

SONERAI

JAN-FEB-MAR 90 NEWSLETTER

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Season's Greeting for the 1990's

It's about 8 below zero as these words are being written so it's a little hard to get all enthused about Sonerai flying right at the moment, however, as you read this the days are getting longer again so there is hope after all. Since Sun N Fun was moved back a month into April, it has been necessary to cool the old jets longer than before, it's over three months away rather than just two. As was done last year, the old Sonerai is sitting in the shop for the coldest part of the winter, at least I get to see it every day and pull the prop over a few blades. It used to be that I would get to the airport in January only one or two times so I guess this is better in some ways.

I'd like to take this time to thank those of you who have helped contribute to this Newsletter over the years by sending in the wonderful letters and comments. You may notice that this issue contains less of my ramblings and more of your letters. Aside from propeller orders, the best part of my day is spent on the phone with you guys talking about our airplanes. The majority of articles I write these days are directly taken from these conversations. Sometimes I wonder where the next Newsletter will come from, and then the phone rings or the mailman shows up.

These are a few of the Sonerai's that graced the flight line at the North Central EAA Fly-In at Sterling-Rock Falls airport this past September. A Mr. Paul Pober— something (?) from up at a little town in Wisconsin called Oshkosh showed up in his new 9/4 scale Sonerai. He apparently has three 2180 VW's all coupled together in tandem (using only one crankshaft but three cases) putting out 1500 HP. Speed is way up over the normal Sonerai but fuel consumption is too. We'll try to give you an in depth interview in a coming issue. Looks like he's trying to break into the Formula Vee in a big way. Move over Brian Dempsey.

High Speed Miss

Al Bertelmann called back the other day to say that he agrees that the spark plug gap is very important on our airplanes. The gap on plugs for magneto ignition should be between .016 and .019 since we have such a low firing voltage. Anything much over that and it may not fire at the higher RPM's. I told him so.

Prop Strikes and Taper Shafts

This article doesn't have it's basis in a Sonerai incident, but it could certainly apply to some of you flying Sonerai's with a taper shaft prop hub instead of the Monnett shrink fit hubs. The taper shaft hubs are tightened up to the specified torque and then safetied by a cotter pin through the hub and the prop nut. This certainly always seemed to me to be more secure than the single piece of safety wire that is used on my shrink fit hub. Of course both these hub types also use a Woodruff key to lock the hub to the crankshaft so you don't get rotational motion between the two. But, it is the friction of the hub against the shaft that really should be driving the prop, you can't expect a single Woodruff key to absorb 60 plus horsepower especially in the real world of backfires and kick-backs on starting.

The reason I pitched this section towards the taper shaft people rather than the shrink fit people is that the taper fit will lose all of it's friction on the shaft if the bolt is allowed to come loose at all whereas the shrink fit hopefully has grabbed the shaft throughout it's whole length. This explains why tapers are used on machine tools to allow for the quick removal of lathe centers, drill press chucks, etc. As soon as any relative motion is allowed the two pieces come free. You would not want the tailstock of your lathe to be a shrink fit assembly. Where in the world is this all leading, you ask??

I got a call from a customer the other day with a VW powered airplane that had just dropped his prop and hub onto the ramp while the engine was idling smoothly. The cotter pin was still in place. Everything looked pretty good except for the broken prop and hub on the ramp. There had been another prop strike in the not so distant past on this engine. The owner said the crankshaft looked O.K. but the Woodruff key was sheared smoothly off the crankshaft. Apparently the integrity of the two was not checked after the first incident. I do not know how bad this impact was.

What happened here? It looks to me (but can not be proven) that the first impact either sheared or badly damaged the Woodruff key. The torque of the engine during running is to the left in our VW's, with the force of the prop trying to twist the hub back to the right. If there is any relative motion between the hub and the crankshaft (with a sheared Woodruff key), this force will tend to twist the prop hub bolt out of the crankshaft. Once it is able to move at all, the friction of the taper is lost and the hub can just unscrew itself all the way off the crank (the hub and the bolt turn as a unit with the cotter pin in place). Yes, this can also happen to the shrink fit hub but it would be fighting the friction of the shrink all the way off. The fact that the hub came loose on the ground rather than in the air may have been caused by a kickback during starting.

So how do we stop all this from happening? If the Woodruff key is intact on the crankshaft then the prop hub bolt will not get a chance to start working itself loose and the safety wire and/or cotter pin can do it's job. After any sudden stoppage the Woodruff key should be inspected very carefully or better yet replaced and the area of the crankshaft by the key should get a very thorough inspection for cracking. To me, this procedure applies to either type of hub. As pointed out in the last Newsletter, the hub nut washer can also be a culprit in the hub coming loose by cupping and losing the friction of the taper to the hub. Finally, those of you with the shrink fit hub need to inspect the hub itself on a regular basis since it is not unheard of for the shrink fit hub to crack causing it to lose friction to the hub. The result would be the same.

I don't lose sleep personally over this problem but for a few moments inspection you could save a lot of wear and tear on your engine and body.

Covering A Sonerai

by Keith Embree
9250 Cadez Rd.
Cambridge, OH 43725

In getting ready to cover my Sonerai, I checked with several fabric suppliers, catalogs, and instruction manuals to find out how much material to order. No one seemed to agree on how much, I finally decided on one supplier's approach and also on the 7600 process. They recommended 15 yards of 64" fabric, 2 quarts cement, 3 quarts activator, 1 roll 3" tape, 1 roll 2" tape, 1 roll 1" tape and 2 gallons primer filler.

If you choose this material list, I'm sure you won't run out of anything, even with several mistakes.

I started by cutting a piece about 13 1/2 feet long. I then drew a center line on the turtleneck. Placing the fabric on the side and clamping along the bottom longeron, I then carefully trimmed off the over run around the cockpit, down the center line on the turtleneck and around the vertical stabilizer. If you are careful with your cuts and waste nothing, this piece will cover the bottom of the fuselage. If you aren't careful, as I wasn't, don't despair, you get one more try on the other side. The other cut off will do the tail feathers.

The bottom piece goes on first, followed by the two sides. Follow the manufacturer's specs for overlap and tapes.

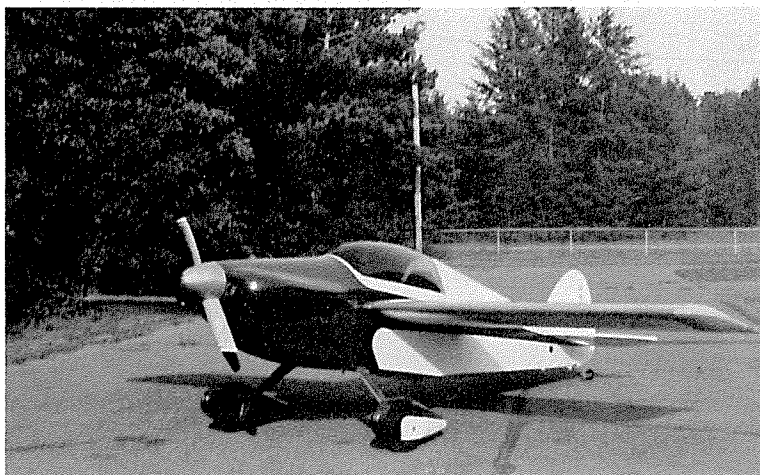
It took 10 yards of 64" fabric, one quart of glue, two quarts of activator, and one gallon of primer filler.

I used fabric rivets on the ribs. They work well and are much easier than stitching. I think they look better too.

This is my first fabric job so I can't compare materials. However I did find the 7600 process easy to work with. The glue process is probably slower than other adhesives because you have to put on two coats and let them dry but that makes it easy to put on neatly and it's fun.

Do be careful with the iron. I accidentally bumped the setting on mine and burned a hole through the elevator faster than you can imagine. I hope your covering project goes well!

Ed. ----- It sounds like Keith enjoyed his first experience with fabric covering. After spending so many months and/or years looking at all the tubing it is surprising how fast it gets covered up. Don't forget that this article did not get into the actual painting of the plane, you will have to decide how much finish will be needed for this part of the project. I might also caution about using too coarse an abrasive to use wet sanding between primer coats, I did it too hard and broke some of the fibers in my Stits Process and had a heck of a time getting the fibers to lay back down again. They never really did. A final note has to do with priming the steel tubing -- please do a good job getting the tubes covered, it's hard to do later and several years down the road you sure wish you had done a better job. I know I wish I did.



Gayle Lewis' Sonerai II
See his letter later this issue

Preflight Checklist

by Dale Severs
1801 Fairfield
Lindenhurst, IL 60046

Dear Ed,

I have flown my Sonerai for 75 hours with no checklist on board. As simple as my plane is I still seem to forget something like the altimeter. Yesterday I started rolling with the canopy unlatched.

I have enclosed a check list I will be using from now on. It is taped down to a 1/8" thick mini clipboard adel-clamped to the canopy cross tube. This allows someplace to clip a note pad for inflight notes and flight plan info.

If anyone wants a custom copy in the same print quality they can send exactly what they want with \$5.00 and I will make it up.

I can't believe I have gotten away without one this long.

Preflight Checklist

-Oil, Prop	-Air frame
-Fuel sump	-Fuel qnty.
-Brakes	-Altimeter
-Egt, Cht	-G meter
-Master	-Accessories
-Radios	-Controls
-1700rpm	-Mag 1 & 2
-Oil temp	-Oil pressure
-Carb heat	-Cab heat off
-Seat belt	-Canopy latch

Speeds MPH >Solo >Dual

-Rotate	-60	-65
-Best angle	-80	-80
-Best rate	-85	-85
-Normal clb	-95	-95
-Normal apr	-80	-85
-Short fld	-70	-75
-Maneuvering	-120	-115
-Never exc.	-200	-190

Design load factors g's

-750 lbs	+6	-4
-925 lbs	+4.4	-3.2
-1150 lbs	+3.6	-2.5

Memory Frequencies

0 Emergency	-121.50
1 Flight Watch	-122.00
2 F.S. Receive	-122.10
3 Kenosha unicom	-122.70
4 Air to Air	-122.75

Rear Spar Pins

This is one of those things that we don't normally think of as a maintenance item on our Sonerai's. Some of us go for a very long time without removing the wings from our Towable airplane. In my case it was about 6 years till the wings were removed to repair a crack in the inboard ribs at the rear spars. Since that time I've had the wings off in the course of bringing the airplane home for the winter (as I did last week). I have a pretakeoff checklist that is taped to the spar and I use it before every flight. This Spring when the Sonerai goes back to the airport to get ready for Sun N Fun I plan to have a Checklist to make sure that the airplane is reassembled properly. I will be working on the airplane this winter and see it every day in the shop, but that of course isn't the same as flying it.

There are two instances that I am aware of in which one of the rear spar taper pins were either not installed or the nuts on the pin were not tightened or safetied. In one case the airplane flown locally with two people on board and the lack of a pin was not discovered until the airplane was inspected afterwards. The Sonerai flew normally as far as these people were concerned. In the second instance the left pin was installed but came out in flight; and then somehow the aileron pin became disengaged also. The airplane was in a tight bank to the right at relatively low altitude when it made a violent reversal to the left causing the pilot to hit his head on the right side of the canopy. The left bank continued to the inverted position and then to an extreme nose down condition. Eventually the pilot was able to level the wings in a climbing attitude when it was noticed that the left aileron had disengaged itself. The left wing trailing edge had moved downward causing the aileron linkage to force the aileron upward resulting in the left rolling tendency. Enough right aileron allowed for flight to return to the airport.

It seems hard to believe that the aileron pin could have become disengaged since the wing would have to move forward to pull it out, but it did.

This is the type of incident that can be associated with pitot covers left on or fuel caps untightened. It shouldn't happen and almost never does -- but can. We each need to have our own checklist for an activity that is performed irregularly, requires a set sequence of events and could have disastrous results if not done completely right. It's sort of like launching your boat with the drain plug out, except the consequences are worse.

Very Cold Starts

Since my Sonerai spent this year outside, I didn't have access to electricity to use my hair dryer preheat when the weather got cold this Fall. My cold weather start technique had to be honed a little finer than it had been in the past. Probably the worst case was about a month ago when we had cooler than normal temps of about 15 F. at 7:00 AM. I was scheduled to meet the other Sonerai's at 8:30 and knew my work was cut out for me.

Here's what finally ended up working: Fuel on, throttle fully closed, ignition on and pull about 10 blades until it would fire about 4 or 5 strokes and quit. Repeat the above procedure several more times knowing that the engine would always quit. But, you are starting to loosen up the oil and build a little heat in those cylinders. Eventually it is time to make your move.

Same attack as above but after 8 blades, stop and open the throttle about 1/8 the way. The engine will normally fire on the next blade but since the throttle is open quite a bit it revs higher and longer. When it quits this time close the throttle all the way again and count off the 8 blades to suck more fuel into the cylinders. In effect you are choking it with the closed throttle but then before it can waste that fuel on a feeble attempt, you give it enough air to run better.

This has really saved the day this past year. It is of course not nearly as good as the normal preheat of the carburetor, but sometimes a guy's got to do what a guy's got to do. As you would expect the airplane is tied down securely for this procedure.

Dear Ed,

Just wanted to pass on an experience for the Newsletter. After my recent annual I changed spark plugs (automotive) in my Sonerai. My first flight displayed very hot and erratic CHT. I landed right away and suspected that I over torqued the spark plug and mashed the thermocouple to the CHT. I removed same and reinstalled it. The next flight was the same. I had checked all connections except where the thermocouple connections were on the gauge wires. They were O.K. I thought. Flew third time with the same result. Finally I removed the protective cover from the thermocouple leads and discovered a loose connection where the gauge wire met with the thermocouple. I repaired the connection and all temps are now normal. I have since been informed that if there are any poor connections in this circuit it will read HOT!!

Best regards,
Doug Hagerman
6 St. Helens Ln
Chico, CA 95926

Soft Intake Rubbers

There has been another incident of a carburetor falling off while in flight. I don't have any particulars of this incident, but this subject was mentioned in the Jul-Aug-Sep 89 Newsletter under the heading "Windmill". In discussing this problem with some of the other Sonerai flyers at our EAA board meeting, we came up with a Gates P.N. for a fuel resistant hose. # 24024 is apparently something you can use, however if it is not available (and wasn't to our group) then the suggestion was made to at least use fuel tank filler hose rather than just radiator hose. This seemed to make a lot of sense. At this time I am not sure exactly which I have, but it is in good shape as I said after all these years. I did change the upper manifold hoses at the heads with the hose provided by Great Plains and it seems fine.

The end result is to please don't continue with hose that is getting soft to the touch. Even though the Posa has a slight ridge on the carb itself, this is not as good as well maintained hose. If you think about it, there is probably some way to also safety the hose clamp and the carb itself to the Y casting. We shouldn't have this as a problem since it is so easily identified and fixed.

✓
A Letter from Gayle Lewis
16480 26th Ave.
Nekoosa, WI 54457

Hi Ed,

Finally finished my Sonerai II midwing. FAA looked at it on May 28th. 9 years from the start to finish. 490 # empty. 1835 homebuilt engine. Posa carb. Had to put an oil cooler on it. Had a partial failure the first flight. Mag wasn't getting enough air.

Have about 60 hours on it. Fuel is up to around 5 gal/hr. Seems to start and run good but after flying, the idle is very rich! Have a #2 needle at 2 turns from bottom. 8 to 1 comp. Takeoff is 3050 RPM, cruise at 3250, max at 3600--3700. Had the same problem as Fred Keip, very rough engine -- broken clip and wavy washer on th exhaust valve right side. Caused by the same thing I guess.

Should see you at Sun N Fun this Spring. Gayle

Ed. comment -- Congratulations, Gayle, I don't think I could have hung in there as long as you did, it's good to see new Sonerai's still taking to the air. I touched on the cooling of the Magneto quite a while ago but it is probably worth mentioning again. The people at Slick warned us about too high mag temperatures at Oshkosh a few years back. With our mags sitting back in the mag box they may not be getting a good Flow of air so it is to your advantage to put one or two blast tubes in it's direction. I pick my air up from the back of the windage tray on the bottom of the oil pan. If the mag gets too hot we were told to expect ignition breakdown at high power setting as it takes more energy to fire the plugs.

Another note on the rich idle after flying. When the engine is cold the fuel is not vaporizing very well and tends to remain in globs that are not burned very efficiently so you need more fuel to get even firing. When the engine and the intake manifold are warmed up the fuel is vaporized better and therefore more of it gets burned so the mixture is in effect richer. The air temperature can also be warmer later in the day which seems to contribute to the richer mixture even though the Posa is altitude compensating to a great degree.

A Letter from Floyd Blaine
1127 Taylor Ave.
Godfrey, IL 62035

I thought you might be interested in some of my Sonerai problems and hopefully their solutions.

Last summer I had three occasions of "blowing off" my oil filler cap. One of these as I arrived at Oshkosh. These "blow offs" were violent enough to bulge out the door on the cowling. I discussed this problem with everyone at Oshkosh that would listen. Rex Taylor said he had heard of one other having the problem but could offer no help. The cause was most often blamed on piston blow-by from bad or broken rings.

After getting home from Oshkosh, I proceeded to install new pistons, sleeves and valves only to have the problem more severely. Then everyone (but me) thought the problem was a blocked breather cap. Not so. I also found a kink in the vent tube that I thought would close off as the tube got warm and more pliable.

The last time it "blew" was after landing and setting in from of the hanger. When the engine died, with a shudder, it blew, generating a lot of blue smoke which led me to believe that I had a combustible mixture in the engine case which had been ignited. Checking, I found the plug wires of my secondary ignition in the valve area to be grounding, at least part time, setting off the explosion when the combustibles in the case built up to the proper mixture.

I changed the plug wires and haven't had any more problems.

Next problem ---

After discussing cruising speeds with you I decided to check my aileron reflex. I found the tips of the counterweights to be up 3/8" instead of the recommended 1/4". I reset them to 3/16" with good results. I have gained somewhere between 5 and 10 MPH indicated at 23" M.P. and have only inceased stall to 55 MPH. I haven't had a chance to accurately check it out however. With my top overhaul the engine is running much stronger and I plan to do some accurate testing as weather permits.

I would be very interested in seeing power data anyone might have on VW engines. Several years ago I obtained from Revmaster a power curve. The attached was traced from this and shows a peak of 65 HP @ 3200 RPM for their 2100 engine. I'm sure our 1835's would follow the same curves but would be offset downward to give 60 HP @ 3200 RPM. As you can see the torque drops off from the theoretical straight line. If this data is true, and I don't have any reason to doubt it, we shouldn't be running our engines past the 3200 RPM range.

Any comments?

Floyd

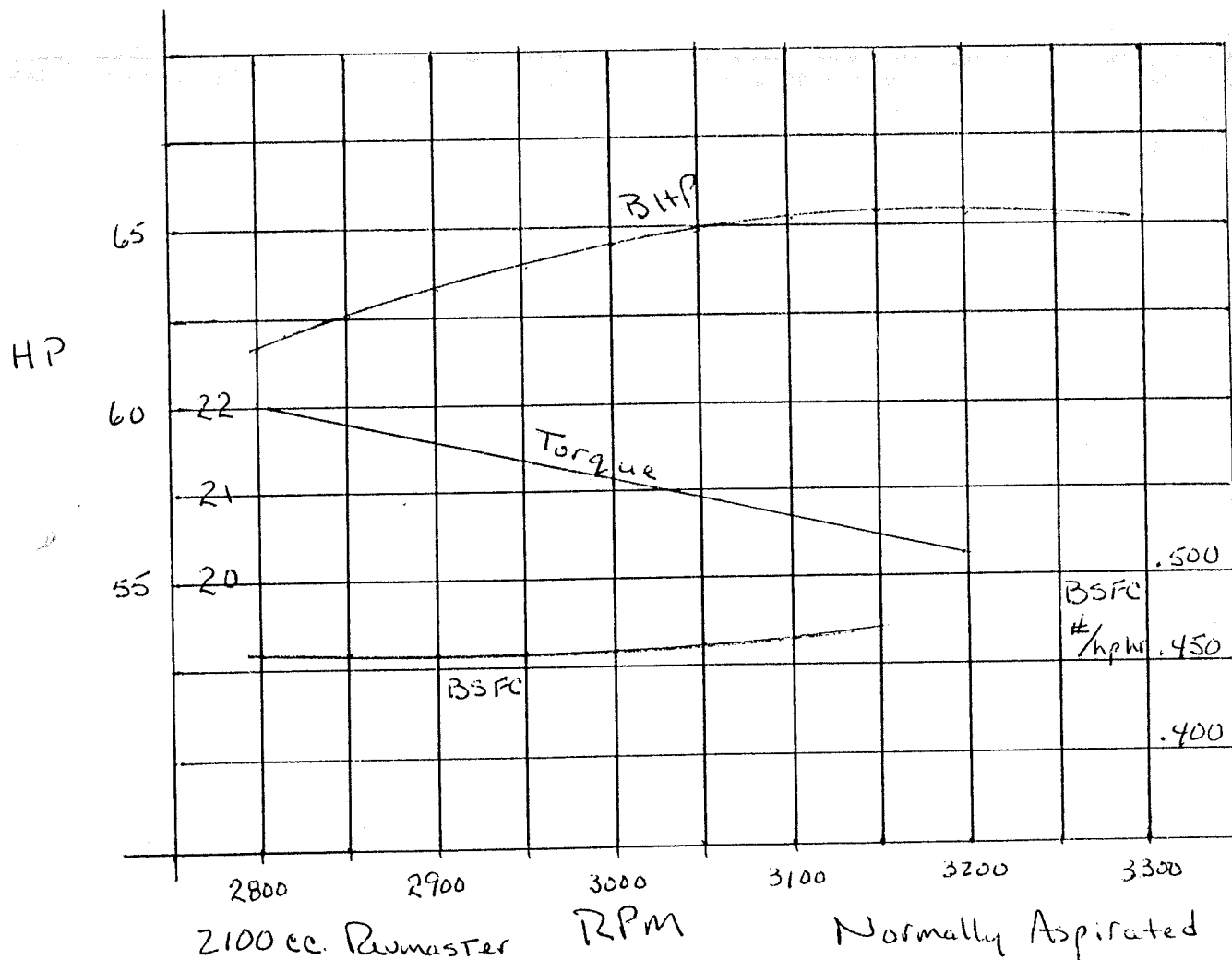
Ed. Comments --

Thanks for the very interesting story on your "exploding crankcase", Floyd. I remember you talking about it at Oshkosh but didn't realize how violent the cap came off. For those not familiar with this ignition system, the plugs are actually inside the valve cover where they are exposed to the crankcase

gasses. I assume when the cap blew off in flight that it made quite a mess under the cowl.

As for the rig of your ailerons and the probable increase in speed, it would be great to have a "pro" go over each airplane to get the best rig on the whole machine. I assume that in rigging the ailerons down, you may have noticed a slight pitch change too. I talked about this some in the last Newsletter.

As to the power curve from the Revmaster engine, I don't quite agree that we will all have the same torque curve since there are a lot of different camshafts out there and half the people don't know exactly what their's is supposed to do. (Including myself). Anyone putting a real Racing cam in will experience different power peaks than the rest of us. This may be part of the answer to different performance with props on two similar Sonerai's. One more little thing to keep us all guessing and interested in our Projects.



A Letter from Chris Russell
289 Gladys Ave.
Newark, OH 43055

Dear Ed,

I enjoyed my first edition of the Sonerai Newsletter and found a number of useful ideas therein. This letter is intended to make a contribution of my own, primarily to the safe flying of the Sonerai. Most of this letter was originally part of a letter to a new, therefore inexperienced, Sonerai pilot/builder.

I have about 350 of my 1650 hours in my little bird. I've flown it hard, from Oshkosh to Sun N Fun with numerous trips to Washington and New York. (I have an Aux. tank). I'm very fond of the Sonerai, but I've flown it enough to learn that there are ways in which it can bite the inexperienced. (I hope that I've gotten all my "experience" now.) I have flown about 20 different types of aircraft, including IFR-capable retractables. I think flying the Sonerai requires a higher level of concentration than any of them. I'm thinking of writing a little manual that would have applicability to all experimental taildraggers, but would be based primarily on the Sonerai.

Until I flew the Sonerai, I had only one minor aircraft control problem--in 1100 hours of flying spread over 8 years. Then came my Sonerai experience: in 350 hours spread over 4 years I have been in the grass 4 times; I have broken one wheel pant on one runway light; I have bent the landing gear once; I have had two tailsprings break on me (one fast exit of runway--no damage, one while taxiing); I have ground looped 360 degrees (no damage); had two engine loss of power situations and barely avoided disaster on one occasion. So here are my conclusions:

-Never try to wheel land the aircraft. The Spitfire style rudder that I have is too small for adequate control. Below 45 MPH, with the engine at idle this rudder has NO control. You only have control if the tailwheel is on the ground and you have the stick fully back on rollout.

-Learn to land the aircraft slightly tailwheel first. The Sonerai has a landing speed range of about 5 MPH. If the mains touch first, depending on your speed, you will get anything from a small skip, (if you freeze the stick and hold nose high attitude with a touch of power), to a big and dangerous porpoise, if you try to chase the bounce with the stick. If you get the nose too high, by hauling the stick back to a full stall, the mains can get quite a bit above the ground while the tailwheel is on the ground. Then the mains will plop on with a thud, and perhaps enough of a bounce, or wing drop, to threaten loss of control.

-Touchdown with the wings "flat". You will probably notice that the Sonerai's ailerons, as well as the rudder, have little command when the plane is at stalling speed (about 60 MPH in ground effect). Crosswind landings are best handled by a combination of crabbing and slipping into the wind, then leveling the wings just before touchdown.

-Maintain attitude control. If the attitude is correct, airspeed will be constant. In my Sonerai, when I am on final, the cowling is barely covering the approach end of the runway. I maintain that attitude and add or reduce power--as winds dictate--in order to maintain 85 MPH (95 MPH with 2 onboard). This means that I am always carrying some power, right down to the point of flare. It's important to know that the Sonerai sinks rapidly when the engine is idled, so it's good to carry some power at least halfway through the flare.

-Takeoffs. Keep the stick fully back to about 10 MPH. Then--in a no wind condition--gradually decrease back pressure to neutral at about 40 MPH. Lift the tail a 45, maintain a slightly nose-high attitude to 65 and rotate.

- Crosswind takeoffs. Beware Crosswinds from the right. The Sonerai is much more susceptible to loss-of-control accidents with a crosswind from the right. Due to the propeller P-factor, you will run out of left rudder with a crosswind of about 15 MPH. The only way to regain control is to get the tailwheel back down fast. With a right crosswind, delay lifting the tail to about 55 MPH.

-Engine/Fuel problems:

-Fill the tank to about 1/2 gallon less than full capacity. If full, the fuel will slosh into the vent tube and starve the engine for fuel on the takeoff run.

-Unless the gascolator is on the rear of the firewall, you can experience complete loss of engine power due to (auto) fuel vaporization problems. Auto fuel is especially high in volatiles in the early summer (leftovers from winter gas). Had one complete engine stoppage this way. Also occurred once with Avgas until I insulated the gascolator and fuel line. So...if the engine stutters on the takeoff roll, Stop.

-I have the HAPI 1835 engine. I had a retainer clip on one rocker shaft break, allowing the whole valve train to shift. This caused partial power loss, due to a bent pushrod. A rockershaft by "Bugpack" avoids this problem by use of bolts and shims instead of "wavy" washers and spring clips.

My hope is that some of the above can save a reader from some of my annoying to "extreme pucker factor" experiences. As I am serious about writing an "Experimental Taildragger" manual, I would much appreciate any advice or experiences that you or anyone else might have to contribute.

Chris

Comments from Editor Ed ---

This letter from Chris seems to sum up a lot of what we have been talking about in the Newsletter over the years. I do know of a few people that wheel land their Sonerai's, but then I could never wheel land the Cessna 140 I learned to fly in either. I normally use a maximum 80 MPH on final with 70 of so if the runway is short or I plan to make an early turnoff, and yes, it hits the tailwheel first. We all hate crosswinds from the right for the reasons Chris

indicated. I usually use a crab or slip on final depending on the wind direction and have left one wing low into the flare for the crosswind. With my small engine, I can hold full forward stick on takeoff to relieve pressure on the tailwheel, but with the bigger engines it does help to hold that tail down for better control. We've talked before about auto fuel in such low fuel pressure systems; it eventually gets you and I agree of course about not filling the fuel tank all the way to the top to avoid fuel syphoning problems.

A letter from -- Wayne Tappon
515 E. 11th St. N.
Ladysmith, WI 54848

Dear Ed,

Thanks for your letter. I've had many experiences with my Sonerai, some worth repeating and others probably not.

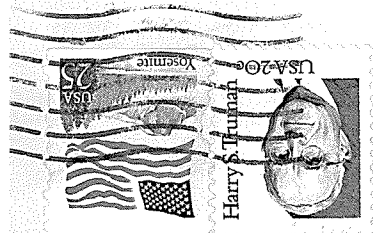
My Sonerai II is a midwing, tail-dragger, 525 # empty, 1835 HAPI. I've always been plagued by relatively low cruise speed, and high CHT. I've worked slowly and systematically for 5 years to make improvements and I am able to make improvements even yet. I spent most of the first 2 to 3 years working with carburation, and baffeling to bring the CHT down and did not concern myself too much with speed. I have had minor leaking of the valves as a constant problem also. And I've had the heads off to touch up the valves and seats 4 times in the 200 hours time I have on the plane. I could usually hear the exhaust valves leaking on one or two cylinders about 10 hours after a valve job. I have always flown the airplane by the CHT gauge and would throttle to keep the CHT at or below 400 F. Occasionally in longer climbs CHT would climb to about 425 F. And I have never been real concerned about the leaking valves, because the compression was never seriously affected. The lowest measured compression I've had occurred after 109 hours time since the last valve job and my lowest cylinder tested 67/80. The other cylinders tested 74/80, 75/80, 73/80. Of course it always made me uneasy that the engine was not up to snuff at all times. I recently ground the valves and seats again and have made the last change I can think of making. That change is a switch from premium unleaded auto fuel to 100LL avgas. I have my fingers crossed now in

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Sonerai News



hopes the valves remain sealed. My airplane has also suffered from relative inactivity, 200 hours in 6 years is not easy on the engine.

I benefitted from the last Newsletter considerably. The article discussing the rigging of the wings encouraged me to experiment with that. I have always had much back pressure on the stick in straight and level flight. I have lowered the leading edge of the horiz. stabilizer approximately 1 inch. That reduced some of the back pressure. Lead in the tail has had no effect on back pressure. I recently lowered the trailing edge of both wings 1/4 inch. This has increased my indicated airspeed 5 mph, at 2500 ft, 50 F.OAT. It also reduced back pressure noticeably, gave me a lower nose attitude in level flight, and reduced the CHT about 10 F. I had to readjust the ailerons of course. This made no change in the stall speed, although attitude on landing did change somewhat.

Hope this will make interesting reading in the Newsletter for some, and encourage others to continue experimenting, reading, and asking others for help and ideas with their problems.

SONERAI PARTS LIST UPDATE

Great Plains Aircraft Supply has the following parts normally in stock:

1. FIBERGLASS WING TIPS \$ 79.95
2. FIBERGLASS WHEEL PANTS \$109.95
3. FIBERGLASS BEAUTY BUMP \$ 19.95
4. WING SPAR KITS \$239.95
5. WING RIB KITS \$324.95
6. TAILWHEEL SPRINGS \$ 85.00
7. TAILWHEELS \$ 14.95
8. COWLINGS (SONERAI I & II) \$275.00
(PLUS \$15.00 CRATING FEE)
9. 5/8" LANDING GEAR \$325.00
10. SPINNERS 12" \$ 40.64
11. BACKPLATES \$ 18.95
12. FRONT PLATES \$ 26.95
13. FUEL TANK (SON II & LTS) \$275.00
14. EXHAUST TUBING KIT \$ 21.95
15. SHRINK FIT PROP HUBS \$139.95
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