

T-18 Newsletter

April 2005



Mark (Stretch) Batchelor ~ N432YP ~ Auburn, CA.

NOTICE To ALL Members

Please check your mailing label on the back cover. If your MAS dues have expired this will be your LAST NEWSLETTER !!!!

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And More**

NOTICE: (STANDARD DISCLAIMER) As always , in the past, present, and future newsletters, we would like to make you aware that this newsletter is only presented as a clearing house for ideas and opinions, or personal experiences and that anyone using these ideas, opinions, or experiences, do so at their own discretion and risk. Therefore, no responsibility or liability is expressed or implied and is without recourse against anyone.



Hello Thorpies !! It seems like it has been a long time since I sat in front of this computer putting together a T-18 Newsletter. I want to apologize for the delay in getting this issue out. Most of you know that since the last issue I have relocated to Indianapolis, Indiana and started a new job. The move has been difficult on my new family, and things have been in a severe state of chaos since mid December. Well things are beginning to settle somewhat and getting back to normal. We have set up temporary residence in a small apartment while our new house is being built. The house is to be completed in about six months. I have managed to include a three car garage in the new house, so I should have enough room to set up shop and hopefully get my project completed. Right now the poor thing is gathering dust in my shop back in Illinois.

That brings up a topic that I am very concerned about. It seems that I have been sheltered from the rest of the world all of my life. I have grown up in a small rural area and used to paying fifty dollars a month for a hanger, fifty per hour for a Cessna 150, and a mere sixty five for a Piper Warrior. I must admit that I am in a state of complete sticker shock at the prices I am seeing here in Indy. I have been asking about hangers here and cannot believe that people can actually pay two hundred fifty dollars per month, and one hundred twenty an hour for a Cessna 172. I even had one guy tell me he had the perfect hanger for me. This one had hanger-space, plus a heated workshop area, it was a homebuilders dream, and was only four hundred fifty per month .. plus utilities. Give me a break people, what normal guy can pay these prices? Not me .. and I feel that I am pretty normal. How do people do it? I gotta tell you I am very concerned that after fifteen plus years of building, of blood, sweat, tears, and a fair

amount of cursing that once I actually complete my T-18 that I won't be able to afford to fly it. I am serious here people, how is the normal person going to afford to fly?

But this problem is not just with me is it? That's why hundreds and maybe thousands of pilots no longer fly. That's why it is so difficult to get new people involved in aviation, that's why two airports per week are disappearing from our country. I have spoken to both the EAA and the AOPA and got no results, and no answers. There both like talking to brick walls, much to self important. I belong to both organizations, but I am not sure I am getting my monies worth. When will someone notice what is happening. If someone doesn't take notice soon, the average guy like me will be priced right out of flying .. and its not far off.

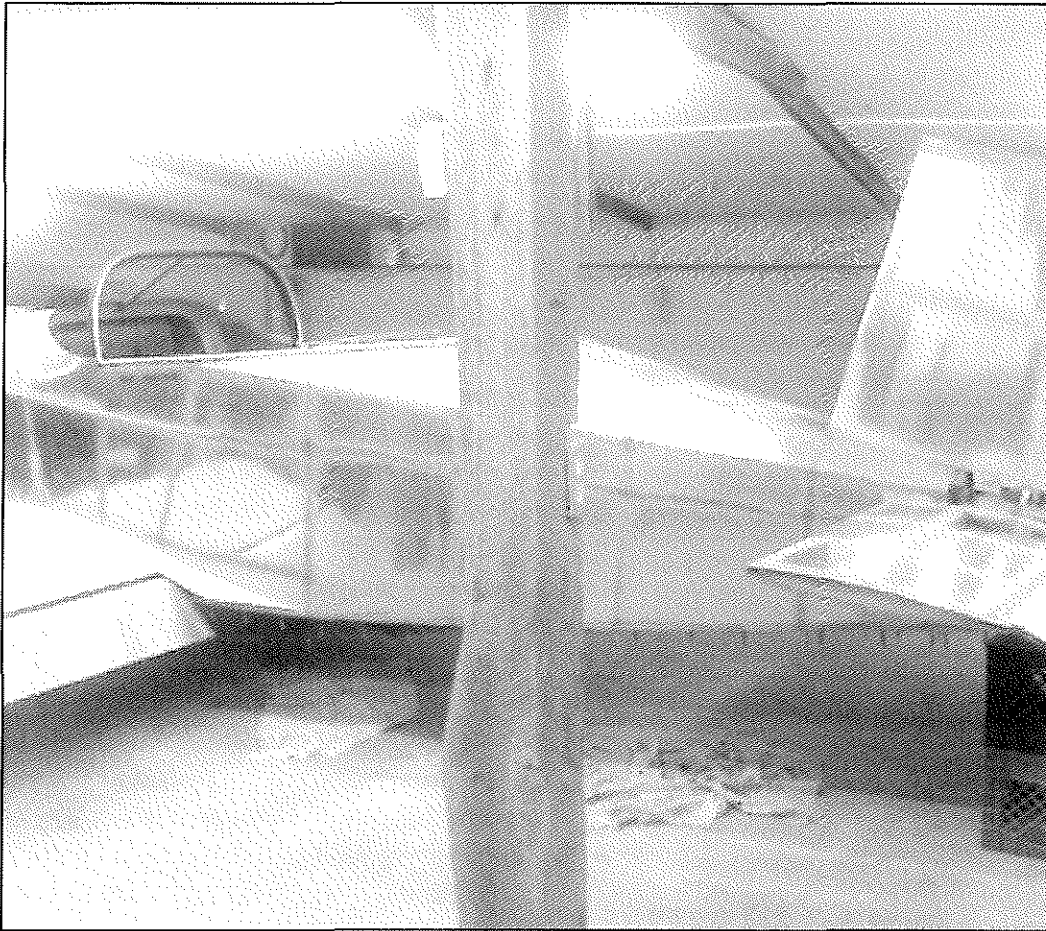
Here is one for you .. I had a potential Sport Pilot student. I was going to give him instruction in a Champ that qualified as a LSA. It was owned and operated locally by the FBO. When the FBO tried to get insurance coverage, he was told by his Insurance company that they required the student to have a third class medical. He explained to them the Sport Pilot class required a valid drivers license, and that a medical was not required. He was informed that they were aware of the rulings, but would require the third class medical even for a Sport Pilot. That kinda defeats the whole idea of the Sport Pilot class now doesn't it. Needless to say, I lost the student. When will this insanity end ?? Soon only the elite and the very rich will be able to fly. Is that what we are headed for ... I think So. What do you think?

For those wishing to contact me, here is my current information:

Roy Farris
1290 N. Lakeview Circle Apt# H
Franklin, IN. 46131
(317)736-8903
royfarris@earthlink.net

One Members Progress

David Read ~ Olney Illinois



David's project is about three years old. Looking good.

Registration Numbers

There is only one T-18 on Rick Shoup's CD with an "NX" tail number. Ours, NX53PD. I can foresee getting our ration of comments about this, so here's what builders and re-painters should know about registration marking:

14 CFR Part 45.22(b) states, "A small U.S. registered aircraft ——— for which an experimental certificate has been issued ——— for operation as an ——— amateur-built and which has the same external configuration as an aircraft built at least 30 years ago may be operated without displaying marks in accordance with Part 45.21 and Part 45.23 through 45.33 if it displays ———marks at least 2 inches high ——— consisting of "N" followed by the symbol appropriate to the airworthiness certificate – "X", experimental, followed by the registration number.

Advisory Circular 45-2A 6. E. (2) tells us if you mark the a/c as described above, the "X" is not included in the airworthiness or registration certificates. So if the "X" is put on the a/c, no paper work is required. Par. G (2) tells us if you paint on an "X", the word "experimental" is not required.

Pat & Dave Eby

What Me Worry

“What me worry?” was Alfred’s line in “Mad” magazine. There hasn’t been anything to worry about in the newsletter for a while, so here are a couple of things to be concerned about.

Control balance. The weights specified are for an unpainted control surface. When it is painted, you have more weight behind the hinge line than in front. Additional weight must be added to compensate for the paint. On our T-18, 2.5 lbs. had to be added to the stabilator leading edge and 12 oz. to each aileron weight.

The importance of balancing controls on fast aircraft is discussed in Advisory Circular 43.13-1B, Par. 4-36 (a) & (b). Advisory Circular 90-89A Section 4 also tells about it.

If you don’t want to look this up, or you don’t have those publications, what they tell you is if your controls aren’t balanced, they may flutter at a lower airspeed than if balanced. It is easy to do. And you can go fast without worrying if something is going to flutter.

Forward tunnels. If you have one, disregard the rest of this. Some builders put the rudder cables in nylon tubes along the fuselage sides. This eliminates the need for a forward tunnel. John Thorp put that tunnel there for two reasons: it keeps your feet on the rudder pedals. If your a/c doesn’t have a forward tunnel, put a strap loop on the inboard pedals to keep your feet from sliding off the pedal.

Dave & Pat Eby



Light Weight Thorps

The lightweight starters, store bought or converted Honda are great (I have both). For batteries, I now have a hands down lightweight favorite. I am running an Odyssey PC680 in my Pitts which is a 350+HP IO-540 with 10:1 pistons. Hot starts and Minnesota winter starts are no problem!

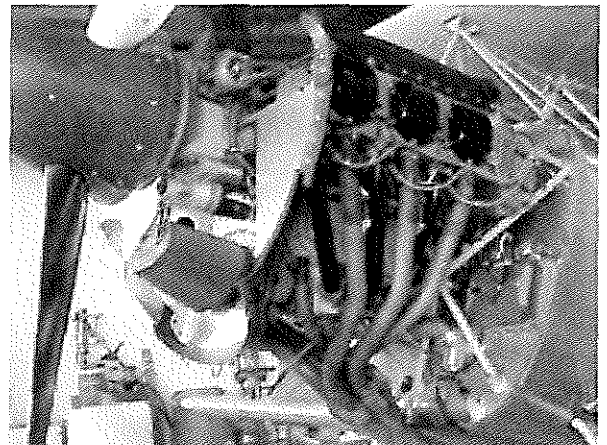
<http://www.odysseybatteries.com/battery/pc680.htm>

These batteries lose very little power in storage, they do not leak, no box or vent is needed. Cranking power is awesome from such a small battery. My hangar mate has the same battery in his 330 HP Panzl, the original battery is going on four years old and doing fine. When my present T-18 battery dies, it will be replaced with an Odyssey.

My hangar mate and I both have these batteries mounted on the forward side of our firewalls, they hold up fine in this environment. Weight savings come from (1) the battery itself, (2) no battery box, and (3) a very short heavy gauge wire to the starter. I mounted my relays on top of the battery with their posts ganged together (no connecting wires) for further weight savings; see picture (I have three relays: outboard relay is from my APU plug which has never been used, middle relay is the master, inboard relay is starter).

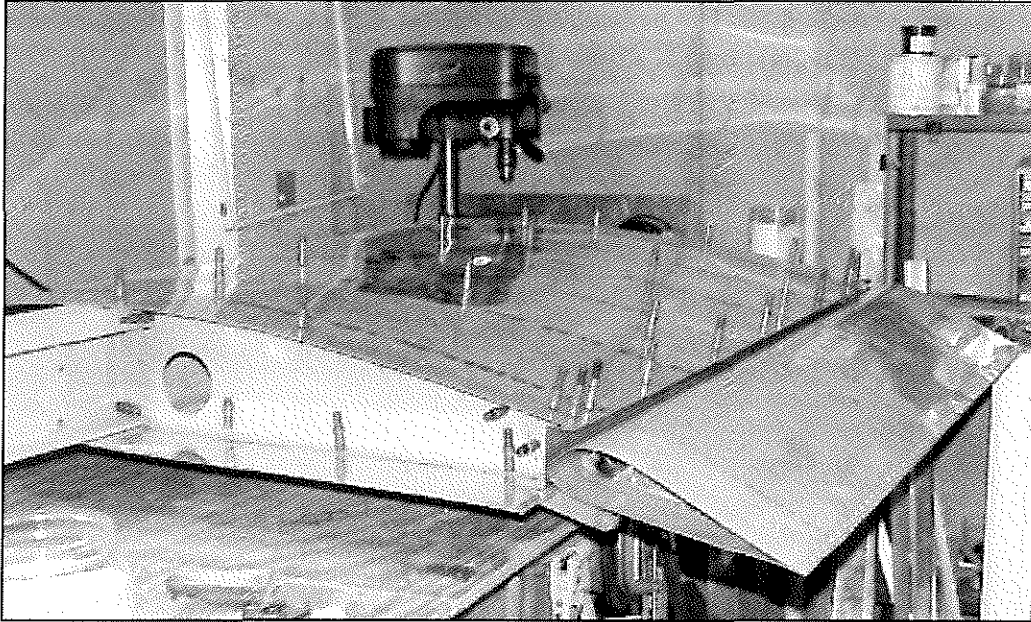
Tom Kerns
T-18 N10TK
Pitts N540TK

You can see the small battery on the firewall



A Members Progress

Andrew Robinson ~ Suwanee, Georgia



Woo-hoo! The RH center wing is ready for dimpling and riveting. I fitted up the flap and it lines up nicely. And just to be able to move something and make airplane noises, I attached the control assembly and “flew” it. It is starting to resemble an airplane!

Auto-Pilot Problem

Several of the members have installed these devices. I have applied the Trio EZ Pilot controller to a NavAid servo. It works well, but it's getting RF disturbances. This has occurred at NIGHT with a hard right turn after adjustment of the dimmer pot to bright. I've since installed 5 NuLites and disconnected the eyebrow lights (miniatures in a plastic tube). The same problem occurred from the pot, so the NuLites were wired directly to a breaker. The pot still feeds the basic instruments but causes the AP to go ape when turned up. Next I'm going to try some lead shielding around the EZ box (about 3"x3"x3"). Later, I may have to utilize a toggle switch.

Following these steps, it may be time for a complete re-wire using shielded wiring. Those guys that have the electronic AP's (Highley, Green) may wish to comment on this problem. I just got the NavAid controller back with some upgrade and a new servo for the T/S-18 “Project”. Maybe I'll have to forget night flying or go back to the NavAid!

Tom Worth - Tacoma, WA - N295RS

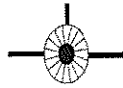
First, let me say that I'm not an electronic AP, but have had a bit of experience with EMI control in computer systems. I first try to identify the source and try to deal with it there. My guess is that the dimmer pot wiper is arching due to vibration while in flight. An electrical arch can cause lots of RF. If that's the problem, putting a capacitor (1000pf 500V ceramic) between the pot wiper and ground might eliminate the arching. I doubt if shielding the box would

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Auto-Pilot Problem. cont.

be effective. My guess is that most of the energy is getting in through the cables. Ferrite beads around the cable bundle might be effective. Consider aluminum tape as an option over lead. Comments from the experts?

Thom Steury
Mission Viejo, CA, N551CM



Tailwheel Mounting Question

I just purchased the aviation products tailwheel for the tapered rod tail spring. How have all of you attached it to the round rod tailspring? It only has what appears to be one 3/16th inch hole in one wall of the receiver tube on the tailwheel assembly. It doesn't seem like a lot of shear strength to resist torsional rotation of the tailwheel assembly around the round tailspring rod if I use just what is essentially just a set-screw. Have people beefed-up the attachment, i.e.machined a hole for a through-bolt?

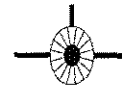
Glen Corell
N927AS

You need to drill a hole thru the rod. You MUST do this off the aircraft and set up in a milling machine. Do not try to drill the hole with a hand drill. You should first determine the position of the tail wheel on the rod (i.e. on the airplane) and index the tail wheel to the spring (rod) so that when it is set up and clamped in a mill you will drill the hole in the correct position.

Tom Hunter

On my Pitts I drilled all the way thru and reamed to 3/16". After 40 hours, I found the holes in the aluminum were enlarging and the tailwheel was rotating on the tapered rod, a condition which would clearly worsen with time. I pulled it all off, cleaned it up, and went back together with 3-M structural epoxy plus the bolt. I am now at 65 hours and solid so far....

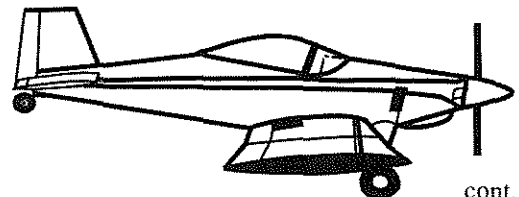
Tom Kerns



Technical Chatter

In mid 2003 when my wife was terminally ill, I was unable to open up N295RS for the annual conditional inspection. Larry, IA/A&P (former partner in the "Project") and his partner David replaced the landing gear from the T/S-18 (new Classic gear). Cracks in the gusset leg welds had been there from the original builders days as they had been spot drilled and primed. Basically the welds were too shallow from my industrial experience. I feel the gusset should have been designed with a "tongue" up & down the leg similar to the gusset configuration on the horizontal member. In industry it's a poor practice to weld across any beam as it will cause a stress buildup. The repair of the old gear was done by an ex Boeing research welder and the gear will be used on the T/S-18. He said the heli-arc weld should be continuous around the tongues (no stopping). Most builders use the Brock or Classic landing gear and don't build their own landing gear, but the comments are made as constructive criticism.

Tom Worth
Tacoma, WA
T-18 N295RS



cont.

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Technical Chatter, cont.Wet Wing Sealant

I'm looking for a satisfactory sealing fastener for wet wing tank access hole. I have some plans calling for a K-1000 sealed type nut plate but can't find any at Spruce or Wicks. I see Spruce has Cherry Q rivets "engineered to effect a seal". Wondering if anyone has experience sealing access hole to wet wing could give me some guidance. Is the Cherry Q rivet adequately sealing?

Hal Underwood

Regular bucked rivets tend to be self-sealing by virtue of swelling to fill the hole. To ensure this, tank rivets are usually installed wet with primer. That is what we did on the flight line at Boeing. For my wing tanks, I used some Permatex form-a-gasket that I dabbed in the rivet holes right before I bucked them.

Andrew

Textron Bell Helicopters use sealed nut plates in fuel tanks of Bell 206 helicopters. I do not have an IPC in front of me but if you have a 206 operator in the area I am sure they would give you the P/N.

Garrick Andrews
ZK-EDF

If you just put a dab of proseal on the screws, you don't need anything else.

Bill Williams

Van's designs use a doubler ring on the inside with regular nut plates. He supplies a cork gasket which leaks for everyone that uses it. :-) Many techniques

cont

Technical Chatter, cont.

are used that work but the simplest is to use a less permanent grade of tank sealant & just seal over the screw heads after attaching the cover plate. If you want to rivet the plate on (closer to the 'permanent' end of semi-permanent), go to <http://www.hansonrivet.com/w22.htm> This is the style used by Van on the newer tanks to attach Z-brackets to the back baffle. Aluminum rivet, steel mandrel, dome head, AD4xH where x specifies grip length for your sheet thicknesses. I'm going to go 'out on a limb' here with a heretical recommendation. (I've owned a T-18 & would happily own another, so I hope that buys me a little credibility.) The recommendation: Monitor what the RV guys are doing, prowl around Van's online accessory catalog & get a printed copy. There are so many RV's flying & being built, and their construction is so similar to T-18's, that many, many T-18 construction problems have already been solved by RV'ers & Van will happily sell to any homebuilder at very reasonable prices.

Charlie England

Aileron Spades ~ Should We?

Editors Note: The subject of aileron spades surfaced again on the ThorpList email group. As always a subject like this brings on a lot of debate. We all know that Bernie Fried's Thorp is equipped with spades and they seem to work perfectly. I have included this next opinion as another point of view.

Spades can potentially add very large loads to the hinges. If their incidence is set so that they do not tend to deflect the aileron either up or down, they will still have a significant drag load. In addition, if the incidence is not set for zero-deflection, then each spade will exert a substantial vertical load on the aileron and hinge which is then balanced through the control to offset the identical

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Technical Chatter, cont.
Aileron Spades ~ Should We?

load on the other aileron. If you put a 20-pound sandbag on each aileron, they will be balanced (side to side) but not unloaded. In addition, the spades can create very large vibratory and/or buffet loads. A well-designed servo-tab arrangement might provide a reduction in stick force with less drag, and would certainly look better.

This is not a recommendation, just a discussion of a means to reduce aileron forces. It is not a suggestion that, at least for the Thorp, a reduction needed or desirable. A servo tab is a tab identical in construction to a trim tab which is used to reduce the effort required to deflect a control surface. The rudder trim tab on the Piper Aztec is also a servo tab, and the horizontal stabilizer tab on the Aztec (and also the Thorp) is an Anti-servo tab.

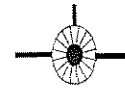
A servo tab functions by deflecting from the plane of the control surface in a direction opposite of the movement of the control itself. So, when the aileron is deflected downward, the tab deflects upward from the aileron, which assists in deflecting the aileron down. Conversely, when the aileron deflects upward, the tab deflects downward from the plane of the aileron. By constructing a tab which had a control arm with an attach point which was a half-inch below the hinge point, then attaching a rod from that arm to the rear wing spar at a point on-half inch below the aileron hinge, you will have an arrangement where the tab always remains parallel to the wing chord when the aileron is deflected. By moving the attach point at the rear wing spar down (more than one-half inch from the aileron hinge) the servo effect is increased. By moving the attach point up, servo effect is decreased. The size and aspect of the tab affect its authority, just as in a trim tab. Servo tab arrangements must be well constructed and have no lost motion (slop) or they can induce flutter.

In regards to the cracking that has occurred in some control systems, I wonder if it is not the result the stick being slammed against

Technical Chatter, cont.
Aileron Spades ~ Should We?

mechanical end-of-travel instead of working against air loads. If aileron end-of travel is limited by bellcranks or factors other than the stops which are supposed to limit travel, unacceptable loads can be imposed on the control structure.

Victor Roberts



The T-18 Directory

Thank You Rich Shoup !! Wow what an accomplishment. I imagine that all of you out there who have received Rick's T-18 Directory feel the same way. As I understand it, everyone that sent information to Rick received a free copy. I have seen some interest from others who are asking if they can get a copy. Rick will send anyone interested in a Thorp a copy. You can contact Rick at: volot18@citlink.net or by phone at: (304)856-1023.

Rick is still gathering information as is going to keep the T-18 Directory updated. He is asking anyone who has a T/S-18, be it a project or a flying airplane, or if you know of a Thorp around somewhere, to contact him. We are trying to document every Thorp in existence.

Please help!

I received my disk and am amazed at all the information that it contains. I agree with others and feel that RICK should get some reimbursement. The disks and mailing had to be expensive, let alone the time expended on the project. What do you think RICK? Give us a figure!!! Now I may be going to waste time and space but I have a feeling that there several other, as I am, semi-illiterate where computers are concerned. I was prepared to scroll through all the preceding

cont

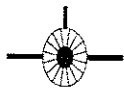
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The T-18 Directory, cont.

pages to the plane I used to own-N380G. However, I was visiting my near nerd son and he showed me a shortcut to get to page I wanted by typing in the plane number or a word that might show up only on the desired page, such as the owner's name. The steps follow.

1. Insert disk in proper drive
2. Click on "My Computer" on the desk top.
3. Click on "CD" drive...Usually the "D" drive.
4. Click on "Thorp Directory-b-pdf".
5. Press "Ctrl+F" both at the same time. "F" is for "Find".
6. In the pop up that comes up, type your plane number or the name of the plane owner.
7. The page number will show in the lower left hand corner of the displayed page.
8. Click on a blank area to allow you to scroll up or down or print the page.

Pedro Daniel

More Tailwheel Talk

I have a few questions concerning the tail spring set up. I've heard from Bill Cordoza that some builders are riveting a "doubler" piece of aluminum to the underside of the fuselage, where the tail spring setup bolts to the attach points. Supposedly, this is being done to strengthen the attach points to solve the metal fatigue problems that some T-18s have experienced in the lower bulkhead/attach bracket areas. Does anyone have any information on this?

Finally, does anyone know if any builder has ever made available a tail wheel "attach block", similar to the one shown in Trusty's plans, to receive a Scott Tail wheel ? (I've checked with Scott Aviation, but

More Tailwheel Talk, cont.

they don't make tube type attach block, although, they would do so if they had a quantity order of same. Also, the folks at Aviation Products don't believe their attach block could be reworked to do this either.) If a ready made solution is not available I suppose I could just buy the complete Aviation Products tail wheel assembly and forget reusing my original Scott Wheel.

Does anyone have any prejudice towards using a single fork Aviation Products tail wheel over the double fork arrangement? It would seem to me that the single fork may be less weight and more streamlined. Also, the single fork set up for my Scott Tail wheel seemed to be strong enough for the flying I've done in 118EK.

Finally, does anyone have any more input as regards to adding any additional strength to the mounting bracket area on the fuselage?, i.e. an aluminum doubler over the bottom skin area. Or is most everyone just using the original thorp plan mounting bracket, which I'm assuing is the same call out, per Lyles plans.

Thanks for any thoughts that you may regarding the above.

John Kempkey
118EK

As far as the difference between the Scott and the Trusty, the Trusty gives you a much softer/smoothier ride. It's very good. I had a Full setup with a Lang tail wheel and decided to go with a Trusty because, In my opinion, it's a much better ride. This is what I utilized:
Tail wheel: Double fork assy, 6" wheel, 10 degree angle,
5/8" dia. round. \$219.50 Aviation Products Inc. 805-646-6042
Tail Shaft Fus. fitting: Charles Borden [cborden@kcbx.net]
\$25 + \$3 shipping. His price may have increased.

cont.

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An Update On Jim Paine

In the last issue of the T-18 Newsletter I reported that my good friend and T-18 Mutual Aid Society member Jim Paine had a serious accident while attempting to test fly a new Hi-Max homebuilt airplane. I am very happy to say that he is recovering well. Below are a couple of emails I received.

We are doing very good. Jim is in rehab 5 minutes from our house, and he is working very hard in the gym to build up his muscles to learn to walk on his prosthesis. I'll send some pictures along, they show his progress better than I can describe. He is getting antsy to come home, but I expect that to be another 3-4 weeks.

Judy Paine

I thought I would update you on Jim if you want to put it in the newsletter. He is doing fantastic, got his walking boot yesterday on his left foot, has his prosthesis on his right foot, and will begin putting weight on them today. He may be coming home in a few weeks and will go to outpatient therapy to walk in their pool. He tells everyone the first thing he's going to do when he gets home is go flying with Jerry & Stu.

Judy Paine



Nice to see Jim up and around again. I am sure I say this for all of the T-18 Mutual Aid Society members ... Get Well Soon Jim.

As a final comment ... Jim, you need to get back to flying your T-18 ... I need a RIDE !!

Roy Farris

More Tailwheel Talk, cont.

Base Plate: Chuck can help you on this to.
 Tail Spring: Lyle Trusty Design. We had such a large interest in
 Fab of the units that Sam Lauff took orders and contacted Lyle Trusty to do a production run of springs. \$85 + 14 Shipping

Steve Peirce

My personal experience with a single fork Aviation Products tailwheel is that it is ample strength (as well as lighter and less drag), I do not see any reason to go double fork, T-18's are relatively light on the tail. Mine has been flying of several years, mix of sod and paved runways. The standard design steel brackets inside the tail have broken on numerous T-18's, including mine (I still have the standard leaf spring). I went one size larger on the front attach bolt, went substantially thicker on the steel fitting inside which supports that bolt. I also reinforced the aft bracket which cracked on mine, however: I did have some transportation handling damage on that bracket which may have contributed to my cracks. Riveting any doubler on the bottom skin would not reduce stress on the forward bracket; the damaging load is vertical (tension axis of the bolt) and a flat belly plate will not have any impact on that load. I am not sure why folks are doing this, there must be another problem developing with alternate springs which they are addressing.

Tom Kerns
 N10TK

I have a matco 6" tailwheel on my T-18C. it is becoming a bit difficult to handle at landing speeds, I noticed a bit of wear in the bushing around the tailwheel mounting bolt the 3/4" bolt I've looked at Wag Aero and Spruce both but my catalogs do not list parts for this tailwheel. Anyone have an idea where to go to get this bushing?

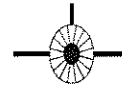
Mike ~ Lexington, Tn

cont.

More Tailwheel Talk, cont.

Answer to Mikes Question

Matco Mfg.
 550 West 3615 South
 Salt Lake City, Utah 84115
 801 486 7574

Nosewheel Shimmy

I realize I'm reaching to a bunch of tail draggers, but I know some of you have broad expertise. I'm have a problem of nose wheel shimmy. Mike Archer has the knowledge and competence to help me solve this, but I need all the help I can get right now. Here's my experience- My plane is passed as airworthy by FAA and ready to fly. I decided to have Phil Key do the first flight when its ready, partly because he is a CFI and as far as I know is the only one to fly this type bird except for Mike. A week or so ago I did a taxi run getting it up to a speed of about 60-65 knots after couple slower speed runs. Was not quite as stable as I hoped but stayed in middle of runway and seemed like was a matter of getting used to handling it. Yesterday, I decided to do go a little faster and lift off a bit to see if it felt right. I did a couple runs again about 60 knots, then another up to 70, lifted off for maybe 50-100 yards a few feet off runway, then backed off the throttle and settled onto the runway touching down normally. When I pulled the throttle full off, the nose started a violent shimmy. I gave it some throttle and it smoothed. Then I eased the throttle back and was OK. I reflected on prior taxi runs and suspect that some of the squirrely feeling I had noticed was during deceleration but it didn't get violent until the more rapid deceleration after the lift off. When I got back to the hanger and inspected the gear, I could see that the wheel had swiveled

cont. pg 12

Nosewheel Shimmy, cont.

so violently against the stops that they were bent back and dents or cuts were made at points of contact both on the stops and the flange that hits the stop. Also, the violence of the gyrations resulted in a condition of some play where the gear strut arm fits into the sleeve at the firewall. I'll have to see if the sleeve is cracked or why it has slop. But right now I am so disheartened, I need to regroup to look at it. I called Mike and he asked me to get the nose off the ground and see how freely it swiveled. It felt firm but turned with no resistance. He said it should have a little resistance to turn and needs tightening of the nut under the housing to give it some resistance to free swivel. He will come over next week and try to size up the problem. I guess I should have waited for Phil before going that far in testing. I had in mind that I might discover and correct some minor problems before it was ready for Phil. Several have told me I should have immediately unloaded the nose wheel by pulling back the stick. I'm sending a couple of pics separately (1st attached and came back as too big file). At that time I had a prop clearance problem and subsequently the nose strut was bent down slightly, just forward of the attachment sleeve.

Thanks
Hal Underwood

This problem is as old as nose landing gear installations. It frequently occupies a lot of the nose wheel installation designer's time during the first few months of flight testing. Various schemes are used to resolve the problem. The most common are: A nose wheel hydraulic shimmy dampener can be installed, a nose wheel steering linkage can be incorporated, or a friction device can be incorporated in the yoke attaching hardware. The problem is brought about by the fact that the natural vibration frequency of the nose wheel and yoke is close to the natural frequency of the airplane. A reaction force from a pavement irregularity can kick the wheel sideways, the rebound from the tire makes

cont.

Nosewheel Shimmy, cont.

the wheel swivel back, go beyond center, then bounce back in the other direction. Normally it would dampen out in two or three oscillations, however, if the frequency is close to the natural frequency of the installation the movement diverges until the source of the reinforcing energy is removed. It's like "flutter" in a control surface. Included in the factors that lead to the shimmying of the unit are: The weight of the rotating mass, the moment arm of the mass behind the yoke pivot axle, and low friction in the yoke pivot axle bearing. An incorrect caster angle of the yoke pivot axle, which should be perpendicular, may reinforce the divergence. The things that can change it are: The weight of the mass, the moment arm of the assembly; the resistance of the yoke to swiveling, (whether it's from bearing friction or from a friction device) the yoke pivot axle caster angle, the load on the nose gear, and the ground speed of the airplane. Things you can do:

- o Check the angle of the yoke pivot axle with the aircraft loaded for takeoff. When you bent the nose strut down you probably changed the yoke pivot axle caster angle, unless you compensated by bending the strut up at the lower end.
- o Compare what you have to the nose strut drawing to make sure you have the correct angle on the yoke pivot axle, as called out on the drawing.
- o Tighten the nut to increase the friction of swiveling.
- o Make sure that everything else is tight, airworthy, and with no slop anywhere.
- o Always be ready to pull back on the stick to unload the nose gear on takeoff or landing rollout.
- o Consider devising a method of increasing the resistance to swiveling the yoke that is adjustable.
- o Be assured that if you porpoise three times on landing the nose gear will collapse on the third bounce.(Cessna Style) Go around after one bounce.

cont.

Nosewheel Shimmy, cont.

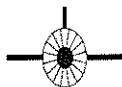
o Check with Paul Rosales prosales@qnet.com, and Jack Hakes, jhakes@qnet.com They both have hands on, and flight experience with this kind of gear.

If you have an Aircraft Spruce Catalog look at the Scott Model 3200 Tailwheel parts breakdown drawing. (under landing gear - tailwheel) You will find numbers three and seven are thrust washers and number four is a thrust plate. Number five is three small compression springs. These parts provide the friction mechanism needed to keep the tailwheel from shimmying, and are the reason this model tailwheel has been used on various nose draggers over the years with good success. I hope this helps,

Lyle Trusty

Assuming you used a nosewheel fork assy from Vans acft or similar setup sounds like you may not have enough tension on the swivel point. Using the RV specs which I have done several times there needs to be 20 pounds of side pull measured from the axle bolt point. If you have two conical washers to set the tension you will have to tighten them until they are almost completely flattened. This may seem like a lot it did to me, but I've done it several times and it works. You need to also check that the fork pivot is vertical to the ground. If this doesn't work find some RV builder and look at the method for stiffening the gear leg with a wooden stiffener and fiberglass wrap

Ed Ludtke

Starter Problems

I got starter troubles again. Of all the Lycoming powered airplane's I've owned and flown I believe they all had

cont.

Starter Problems, cont.

starters with a centrifugal In-Line bendix and none have giving problems like this on two different starters. Follow the history...

After landing noticed the pinging sound of the gear teeth hitting. Shutdown and restart and no more pinging until next landing. Oiling the starter shaft did not help, cleaning the shaft and using graphite did not help. Put a new Bendix on the existing Prestolite starter and still had the problem and engaged in flight and ripped the teeth off the bendix no damage to flywheel gear. Bought a rebuilt starter from Falcon, installed it and 8 months later heard more pinging during taxi after landing. Silicon spray on the starter shaft and no sticking for about four flights only. Sprayed silicon on the shaft before Oshkosh and after about 2000 miles and 14 hours with 6 landings the gears were pinging again taxiing to my hangar. Falcon told Bob Wagstaff the shaft of a starter should be changed when the bendix is changed because the shaft will taper with wear causing the bendix to creep forward. That's why I got another starter I guess rebuilt starters with a centrifugal bendix are not the way to go. The shaft may not be rebuilt. Does anyone have some info the share. I know these are common starters on Lycoming engines and normally are not be this bad. All I can think of is a "New Starter" ... a light weight one this time but hoped to get some money out of this on first.

Thanks

Jerry Hajek, Jr. ~ N71XP

I am a survivor of the Bendix problem. I had to leave many a fly-in by being prop started because my drive would pick that time to shed its gear teeth. I solved (and traded for another set of issues) my gear situation by the use of a Skytec. It moved the CG back enough for me to remove several pounds of weight from the tail. The Skytec will not, however, tolerate a low battery. The necessary long battery leads make it imperative that you keep the battery up and the contacts clean.

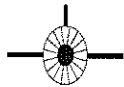
cont. pg 14

Starter Problems. cont.

My theory on the Prestolite/Bendix failure issue is that our engines fly with a five degree nose down attitude and the heat/vibration weakens the Bendix spring enough to engage at the wrong time. Wheel landings put the nose at a negative attitude and the slight bump at touchdown is enough to cause engagement. Further, the Bendix units that you can get at the auto parts store usually are not of the quality that will stand up to aviation use.

My advice is to bite the bullet and get a modern starter.

Bob Highley
N711SH
SN 835

T-18 Seats

By: Gary Green

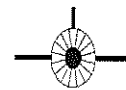
I have been working on my T-18 seats and thought you might be interested in how I am making them. I bought the basic frames made exactly per the plans from Paul Krogh. They were very precisely made. I wanted to be able to fold the back down to enhance access to the baggage compartment. I took some 1 inch aluminum rod stock and made the hinges. I think you can see from the photos how they were whittled out on the lathe and vertical mill. I used a 1/4" AN bolt for the hinge pin. I had a couple pieces of 3/4" x 1/8" aluminum angle welded to the seat pan section and the back section to stiffen and hold the frame dimensions accurately. The hardware store stuff is a 6061-T5 alloy and thus is weldable. That is what I used. The .025 sheet skin will be pop riveted to the rear of the back and the top of the seat sections. Since the hinge location is about 4" up on the back section, I think the back will be able to be folded forward and lay on the top of the seat

cont.

T-18 Seats. cont.

cushions without removing the seat cushions. I deviated a bit from the plans on the front bushings to hold the eyebolts also. Instead of using 5/16" eyebolts, I used 1/4". I used 1/2" rod stock and drilled a 1/8" pilot bore prior to welding. After welding, I drilled and tapped the bushing full depth for a 1/4-28 thread. I then ran the threads full length on the eyebolts. Seems to work fine.

Check out Gary's seat pictures on page 15

Canopy Hold-Open Device

By: John Evens

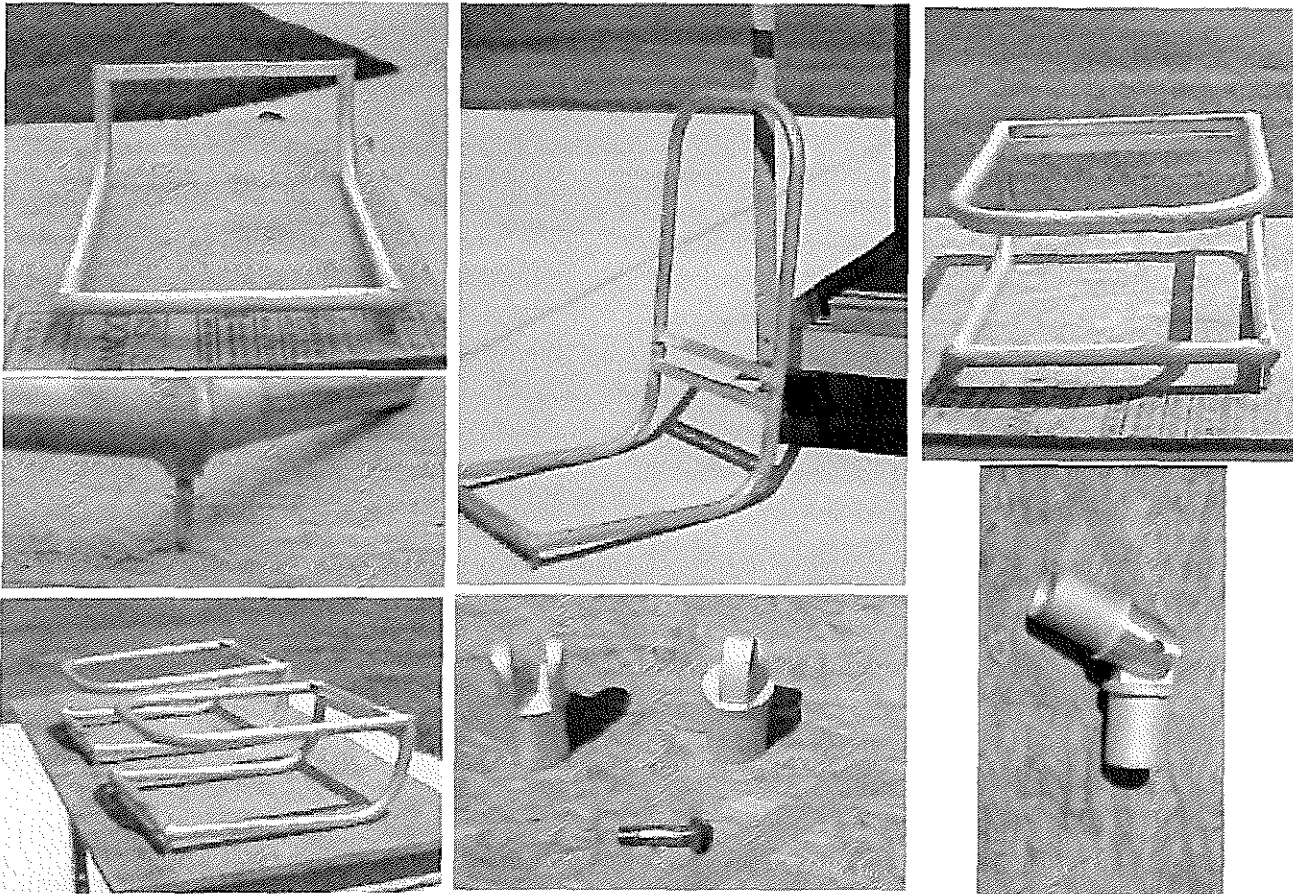
You might like to publish these pictures of the simple canopy hold-open device I designed quite a few years ago. I thought of all kinds of latches, etc. which were more complicated. Most everyone agrees (unless you have a lot of friction in your canopy sliding system), that it's a pain to taxi with the canopy wide open at any kind of speed without it trying to close. You can stick your arm out and hold it, but then you don't have both hands where they should be. With this "spring-clip", you just pull it hard open, and it stays. If one isn't enough for your canopy, you can put them on both sides. I made it out of a little strip (about 1/2" wide) of .015" stainless steel shim stock, which has a nice "springy" temper.

Check out John's Canopy Hold-Open Device pictures on page 15

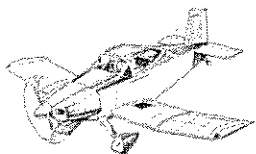
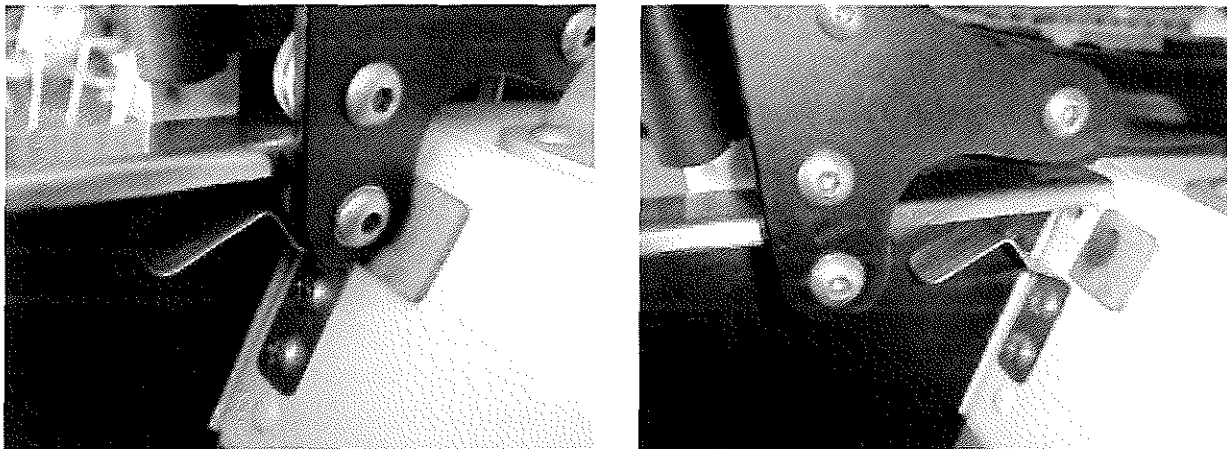
Pilots Prayer

Loose not thy airspeed, least the ground shall rise up and smite thee.

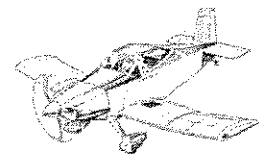
Gary Greens Seats



John Evens Canopy Hold-Open Device



Don't forget to check out the T-18 Website
Go To:
www.t18.net



Lets Talk SafteyAnother Landing Accident

In the preceding year I have lost four of my very best friends due to accidents in homebuilt aircraft. Carl and Sue Daughters accident may never be explained. The other two, Roy Medan of Los Angeles and just recently my good friend Jeff Newman of Watertown, Tennessee. Roy Medans accident I wrote about a few months ago could have been avoided. My friend Jeff Newman was into the second day of test flying his new ultralight, a Loele Paracele. He was set up on final approach to the grass runway at his home in Tennessee. On short final he stalled and spun in. The accident was fatal. I remember back when I was eighteen taking my first flying lessons in Texas while in the Army. When my instructor was getting me ready for solo he told me a few things to remember. Airspeed, airspeed, airspeed and a Piper Cub is the safest airplane in the world it will only kill you a little. Stalling an airplane on final is almost always fatal unless you are about to touch down. Now here lies the problem. Most of the airplanes we fly we are checked out in and know the Vs or stall speed. Add 13% to that and you have a safe approach speed. What we do not know is the stall speed of a homebuilt aircraft that we are test flying for the first time. It is imperative to find this out on the first flight and know your Vs plus 13% before going back to the airport and making the first landing. Here are a few points to remember:

- Find out your Vs stall speed
- Know your safe approach speed Vs + 13%
- Slow fly the aircraft at altitude making 20 degree bank turns as close to stall as possible
- Don't hot rod around the pattern at first, no steep turns to base or final.
- Steep turns will change the Vs speed
- Carry power on landings, some homebuilts and ultralights drop out off the sky when the throttle is retarded.

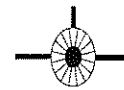
Once when I was getting my instrument rating Oscar Bayer gave me an item he called his altitude reminder he made from an stationary store suction cup. I never

cont.

Another Landing Accident. cont.

did like flying instruments, I fly because I like the beauty of it. I threw it in my drawer and forgot it. I now use it as a Vs + 13% reminder. Stick it right in the center off your airspeed indicator and never let your airspeed get lower than Vs + 13%. At least until you have felt out the airplane and know it's characteristics. After your test flying is complete add the correct markings to your airspeed indicator.....
Chuck Borden Oscar's Reminder

Chuck Borden

For Sale

I'm starting the New Year by cleaning out a couple of engines; both great for T-18's. Good winter projects.

#1, Lycoming 0-320-E2D core, 150Hp, disassembled & ready for inspection, believed complete except for oil pick-up tube and some small hardware bits. Jugs look good and crankshaft runs-out OK. Comes with an extra set of crankcase halves and another box of spares. No accessories or papers but sump has data plate.

#2, Lyco 0-290-G4. Zero time since overhauled and run-in years ago. Standard GPU engine, cleaned, painted and fully assembled. Needs converting and needs accessories. Plenty of literature is available for conversion to what the ThorpList calls a mousemotor!! Remember that John Thorp designed the T-18 around the availability of this surplus engine. Digital pictures available.

I have rough prices in mind but will consider reasonable offers from the Thorp gang first before I go to barnstormers, eBay or elsewhere.

John Cragin, T-18, s/n 554, N18JQ
jqcragin@juno.com

cont. pg 17

For Sale, cont.

Philip Lacy has his T-18 up For Sale. By his description, it's about six months overdue on an annual and needs a paint job. He's asking \$20K as is and \$25K with new paint and annual. Don't know if the uninstalled accessories go with the sale. You can contact him direct as he does not follow the Thorplis. Might be a reasonable deal for someone.

Philip H. Lacy, Major, USAF (Retired)
44 Poplar Avenue
Shalimar, FL 32579
(850) 651-1793

My name is Monroe Maxhimer. I live in Glendale, Arizona. A few years back I loved to fly and I still have the urge at times, but situations change and I have not been able to do so for several years. I have the Thorp T18 plans #612. My project is for sale because I no longer have the funds to complete it. I will accept any reasonable offer. The project is partially complete to the point that it is on the gear. Canopy and windshield are installed. Ailerons, flaps, vertical stab, horizontal stab and rudder are finished. The spars for the wing are finished but the entire wing needs skinned. The fuselage is the standard (not the wide body) but the wing is the Sunderland profile. The interior needs finished as very little is done in regards to the instrument panel. The engine mount fixtures at the firewall has been modified to accommodate the Ford V6, which I also have (partially modified) along with the Blanton reduction unit. Gas tank is made and specially modified to clear the additional reinforcements added at the forward end of the longerons for the Ford V6 engine mount fixtures. The Ford V6 and the conversion unit can be purchased separately if desired.

Monroe Maxhimer
623-939-4064
maxhimer@cox.net

For Sale, cont.

Lang tail wheel: about 260 hours on it. Following have been replaced in the last 10 hours of operation; tire and hub, including bearings and seal. Vertical bearings. Attachment fitting (attaches tailwheel to spring). Leaf spring: 1 1/4 inch wide. U shaped fitting. I can't find a part number for this but it was used to hold the aft end of the leaf spring against the bottom of the fuselage. Forward end of the spring has a bolt hole drilled. Extras: wheel bearings, vertical bearings, Garlock seal, spring spacer and old tire and hub (pretty good shape). I'd like \$325 for everything.

I also have a set (2) of brake fairings from Mike Archer that I want to sell, they don't fit my wheel pants. I paid \$66 for both; I'd like to sell them for \$35 plus shipping.

Eric Teder
eric.teder@verizon.net

I have a friend in L.A. California that has an excellent T-18 for sale. Call Tony Paplia at 1-562-421-8755. It is also Barnstormers.com. It has about 600 hours on it and has an Lycoming O-360 engine. Airplane is in excellent condition. Asking \$39,000

I have a STD instrument blank panel and a flap control to sell

Frank R. Seats ~ N886Y
seatss@wmconnect.com

Aviation Facts

You know you're flying a Cessna when you have a bird strike and it is from behind!

A Landing is just controlled mid-air collision with a planet.

For Sale,cont.

I have a Sterba 68x64 wood prop that I would like to trade for a Serba 66x68 or 69. I have a 0-290-D2 and the 68x64 is just a little to much prop for this engine. It would do well on a 0-320.

Jay Clinkingbeard
N1051Q
Dylansgp@aol.com

I have a T-18/ S-18 Kit that includes all materials for the airframe and plans. No engine mount, gear, canopy cowl,wheels and brakes. It includes all the ribs, bulkheads, spar materials, AL for all of the skins, complete stab and fin.
I have a T-18/ S-18 Kit that includes all materials for the airframe and plans. No engine mount, gear, canopy cowl,wheels and brakes. It includes all the ribs, bulkheads, spar materials, AL for all of the skins, complete stab and fin.

Ted Lemen
tedlem@ecentral.com

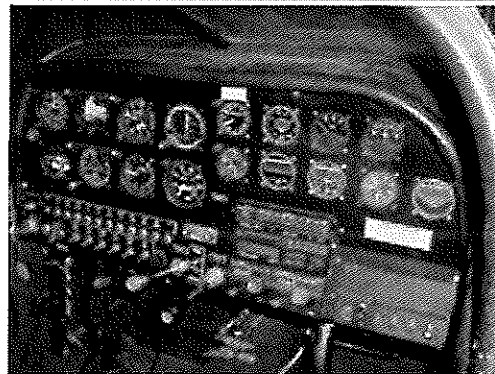
I have a Thorp T-18 Wide body with standard wings. The wings are complete and have flown before. They came from John Walton's T-18 when he made a set of folding wing for his Thorp. The empennage is done other than the fiberglass top piece for the fin. The fuselage is on gear with an O-320 E2D engine mounted. The engine is pickled with 474hrs but no accessories. Ed Sterba prop. I have all but the top piece of cowl. Panel is blank but I do have an electric turn coordinator, VSI, and encoder. Aluminum tank is complete. Seat frames. Cleveland brakes. The rudder pedals are in and the cables are routed along the outside so there is no forward center tunnel. The canopy and windshield is still in the crate from Bee Gee. Canopy frame and rails are done. Windshield frame roll bar is done. I have the four pieces for the wheel pants and three of the four cowling pieces. (Missing the top piece.) Have all

For Sale, cont.

parts to finish flight controls from Sport Aircraft in CA. Bottom skin is drilled and dimpled ready to go on once controls are in.
I am asking \$10,500.

Matt Smith
Washington, IA 52353
319-653-3445
mattst8@iowatelecom.net

My IO-320-powered T-18 is for sale. Good looking airplane, great cross country bird with an impressive panel, aux tank, fair price: \$32,000. The aircraft is hangared in Montana. Selling price includes flight instruction with a CFI. I have attached a couple of mini-pics for all to peek at. I have lots more full size pics and a spec sheet for anyone interested.



Russ Verbael ~ N-8428
(968) 342-3971

cont.

Thorp Events for 2005

TO ALL AUSSIE THORP T-18 OWNERS/BUILDERS/FANS

A Fly-in is being organized for the weekend of 11-12 June at Temora, NSW. It will coincide with a Temora Aviation Museum flying weekend. Clin Ashton-Martin invites you to fly to his property after gathering initially at the Temora airfield on the Saturday. Clin's farm "Boginderra" is 13 nm NE of Temora (Lat 34 13.14 S, Long 147 37.73 E). He has a 1000m grass/dirt strip. There hasn't been a Thorp specific fly-in (at least to my knowledge) for a long time so let's make it a good one. Clin is happy for people to camp overnight at his property so, for planning purposes, could ring you either Clin (02-69764280) or myself (0438-114-372) if you are coming to Temora and/or Clin's place. Look forward to seeing you at Temora and at Boginderra!

AirVenture 2005 ~ Oshkosh, WI. July 25 - 31 There are no specific plans yet but the traditional Thorp gathering will most likely be held on Friday July 29th in the big tent in the Nature Center. This has been our annual routine for the past several years. Lunch will be provided for a nominal charge and will begin at 12:00 noon, followed by the T-18 Forum. For information contact: Roy Farris at (317)736-8903 or by email at: royfarris@earthlink.net

The Reedsville THORP GATHERING will be the weekend of August 27 and 28, 2005.

Contact: Jim Hockenbrock (717)667-2790 or hockey@acsworld.com

Kentucky Dam Gathering ~ Gilbertsville, KY. Friday Oct 14-Sunday 16th. Each year we gather at the Kentucky Dam State Park Airport for our Fall Gathering. Please plan to attend this year. This is one of the most fun Thorp Fly-Ins in the country. More information in the next issue.



Elaine Ginn ~ N18WX ~ Camp Verde, AZ.

T-18/S-18 Thorp Newsletter
Roy Farris
P.O. Box 182
Noble, IL. 62868
Phone: (317)736-8903
email: royfarris@earthlink.net

April 2005



Jerry Hajek, Jr. ~ N71XP