

T-18 Newsletter

August 2005



Nice Group Photo at the 2005 Colorado Gathering

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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.



Editors Notes

By: Roy Farris

As I write this I am thinking about Oshkosh. It's barely two weeks away, and for the second year in a row I am going to miss it. I really love Oshkosh and until last year I hadn't missed a year since 1970. With the new job and the upcoming new house .. it just wasn't in the cards this year.

I know that there are many smaller events each year, and lots of us Thorpies attend several of them, but Oshkosh has always been the focus of the aviation world every summer. Its the one place that we can see, taste and explore nearly every facet of aviation, and its the only place that everyone seems to congregate each year.

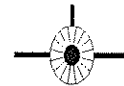
As most of you know there has been a long tradition of Thorp activity. In the earlier days there was always a forum on the field, and a Thorp Dinner held at Butch's Anchor Inn. When Butch's closed we lost our diner meeting spot. I actually had the privilege of being able to attend the dinner several times before its demise. Not long after that we lost our forum spot to someone that (as we were told) drew a larger crowd. After trying to work out an alternate forum spot we finally gave up and moved it to the Nature Center. So for the last few years we have held a Forum/ Luncheon in the big tent. This seems to go over very well and we usually draw a pretty good crowd of Thorp enthusiasts.

Why am I telling you this? After all Oshkosh is over for 2005. My involvement in the Thorp Event at Oshkosh begins several months prior. I communicate with the Oshkosh planners to insure that we get the Nature Center tent reserved and that the drinks will be there. Since I will not be there this year, I had to contact another Thorp owner to enlist his help with the actual event. He expressed concern about having enough volunteers to pull it off. It is just like any other event that one tries to make happen .. the problem is that there are never enough Indians to do the

work.

All of us realize that aviation in general has taken a back seat to nearly every other form of recreation. We as Thorp enthusiasts need to keep our little portion of aviation alive. Oshkosh is the best place to bring us all together. It is the one center meeting place for all of us. I want to see our family continue to grow and I wish that all of us would make a stronger effort to support our organization. We all have a common interest and for most of us a common goal. Lets all think hard about our role in aviation and in the T-18 Mutual Aid Society. We have a great group of people, I believe the best, so lets all stay focused and try hard to maximize our individual efforts to keep the Thorp movement alive and well.

I want everyone to begin planning for Oshkosh 2006 NOW. I am going to remind you in every issue lets plan to get the largest Thorp Group in history together next year. I am counting on YOU!



Making Subscription Payments

Since my move to Indianapolis a few things have changed. When I tried to open a new bank account in my "Business Name" I was told that without mounds of legal paperwork, and extra banking fee's I just couldn't do it.

So ... when you send me a check for your subscription renewal, or for back issues of the newsletter, please make the check payable to Roy Farris. I will no longer be able to accept anything made out to T-18 Newsletter or T-18 MAS. Sorry for the inconvenience ... National Security you know.

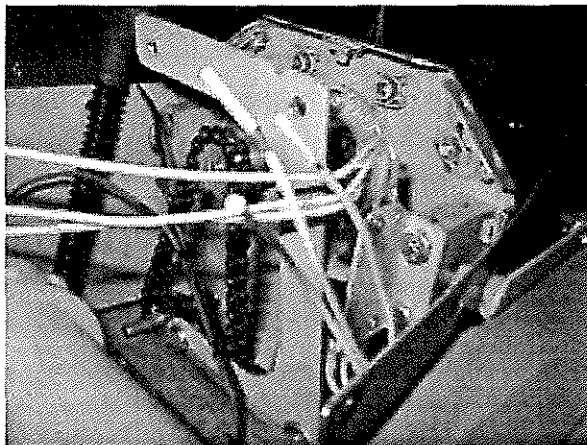
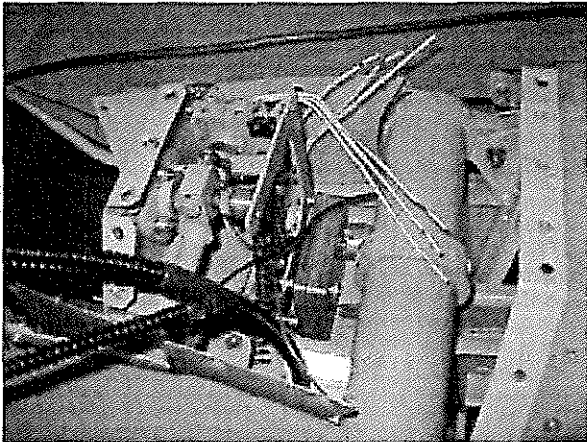
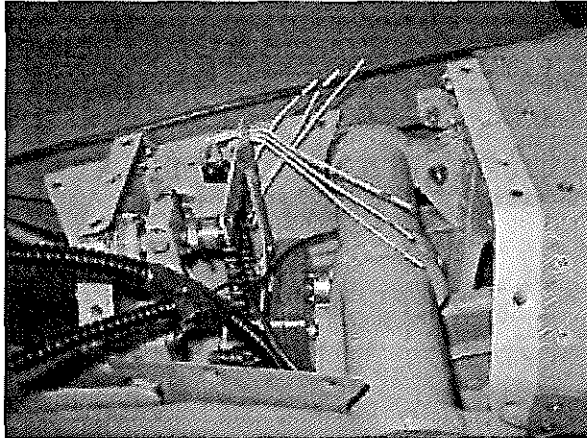
How many of you DO NOT have your own webpage for your georgous aircraft? Now you can for FREE....that is right FREE. Go to www.myplaneonline.com and then click on member search.

Mike Key

Electric Pitch Trim

This is the third time I attempt to write about my elevator trim system. I loaded some photos in the photo section and since I didn't exactly know what I was doing as (usual), I did not titled them properly. The photos should give you an idea what I did at the tail end of the airplane. I fabricated some brackets and about ten lbs of it went to the scrap barrel. The entire system weights about 1.5 lbs in all. It all started when I went to a electrical/electronic junk yard. Literally! This place is all indoors. The warehouse is about 10,000 sq ft. I browsed through the thousands of items this fellow had and believe me. It's more like millions. From resistors, capacitors, light bulbs, switches, geared motors, fans, well, you name it. I found this cute little chain and sprockets 1/8-125 size-pitch. I kept looking around and found a 1/4 in chain, but, no sprockets. I got in this wonderful TV I'm writing in and went browsing the net. I found a place here in CowTown, USA (Fort Worth, TX for those of you wondering) who could order the little critters and got them in about two days at the whopping price of some \$6.00 or so each. I started doing a little doodling and before I knew it, I had a solid idea. As I mentioned before, I fabricated lots of brackets that ended up in the scrap barrel, finally coming up with what I thought was a good system. I located it to the aft bulkhead (frame), drilled the bracket in place and started putting it together. From concept to actual installed and working assembly, a period of about three weeks went by. Now, I don't know how much time and effort it would take to fabricate and install the system as designed by John Thorp, but, I sure believe this one went on real smooth. No mechanism between seats. If some of you are interested in incorporating the system into your machine, or even modify and retrofit your installation, I'm sure I can come up with some type of sketches and instructions. Take a look at the photos and see for yourselves. I showed the system to Ken Morgan out of Pecan Plantation just south of here and he sort of helped me figure out the electrical, because folks-

I am dumb when it comes to electricity.



Photo's taken from T-18 Website

Don Doubleday
Aledo, TX.

cont. pg 4

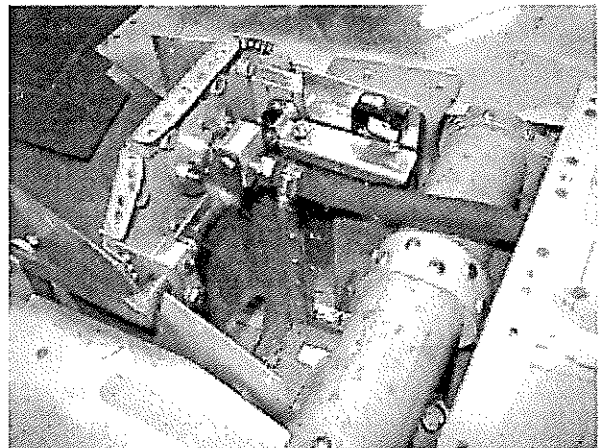
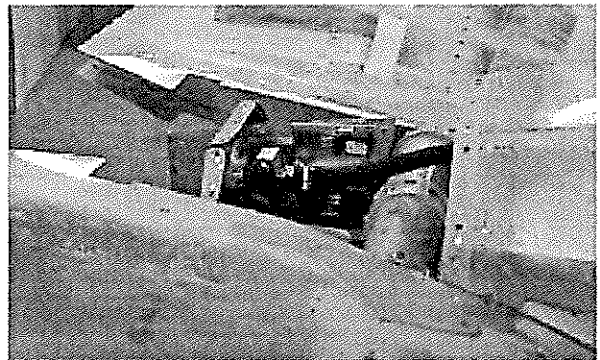
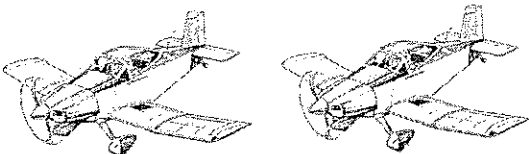
Aviation Quote

An airplane might disappoint any pilot but it'll never surprise a good one.
Len Morgan

Electric Pitch Trim, cont.

The principal behind my electric stabilator trim setup is not that much different from some others I have seen, but I thought one more point of view might be interesting. I used a motor from WW Grainger for the drive. Part# 2L009 17 RPM 1.4 full load amps cost is \$36.20 I set the shaft of the gear motor at butt line 0 just high enough for the flex shaft to clear the stab spar by about 1/4" at its highest point of travel. This minimizes the offset that the flex shaft has to deal with. The flex shaft is a piece of 1/4" ID hydraulic hose obtained from the local NAPA store. This type hose has embedded braided wire which makes it stiff enough to prevent kinking but still has enough give. The motor has a 5/16 output shaft so I reamed the end of the hose with a drill bit until it fit properly. At the jackscrew end I silver soldered a piece of 5/16 copper to the stop nut which is pinned to the jackscrew. The hose clamps can be adjusted for a clutch effect if something gets in a bind or the motor runs away for some reason. As a test I have run this setup all the way to both stop nuts until the hose slipped and verified that it would back itself off unaided. I put safety wire through the hose at the end of the motor shaft so that if it slips on the shaft it cannot move up against the bulkhead. The stop nut at the jackscrew prevents the hose from travel in that direction. The limit switches were purchased from the local electrical supply house, and the trigger is mounted to the shaft with an adell clamp. I plan to run a safety wire through the clamp and shaft to prevent it from shifting once I have made the final adjustments. The switches trip about a quarter round before the jackscrew hits the stop nuts.

David Read Olney, IL
Plans #3039



Photo's of Dave's Trim Setup

Electric Pitch Trim, cont.

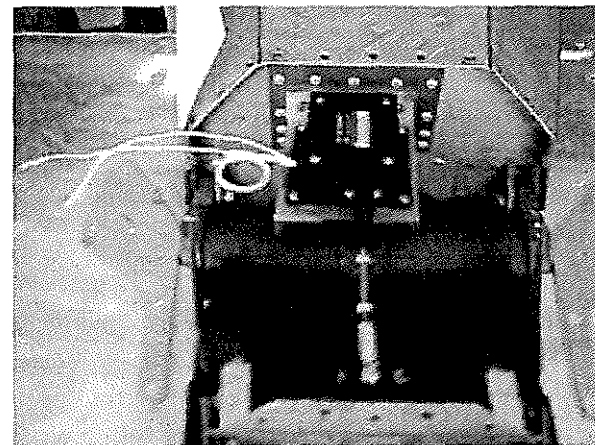
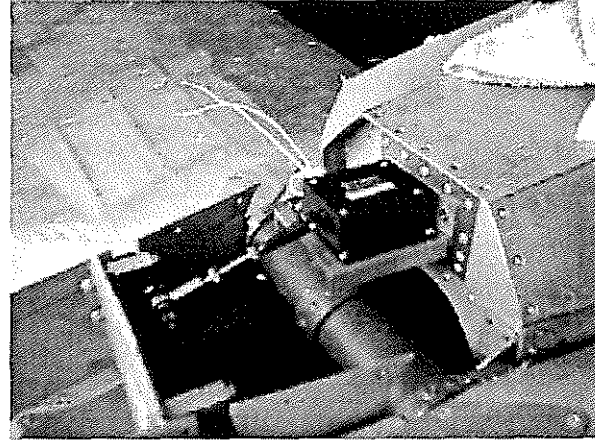
Electric Pitch Trim - Another Way

From the pics you can see it is a really simple set-up. I constructed a platform for the RAC T2-7A servo out of Alum. angle and plate and mounted it to the 575 frame. Initially I had the platform screwed to the 575 frame with nut plates, but found there a small amount of flex on the bulkhead, so I attached a doubler to the 575 frame using Cherry Max pop rivets. I also had to get a 10/32 clevis from Ray Allen so I could use a 10/32 rod end bearing to attached the whole thing to the 703 torque tube. All I have left to do is run a 2 conductor wire to the deck relay and then to the stick grips. I also plan to use a servo for the aileron trim. Below is a parts list for the trim set-up...most of which is optional.

PARTS LIST

1. (1) RAC T2-7A Servo.
2. (1) RAC REL-1 Relay Deck..only needed if you are going to have trim on both sides.
3. (1) RAC LED Indicator.
4. (1) RAC RC-10 Clevis w/Hardware.
5. RAC G-205 Stick Grip...optional. You can also mount a rocker switch on the dash to operate the trim.
6. RAC G-207 Stick Grip...Optional.
7. (1) 10-32 Stainless Steel Rod (Mc Master-Carr) Smallest piece is 1 foot long...cut to length.
8. (1) 10-32 Rod End Bearing-Female. Wicks A/C...P/N MW-3.
9. (2) -8 C/S Nut Plates to Attach Servo Platform to 575 Frame.
10. Doubler Plate for 575 Frame.
11. Alum. Angle and Plate to Construct Platform.
12. (2) Jam Nuts for 10-32 Rod.
13. (2) 5/16" x .065 4130 Steel Tubing for Bushings on 703 Torque Tube. (Spacers for Rod End Bearing.)
14. Wire...2 conductor From Servo to Deck Relay.

Rich Brazell



Rich's Mac Servo Installation

For the last several hundred hours I have used a MAC trim (now Ray Allen) unit with built in limits for elevator trim. It works great, has a panel indicator, if desired, and eliminates the jackscrew arrangement. I had found that the jackscrew method always had some play which is difficult to eliminate. I Fabricated a bracket which affixes the trim motor to the lower portion of the bulkhead below the trim control arm. I attached it to the control arm with a small bracket that clamps on the arm. I experimented with the length of the control arm bracket to achieve the proper trimming speed. Works great and there is no play in the system. I have a jackscrew assembly available to anyone who wants it, no cost.

Bill Beswick
S/N 1026 N54WB

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Electric Pitch Trim, cont.

Thanks for your response to my trim switch advice. I agree with everything you wrote. My purpose in writing is to share my experiences and what I have learned in 59 years in aviation. I am not an engineer, and tend to not see what is best from an engineering standpoint.

I have had more problems with limit switches than actuators or actuating switches. Limit switch contacts get dirty from ambient dust, oil and paint over spray, and they go out of adjustment. We used Corvette headlight door actuators for elevator trim on 3 T-18s. They are similar to the Dayton unit sold by Granger. We experimented with running them into a stall and leaving the power on for a few seconds to see if they would fail. They didn't. We fused the system so the fuse would blow in a prolonged stall. The Granger catalog has a chart that shows current flow. We did the same thing with flap actuators using Ford Thunderbird window regulators. With the radio squelch set just right, you can hear the motor stop. We used panel mounted toggle switches, not the coolie hat type for elevator trim. The switch we used is the same type used for flaps in the Air Tractor. I have about 8000 hrs. in them, or 4000 hrs working in a patch. On average a turnaround is made every minute. Some flaps are lowered and raised in every turn. So $4000 \times 60 = 240,000$ turns, $\times 2 = 480,000$ switch movements. Never a toggle switch failure but did get shutdown by limit switch malfunctions. Our T-18 (18 years old, 770 hrs.) does not have a forward tunnel which was a big mistake. See previous N.L.s The manual trim needs a mounting spot so we installed electric.

Dave Eby

For those of you who are designing electric elevator trims, the following numbers might be of use: The F-4 Phantom trim went from stop to stop in 9 to 12 seconds. I timed it when I was designing mine. The T-18 trim jack screw turns 5.5 turns from stop to stop per the plans. This works out to 27-36 RPM. Mine turns about

30-32 RPM at 14 volts and is about right for trim changes at cruise. Any faster and you will not be able to click in the needed amount as the fuel burns off. It is a bit slow in the pattern, but the forces are so light you don't need to trim very much. I flew in a Mustang Two once and the guy had a two speed trim. The rate was mitigated by the use of a resistor. He used one rate for high speed and a faster one for low speed. The F-105 had a deal like that and it was tied to the flaps. Flaps up yielded a slower rate while a faster rate was achieved when the flaps were down. More than you ever wanted to know about trim rates!

Bob Highley
N711SH
SN 835

All this talk about elevator trim. Well call me crazy but I use a mechanical trim. Works great, I never run out of trim and have no problems with stops or electrical failure. Rather than have the 1/4 inch tube flip flopping inside the rear fuselage I installed u/jointes at the aft tunnel and one at the bulkhead that the flying tail is attached to. I do not have the prints with me so I forget what station that is. The trim wheel is mounted where John placed it on the prints but is not to print but one that I bought from Mike Archer. Also the links that everyone has to bend after the first flight, well I have never had to bend mine because I made them exactly as shown on the drawings and I have never ran out of trim. This is with or without a 250 lb passenger, full fuel or low on fuel, solo with or without baggage full fuel or low on fuel. Why complicate things? Keep everything simple.

Chuck Borden

Let me add to the support for the manual trim system....in and working with virtually no maintenance for 9 years..... no limit switches etc.... nice and simple.

Joe Gauthier

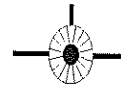
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Electric Pitch trim - A Story

While on a cross country, I somehow ran the electric trim too far forward (down trim) prior to takeoff on N8428, and got a BIG surprise when it took about 15 lbs of stick force to limp the beast around the pattern and land. The takeoff runway was too short to abort, once I realized I had a trim problem, so I continued the takeoff and brought it around and landed. The trim motor/trim system was JAMMED(full forward). Somehow I dumb thumbed the trim motor to jam, without any warning! Bad deal. But this is not the end of the story. My tail cone did not have any inspection plates to inspect the trim system, so I took out my trusty knife and mini-hacksaw and cut a small "peek-hole" to access what was wrong. The only alternative to this was to remove the rudder and vertical stabilizer for a look. After seeing the problem, I reached into the cavity and manually turned the shaft to place the trim tab in an approximate neutral position and strapped the T-18 on again. The 2nd take-off confirmed that the trim was still frozen, but it was basically in neutral, and allowed me to complete my flight back to Montana. Still not the end of the story. Once back home, I was able to get limit switch installation details, including really great photos, from Robert Clayton, wiring diagrams for the switches and in-transit panel lites designed by Ken Morgan and printed in one of the newsletters, and using this advice, made the switchover to full limit switches (up and down) as well as in-transit lites in the panel. I also was able to get an A&P buddy to design and build a really good looking access-inspection panel for the tail cone under the vertical stab. End of the story: (and lessons learned)..... I did not build this airplane, and I strongly advise all "newbys" to study, study, listen, listen, to learn as much about the airplane and its systems as possible. The guys who have built these aircraft are masters by definition....(if you can build an airplane, you are a true master) and are willing to share their experience and insights. This aircraft can be flown with full down trim at pattern speeds..(personal experience

limit switches for system protection and the lites in the dash to tell if the trim motor is running is a good thing. I miss the ability to look at a gauge to see the position of the trim, but because I know that I can fly it at any trim setting, this does not cause undue anxiety. The T-18 is a great airplane. My pitch trim system on N8428 is one hell of a lot better now than it was without limit switches. Many thanks to Bob Clayton and Ken Morgan.

Russ Verbael
N-8428



Exerpts from the flight manual from my T-18 Tom Kerns N10TK FLAP ACTUATOR TUBE SEALS

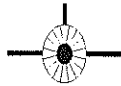
There are three T-18's here at Flying Cloud Airport, each with a different type of air seal to close off the flap actuator slot. Without a seal, the slot produces a tremendous draft making winter flight an ordeal. My T-18, N10TK, uses sheets of 1/16" Phoenelic with a one inch hole riding on each flap actuator tube and held against the inner side of the fuselage skin by .025" sheet metal guides. The Phoenelic is cut to butt against the rear spar mounting bulkhead when the flaps are up while extending aft far enough to close out the flap slot. The slider rides on the top edge of the lower fuselage longeron as the flaps move aft (with flaps down, the seals do not close out the forward end of the flap slot). The seals work well and are trouble free but could be a chore to retrofit to a fully assembled airplane. Dave Fox, N444DD, worked at adding seals similar to mine but decided there had to be an easier way, and created aluminum boxes covering the flap actuator arms and attached to the inside of the fuselage side skins. The aft ends of the boxes are open to the rear along the cable run. Sewn fabric cones seal from the open aft end of the boxes to the flap cables. This works

cont. pg 8

FLAP ACTUATOR TUBE SEALS, cont.

great and may be easier to put into an assembled existing airframe than my sliding seals.

Darshan Karkey, N4MY, looked at our efforts and concluded that there must be a still simpler approach. Darshan cut a 0.9" hole in a sheet of rubber gasket material, slid it over the one inch flap actuator tube so that it is on the outside of the fuselage, and super glued the rubber to the actuator tube. Darshan trimmed the forward end to clear the rear spar with flaps up, and trimmed the aft end to just cover the slot. The rubber just slides against the side of the fuselage, and air loads hold the rubber against the fuselage side, sealing off the slot when flaps are up.

**First Flight Report Of N818TR**

Submitted By: Robert Clayton

Taxi Tests:

Section 1: Low Speed

N818TR is equipped with Cleveland 5:00x5 main wheels and tires, with toe-operated hydraulic brakes, and a Scott Model 2000 full-swivel tailwheel with a 6" solid rubber tire. The tailwheel connection springs are the compression type, with one spring of a heavier gauge to prevent a harmonic vibration from developing, thus causing the tailwheel to shimmy.

Low speed taxi tests were conducted with various tensions on the connecting springs. With the connecting springs slightly loose, enough to allow the tailwheel to full-swivel and break loose when pivoting, taxi control was very positive, although there was some lag in response, as would be expected, when S-turning.

Input from many other T-18 pilots suggests that the best control will be maintained if there is a slight tension on the connecting springs, hence, no lag in response when steering from side to side.

Because of the design of the release

mechanism of the Scott 2000 tailwheel, even slight tension on the connecting springs makes breaking the tailwheel into full-swivel mode impossible. This condition was found to be acceptable, due to the very positive control during taxi, and the fact that a very tight turn is possible in either direction even if the tailwheel does not release into full-swivel. The only disadvantage is not being able to push the plane backwards to put it in the hangar.

Low speed taxi tests with the connecting springs under slight tension resulted in very positive response in either direction. Use of brakes is required only for slowing down or stopping. Tight turns are possible with the inside wingtip actually receding, even with the tailwheel still locked in steering mode.

The design of the brake pedal makes over-braking not only highly unlikely, but nearly impossible. For engine run-up the pilot's toes must be lifted off the "natural" position on the pedal, and raised to get the balls of brake pedal. With the toes tucked up against the bottom of the pedal flange, the pilot cannot exert enough pressure to stop suddenly as to cause the plane to nose over. This is only a minor inconvenience during run-up, and may prove to be no inconvenience at all once more experience is gained in the plane.

The airplane tracks very straight and true. No problems of any kind were found during low speed taxi tests.

Section 2: High Speed

High speed taxi tests were done with a pilot and passenger on board the aircraft, the pilot paying to the directional control, and the passenger watching engine RPM and airspeed indications. Acceleration was not brisk, due to the moderate power (125HP) and the high-pitch propeller (Sensenich 66x72), but felt entirely adequate for potential flight.

Three high-speed runs were made on two separate occasions. Speeds of 50-60 MPH were noted on all six runs. If the power were reduced too abruptly the

cont. pg 9

First Flight Report Of N818TR, cont.

a/c required a little more attention on the rudder pedals at the instant of the power reduction. This is most likely due to the sudden reduction of torque, loss of airflow over the rudder, and the fact that right rudder was being used to correct for torque which is suddenly not there anymore.

On at least two of the high-speed runs the power was reduced slowly and held at a given level for a few seconds, thus maintaining an ASI reading of about 50MPH. Directional control was excellent through all speeds tested.

On one run of 60MPH, when the power was reduced back to idle, the a/c felt light, as if it had just settled onto the runway. This is probably the most critical speed range as far as rudder control is concern of insufficient directional control, or loss of control. The true, with no attempts to deviate from where the pilot directs it to go. The a/c is not sensitive, but is very responsive.

All high-speed taxi tests indicate that the a/c is ready for flight, as far as far as directional control is concerned.

The First Flight

Section 1: General

This section deals with preparation of the a/c for the first flight. As Bob Clayton's Technical Counselor, and test pilot, I watched all the preparations in great detail. The a/c was inspected by myself, and Vahl Buchanan, of the local FAA FSDO, as well as Bob, many times before we collectively felt the a/c was ready. Bob paid great attention to every minor detail as he prepared the a/c for the first flight.

Fuel flow tests were performed by putting 5 gallons of fuel in the tank, which is considered the minimum fuel to have on board before terminating flight. The main wheels were put up on automotive ramps, and then the engine operation at this minimum fuel level and high climb angle.

This and other tests assured that engine operation was normal, and indicated no apparent need for concern about the engine operation

during the first flight.

Extensive c.g. calculations were made prior, and the instrument panel was labeled, as required by Vahl Buchanan, to limit the aft loading of baggage under low-fuel conditions.

Preflight inspection followed standard procedures. The oil was filled to within limits; the fuel tank filled with 100LL aviation fuel; tire pressures were checked; passenger seat belt secured.

Bob showed me data gathered from many other T-18 pilots concerning best rate/angle of climb speeds, approach speeds, expected stall speeds, etc.

Time was spent in the cockpit going over the panel layout, locations of controls/switches/valves, etc. Emergency procedures were practiced for in-flight engine failure, options for keeping the engine running using the throttle for the carburetor accelerator pump, or the primer, to possibly supply a minimum of fuel enough to return to the airport.

Section 2: Chase Plane

A chase plane was not used for the first flight of this a/c.

Section 3: Emergency Procedures

As in Section 1 above, emergency procedures were practiced before the first flight. As this a/c is not equipped with a fuel pump, there was little to go wrong with the fuel system, other than fuel line blockage. Before the first flight the fuel system was drained of about a quart of fuel. The first few ounces showed signs of particulate contamination. Drainage was continued until the fuel showed clear for about 16-20 ounces.

We were able to use a flashlight and look into the fuel filler opening and visualize the fuel outlet screen. There was no visible contamination anywhere in the fuel tank.

During the first flight we planned to remain in the traffic pattern. Any in-flight emergencies would be handled by

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Colorado Fly-In

By: John Evens

The second Colorado Thorp fly-in, June 17th-19th, was a great success. It was hosted and planned by Walt and Bev Giffin in their beautiful hangar at Fremont County Airport near Cañon City, Colorado. They were helped by John and Vicki Evens, and Dean Cochran, along with support and assistance from the airport manager, Dick Baker. Dick previously owned a T-18. The count showed 11 T-18's in attendance and 1 RV-6A. The Thorps came from Florida, Texas, Arkansas, Oklahoma, Arizona, California and Colorado. Some of the long distances flown and driven were testament to the airplanes we love and the friendship and camaraderie of our group. Several of the group took a train trip to the Royal Gorge on Friday. Most of these were able to use free tickets provided by Dick Baker. A friend of the Giffin's (a local county commissioner) took us to a small nearby town for a BBQ dinner on Friday evening aboard the "Bronco Bus" (painted orange & blue for the Denver football team). After returning to the airport, there was a lot of hangar flying and relaxing. Saturday dawned with low winds and clear skies. After a short mountain flying briefing, 9 Thorps and the RV took off to the West and into the Rocky Mountains, landing at Leadville (LXV), the highest public use airport in North America at 9927' MSL. I landed first, and tried to get pictures of everyone taxiing in, but Gary Cotner's didn't come out for some reason (sorry, Gary). We got a few group shots. Many beautiful sights were seen along the way, including the Royal Gorge Bridge west of Cañon City, beautiful mountain lakes, and some of Colorado's 14,000' snow-covered peaks. Many landing certificates were awarded (and expensive T-shirts purchased). I think everyone agreed that it was a great trip. Some of our group were able to take a tour of famed aviation sculptor Robert Henderson's studio. The guys had a good time looking at Randy White's T-18 project. That night we had hamburgers, salads, etc. at the hangar, thanks to the local EAA chapter and everyone pitching in. That evening at the hangar we were treated to a couple of beautiful Hawaiian dances by Elaine Ginn and her lovely assistant, Gary Green (I don't know what he was drinking, but he was a good sport). Several propellers were dynamically balanced, until it was dark and the balancing dude (me) was ready to collapse from heat exhaustion. The last one was finished on Sunday morning. Late Saturday, Steve and Mark, in "Kong" left for home. Sunday morning was the time to say our good-byes, and wish the rest of our good friends a safe journey. I have included a few pictures I took, and sure would welcome thoughts, comments or pictures from anyone else. Following is a list of people in attendance. There were other non-Thorp visitors. I sure hope I'm not forgetting anyone else.

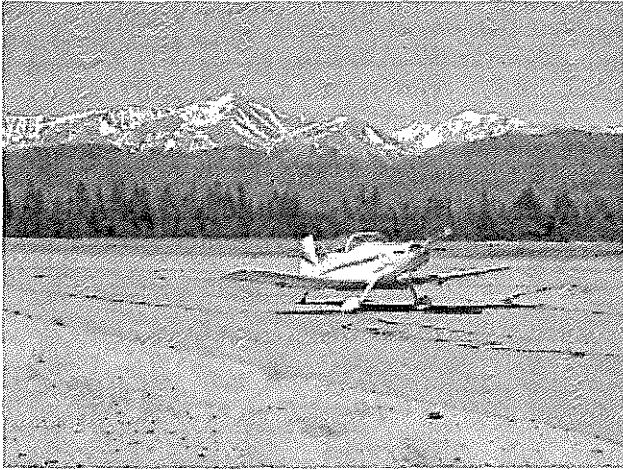
June, 2005 Colorado T-18 Fly-In Participants:

Walt and Bev Giffin, Colorado N78WG
 John and Vicki Evens, Colorado N71JE
 Dean and Tony Cochran, Colorado N11DC
 Scott Ginn, Colorado N39JP
 Howard and Elaine Ginn, Arizona N22DU
 Gary and Maxine Green, Arkansas N118GG
 Gary Cotner, Oklahoma N57GC
 Bernie Fried, Texas N18XS

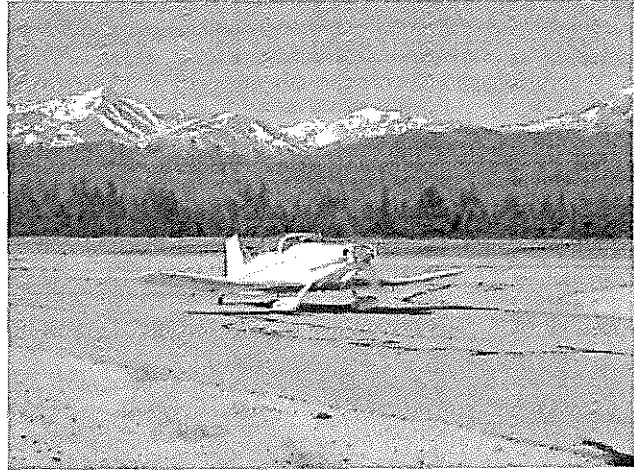
Les and Margie Conwell, Florida N181LM
 Bill Cordoza, California N118BC
 Steve Rosenzweig and Mark Hadley, California N18PW
 Randy White, Colorado N549PW (project)
 Ed and Nettie Ludtke, South Dakota (RV-6A) N17EL
 Dave and Pat Eby, Texas (Drive-in & taxi service)
 Pete Gonzalez, Colorado (Drive-in)

Colorado Fly-In

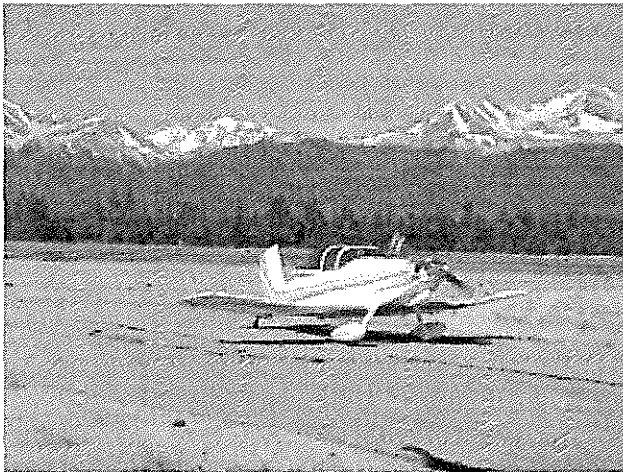
By: John Evens



Bernie Fried



Gary and Maxine Green



Bill Cordoza



Steve Rosenzweig and Mark Hadley



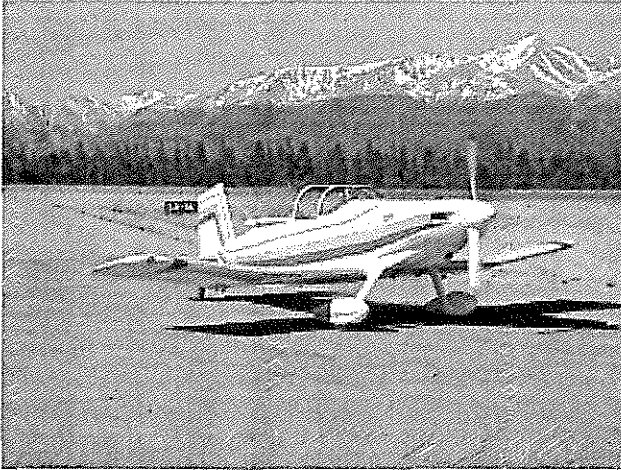
Walt and Bev Giffin



Howard and Elaine Ginn

Colorado Fly-In

By: John Evens



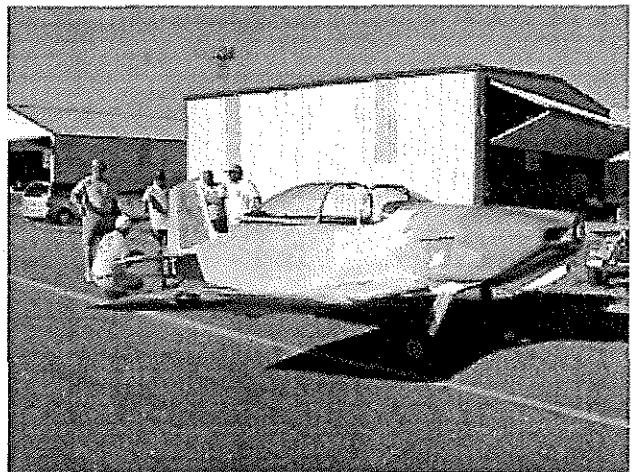
Scott Ginn



Nice group photo



Group at Leadville



Randy White's T-18 project



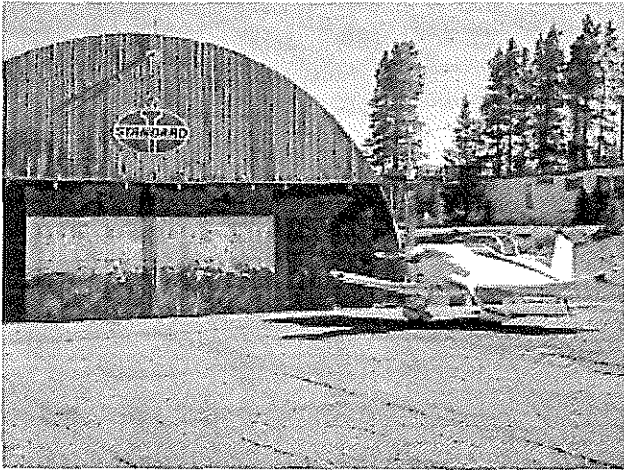
OK ... Who let this thing in?? Ed Ludtke's RV



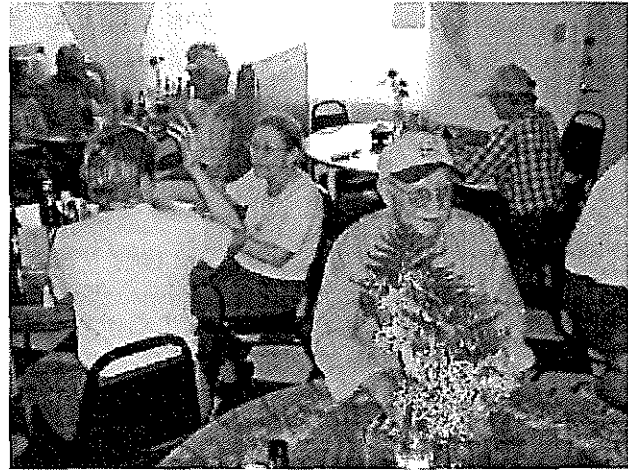
Round table discussion ?

Colorado Fly-In

By: John Evens



John and Vicki Evens

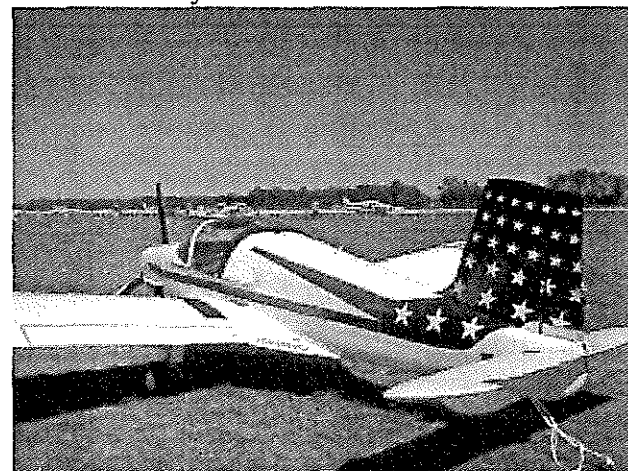


Sun'n Fun 2005 ~ Submitted by: Andrew Robinson

I hate to say it but this is the only info I received for this years Sun'n Fun Activities



Gene Sloan's T-18



Nice looking Thorp T-211

First Flight Report Of N818TR. cont.

terminating the flight as soon as possible. At the speeds anticipated, this would take about three minutes from the least advantageous position in the pattern, i.e., just after passing the far end of the runway on takeoff, to returning to the approach end of the runway.

Previous in-flight engine failures (two) in my Pitts S-1S reinforced the axiom "fly the aircraft!", and I played this truth over in my mind in preparation for the first flights in N818TR. Both engine failures in the Pitts resulted in successful landings (one on a paved runway, one on a dirt road) without damage to the a/c.

Section 4: First Flight

The first flight of N818TR was conducted at approximately 09:30 on Monday, June 13, 2005, at Skypark Airport (BTF). Attendance was limited to a few family and friends. No public notice was made to the local flying community.

All preflight preparation completed. The passenger seat belts and shoulder harness were secured so as not to interfere with the flight controls. I strapped into the five-point harness and secured them tightly. All controls were checked to be within easy reach with the restraints secure.

Taxi to the active runway was completely normal as per prior taxi tests. Skypark uses a Unicom frequency of 123.00, and the call was made to taxi onto the active runway. One high-speed taxi was made, raising the tail off runway to about 60MPH, then slowing down and returning to the taxiway. When the throttle was reduced the a/c felt very light. It was later confirmed with witnesses that the a/c had actually lifted off the runway slightly.

Engine gauges were monitored throughout this taxi period. Oil pressure and temperatures were within normal limits. The CHT was rising, but still in the green. It was felt that no further information was to be gained from additional taxi tests, so a takeoff was planned for the next run.

The radio call was made, and I back-taxed to

take advantage of the full length of the 4700 foot runway. Acceleration proved normal. The engine RPM had been reaching only about 2000 on tests up to 60MPH. This was felt to be normal due to the high pitch of the propeller.

The a/c lifted off smoothly at about 65MPH IAS. I held the a/c level till the speed reached 80MPH, then began a slow climb. Engine RPM rose to 2300, and IAS went up to 100MPH. ROC was not observed at this time, although there is an ROC gauge in the a/c. The a/c felt very solid, with no signs of instability or out-of-trim condition, other than having to hold forward pressure on the control stick.

As per recommendations from other T-18 pilots, the electric stabilator trim was set for a slight down pressure to aid in preventing overcontrolling in pitch on the first takeoff. After liftoff I was holding forward pressure on the stick to maintain level flight before climbing out. I trimmed the electric switch for down trim, and the pressure I had to hold forward increased, rather than decreased. Realizing that the trim switch was wired in reverse, I gave the switch full aft trim and was able to neutralize any stick pressure required.

Section 5: First Flight Procedures

The objectives of the first flight were to establish a/c controlability, safe and normal engine operations, and any major or minor items that need correcting before any further flight testing.

The a/c climbed smoothly at 100MPH IAS. Other than the aforementioned trim situation, nothing out of the ordinary was noted. A turn was made to crosswind, then very quickly to downwind, keeping a close pattern to facilitate returning to the runway should any emergencies arise.

The throttle was left in full-open position. On downwind the a/c accelerated to about 125-130MPH IAS. Engine RPM read 2500. Oil temperature was at 180 degrees F, and the oil pressure at 60PSI, just within the green limits.

Three passes were

cont. pg 15

First Flight Report Of N818TR, cont.

made over the field at pattern altitude. The fourth and fifth passes were simulated approaches to landing. It was quickly discovered that the a/c is very slippery, that is, it was hard to slow down. On the sixth, and final, approach, the throttle was reduced at mid-field and the a/c was slowed to 100MPH IAS by the time the turn to base leg was made. At this point the first notch of flaps was dropped. No additional flaps were used. The a/c was slowed to 90MPH IAS on base leg, then down to 85MPH on final, with engine RPM at about 1500. The approach was very smooth, with no tendency to divert direction or altitude. It actually felt like it were sliding down rails to the runway. Very stable, it flew much like a larger a/c.

Eighty-five MPH IAS was held to the numbers, then the throttle reduced to idle. The a/c flared very smoothly, with responsiveness, but not sensitivity, to stabilator input. With full-aft stick, the a/c touched down at the proper angle for all three wheels to contact the runway at the same time.

As the a/c rolled out straight and true, with only minor input to the rudder pedals, I made the audible comment to myself, "Well, that was a non-event!", referring to the touchdown and rollout. I was rather surprised at how little effort it took to keep that a/c tracking straight.

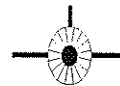
No braking was used to slow down. I let the a/c roll till I had to add a little power to get to the turn off. I taxied back to the small gathering of observers, and parked in a tie-down spot before shutting down.

Observations:

- 1) Stabilator trim needs to be rewired in the correct direction.
- 2) CHT was running near the top of the green, but not at redline. It is felt that this may be because the engine is not yet broken in. This is not a dangerous situation, and it was decided to monitor this until engine break-in is complete.

- 3) Oil pressure indicates additional washers need to be added to the pressure relief valve to bring it up to about 75 PSI.
- 4) There is a low-amplitude vibration consistent with engine RPM. This is believed to be caused by the mounting method used on the spinner. The soft vinyl tubing used on the front bulkhead will be replaced with a solid mounting flange before the next flight.
- 5) Volume in the a/c headset was so low as to be undecernable. On the ground the volume was adequate, but one in the air, with a/c and engine noise, they were unreadable. Apparently the power to the headsets needs to be increased somehow. This will not delay any further flight testing, but is being investigated.
- 6) Engine RPM is low, but safe. It was determined to monitor this condition. As the engine break-in is completed, and further airframe refinements are done (fairing in the gear legs, adding wheel pants), the propeller may prove to be of the proper pitch.

baf

Technical Tips

I just did a 25 hour oil change and screen cleaning. And decided to change the green foam filter on the front of my ram air intake scoop. I went to two local auto-parts stores and asked if they had any green Filtron Foam. "Dah, what do you want?" That was the answer I got. Does anyone know where I can get some 1/2" sheet that I can cut to size. Also the proper oil that is sprayed on the foam.

Chuck Borden.

Technical Tips, cont.

UNI-Filter sells the 5/8" thick green foam. <http://www.unifilter.com/accessory-catalog.htm>
I am using a sewn cone of it on the Thorp diffuser inlet. UNI-Filter also lists the oil and a cleaning kit near the end of the accessories section.

Richard Eklund
Eklund Engineering, Inc.
www.thorpt18.com

Aux Fuel Tank Plumbing

Everyone seems to have a different way to plumb wing tanks. Mine simply feed the main tank separately through Facet pumps in the wing stubs. They are serviced, if need be, by folding the wings. The pump inlets provide the fittings for the outboard tank feed lines. They are easy to separate because the fittings protrude into the wing gap area. These pumps feed into the main at the top through anti-siphon loops in the lines. This prevents fuel from the main from draining back into the wings. A float switch in the top of the main keeps the tank from overflowing. When the main tank is full, the switch opens and turns off the power to the transfer pumps. I use a time delay relay to keep the pumps from cycling in rough air when the fuel in the main sloshes. In practice, I turn on the transfer system at level-off and keep the main full until the wings are dry. When they run dry, I know I have about two hours plus reserves left in the main. An added benefit is that the CG stays constant since the wing tanks are on the CG. I rarely have to trim at cruise until the main starts feeding down. My longest flight so far was from Washington, D.C. to Lakeland, FL non-stop in 4 hrs, 25 mins.

Bob Highley
N711SH
SN 835

Technical Tips, cont.

I have a fuel injection system. My wings each on the inboard section can carry 12.5 gals. I do not pump to the main from the wings, rather I have an Andair 4 way valve so I can select left, main, right or OFF. There are two fuel pumps..the mechanical on the engine and the boost on the firewall. Each wing vent goes to the top of the firewall (just ahead of the main tank) and then down to the floor board. I was somewhat skeptical that this would all work when I built it. However, it works very nicely and I have less than a pint of useable fuel per side. In actual practice, since I can carry so much fuel, I generally only use the right wing and the main. With the right wing filled up (inboard D cell only...standard wing configuration) my electric roll trim is in trail position. So that's kinda neat. Note, I do NOT have fuel senders in the wings. I fly them strictly on time. In practice, at 10K feet, I can fly 1 hr. and 45 min per side. With only two gals in the wing tank (confirmed via initial testing) the engine will draw with the mechanical pump from the wing tank while sitting on the ground without the boost pump operating. In practice, I take off and land with the fuel selector on the main tank. I am very satisfied with the performance of this wing fuel system plumbing, and would recommend this configuration to anyone adding fuel to the wing.

Tom Hunter
N18XT

EGT Selector

I recently decided to install a four position selector switch for connecting an EGT probe from each cylinder. Looking at Aircraft Spruce's catalog, Westach probes came with four foot leads. That wasn't enough to reach the back of the switch so I ordered two additional 18" and two 24" extensions. That would give me an excess that I would have to coil up but that was my only option and at

cont. pg 17

Technical Tips, cont.

about \$50.00 more in expense.

When the shipment arrived I found that the selector switch came prewired with about eight feet of wire which would be way more than adequate to reach the probes. Actually, since the probe wires are not to be shortened I'll probably take the leads off the switch and resolder them on after removing about six feet of wire. I called AS up and they are planning to correct or include the information in their next catalog as well as their online info right now. They have no problem accepting the extensions back without a restocking fee but you I still have to pay the postage and insurance.

Bob Jaeger

T-18 Wheel Alignment

By: Paul Macmichael

I think that one of the biggest problems in the effort is finding a place to start from, and what I mean is a known point rather than floundering around like I did. The first thing that you need to do is to snap a center line on the floor so that you can see if the wheels are parallel. There have been some past news letters that have detailed that aspect quite well so I'm not going to rehash , but move on to how I set up my wheels. Get a 4/4 long enough to fit from wheel to wheel and place it against both rear wheels, get a piece of angel iron 1.5X1.5 and set it on top of the board. Using a large square off the angle iron parallel this to the edge of the tire and measuring in to the rim. Record the distance to the front and rear rims. What I finally figured out after removing my wheels, axles, brakes many times, that if I used a shim thickness of 3.5 thou that it corresponded to movement of 1/64 in. The next trick is to make shims. Now this isn't as bad as you might think and by making them yourself you can tailor them to take out any amount of correction thats needed. To make the shims get some scrap aluminum 040 or thicker and cut a piece 2 in wide and about 12 in long. Mark off a 2 in piece on each

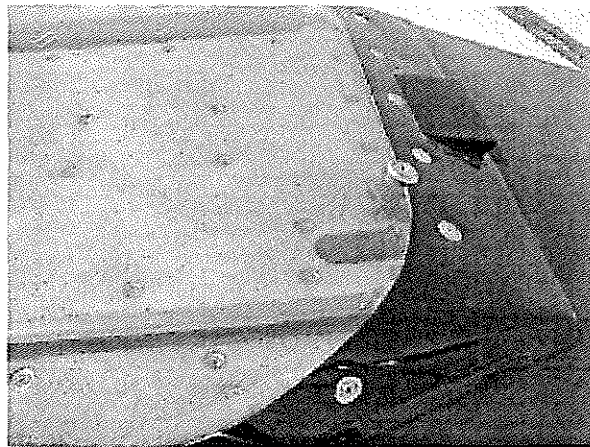
Technical Tips, cont.

end, mark and cut axle/bolt holes. For the rest of this you will need a upright belt sander, heavy gloves, a small piece of flat wood. Now holding the piece of aluminum on the vertical in a gloved hand with the belt sander running use the small block of wood to press against the shim to be. Draw a line on the outside of the piece 2in above the end as a guide showing where the end of the shim is. You'll find that after a bit of trial and error that you can knock out a shim in short order. Don't forget to eye ball the shim edge periodically and make changes to the pressure that you apply to the shim stock. You can dress the shim a bit with a file before you cut them off. Measure the thickness of the shim at the thin & thick ends and the difference is the thickness. Hopefully you'll find that this a good starting point to get your wheels in track

Canopy Lock

By: Steve Rosenzweig

There is considerable controversy on canopy locks ... but this is one members installation.



Editors Note: The controversy is weather to have a lock or not. This will only keep the honest people honest. If someone wants is they will simply break the canopy, and take what they want anyway. Without the lock, the thief will probably just open it ... the decision is yours.

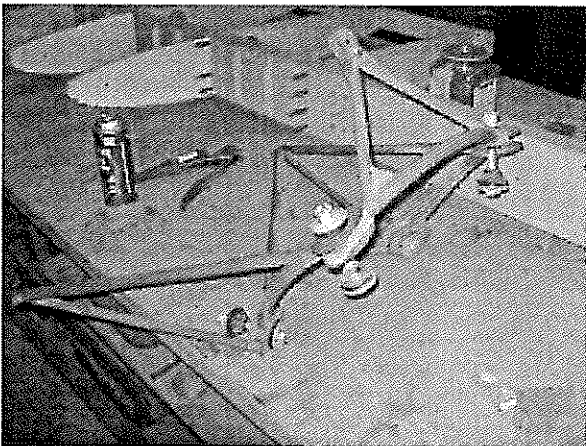
For Sale

I have a 1967 fuselage on gear with a Scott Tailwheel, controls, seats, fuel tank, and panel. Left main gear and aft empennage damaged. Few small cracks in windshield and canopy. Instruments are all steam guages, and removed from panel. They are complete for VFR, working when removed. I can provide a list on request and photo's. These items are for sale, no trades.

George Savord
ghsavord@cavenet.com

Thorp T-18 airworthy fuselage on short gear, fairings, plans axles with Maul tailwheel. Partially built ailerons, tab assembly. Installed Steel Rollbar, plans rudder pedals, brake pedals, modified inverted capable aluminum gas tank. \$2500. Located at o70.

Thorp dynafocal mount for sale or trade for standard T-18 airframe parts.



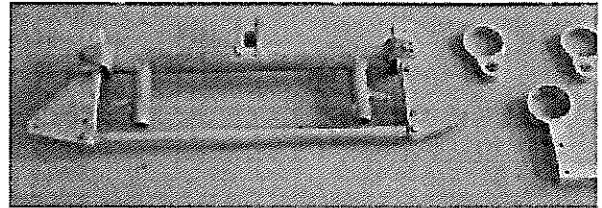
Also, Complete S-18 main beam. Trade or sale.

Stretch
530-320-3209

If the wings are traveling faster than the fuselage, it's probably a helicopter - and therefore, unsafe.

For Sale

Since I don't think I will be building a third T18 these parts are surplus to my needs. 509 pivots, 510-1 bracket and 550 control assembly minus the sticks and I will take a reasonable offer. 850-874-1923 or hkaribian@yahoo.com



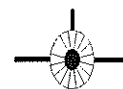
T-18

Miller Yoder is offering his standard T18 for sale. Miller is 87 and still can handle his Thorp, but can no longer qualify for his medical. It is an O-320 with 1100 on a factory reman with a Hartzell C/S prop. The Total time on the airframe is 250 hours. The a/c was built about 1980. It is a VFR a/c and is light on radios. The aircraft is hanged at Sedona, Arizona. Asking \$30K Phone (928)282-4260 Best time is 5PM (Arizona time) Miller was a long time crony of John Thorp while a Corporate pilot in Burbank.

I have a T18 fuse on gear with tires and brakes. Looks to be Ken Brock empennage. Lu S. prints, S18 folding main beam, Ribs. Walking beam (controls), Rudder pedals, fiberglass nose bowl set of T18 prints, NL's, and other parts.

If you have any interest Email me at:

Bob MO
moehlencamp@aol.com



2005 Events

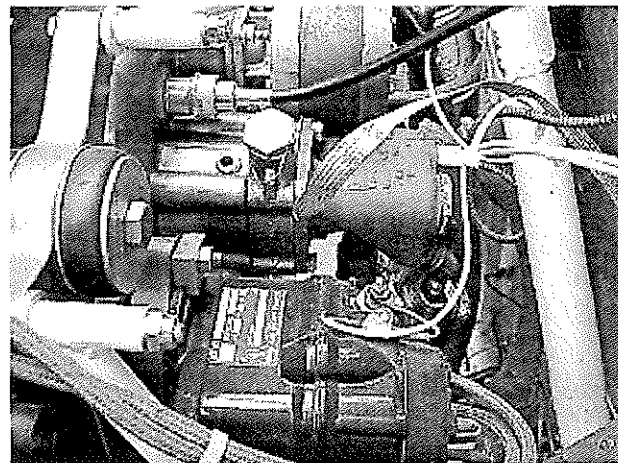
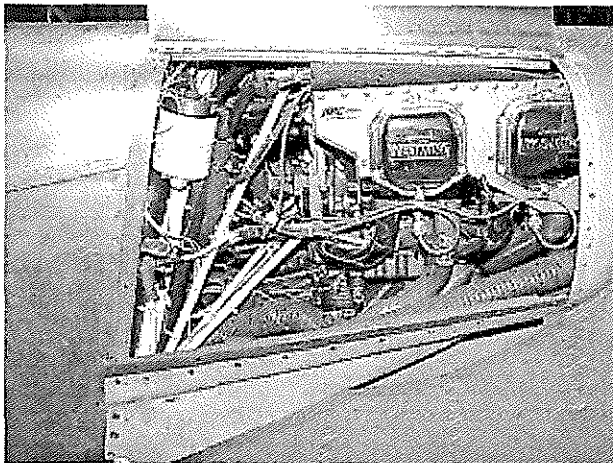
AirVenture 2005 ~ Oshkosh, WI. July 25 - 31 The traditional Thorp gathering will be held on Friday July 29th in the big tent in the Nature Center. This has been our annual routine for the past several years. Lunch will be provided for a nominal charge and will begin at 12:00 noon, followed by the T-18 Forum. For information contact: Roy Farris at (317)736-8903 or by email at: royfarris@earthlink.net

Reedsville ~ The Reedsville THORP GATHERING will be the weekend of August 27 and 28, 2005. Contact Jim Hockenbrock at: 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. For more information contact Teresa Scolla at: bscolla@aol.com

Robert Clayton's Air Wolf Oil Filter Installation

Submitted By: Robert Clayton



Flap Spring Availability

Here's the information for the flap spring. I got it at a True Value hardware store and the manufacturer is:

Serv-A-Lite Products
3451 Morton Dr.
East Moline, IL.61244

The number of the spring I got was, 63A.

Eric Teder

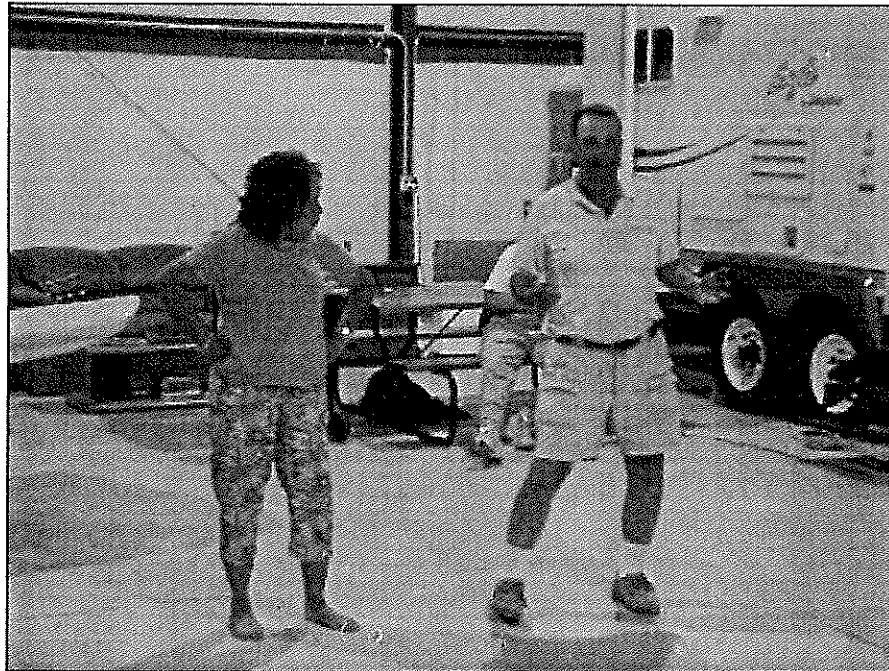
The RV builders have developed an extensive "cottage" industry creating products, some of which aid safety as well as convince. Reading the NTSB reports will identify lack of fuel as being an all too common problem. The attached web site has a product that might be adaptable to Thorps too. There are many. Go to:
<http://www.aircraftextras.com>

Regards,
Wally Hunt

PRSR STD
U.S. Postage
PAID
Decatur, IL
62525
Permit #30

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

August 2005



A picture is worth a thousand words ...