GROOVE EA. SIDE FOR 5/16 X.058 TUBE

2. 
WELD 5/16 X.058 TUBE EA. SIDE

3. 
SAW TUBE IN HALF & SURFACE EA. SIDE

4. 
WELD MOUNT TAB AT REQUIRED ANGLE & LENGTH TO ATTACH BRACKET ASS'Y. BOLT TOGETHER WITH AN 3 BOLTS

TYPICAL SLIP JOINT
NO SCALE



GP-4

SKETCHES FOR EXHAUST BRACKETS. SLIP JOINT ETC.
NEWS LETTER VOL 32
DESIGN: OSPREY AIRCRAFT
NO SCALE

The Classifieds

For Sale: GP-4 project: fuselage framing, vertical stabilizer framing, horizontal stab and elevators framing complete. Firewall installed. All fuselage internal hardware complete (D. Capps). All wood packages, two fastener kits. Project signed off by EAA Tech Advisor with compliments on construction quality. Fuselage signed off for closure. Stu Fitrell, sfitrell@lxpk.veridian.com or (301) 373-8087 or 25723 Vista Road, Hollywood, MD 20636. (27/28)

For Sale: New Hydraulic Gear Plans Upgrade. Convert your GP-4 manual landing gear system to hydraulic - electric system. Complete with emergency back up system. (Note: System must be installed prior to wing skinning!, no retro-fits) Complete print package for $150.00 Mail your checks to: George Pereira 3741 El Ricon Way, Sacramento, California 95864 phone (916) 483-3004 Fax (916)978-9813 E-mail GP-4@juno.com

For Sale: Pre-fabricated composite components for GP-4. Cowling , exhaust blisters, inlet ramps, tailcone . Complete four-piece package. Call or E-mail for current pricing. Shipment will be sent "Freight Collect" - Jake Jackson - Rio Linda, CA (916) 992-0608 E-mail J7200@aol.com

Back Issues: We have all of the GP-4 back issues (#1 thru #29) available for $3.00 each. Mail your checks to Bill Spornitz - 1112 East Layton Drive - Olathe, KS 6061-2936

Wanted: Looking for a GP-4 project that is "well under way" through "close to being finished". Will consider all projects. Contact me at (503) 646-5276 or by mail at Edward Mitchell, 13835 S.W. Devonshire, Beaverton, OR 97005

Wanted: An original video (not a copy!) that George Pereira made on the GP-4. I have a multi-copied video now, but is very poor. Will gladly pay a reasonable price. Contact: Spud Spornitz (913) 764-5118 or 1112 East Layton Drive, Olathe, Kansas 66061

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913-764-5118

E-MAIL BSPORNITZ@AOL.COM

George Pereira
Phone (916) 483-3004
Fax (916) 978-9813
E-mail ***GP-4@juno.com***

The Grin Department!

RULES OF THE AIR

1. Every takeoff is optional. Every landing is mandatory.

2. If you push the stick forward, the houses get bigger. If you pull the stick back, they get smaller. That is, unless you keep pulling the stick all the way back, then they get bigger again.

3. Flying isn't dangerous. Crashing is what's dangerous.

4. It's always better to be down here wishing you were up there than up there wishing you were down here.

5. The ONLY time you have too much fuel is when you're on fire.

6. The propeller is just a big fan in front of the plane used to keep the pilot cool. When it stops, you can actually watch the pilot start sweating.

7. When in doubt, hold on to your altitude. No one has ever collided with the sky.

8. A 'good' landing is one from which you can walk away. A 'great' landing is one after which they can use the plane again.

9. Learn from the mistakes of others. You won't live long enough to make all of them yourself.

10. You know you've landed with the wheels up if it takes full power to taxi to the ramp.

11. The probability of survival is inversely proportional to the angle of arrival. Large angle of arrival, small probability of survival and vice versa.

12. Never let an aircraft take you somewhere your brain didn't get to five minutes earlier.

13. Stay out of clouds. The silver lining everyone keeps talking about might be another airplane going in the opposite direction. Reliable sources also report that mountains have been known to hide out in clouds.

14. Always try to keep the number of landings you make equal to the number of take offs you've made.

1112 EAST LAYTON DRIVE
OLATHE, KANSAS 66061

First Class Mail

NEWS FOR CRAFTSMEN OF FAST WOODEN AIRCRAFT!