T-18 Newsletter

December 2004

Notice To All Members

Most MAS memberships expire on Dec 31, 2004. Please check your membership expiration date on your mailing lable on the back cover. To continue your membership and support for the T-18 Mutual Aid Society please renew for 2005. For more information check the T-18 website at: www.t18.net Please continue your support!!

Darrell J. Miller's T-18 ~ Durban, South Africa

IN THIS ISSUE:

Editors Notes

By: Roy Farris

Well 2004 is nearly over and my airplane is still not flying. It seems like the years go by so fast and little progress is seen on the project. I guess that most of you that built your Thorp can remember similar feeling while yours was in construction. For me it seems that mine is taking longer than the average. Part of that is because I am such a perfectionist and it just takes me longer for me to get things so they suit me, part of the problem is the apparent lack of motivation that seems to increase with each year, and part of the problem is just the fact that life is sometimes hard to deal with and always seems to get in the way of doing those things that we really want to do. I know that all of you can relate to that.

I don't have any golden answers, but I would like to say to everyone that is in the building process, that you have to really keep at it, and that you need to set an achievable goal to complete your project and to try to plan things around that goal. I can tell you that the longer you draw the project out the harder is to find the time, the commitment, and the perseverance to complete it.

Now I just need to get off my duff and listen to my own words!!

Another Subject

Fly-In's, Get-Together's, Hoot'n-Nanny's or whatever you want to call them, are the backbone of the aviation world. Why is aviation and aviation people so different from the rest of the world ? I have lots of friends that attend car shows, boat shows, motorcycle events and such things. It seems that the people who love those types of hobby activities have more passion for it and their events draw large crowds and lots of support. Why is that ? I attend a large number of aviation

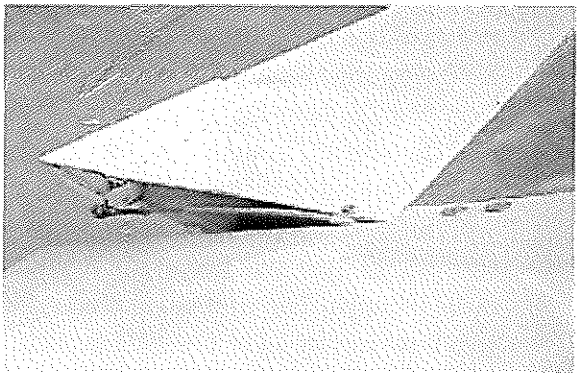
events each year and I can attest to the fact that less and less people are attending. Again I ask why ?? And why is it that pilots with perfectly good airplanes will choose to drive to an aviation event when the weather is severe clear? Some folks tell me that flying is just to expensive .... well I'll agree that it is not as cheap as shopping at Walmart, but have you ever bought fuel for a twin diesel powered super yacht? I know guys who spend two days on Kentucky Lake several times each summer and go through 1600 gallons of diesel fuel each time. I don't know how many of you guys own boats but those nice ones are not any cheaper that airplanes. Personally I don't think that the cost is the main issue .... but I am at a loss to explain it. I know people who own multiple airplanes that just let them collect dust in the hanger ..Why ? I know a gut with a super nice Mooney that only put 5 hours on it all year ..Why? I think buy now you are beginning to understand what I am getting at. When we organize T-18 events why don't more people attend? Why don't more of you get involved in the T-18 Society and help to promote not only the T-18 but aviation in general? I want to see sport aviation to continue into the future. If we as pilots and aviation lovers do not support our hobby, how can we ever expect for anyone else to?

I just don't get the whole macho aviation stuff. Do most pilots feel that flying is only for their pleasure and that no one else should ever be included? Do most pilots feel they are just a little better that everyone else? Are they so stuck on themselves that they just don't notice ? Well I sure hope that none of that is true. I can tell you that there are still a lot of interested people out there who would love to learn to fly. How can we expect them to get involved in something that we don't even get involved with ourselves. If you don't like to fly then why do you have an airplane? Can you feel my frustration yet? You as a Thorp builder and/or pilot need to get interested, get out there and attend the aviation events ... You Can Make A Difference!

Electric Aileron Trim

(By Chuck Borden)

I Installed a Lyle Trusty type aileron trim in my T-18 because my airplane had always flown a little right wing heavy, especially at cruise. The Lyle Trusty trim system calls for a slow speed motor (10 rpm) and an elaborate amount of machined parts and wiring. I decided to go with the Ray Allen T4-5 miniature servo (formally Mac Trim). It is easy to wire and has the stops already installed. It also comes with the rocker switch needed to change directions. Also while installing the trim it can be set up and the adjustments made using a 9-volt battery. It will turn a little slower but the up and down limits can be set before reinstalling the wing tip. How I got started on this was not to put a trim system in my airplane but I was in the process of painting my control surfaces and underside of my airplane and underside of the wings. After polishing bare aluminum for several years I finally decided it was getting to be just too much work. I was alumipreping the right aileron and being all wet it slipped out of my hands. From 3 feet up the aileron hit the cement on the right trailing edge making a real mess. Lyle Trusty suggests putting the trim on the left aileron trailing edge. But mine is on the right, works well anyway.



Here is what you need to install the trim system:

1. Ray Allen T4-5 miniature trim servo system (Aircraft Spruce #11-11620) $189.95 (cheaper if bought through Ray Allen web site)
2. 3 Feet of Bowden Cable (Aircraft Spruce #05-15500) $1.20 Foot
3. Wire Grip for Bowden Cable. (Aircraft Spruce #05-16000) $9.85
4. Rivnuts 8A-75 (for attaching servo and Bowden Cable to outer wing rib.) (Aircraft Spruce #A8K-75) Use nut plates if wing rib has not been installed.
5. Several small clamps for Bowden Cable (outside diameter 7/32)
6. Fork End for trim end of Bowden Cable (Aircraft Spruce #MS20667-3) $4.59 this part will have to be silver soldered to the end of the Bowden Cable.
7. 3/16 clevis pin, washer and cotter pin for above.
8. 10 inches of MS20257P2 hinge stock (Aircraft Spruce #MS20257p2) 3 Ft $5.30
9. Scrap pieces of .016 .025 aluminum and very small .060-.090 4130 steel

After obtaining the trim servo determine a good location aft of the main spar an about a ½ inch under top flange of the outer rib. Mark the hole locations and install the four Rivnuts. If the wing rib has not been installed nut plates can be used. This photo shows the trim servo screwed to the outboard wing rib using 4 #8 Rivnuts. The holes in the servo can be drilled out for the #8 screws. The next item needing attention is the cable grip (Aircraft Spruce #05-16000) that attaches the Bowden Cable to the servo.

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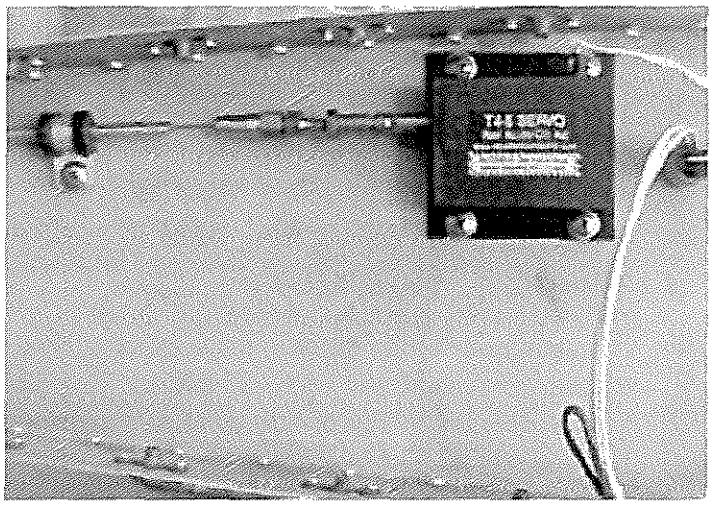
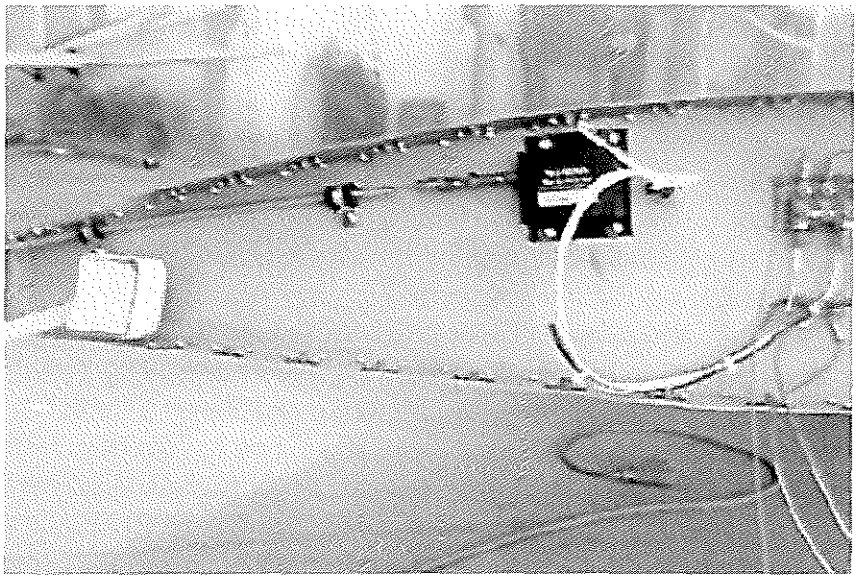
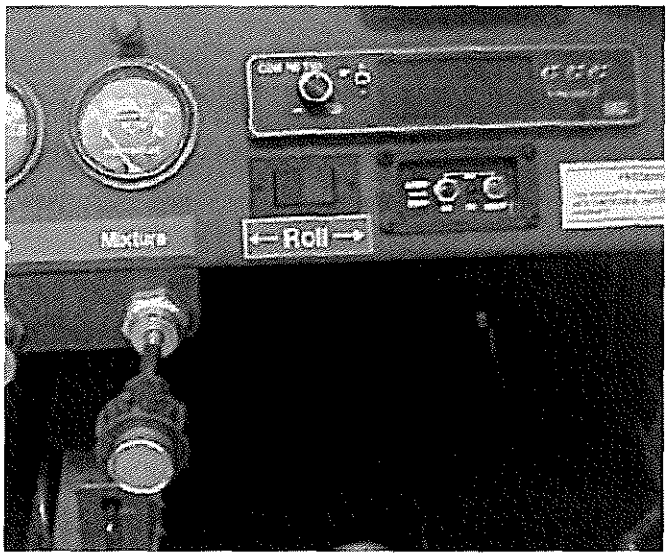
Electric Aileron Trim, cont.



Since the cable grip only comes in a 10/32 thread and the female end of the servo is an 8/32 thread I had a machinist friend rethread the shaft to 8/32 and I added a 8/32 stop nut. Now you can attach the Bowden Cable to the servo and layout a path for it back to the servo tab. Note the path of the cable is inside of the aileron weight and does not interfere with its movement. It is attached using Rivnuts and Adel Clamps. The trim tab is made using the drawings by Lyle Trusty. I think he sells them for $15.00. After fabricating the trim tab. Install it in the aileron. Connect the cable to the trim tab using the fork end. The Boden Cable will have to be silver soldered to the fork end because it is to small to swedge. Center the trim when attaching the cable to the tab. Now go back to the servo and center it using a nine volt battery. Now make the final attachment to the servo by moving the cable





clamp in or out or by changing the length of the cable. The final step is to run the wires through the wing. I used a 1 Amp fuse on my fuse panel. I then ran a hot wire to the rocker switch provided with the trim servo. Make sure the trim goes up if you want the airplane to turn in the opposite direction. As an example if you have the tab on the right aileron and you want to roll left the tab must come up pushing the aileron down. After test flying the trim at all speeds adjustment can be made using the cable wire grip attached to servo. You may need more up than down or vice versa.

cont pg 5

Electric Aileron Trim, cont.

In summery this is one off the best changes that I have made to my airplane. Once I am level and trimmed up I can fly with my feet on the floor and make coordinated two-minute turns without using any rudder. Any questions call me. Chuck Borden 1-805-461-3225

Some Thoughts On Aileron Trim

I will be installing wing leveler trim and servo; however, I have already finished my ailerons and are balanced per the dwg. I don't want to cut the thing to put the tab in it. So, I'm considering a tab within the left wing tip trailing edge which will be beefed-up in the affected area. I'm considering the same basic servo used in 1/4 scale RC with the reduced voltage. I'll probably be making the tab in the neighborhood of 2 to 3" long and about 8" wide.

My wing tip fairing is the standard fiberglass type secured to doublers already riveted to the outboard ribs with nutplates and screws. To reinforce the area around the fairing attach screws, dimpled washers will be used. I think this will work just fine.

To all of you aircraft GURUS out there. Give me some good wholesome feedback.

Don

I have been flying a MAC system buried in the aileron for 1600 hrs. Make the tab the size of a dollar bill.

Bob Highley
N711SH, Ser. # 835

I have been flying a MAC servo in my aileron for 1100 hrs and highly recommend it. you can always trim to hands off flight and you don't have the knob wearing on your leg.

Gary Cotner
N57GC Ser # 304

Some Thoughts On Aileron Trim, cont.

YEP...A lot of people are using this servo in some form or other to trim the AC. Mine is mounted in the Aileron and the trim tab is the size of a dollar. The tab is cut out of the aileron itself and not externally mounted. I know you guys out there are going to say that the extra weight in the aileron puts the counter weights out of balance, but John Thorp didn't add the weights to counter balance, but to give stick pressure

Bill Williams

I have electric flaps, substituted a tab on the aileron for Johns roll trim scheme.
Keep the tab and linkage stiff and keep the weight down. Sloppy or soft links are flutter prone, and imbalance is a flutter driver.
It is true that the stabilator balance weights are intended for flying qualities: they prevent the stabilator from moving in response to vertical gust (g) loads. BUT The aileron weights ARE THERE FOR FLUTTER MARGIN! The T-18 ailerons appear to have good flutter margin as designed: just avoid straying too far!

I have a similar homemade jackscrew for my aileron trim. A bolt is the screw, it is turned by a geared motor made by modifying a Futaba model airplane servo. I took the feedback pot and electronics out of the servo and cut off a rotation stop on the output gear to allow it to turn 360 degrees. It runs fine on 12 volt aircraft power at low RPM's, the servo motor and jackscrew nestle inside the aileron rib. The trim rig has over 1,000 flying hours on it so far!

Tom Kerns
N10TK

I made my aileron trim with a small 3/4 by 1.5 inch 12 volt motor that a friend of mine had. Paid him $10.00 for it. Made the framework to hold it and the to limit switches and still fit inside the left end of the right aileron. The size of the tab

cont pg 6

is about 1.5" by 7" and it moves very little to compensate for a 0 - 200 pounder in the right seat. I placed the switch on the lower right hand portion of the instrument panel mounted so that the toggle moves horizontally...push the right wing down by pushing the toggle to the right and the left wing down by pushing the toggle to the left. To check the effect of the weight of the unit on the flight characteristic, I drilled the holes that the unit would be attached to and then took a lead weight equal to the units weight and bolted it inside the aileron where the unit would be and went out and flew. There was no apparent effect. Therefore, I installed it with no change in the outboard weight and have flown it since mid 1995. The trailing edge of the tab is moving about 1/4" up and down but I get no effect from that. Looks as if I better clean up my linkage before it gets worse. One probable reason that I feel no effect is that my T-18 is a slow one...top speed about 165 MPH TAS or lightly slower. By the way-total cost of the unit and switch...about $20.00. I hate to pay the MAC price. My elevator trim also cost about the same and has been flying longer. Speaking about costs, I scrounged a lot and flew may plane initially August 1972 with less than $3000 invested in it at that time.

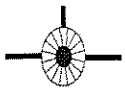
Pete Gonzalez
N380G

The problem with putting the trim tab on the wing tip instead of on the aileron is that the tab will have to be much larger and displaced much more to have the same effect that a smaller tab with smaller displacement will have if placed on the aileron. The tab on an aileron basically "flys" the aileron. The tab on the fixed surface of the wing tip will have to be larger and displaced more to have the same effect. Put it on the aileron. If you don't want to cut the aileron, just un-rivit a few inches of the trailing edge and slip one flange of piano hinge between

cont

the skins and re-rivit. Put the trim tab on the exposed flange of the piano hinge.

Gary Green



Lets Talk Rudder Trim

Lets me throw this out, i was thinking of trimming my rudder by elongating the hole on the vertical stabilizer so as to offset it. Once I've taking off the stab and elongated the hole it would be real easy to adjust and dial it in. I am sure it wouldn't need much to make a big difference so I am sure tit wont weaken the vert spar at all.

Skeet
7077J

One word for not doing elongation of control surface mounting points, "Flutter". "0" tolerance for slop on surfaces, don't even give it a chance to move. Please use a trim tab.

Stephen R. Peirce

Just "cheat" the trailing edge of the rudder. That is, slightly bend the trailing edge one way or the other. Remember, bend it opposite the way you want the rudder to deflect. This method can handle half a ball width.

Bob Highley
N711SH

When I originally started flying My Thorp I had to hold right rudder. So I added a trim tab to the rudder, it worked so so. Then one day I had the tail sitting on a stand with the tail wheel hanging free.

cont pg 7

Lets Talk Rudder Trim, cont.

It and the rudder were a little left, so I centered it by hand and it went right back to the left. I found that the springs that hold the pedals forward were not pulling equally. I relaxed the strong one so the rudder stayed straight. On flight test the rudder was the other way, so straightened the trim tab.. The plane has flown straight ever since. That was 1300 hours ago.

Gary Cotner
N157GC

Airplanes with Clockwise (viewed from the cockpit) propellers will go nose down with right rudder and nose up with left. Gyroscopic precession (90 degree phase lag in direction of gyroscopic force) of the prop does it. Fly any lightplane, go hands off, and input significant rudder to see it!

Precession magnitude is proportionate to yaw rate (needle deflection in the turn rate indicator), to engine RPM, and to inertia of the propeller. Try hands off pedal pushes at a given airspeed with high RPM and idle RPM, you will be amused! My wood prop T-18 has significant response, folks flying metal blades will have MUCH more.

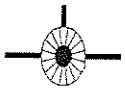
If your airplane needs rudder to cruise, an obvious fix is a trim tab. Slickest I have used is to put a triangular wedge on one side of the rudder trailing edge which looks a bit like a split flap (but with the gap filled in), For a quick try, use a common pencil and duct tape. Tape the pencil to the side of the rudder at the trailing edge. The rudder tries to move away from the pencil (flap). If you need right rudder to cruise, put the pencil on the left (Port) face of the rudder. The pencil, acting as a flap, will push the rudder over for you. Try it just above the "fat" part of the T-18 rudder. I generally start with half a pencil when I have used it on Pitts ailerons. Determine the pencil length required, then substitute a more permanent wedge with a square trailing edge of about 3/16" to 1/4" height.

cont

Lets Talk Rudder Trim, cont.

The alternative is a plain old sheet metal rudder tab; ugly but effective!

Tom Kerns



Stabilator Trim

I have a little play in my stabilator trim tabs. Was I dreaming, or did I read that a fix for this problem was to insert a penny behind the aft jackscrew to act as a buffer?

Thanks, Eric

I noticed excessive play in my trim system linkage. History of this problem has been pinpointed to end play in the spherical bearing that secures the trim jack screw. An inspection of the bearing showed excessive axial play. I ordered a new KS6A bearing and found that the new bearing also has axial play in the spherical bearing insert. I guess a teflon shim (Chuck Borden Fix) will be required even though I have a new bearing installed.
Comments?
I also found that my down links from the Torque Tube Ass'y were of improper lengths, one being 1/2" longer than print, and the other almost an inch longer. The 513 Tab Arms were improperly bent, with the down links compensating for the error. All of this translated into the correct up/down movement of the antiservo tabs per Dwg A-531. I cannot abide the incorrectness of all this and will re-bend the 521 arms according to print, and reweld the clevis forks accordingly. Regarding the 513 Tab Arm clevisforks, my other Thorp used threaded rod ends with matching clevis forks for attaching to the down links. This arrangement allowed adjustment of the tab arm length for proper up/down travel,

cont pg. 8

Stabilator Trim, cont

and alignment of the antiservo tabs. I realize this is a change to the tab, but feel it is going from a fixed clevis fork, to an equivalent adjustable clevis fork. I know this is a sensitive area and has resulting in one fatal accident to one of our great Thorp Gurus, Bill Warwick. I will have several knowledgeable Thorp "eyes"check my work in this area. I would appreciate any comments on the above, particularly use of the adjustable clevis fork arrangement. Thanks!

Ken Morgan
N118TX

Here's what I did to solve the problems you describe. With regard to the end play in the jack screw mounting, I cut a "button" of aluminum and a circle of rubber. I inserted these into the area between the aft end of the screw and the bulkhead. The rubber acts as compression member with some give to account for the angular motion of the screw as is goes from stop to stop over the full range of the mechanism. The aluminum button serves as a bearing plate for the end of the screw to run on. I made sure it had a dab of Lubriplate 105 so it would not wear.

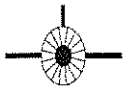
With respect to the linkages and arms, I share your disgust with the apparent lack of workmanship. Make sure your actuator arms on the torque tube assy. are straight and parallel. The links, themselves, should match. These aren't too hard to make. The hard part is making the little bushings that are essential to smooth operation of the tab.

The tab arms themselves are another story. Of course they should be per drawing in length with respect to the hinge point of the tab. Measure them in the "as installed" length as the builder may have been sloppy in hole positioning. Now for the deviation from plans on my airplane. I found that I ran out of nose down trim on cross-countries as my fuel burned below half. Of course, this was due to the aft cg condition caused by my baggage. Weight and balance said I was well within the limits. cont.

Stabilator Trim, cont

I simply bent the arms (equally) to move the trim range to a more favorable position. The caution here is to recheck the control movement and the up and down limits of the stabilator. You do not want the tab arms limiting the stab movement. It doesn't take much bending on the arms to move the apparent center of the trim range.

Bob Highley
N711SH



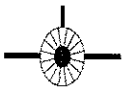
Watch Those Acquired Projects

I purchased my abandoned project in 1990 and finished it in 1995. It was an empty fuselage setting on the main gear, with no belly skin or tailwheel. But, the tail feathers were done. Hearing about moving the counterweights out to the wingtips and adding the stainless clips to the tab inner corners, I did those things to the stabilator. I never questioned the build status of the main spar, because I had the original tail installation drawing, and also the A-, and B-revisions of the original drawing. The original and A- versions were marked "obsolete" in the original builders' handwriting. Anyway, my stab was built to conform to the A- version, which is the original plus the doublers over the skins next to the attachment lugs. This design still called out the .083" thick 2" OD tube AND 1/8" diameter rivets for fitting attachment. The B- version calls out 5/32" diameter rivets for fitting attachment, and a doubler inside the center half of a .049" wall thickness 2" OD tube. The doubler brings the wall thickness of the center half of the tube up to .125". I ended up taking my skins off the spar and installing the doubler inside the .083" spar tube. Used 6061-T6 as the doubler instead of 2024-T3 material. 2024-T3 tube in 0.125" cont pg. 9

Watch Those Acquired Projects, cont.

wall thickness is impossible to find. IMHO, since I have the .083" wall tube, the biggest improvement is going to the 5/32" rivets, up from the 1/8" rivets, plus get the stiffened center section under the 3 fittings. I had about 630 hours on the stabilator. The (4) rivets closest to the (2) outer fittings which provide attachment to the fuselage were loose - there was evidence of movement under the rivet heads and along the length of these rivets. Some of the remaining rivets attaching the fittings to the tube pushed out real easy, indicating things were loose. After removing the (2) outer ribs from each wing, I reached in with a length of 4130 tube sharpened to an edge and cut the heads off the rivets locating the ribs on the spar tube. That way I didn't disassemble the skins at all, just removed the outer ribs, got the inner ribs detached, then slid each intact skin assembly off the spar. If in doubt which spar tube thickness and doubler configuration you have, I think if you examine the rivet heads attaching the fittings to the spar, it will help you decide whether or not to investigate further. 1/8" diameter rivets indicate my situation - the spar was built to the original or A- version.

Ed Pernic
Plans set #137,
N137EP



Horizontal Tail Twist

I know in a perfect world (laser cut skins with precision laser drilled holes) all would be well..but my skins are from the old school, hand scribed and calibrated with a Mark-Four eyeball. ZERO twist is what we strive for, does anybody have what would be a ballpark figure as to the "Allowable" limits, say outboard leading edge left-outboard leading edge right? My trailing edge outboard

cont.

Horizontal Tail Twist, cont.

left vs. outboard right is about 1/16". My concern is with the leading edge of the horizontal tail.

Thanks,
Rich Brazell

Offhand, I would say that you have a non-issue. It's a classic case of "the air doesn't care" for such a small variance. Either get a long straightedge or draw a long straight line on a flat surface and stand the horz stab nose down on the line. If the leading edge is within 1/16", then you probably don't have a problem. My $0.02 worth. If you do have a bit of twist, I'm thinking that either (a) you never notice it in flight, or (b) it causes a slight rolling tendency which could be trimmed out with aileron trim or even a slight adjustment of the stabilator tab on one side.

Andrew

According to Vaughn Parker, John Thorp's right hand sheet metal man, the right hand of the airplane (referring to the horizontal tail) doesn't know what the left hand is doing when it comes to air flow. Well, that may be not truly correct, but I can tell you from personal experience on my Thorp that if you only have the small difference you mention, you have nothing to worry about since I have approx. twice that amount, and the plane flys great and trims out just fine. So don't worry!

Tom Hunter
N18XT

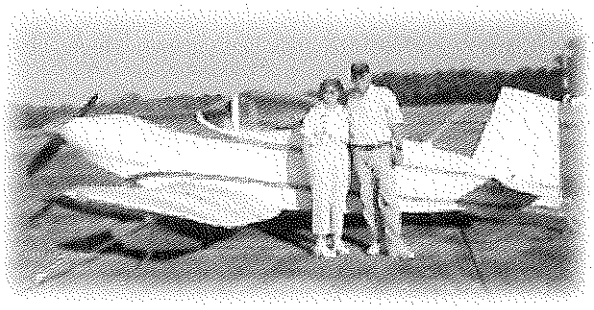
Lets Discuss the "Tuck"

(An Old Subject Revisited)

I purchased a Thorp built by two knowledgeable Thorp builders that built 4 T-18s between the both of them.

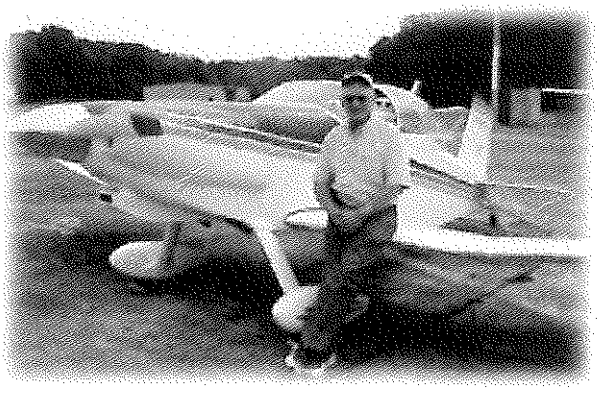
cont pg.13

Kentucky Dam ~ 2004








Kentucky Dam ~ 2004

The Kentucky Dam Gathering is always fun. We started off Friday evening with our usual visit to Patti's restaurant. I didn't count, but there were close to 40 persons present. They always have wonderful food, and we always have a great time. Saturday is always the day for flying and ride taking. Anthony Pretorius and Gary Green both took pity on me and gave me a ride. I sure appreciate it guys ... its the best motivator there is. We put up a really nice 7 ship formation and managed to make a couple laps over the parade that was going on near the Patti's village. There were a couple of new faces and T-18's this year and we want to welcome them. Saturday night was our usual business and dinner meeting in the Lodge Restaurant. Sunday sees everyone leaving for home with fond memories of a great weekend with wonderful friends. I can't wait for next year.

Roy Farris

Kentucky Dam ~ 2004




If you have never attended the Kentucky Dam Gathering you don't realize what your missing. You owe it to yourself to come next year in October. Watch the calendar of events section for the exact date for 2005.

T-18 Mutual Aid Society Membership Renewal Due

For most of you, your Newsletter Subscription and you membership in the T-18 Mutual Aid Society will Expire on December 31, 2004. You need to look at the mailing label on the back cover of this newsletter. Check just above your name on the label for your expiration date. If it says "Membership Expires Dec 2004" then that's when your membership expires. Pretty self explanatory. Some of you pay a couple of years in advance so your label will show that as well. If your membership expires Dec 2004, then you will need to send me your renewal before the first newsletter issue in 2005. You can send me your dues in the mail, or you can opt to pay them by credit card through the T-18 website at: www.t18.net. The normal United States Dues are still $25.00. You overseas members have a couple of options, and can find more information on the T-18 website.

I hope that the content and the quality of the newsletter warrants your approval. It is a trying job to put this together four or five times per year, especially so now that the ThorpList is active. I really enjoy publishing the newsletter and I hope that all of you will continue to support both the T-18 Mutual Aid Society and the Newsletter. I am always open to suggestions and comments and would like the opportunity to meet and talk to each and everyone of you. Thank you for your past support and I look forward to the next year.

Roy Farris

Lets Discuss the "Tuck", cont.

One indicated he was involved with testing on several models with John Thorp on several problems including props and this flap problem. He indicated an engineering firm was employed somewhere in the Midwest and they were involved in some of the test. We spoke at length about this problem and fix.

The fix for the problem with the flaps was to add a gap seal on the bottom of the wings between the wing and flaps. I have this on my Thorp and do not have any problems and it works very well. It is not a plastic gap seal like we use on sailplanes but a stiff aluminum. It looks nice and at least on my airplane works extremely well.

Tim
N57JH

The Thorp community has been putting up with this design flaw for 40 years. Let's stop coming up with band aids and fix the problem. With a correctly designed tail, there is no reason we should not be able to use 40 degrees flap safely. It doesn't take an aerodynamic genius to figure out the leading edge radius is too sharp. As John Evens said, each of our airplanes is different, some with a smaller leading edge radius than others. Watch a Yak 55 or other world class aerobatic airplane perform and you realize they just don't want to stall. The wing leading edge has a radius like a basketball. Robertson used to turn Cessna's into pretty good STOL airplanes, and the primary modification was to add on a large radius cuff to the wing leading edge. The speed penalty was very small, if any. There must be an aerodynamicist or two in this group. Let's hear what they have to say on this.

Ben Harrison

Some years ago a new owner asked me to ferry his aircraft from Wagga- to -Moorabbin. It was a nice looking T18 180 hp wooden prop. On route I wanted to land at Mangalore

cont.

Lets Discuss the "Tuck", cont.

for a cup of coffee. At 500 feet I applied the second stage of flaps it bunted like a dive bomber. By dropping the flaps and full power just got out with a few feet to spare..Landed flapless. Later on we find the wing had a hell of a twist in it and to compensate the previous owner screw the right flap down, hence the bunt. It was nasty.

Regards. J.P.

Learning to fly the T-18 with another CFI T-18 owner, the added weight while using full flaps the tuck was never felt until I soloed with full flaps. A bit of research uncovered a fact that the larger engines with constant speed props aggravated the problem. That all fit with what I read on the Thorp List about forward CG. I found that back pressure on the stick would recover the stalling tail just like what's used to recover from a stall induced by tail plan icing. The theory here is that the turbulent air leaking through the large full flap gap aggravates the problem causing separation at the tail. I install aluminum flap gap seals that ride on a Teflon pad on the bottom of the flaps and eliminated the problem on my airplane. If I let the airspeed increase too high I can still fell the buffet but no tuck.

Jerry Hajek, Jr.
N71XP

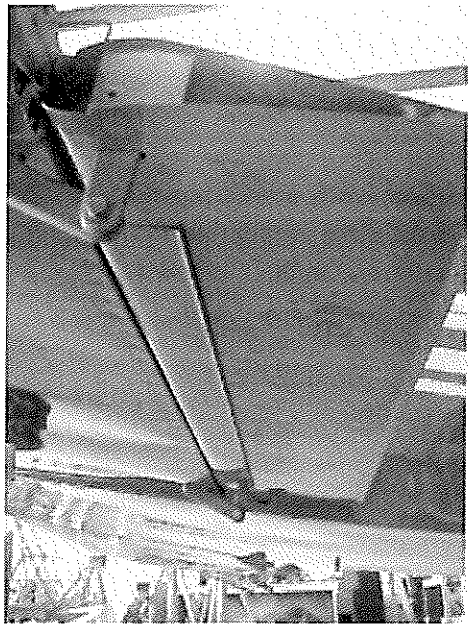
See Pictures of Jerry's Flap Gap Seals on Pg 14

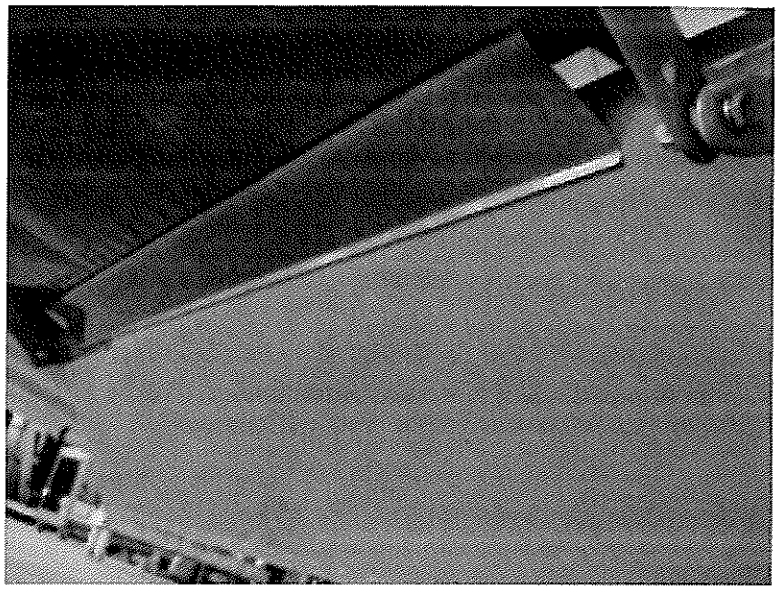
Aviation Terminolgy

Slow Flight

Flight that extends beyond pilot and/or passenger bladder limits

Lets Discuss the "Tuck", cont.





Jerry Hajek's Flap Gap Seal on N71XP

The T-18 flap is designed as a "slotted" flap (I believe that's the correct term), in order to increase it's effectiveness. I wonder how much, if any, your modification decreases their effectiveness.

I encountered the bunt during my second test flight, 14 years ago, with a forward cg and power-on full-flap (30 deg.) stall. I firmly believe that I carried too much power, as the nose attitude was extremely high when the tail stalled. Back pressure on the stick will not recover the stalling tail. As I believe Tom Kerns stated, the flaps must be retracted. I believe that the manual flap handle saved my life, as I didn't have the presence of mind to realize what was happening until it was almost too late. The handle sticking up got my attention like no electric flap switch would have. The tail came alive, and a 4.5 g pull kept me from hitting the ground...barely. The wings never did stop flying. I got back on the horse, and by putting an 8 lb. tool bag in the baggage compartment, the cg was shifted enough, that I couldn't duplicate the experience again (probably a lot less exciting when you're looking for it!). And anyway, I don't think it would've happened if I hadn't been "hanging it on the prop" at such an extreme angle. Our airplanes are all a little different. You might have been feeling the disturbed air in the stick, but it certainly doesn't sound like you encountered the full-blown "bunt". By pulling back on the stick, perhaps you just loaded the tail more, or moved it out of the disturbed air created by your particular aircraft with it's fairings, etc., and with the flaps down. I don't believe anyone should be afraid of this happening, just respectful of what can cause it and the recovery technique (retract the flaps!). That's why we test-fly our airplanes with plenty of altitude. Not trying to preach to the choir... just my thoughts.

John Evens N71JE

cont pg. 15

Thorp designed for flight at or above Mach 2

Lets Discuss the "Tuck", cont.

I would be curious what the stabilator leading edge radius is: I am wondering if tighter radius on some airplanes is promoting the tendency to stall. Following is an excerpt from the manual for my airplane: Some T-18's have demonstrated stabilator stall with flaps down and forward C.G.. Stabilator stall in this condition results in a violent nose pitch down or "tuck". Recovery from tuck requires flap retraction, altitude, and fortitude. The tuck tends to occur at the high end of the flap operation speed range and may be preceded by longitudinal oscillation of the control stick and a reversal of stick force VS speed gradient (stick position VS speed gradient remains normal).

John Thorp has recommended limiting flap travel to "two notches" or 30 degrees to reduce tail download and tuck tendencies. Any new T-18 should be tested for tuck tendencies (at safe altitude) with full flap and forward C.G.. Testing should include trimmed and side slipping flight from stall speed up to maximum flap operating speed. N10TK demonstrated tuck onset symptoms of stick oscillation and reversed stick force gradient when first flown (30 degrees flap and forward C.G.). Subsequent modifications to the wing root fairings cured the symptoms, and N10TK is free of any Tuck tendency.

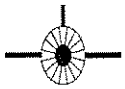
I believe what is happening is that at higher speed (lower angle of attack), the flap itself is stalling which results in dramatic reduction in downwash angle at the tail and less energy in the wake (flying in the trashy flap wake). When this happens the nose quickly pitches down, the pilot responds whit sharp aft stick, and the result is stalling of the stabilator (and dramatic continuation of pitch down). My airplane exhibited the onset symptoms. One symptom is a bobbing / hunting of the stick with no change in aircraft pitch, which I believe is partial stalling / attachment of the flap dumping varied downwash into the tail. The other symptom is having to actually position the stick further AFT as speed INCREASES. This position reversal is consistent with progressive separation

cont.

Lets Discuss the "Tuck", cont.

of the flap with increased speed (lower AOA), the increased separation means less downwash on the tail and more aft stick position required to hold trim as speed goes up. Go fast enough and you run out of stick. My airplane has triangular cross section wing root fairings. I cured my tuck symptoms by putting a piece of sheet metal inside the fairing just above the flap. The sheet metal closed out the inside of the fairing so air can no longer circulate in the cavity of the fairing itself. The improved flow on the inboard flap did the trick, 22 years flying with no tuck symptoms since.

Tom Kerns
N10TK



First Flight

Hi All- Just completed first flight of N631HU, S-18 with the first trigear retrofit following Mike Archer's prototype. Had arranged earlier for a CFI to do 1st flight but that plan collapsed. I'm sure it's safer to have someone else do the first flight, but anticipated the trigear would be easier to handle and had a wish to culminate this long project with the experience of doing it myself. Perhaps not the wisest choice, but wanted an adventure to remember and hoped it would be a good memory.

All went quite well but I do have a long way to go to be smooth and safe with this high spirited breed, after about 2000 hours in more docile aircraft. I had done several high speed taxis with lift off and back down. Flight was 2 hours duration with 1 hr. full pwr and rpm for breakin. Then alternated reduced/full pwr for while, (per overhaulers breakin instructions) and finally checked feel of aircraft at slower speeds down to 60 kts. At take off, wind was 6 knts straight. At landing wind had picked up to 13 knts about 20 deg left off center.

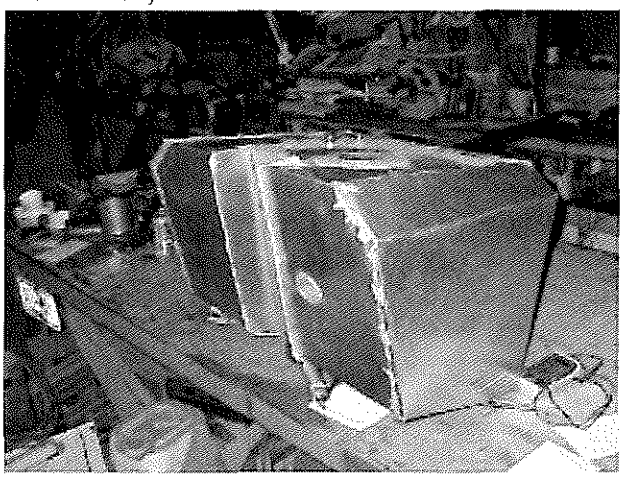
cont pg. 16

Custom Fuel Tank

I am finally getting around to sending you pics, first shots are the enlarged gas tank, this seams to fit under the panel ok and should leave enough room for instruments also, insert area for the radios, and deeper stuff. the instrument panel is going to be made in 3 sections, flight instruments, radios gauges and electrical. this gas tank holds about 42 gallons. plus if I can put a bit of reserve in the wings or behind the seats, should be able to get six hundred miles between legs rather than 400.

Will be getting more photos with the other T-18 regarding the engine vents.

Bob Affleck,



First Flight, cont.

I couldn't hold the steady few feet off the runway bleeding off the airspeed to touchdown as I had planned so many times. I was surprised by the quick response to slight control inputs and was not keeping steady at all, but then I heard the reassuring tire chirp. I couldn't hold the steady few feet off the runway bleeding off the airspeed to touchdown as I had planned so many times. I was surprised by the quick response to slight control inputs and was not keeping steady at all, but then cont.

First Flight, cont.

I heard the reassuring tire chirp. My only landing so far reinforces the reports that the trigear gives a soft forgiving landing. I really don't know why since the only shock absorber is the plastic cylinder about 5 inches long (forgot exact number), which appears to barely compress. When I took over this project in 3/99, I was really a green novice. Frank Roncelli took me under his wing and guided me all the way. Without Frank, I would not have a plane. I have also posed constant questions to lots of builders and no one has ever turned me away, not the least of which is the great help I have gotten from the Thorplist.

Thanks to all and hoping I can get proficient without a mishap. FAA won't let a CFI with me in this plane til I fly off the 25 hrs. (isn't that a smart safety reg?). I will be getting some CFI time in different aircraft, however.

Hal Underwood

First Flight

On Sunday, Sept 19th, my project officially became an airplane. It flew about 20 minutes with my test pilot Pete Malone at the controls on the first flight. I had to make some stabilizer trim adjustment(straightened the rods a bit) to add a little more nose down trim. The CG was a little forward at 64.9", but adding a little more trim seemed to help the situation on the second flight. It flew great otherwise, very straight on the roll axis, may need to massage the rudder just a bit, it's about a half a ball off in level cruise, I hope to avoid a tab. It flew about 30 minutes on the second trip but I have a problem with the prop gov. It doesn't want to hold a setting at cruise and it wants to overspeed on take off, so it's off and going back to the overhaul shop. But overall it was a great success. I hope to have it back together for Ky Dam. See you there, (I'll be the one with no paint!)

Dean Houseman
N509CB formerly known as plans #978.

MAS Members Have Accidents

Jim Paine

Jim Paine, has had a pretty bad accident. A week ago today (Oct. 30), he was test flying a MiniMax Himax (the high wing version of the Team Aircraft near-ultralight) and crashed in it. To get to the important part—he is showing promise of a pretty good recovery but it is going to be a slow one. He had a skull fracture with a laceration on his forehead but, interestingly, did not loose consciousness at the time and remained conscious while being airlifted to the hospital. He broke some ribs and both legs including nasty fractures of both ankles. He is in Mission Hospital in Asheville, NC. The head trauma was addressed first and now the doctors are proceeding with surgery on his legs and ankles. A decision has not been made whether an ankle may have to be fused due to the complexity of the break.

Chris was over to see Judy this past Tuesday and this morning I got some more information from EAA members who meet informally for Saturday breakfast at a cafeteria in Asheville. This is all of the information that I have at this time:

The plane, built by a fellow EAA chapter member, has a wood structure, is powered by an unusual Continental engine—a surplus unusual aux. power unit that is sort of a half-size version of common aircraft engines. (This engine is not to be confused with some still smaller Hercules fours that have turned up surplus having been used to power military generators) It is a four cylinder unit putting out about 40 h.p. with a direct drive prop. In contradiction to published reports—TV and newspapers—it was not the first flight. Jim had lifted off and flew the length of the runway (grass) four or five times prior, landing straight ahead. These flights were made several days prior. A respected observer, Bob Gilbert, who has built and flown a Knight Twister and his own design "Sportfire", said that the plane popped off quickly and climbed well on these flights. He has some video of at least one flight. The flight on the day of the accident was to be the first circuit of the field, going to more altitude.

cont

The reason that I gave a bit of detail of the engine is because the problem that arose after lift off was that Jim could not seem to climb sufficiently and was approaching the trees at the end of the runway. He elected to make a left turn —away from a crosswind at the time— and apparently his left wing stalled and a spin began. He was able to stop rotation after about a half to three-quarters of a turn but did not have the altitude to pull out. He stuck the ground at a fairly steep angle. On that day, a pilot of a very light aircraft returned to the field because of "wind kicking up" and landed just as Jim took off. Bob Gilbert, who has a very analytic mind, said this morning that he just doesn't know exactly what happened. There doesn't seem to have been any structural or mechanical failure in fact, much of the airframe is repairable so the best guess right now is that wind gusts, maybe wind shear was the culprit. Jim is 70 and is an excellent pilot but I don't know how much experience he has in very light weight aircraft.

Editors Note: This is a report given by a MAS member as may not be 100% accurate, but I believe that it describes the basic accident as I know it. Jim is now in a private room and is recovering well. We all need to keep him in our thoughts .. Get Well Soon Jim !!

From the FAA website:

Mid air collision approximately 100 foot offshore. N7618T, a Thorp T-18 Homebuilt collided with N53879, a Bellanca 7ECA, 2 MI north of Zuma Beach, Malibu, CA. Three fatal. N53879 Washed up on shore with one occupant. The Thorp is submerged in 15 feet of water with two fatalities. Malibu,

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The pilot of N7618T was Dr. John Zasadny and his passenger was his girlfriend Jennifer. John lived to fly as he also owned a Glasair III with over 3000 hrs. on it. Jennifer owned a T-18 that was in the process of being repainted. All that I know about the accident is in print, although it did take place sometime after 5:00 pm PDT, as a close friend talked

cont pg. 19

For Sale

T-18

My 1990 Thorp T18 is for sale with 180 hp Lycoming. It is on barnstormer.com

Sam Tilleman
Granbury, TX
817-326-6293

T-18

Southern California T-18 project for sale.
T-18 project with lots of sheet metal work done.
Includes Lycoming O-360 180 HP Engine mounted on fuselage.
If interested, phone Marilyn at (909) 599-9560 for details and pricing.

Parts

I bought a partial built T18 project if any of the builders are interested in saving some build time. I have about 2k in it. Lots of parts. Thought I'd offer to you guys first.

Bob Moehlencamp
812 985 3472

Prop

I have a wood prop that I just took off with 1/2" bolt holes. It is a 68 66 pitch. It is about a year old. I am asking $450.00. I will email you photo's if you want it.

Scott
n600se@yahoo.com

Canopy Cover's

I sell a pretty good cover for $125. Lots of the Thorp guys have then… no complaints

Ed Ludtke ~ edludtke@sio.midco.net

For Sale, cont.

Prop/Spinner

I'm selling the prop I removed from my Thorp: Sensenich wooden W68T6EM-78 prop for sale. Sensenich sticker price: $1065 + shipping. My asking price: $550 + shipping.
Good condition 78" pitch prop perfect for a T-18 with a Lycoming 160 hp (standard pitch) or a 150 hp (cruise pitch). Comes with 4" extension and 3/8" bolts. See photo. Prop has about 350 hrs. Also, selling my Ken Brock matching, pollished aluminum spinner (see photo attached): $75 + shipping. (spinner has a small, 1 cm stop-drilled crack around one mounting screw hole.)

Thanks,
Rob Kosciusko
N2721 in Columbia, South Carolina
robkoz@alum.mit.edu

T-18

N78MW O-320-E2A (150hp) with 712 SMOH. The Airframe has 990 hrs. Sensenich, M76MM-8-74 prop. Lyle Trusty tailwheel set-up with a 6 inch tire and double yoke assembly. I am asking $26,000

Matt Loiacono
mattloiacono@hotmail.com

S-18 Parts

I have several S-18 parts for sale. Please contact me for the list.

Robert Mardis
rmardis@rjwe.com

New Canopy Available In Australia

Anyone in Australia/NZ who is interested in a new canopy for T/S-18

cont pg. 19

New Canopy Available In Australia, cont

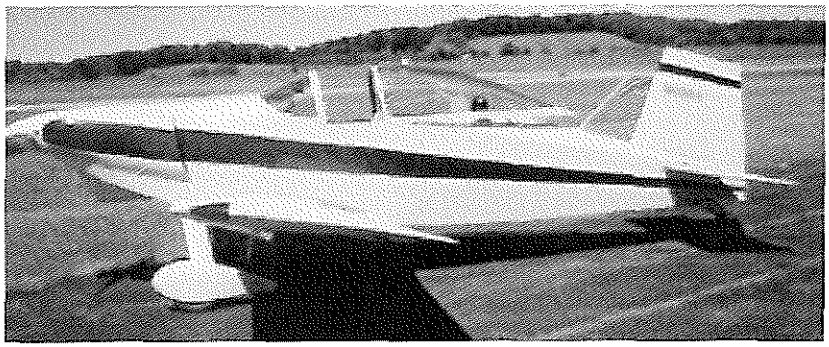
Brett Turner from Custom Aero in Adelaide is developing a modified design. He has come up with a new profile where the canopy/fuselage intersection has a better aerodynamic profile by modifying the space behind the pilots head. There will also be more head room in the canopy without requiring windshield or rollbar modification. A better design in the skirt will enable a complete leak free seal to the fuselage. The canopy will be 1 piece, approx 4 mm thick and available in 4 colors.

If you are interested send him an e-mail for all details:customaero@hotmail.com

Tim Burns
VH-BVT

1979 Thorp T18

TTAF 753.0 TTSMOH 753.0
Engine 0360 A1D with low compression pistons
Will burn Auto Gas, Completely refurbished in 2004
New Yellow and Blue strip paint, New light gray interior, New tires and brake pads, new panel and wiring, CB's and switches, panel powder coated light gray, Val 720 Com, King XPNDR with ENC, NorthStar GPS, NorthStar Loran, Audio Panel
This is a real nice fyling airplane, Asking 36,900.00. May take aircraft kit in trade as partial payment.
Contact: Frank R. Seats or Dan Sorrell (423)646-3401 Cell: (423)416-1500 or email: seatss@wmconnect.com



For Sale by Frank Seats

Members and Accidents, cont

to him at the Torrance Airport just before his departure.
All accidents are tragic, and he will be greatly missed by all that knew him.

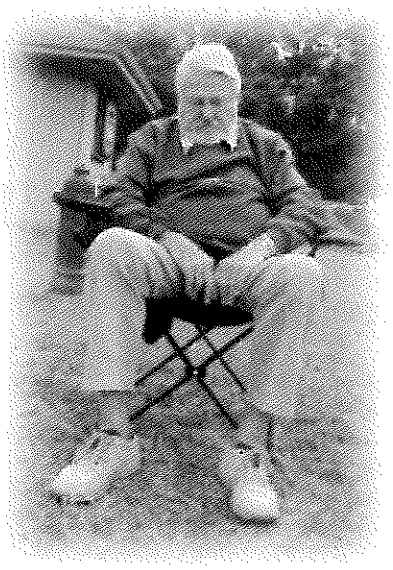
T-18 Events for 2005

AirVenture ~ Oshhosh, WI
Spring T-18 Gathering ~ Cotter, AR. In Planning
Sun'n'Fun ~ Lakeland, FL.
T-18 Fall Gathering ~ Kentucky Dan (In OCT)

Please send me time and dates for any Thorp activities planned for 2005.

T-18/S-18 Thorp Newsletter **Dec 2004**

Roy Farris
P.O. Box 182
Noble, IL. 62868
Phone: (618)723-2594
email: rfarris@shawneelink.com



Lee Skillman at the Kentucky Dam Gathering ~ Looks relaxed doesn't he.