

T-18 NEWSLETTER

October 2000



My Good Friend Brian Olney with his T-18 in Perth, Western Australia

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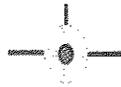
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Editors Notes

By: Roy Farris

Well here I am, attempting to put together another Newsletter. I must admit that finding enough good material to fill these pages is really tough. I was hoping that I would begin receiving some material from the hundreds of Thorp builders and fliers out there, but as of yet, not much is coming in. I will continue to try to publish this Newsletter with interesting and technical information about our wonderful little airplane. I welcome any and all comments about this publication and am open to suggestions that will improve its content. I will also accept any and all material that is Thorp related that I can use to fill these pages. You need not be a writer to send information, I will rewrite it as needed and use what I can. Please feel free to send me information or comments to the address on the back page, or to my Email address: rfarris@wworld.com.



Burn-Out

Nine years ago I undertook the daunting task of building an airplane. I looked long and hard to find just the right airplane to build, and of course I picked the T-18. It just has it all !!! I began as I think all builders do, with tons of excitement and motivation. I worked seven nights a week for nearly five years. Then different things began to get in the way, but I still managed to get out to the shop four to five nights a week for a couple more years. Suddenly I found myself only working on the project one or two nights a week and not really with my heart in it. Now I'm not getting out to the shop at all. It's not that I have lost interest in the project, in fact I live and breath T-18's. I wish it were completed, and I know if it were I would be flying it constantly. So what happens to

airplane builders ? I know its not just me, If you scan Trade-a-plane, Sport Aviation, or any of the classified adds in the aviation publications, you will find multiple listings of projects for sale in all stages of completion. I believe that most of these are for sale because the builder lost interest, the project sat for a while and then the builder decides to move on to some other interest or project. Why is that? Here I am with a T-18 that is nearly complete, and can't find the drive to get out there and finish it. I know its happening, I just don't know why. I know we all have slumps, and I hope mine is a short one. I could be flying next summer if I would get off my &%##* and get to it. Does this scenario fit anyone else out there? What can we do to revive our motovation ?



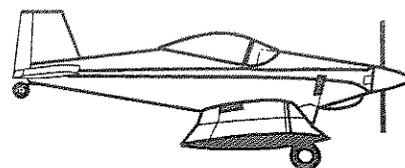
Newsletter Dues

Here it is October and over half of you haven't paid your Newsletter dues. I realize that the Newsletter has been a little short this year, but I still need operating capital to continue to publish it. I would appreciate it if everyone would check the mailing label on the back page of this Newsletter. If you have paid your dues there will be a "PD" above your name on the top line. If you have not paid your dues, There will be a dollar amount printed above your name on the top line. Example:

\$20

Roy Farris The amount that you owe will be printed. (\$25.00/yr for U.S. residents and \$30.00/yr for non-U.S. residents) I cannot continue to publish the Newsletter without your dues. Please check the label, and send your dues to:

Roy Farris
PO Box 182
Noble, IL. 62868



Lets Talk Safety

Following are a couple of events that happened recently to a couple of us T-18'ers that should make us all stop and take notice. No one was injured in any of the events, but they very easily could have.

Preflight Inspections

Probably the first thing that we all were taught in our flight training, be it civilian or military, was how to preflight the airplane we are preparing to fly. I know it's the first thing I teach my students and I try to impress upon them its importance. So we as pilots are required to do a thoro preflight inspection prior to operating any aircraft we are preparing to blast-off in, but do we all do it? I see many pilots that never look at a thing, just get in and go, then there are those that give it a quick lookover, and of course those that really try to inspect it thoroughly. (the later being the rarest) We must ask ourselves just how good of a job we are doing, do we really see what we are looking at? As an example, at this years Thorp Get-Together in Mattoon, Illinois A good friend of mine, Tim Mason and I were looking over a nice T-18 on the ramp. As all builders do, we were really giving it the once over trying to get ideas for our airplanes. We were looking at the left aileron, and Tim noticed something that looked strange and brought it to my attention. Upon further examination, we found that the outer hinge pin was about to fall out. The safety wire was there but the pin had gotten loose and worked its way to within one quarter of an inch of falling out. From the wear on the hinge and the discolored metal it was evident that it had been working for some time. We immediately brought it to the builder/pilots attention, whose face distorted into a look of fear. He fixed it on the spot and avoided a later disaster. That hinge pin could have let go at any time, and I'm sure that it would have caused a serious problem. This pilot is an experienced ex-military, commercial pilot with thousands of hours. I'm sure he knows how to preflight an airplane, yet he missed this repeatedly. I'll bet he looks at them now! Don't get lazy Do a thorough Pre-Flight Inspection. Yours is the life you'll be saving!!

Safety cont.

I think most of our stateside T-18 crowd has heard of my spin experiences in an S-18. Dick Cavin (rest his soul) did not want to put it in the N.L. (he was Ed. at the time) for fear that it would possibly scare potential builders off and be generally detrimental to the T-18 movement. I did not agree, but I was not the editor either.

Here is the story:

I built a stock T-18 with an O-360 180 HP Lyc, fixed pitch Sensenich metal EM 76 prop cut to 68" and twisted to 80" pitch. I first flew it in 1980. (I'm still flying it, but with an Aymar Demuth wood prop. Twenty yrs and 2000 hrs on it.) I had spun it, rolled it, looped it, and fully explored its envelope for many years. Back in the early '80's, I was an Air Force pilot current in the T-37 and instructing spins and their aberrations to student pilots on a daily basis. I had built and flown a Cassutt IIM, had a combat tour in O2-A's (and spun one at night), flown OV-10's, C-141's, C-5A's and been a T-38 instructor, etc, ad nauseum. A friend named Leroy Holt had finished up a wide body, folding wing T-18 (S-18). He lived in McAlester, Ok and I lived in Enid, OK. We became friends while he was building it. I test flew his plane for him. It was pretty much a stock S-18 with an O-360 and a constant speed Hartsell prop. Its C.G. was about where mine was. It flew nicely, stalled about like mine (sharp break, but predictable, nothing to be alarmed about). I had rolled it and felt very comfortable in it. It was a well built and straight. Well, after several months of flying it, Leroy asked me to show him a spin. Now, I had spun mine numerous times and it spun like all stock T-18' that I had ever heard about. You had to force it into the spin and hold it in like a Cessna 150. Once you relaxed the pro-spin controls, it recovered. I thought Leroy's would do the same. Hell, it's C.G. was the same, it stalled the same, why wouldn't it spin the same? But, fortunately, I told Leroy since I had not spun it yet, I had better go up and spin it solo before I took him up to demonstrate one. Well, it was a nice day at McAlester, OK. as I climbed out. Just a few puffy clouds around 8,000 ft.

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Safety cont.

I had about a third of a tank of fuel (29 gal stock T-18 tank) and that 180 HP constant speed kept climbing so well that I went on up to 12,500 ft. Gawd! I'm glad I did! Now, any good (or even mediocre) test pilot will sneak up on a spin test with caution (and a parachute). That day, I wasn't good or smart and I didn't have a 'chute. I had a great deal of confidence that Leroy's S-18 would spin just like my T-18, and there was not a bad bone in my T-18's body. So, instead of pulling the power to idle, stalling the plane and displacing the rudder to induce a spin AND RECOVERING AT A QUARTER OR HALF TURN; I locked the rudder to the right and held the stick full aft to fully develop a right spin. BIG MISTAKE! Well, after a couple of turns, the nose came up to about an attitude that one would expect to see on a 3 or 4 degree glideslope (like flat, man!). That dam thing spun like a flat frisby! I was a little bit surprised initially and applied the standard T-37 spin recovery procedures. Now, I was a whole lot surprised when that had absolutely no effect! About that time I recognized that the prop had come to attention. The engine had stopped. (We never did figure out why.) I had been through enough unsuccessful T-37 spin recovery attempts by students to know the basics. Don't rush it. Methodically repeat the steps. Throttle idle, stick abruptly full aft and hold, determine direction of spin, abruptly apply full opposite rudder and hold, one turn after applying full opposite rudder, apply full forward stick and hold until spinning stops, then neutralize rudder and recover from ensuing dive. Well, that technique had absolutely no effect, it just continued to spin like a well flung coffee can lid! So, I tried other techniques that I had been taught. Opposite rudder only—no effect! Aileron into spin—no effect! Aileron opposite spin—no effect! OK, let go of everything and see what happens—no effect! HOLY SHIT—THIS COULD GET SERIOUS! I AIN'T LIKING THIS A BIT! I had just run through my entire bag of spin recovery techniques and nothing worked! Now this went on for a real long time. It was deathly silent. Only a slight whoosh of air. I think I could have slid open the canopy and lit a cigarette. I was as scared as I have ever been, including combat at night in

Laos. I thought I had really screwed the pooch. I had been the investigation officer on a few Air Force crashes and I knew they could tell just what position the hands and feet and controls had been in when the plane hit the ground. I determined they would find me with both hands locked on the stick full forward and the rudder full left. So I locked them in that position and determined to ride it out. After a long time in that position, I could see the nose very slowly start to come down. MAYBE! Now if I only had enough altitude left, this bitch might get into the recovery cone, and I might survive! It took an excruciatingly long time, but the nose kept coming down. I knew if it got to about 45 degrees nose down, it would recover. It finally got there, and it popped out of the spin at a fairly low altitude. I could not read the altimeter due to nastagmis (eyeballs twitching side to side). I didn't have enough altitude to dive to get airspeed for a windmill start. I had to use the starter. Fortunately, it started right up. It took a few minutes to get my pulse rate down and composure in control for a landing. My wife had watched the whole thing and recognized that I was in deep doo-doo. Leroy and his wife figured I was just showing off. I never spun that beauty again. I've spun mine and other stock T-18's, but no wide body, folding wing models. There just might be something going on there that I don't know about. I guess I'd do it again, but I'd have a gob of altitude and a parachute, and I'd sneak up on it a quarter turn at a time.

Gary Green

Serious Problem

Yesterday, Aug. 19 I was invited on the spur of the moment to fly up to Valle, AZ for lunch (219nm GPS direct) which is 20 mi S of the Grand Canyon. We had a tail wind and averaged 178kn ground speed on the way up. I put 10 gal of fuel in it to get home and we headed back to Tucson. There was an RV-6A and an RV-4, both with 180hp and CS props. My Thorp cruises with them just fine. We were about 10 miles S of Valle and climbing through

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Safety cont.

9500 when I smelled smoke!!! I had an electrical; fire in the tunnel just aft of the flap handle. I announced on the radio I had a cabin fire and was headed down and immediately turned off the master switch. By this time the right rudder cable was burned in to and I knew I was in trouble! The fire was out but I had no R rudder and could not use either brake for landing. Think about it, and you will realize that if one rudder cable breaks, neither brake can be used!!! I decided that I might as well crash the plane back on my home field. At least I wouldn't have to drive 275 miles to pick up the remains. I also didn't want to land at a runway that is over 6000 msl and fully loaded with gas. I flew back to Tucson. When I was 5 miles out and 1000 feet above the ground I chanced the electrical again and tried the radio. Sure enough the rudder cable had fallen off the battery cable and there was no more smoke. I got permission to land and headed with the MS off. I used 30 degrees of flap and I will tell you that when the plane got below 75mph I had no directional stability whatsoever!!! I made a pretty good landing but I didn't roll 50 feet and she started to ground-loop. I whipped into a left turn dragging the right wingtip. the R gear tucked under the fuselage, the 500X5 Cleveland wheel disintegrate and I came to a sudden stop headed 190 degrees from where I wanted to be. I pulled the idle cutoff at about 5' above the runway so the prop was stopped when I landed. There was no damage to the prop but if I had left it running it would certainly have trashed it. Even so I will have to install a new A frame gear, reskin the right wing, build a new wheel pant and wing tip and also build a new aileron. I will start tearing it apart tomorrow and hope to have it back together to make the KY flyin. We will see. I didn't even get off the runway! I am still amazed at how little control I had on landing. Once I was on the runway I was just a tightly belted in passenger along for the ride. I'll let you know later in the week if any more damage shows up. I had an hour and 20 min to think of all the options and still think I made all the right choices given the circumstances.

Steve in Tucson N9008Z

Flaps & Stalls

Safety in our flying should be a major concern. Each of us should do whatever it takes to be safe and encourage other Thorp pilots to practice safety. John Thorp recommended long ago to limit flaps to 30 degrees. He made that decision to reduce the possibility of pitch down that would, at low altitudes, be difficult to recover from. We should all take John's advice and limit flaps to 30 degrees. This angle of flap deployment will give you the desired approach speeds at a high rate of descent. The 40 degrees is not necessary or required. All Thorp pilots should know the clean and flap down indicated stall speeds of their aircraft. This information is essential in determining approach/departure speeds that will be safe for your particular aircraft i.e., minimum 1.3 times the stall speed. If you do not determine these stall speeds you are flying an aircraft with an unknown baseline, in my view that is an unsafe condition. If you do not feel comfortable stalling your aircraft, get a qualified person to fly with you so that these baseline indicated airspeeds can be determined. Regardless of wing dropoff or whatever, you need to know your aircraft indicated stall speed, it will make you a safer pilot. I realize some of you do not have qualified CFI's, or experienced Thorp Pilots that can help you check out your aircraft; however, if this is the case go where you can find a qualified person. Lets all fly safe and do what is required to "know" the important characteristics of our individual aircraft.

Ken C.Morgan
N118TX

Watch that MEK

Been awhile since we communicated. I know that sometimes we find ourselves looking for things to write about that would interest people in general; and I promise I will. But for now, I only have to things in mind. Most important in my mind is SAFETY!. I did a stupid thing. I struck a cigarette lighter while

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Safety cont.

wearing cotton and rubber gloves saturated in MEK. Now, I know that some of you think that cigarette, pipe, and cigars are stupid habits; so, please hold your thoughts. For what ever your bad habits may be, follow safety rules. Just as in the old saying, "Don't Drink and Drive"; Don't use MEK and Smoke!! This little fiasco has cost me more than 4 weeks of productivity on my Thorp. And looking back, it's the most painful pain I've had. More so than the physical. **DO LEARN FROM MY MISTAKE!!**

donald.doubleday@lmco.com

Editors note: The articles reprinted here are intended as educational information. They were reprinted in their original form with no editing.



Thorp Ambassadors

We have three new volunteers to add to the Thorp Ambassador list. The Ambassador program was initiated by Richard Snelson a couple of years ago, and the list of volunteers is growing rapidly. It's a great program, and I have had the opportunity to guide a few prospective T/S-18 builders and wannabe owners to an Ambassador close to their area. The idea is to give them (the prospective owner or builder) someone to contact to ask questions, get guidance, and that all important T-18 ride. (by the way, I'm still looking for someone to give me my first ride. I've never rode in a T-18 !) I think its a good way to promote our great airplane. The newest additions to the Ambassador list are:

Aden Brad Chapman
17505 NE Terrys Lane
Newberg, OR. 97132-6722
Ph. (503)538-7316
b2schapman@aol.com

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Ambassadors cont.

Frank Roncelli
4118 W Ave L-4
Quartz Hill, CA. 93536
Ph. (661)943-7625
frankr@c-s.net

Tom Worth
2920 86th. Ave. E.
Edgewood, WA. 98371
Ph. (253)992-0137
wocon@att.net



T-18.Net

For those of you who surf the Net, check out my T-18 website. I am slowly learning how to edit the site. I haven't been able to do much with it yet, but I hope to be able to utilize the site in conjunction with this newsletter to get T/S-18 information out to those who want it. As we all know, pictures do not turn out well in the newsletter, so I hope to be able to display pictures of T-18's under construction as well as finished and flying examples on the website. It is also an excellent place to show the pictures of the T/S-18 fly-ins and gatherings, such as Sun & Fun and Oshkosh. I have had a few telephone contacts wanting information on our airplane who learned about the T/S-18 from the website. I really believe it is a good first contact for websurfers looking for information on experimental airplanes.

Anyone wanting to submit pictures of information for the website are encouraged to do so. You can email directly to me at: rfarris@wworld.com, or send the information to the address on the back page of this newsletter. As with the newsletter, I need all of the material I can get. Any help will be appreciated.

For Sale Items

It is an S-18 wide body with folding wings with a lowered rounded tunnel, electric flaps, fuel in the wings also, a very full IFR panel, ADF, Loran, redundant vacuum, heated oil pan, O-360 with a shower of sparks ignition, C.S. prop total time on airframe, engine, and prop is 250 hours; stainless exhaust, SS battery box, oil separator, Temperfoam seats, Wing leveler, halogen landing lights in the outer wings, chromed brake discs, Vertical card compass, G-meter, and it has Explosafe in the main fuel tank. Electric stick mounted trim and a voice activated stick mounted Sigtronics intercom, Dave Clark headsets and electric aileron trim. It will have a fresh annual in October. The painting was done by the director of the Paint Shop at Duncan Aviation, here in Lincoln. He's an avid EAA'er. It took Jim Fix and I twelve years to finish it. The tow bar, plans, canopy cover and the wing folding tools go with it of course. My problem is that I'm too fat and arthritic to comfortably fly it anymore, and we run around the country in our motor home since I retired. It is hangared here in Lincoln, NE, and Jim will give anyone a ride that is really interested. His number is 402-470-2346 or jfix@inetnebr.com. My mail box address is 116 Rainbow Drive, #1697, Livingston, TX 77399, but Jim is the best one to contact.

Best regards,
HarloMcKinty

Two T-18's for sale out here near Tacoma. One just came on the market at \$23,000 with 160HP O-320-D2A.

BillLawson253-631-1470.

I was given your name as a person to speak to regarding a T-18 for sale. A friend of mine who owns the FBO and Cessna service center has had the plane gone over and inspected and signed off as we plan on bringing it to Oshkosh this year to sell it. We live 1 hour from Oshkosh. He keeps it current and flying as he shows to to perspective buyers from time to time.

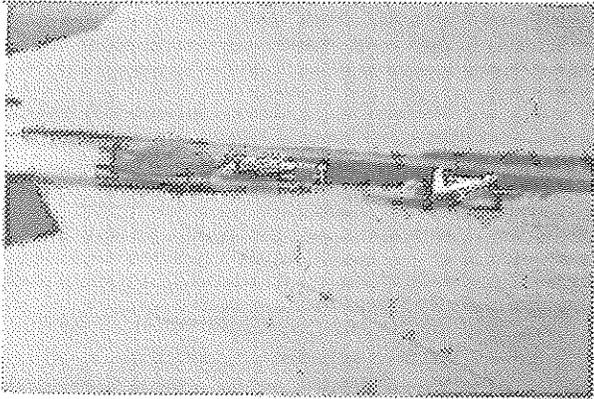
The airplane is beautiful, and all set up in every way. The price is in the Mid Twenties. Please advise on the best place to place this ad to touch as many T-18 owners and club members as possible. I will get all specs and numbers on the plane tomorrow, and follow your recommendations for the Ad,

Thanks for the help.
Bob Wood Sheboygan, Wisconsin
rwood89543@aol.com

I thought you may know of a good home for a beautiful T-18. The airplane has always been hangared and is at the FBO in Sheboygan, WI. 1250 total airframe and engine, built in 1969, O-320 C/S, full gyro panel backup electronic ignition A-1 workmanship. . A good friend of mine was killed a couple years ago and his wife never sold the plane. Asking price is \$29,900 , she will dicker some on price. The FBO will annual upon sale. The number is N77AK Serial # 390A, someone may remember it. I have the scoop sheets I will mail or fax to you or whoever will post to your group.

Many thanks!
Bob Wood (Tripacer driver living in Sheboygan)
RWood89543@aol.com

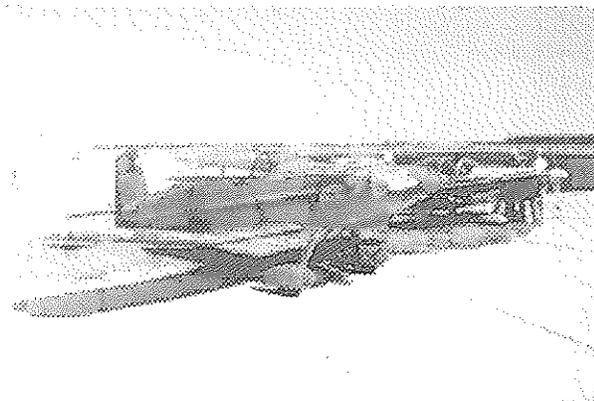
Mattoon Spring Gathering 2000
Mattoon, Il



T-18's at Mattoon



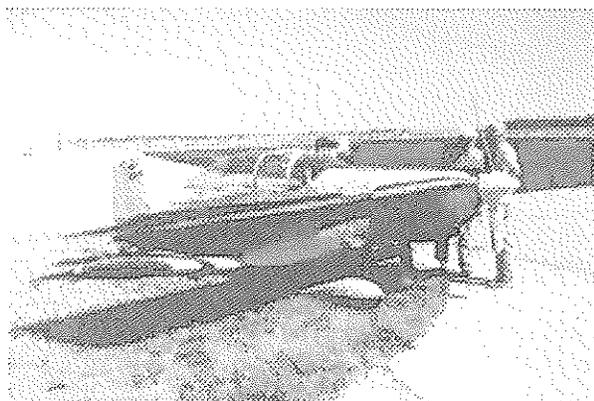
T-18's at Mattoon



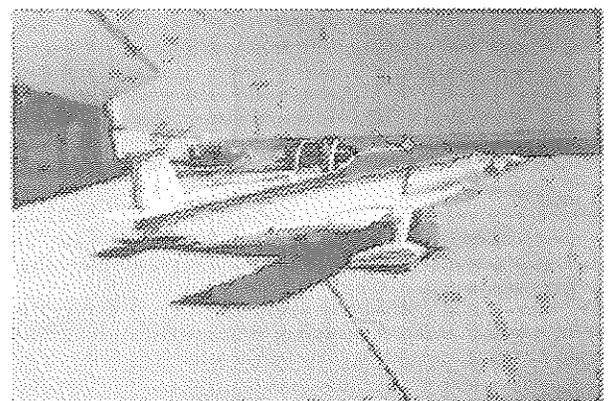
Ben Mason's Blubird & Ed Pernic's T-18



Bob Highley's & Bill William's Thorps



Ed Pernic's Thorp



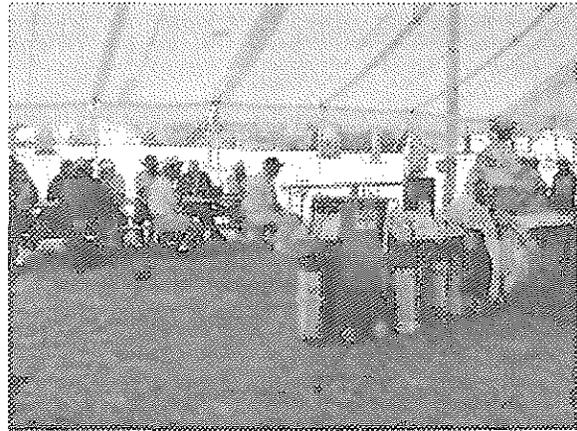
Jerry Sheetz's T-18

The attendance was down a little this year due to the weather, but those of us that got there had a wonderful time. We flew when we could, talked when we couldn't, and when all else failed we ate. There was the annual hanger cookout on Saturday, and the airport restaurant had great food as always. The airport management has contacted me, and wants us back again next year. What do you think gang ?

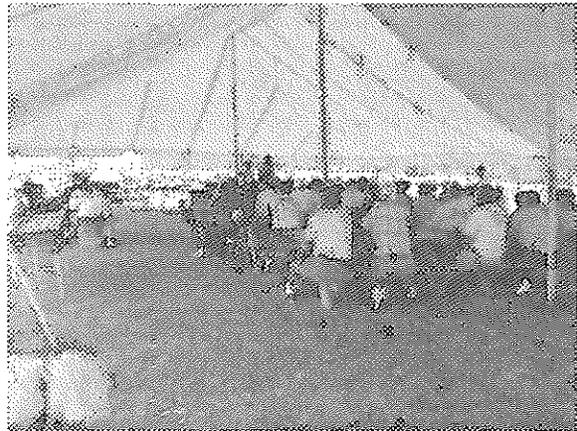
Oshkosh 2000



The T-18 Forum in the Nature Center



More Forum shots



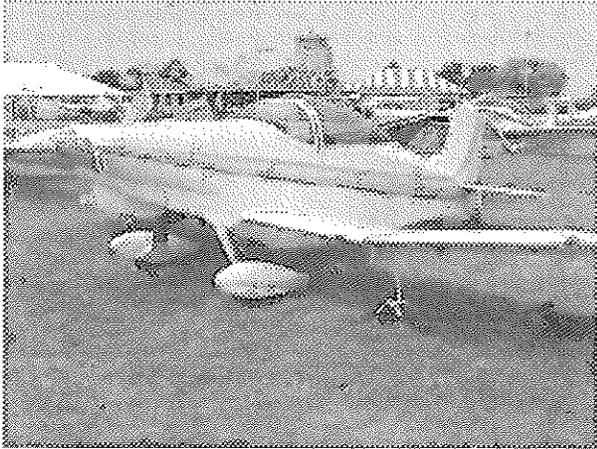
We had around ninety people attend the forum on Friday.



Gary Green, Gary Cotner, and the legendary Mr. & Mrs. Don Taylor

The attendance at this years forum was down somewhat from last year. Cold cut sandwiches and trimmings were served and everyone seemed to enjoy the food. Hanger talk and tall stories filled the air. Then it was down to business. Roy Farris, the new newsletter editor started the proceedings, followed by Richard Eklund talking about his kit progress. Tom Poberezny showed up and said a few words as well. Bob Highley had to talk awhile and never seems to tire of T-18 talk. There were a few other speakers but I failed to get their names. (sorry guys) All of the group were glad to see Don Taylor and his wife make it to Oshkosh again.Till next year

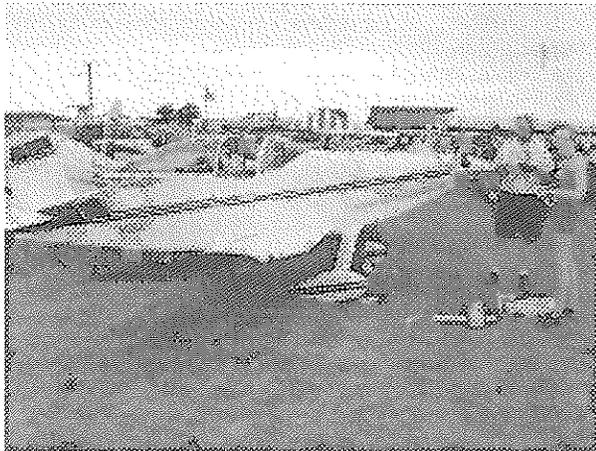
T-18's at Oshkosh 2000



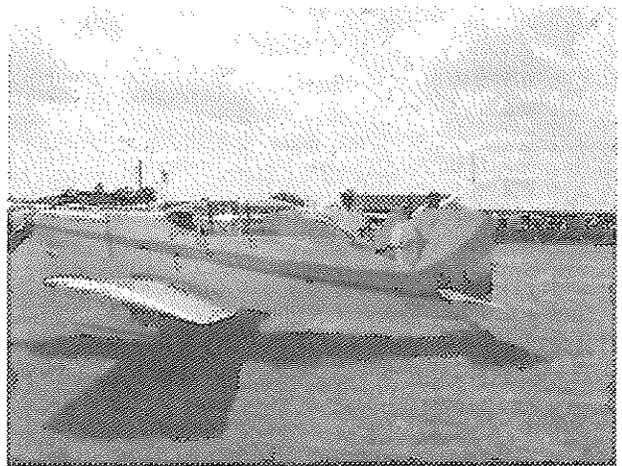
Bill Cordoza



Ed Pernic



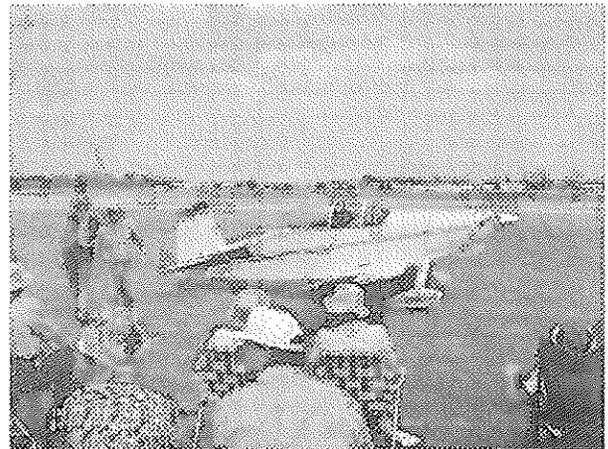
Larry Eversmeyer



Doug and Barbara Frantz



J. C. Alphonso



Gary Cotner

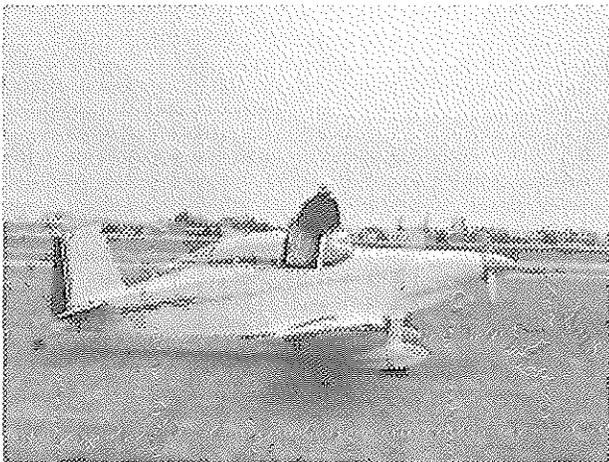
More from Oshkosh 2000



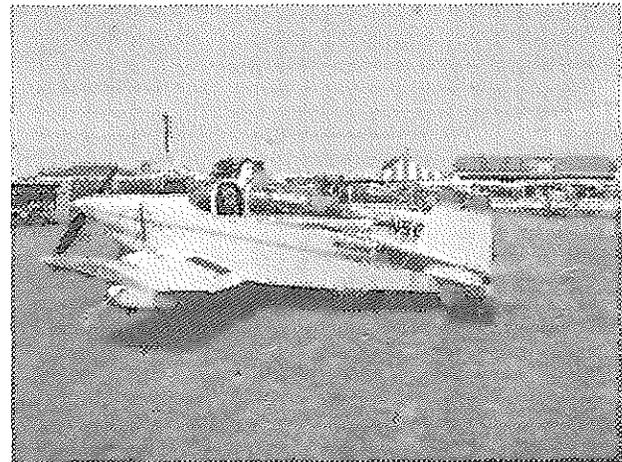
Leonard Gaines



Joe Gauthier



Gary Green



Ron Hayes

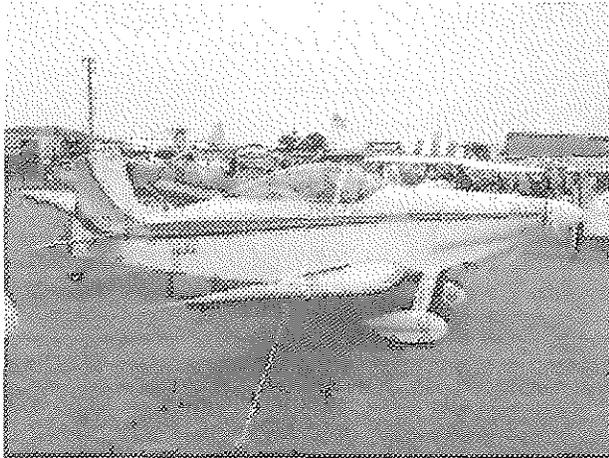


Bob Highley

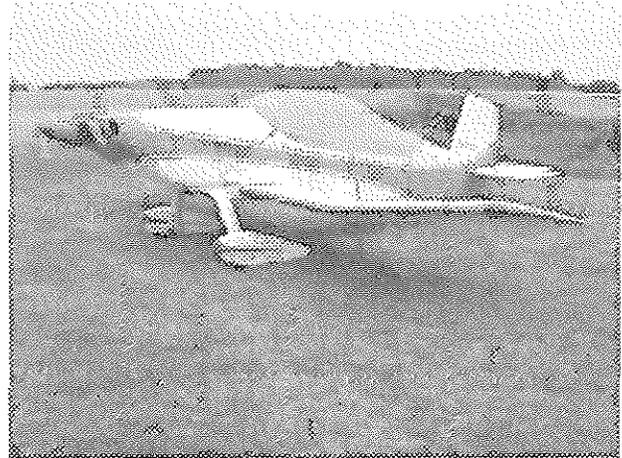


Gale LeCount

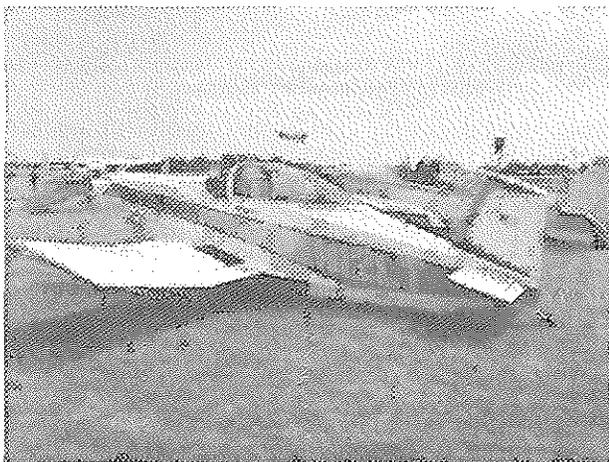
More yet from Oshkosh 2000



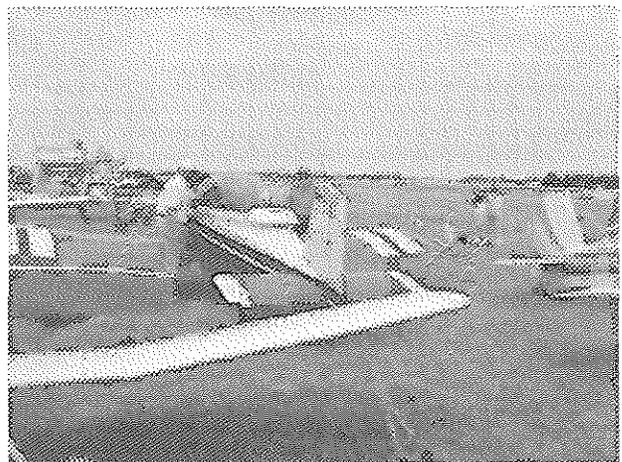
Shad Magann



Russell Ross



Gary Davis flying Leon Tolve's airplane



Bob Pernic

The pictures of this years T-18's at Oshkosh were taken and submitted by Richard Eklund. (thanks Richard) I believe that most of the Thorps that attended are represented here, although Richard's T-18 is not among the photo's. (his T-18 was there) If we missed anyone I apologize.

Although Oshkosh gets bigger each year, and the soaring prices are high enough to give one a nose bleed, we that attend the T-18 festivities have a great time. The people that make up the T-18 group are some of the best people in the world of flying. We have a bond that no one else seems to be able to acquire. For those of you that do not attend the T-18 Gatherings, perhaps you should consider getting to one of them. There are several Thorp fly-in's each year scattered throughout our great United States. California has a couple, and we have two a year out here in the east, one of them being in northwestern Kentucky in October. There have been gatherings in Colorado, Oklahoma, and Texas in the past few years. The Flyin's offer fellowship, camaraderie and a common interest --- The T-18. They are a place to talk, laugh about our last landing, and share ideas about our wonderful little airplane.

The next time you see a Thorp Gathering listed..... Think about attending !!

Thorlist chatter. cont.

These bolts have F911 stamped on the head. They are called "Super-9" bolts, are plated, lot traceable and proof tested, high tensile, high ductility, long thread, with drilled head. Tom Hunter passed the information about these bolts and the company that provides them. In my previous post I stated that I had only about 1/2" of thread in the driving lug. This may be sufficient threads; however, I feel much better having threads protruding from the back of the driving lug and these bolts will provide that extra thread length. The cost would vary depending on bolt dia and length. My bolts were 3/8 24, 6" long and the cost was \$8 each. That is very reasonable for this type of special bolt. Regards!

Ken C. Morgan
N118TX

The airfoil John picked for the T-18 has a gentle stall in the old NACA wind tunnel data, but not in real life. The old NACA tunnels had enough micro turbulence in them to stir the boundary layer, while the free air we fly in does not. In the tunnel, the airfoil separation at stall progressed gradually from trailing edge forward. In the smooth air we actually fly in, the airfoil stalls with an abrupt separation near the leading edge, taking all the flow aft with it. This abrupt loss of lift occurs near the wing root and progresses outboard as the stall goes deeper. When the inboard wing abruptly stalls, the considerable downwash the horizontal tail was experiencing is eliminated, reducing its download tremendously, and the aircraft pitches down. There was also a small reduction in wing lift, and an aft shift of the wing center of lift, which contribute to the pitch down. The T-18 stall strips work by generating a narrow (6 inch wide) band of stalled wing at an angle of attack slightly lower than what the wing would normally stall at. This narrow band is directly ahead of the horizontal tail, so it reduces tail downwash and generates a gentle nose down pitch to reduce angle of attack. Vortices from the stalled band also serve to delay stall of adjacent wing sections, making the configuration

Cont.

tion resistant to stalling a large portion of the inboard wing.

Tom Kerns
T-18 N10TK

Be wary of a pulsing stick with flaps down, this may be a precursor to stabilator stall and tuck. My T-18 had symptoms early on, with flaps down the stick would pulse fore & aft once or twice per second with amplitudes as large as one inch peak to peak at the top of the stick. The neat thing is that the airplane would be flying rock solid while this is happening! Other builders have described this phenomenon as a precursor to stabilator stall which results in a very abrupt pitch down (the reason T-18's are restricted to 30 degrees flaps). My airplane also had reversed stick force gradient with flaps down: the faster I flew, the more BACK pressure it took to trim (the stick moved forward with more speed but pressure was reversed).....

In my airplane, I had a trapped vortex beside the fuselage between the top of the flap and the bottom of my triangular wing root fillets. The vortex would pulse, altering the downwash into my tail, causing it to pulse with no net change in aircraft pitch. Pulsing was worst at higher speeds where the downwash core is closer to the horizontal tail. I eliminated the pulsing and stick force reversal by putting a floor in my wing root fairings just above the flap. The floor cut the open volume of the fairing in half, reducing and / or de-tuning the vortices. My airplane has fully normal characteristics now. I could not make my airplane tuck, but then I have only 30 degrees flap. Stall Strips:

I experimented with strips across a wide band of sizes and positions, found them to work pretty well without precision positioning. With strips installed per my instructions, I have not encountered a T-18 which did not respond strongly. You may have outer panels flying at much higher angle of attack than the inners, resulting in an outboard stall with associated roll. I cannot feel the presence of the strips on landing, even when making aft stick landings on the tailwheel.

Tom Kerns

More Thorplis Chatter

My root fairings are flat sheet metal making a 45 degree fillet between the fuselage and wing. In the original configuration, with flaps down, you could look up inside my fairing, no "floor" in it directly above the flap itself. I closed this off with a floor that is roughly a continuation of the upper wing skin. Changes in your wing root should treat the burble, try removing the fairings and flying it, or add end plates attached to the fuselage at the inboard end of the flaps to seal flap end flow (with flaps down); should make a big impact (better or worse). To check for tuck, load to forward CG, climb HIGH, drop the flaps, fly your max flap down speed (or slightly higher), and start kicking and pitching the airplane to aggravate it. If it bites, it needs fixing, if not, it may be OK, but I would set it straight to be safe. Warped wing tips should not be enough to cause a nasty stall. Years ago Bob Dial was tweaking his first T-18 to get a better stall. Bob put adjusting cams into all four aft spar fittings to allow incidence changes on all four panels. After playing a while, he asked me to fly it to try to figure out what to do. N5BD would roll right past 135 degrees every time it stalled, and roll trim had bizarre changes with speed! We set everything back straight then started over..... When the airplane had been breaking right, Bob did what they tell us to do tried putting washout in the right outer panel, reducing its angle of attack. Trouble is that unloading the outer panel put more load on the inner panel where the stall begins, and the right roll at stall got worse! Subtle differences in incidence between inner and outer panels will make a big difference in the stall break.

Tom Kerns

The beauty of a homebuilt is that we can build it to suit our (differing) preferences! I lean toward simple, reliable, mechanical systems (still do not believe in electronics), but I have electric powered flaps, pitch trim, and roll trim; all have been trouble free after initial setup 15 years ago. Electric flaps allow a low, round tunnel with no mechanism to dig into your leg,

cont.

More Thorplis Chatter

and eliminates an awkward handle squeezed between my Pax & I. My flaps go up or down in 2 to 3 seconds, and are instantly activated by my finger tip while resting a hand on the throttle. I do not have to dive for a lever to use them! Personally, I would never go back to the lever type! Electric trim is a delightful convenience, allowing me to fly the traffic pattern without ever moving my hands from the stick and throttle. I designed my own jackscrew to eliminate the free play in Johns design (one of the few poorly designed areas in a wonderful airplane). Electric roll trim (light, compact, home grown) is an effective replacement for the simple flap roll system John designed. Johns system is great, but when I went to electric flaps I needed an alternative. Homebuilders roll their own!

Tom Kerns
T-18 N10TK

Russell Ross tracked down the equivalent Lord engine mount for the Thorp T-18 plans specified J-7401-3. The current Lord mount is J-7402-5 and Aircraft Spruce sells their P/N 08-03500 as equivalent for homebuilders.

Richard Eklund
Eklund Engineering, Inc.

I rebuilt my T-18 a couple of years ago. Stripped all the paint, acid etched, and alodined. I used PPG automotive paint, a 1 to 1 mix poly urethane that is easy to use and looks great. Great emphasis on the east to use!!! I have experience with Jet-Glow, Alumigrip, and a few others. The PPG is made for amateurs like me.

Steve in Tucson

The Chatter Continues

Regarding my cabin noise, there are a number of sources. I believe number one to be canopy air leakage. The second to be vibrational noise caused by turbulent air impacting the fuselage and the third to be from the floor where the exhaust impacts the sheet metal. Of course there is also the firewall. I spent a great deal of time getting the canopy to seal tightly. The canopy as I received it from Gee Bee years ago was for the standard width fuselage. To get it to fit with the same profile as intended I heated the back part with a couple of industrial heat guns and pulled it wide. My first three attempts to make a metal skirt was not up to expectations. I ended up molding one of fiberglass. The seal at the roll bar is double and the seal between the skirt and fuselage is made of felt so as not to scratch the paint when it slides. There are bayonet fittings at the rear of the rails to keep the sides of the canopy from flaring out in flight. Most important is that after I played around with different designs for the latch, I built the one John Thorp designed and it works beautiful. It really pulls things together positively. The down side of all this sealing things up is that I ended up having a problem with cabin ventilation. I did solve the problem but that is a story for another time. The side walls and floor board were treated as much discussed in past news letters. I did make one mistake, in the interest of saving weight I purchased the thin windscreen, the biggest noise maker now is the vibrations of the plexiglass with every sweep of the propeller blade. When I put my hand against the plastic it causes it to dampen and quiet down. These vibrations also set up standing sonic waves inside the cabin, by moving ones head around, null points can be found. At some point I'll change to a thicker windscreen, in the mean time got to avoid the %\$^& *% Canada Geese we have around here. I can not imagine how a big enough part can get through a prop and on to the windscreen but they seem to.

Bob Pernic
pernic@yerkes.uchicago.edu

Interesting Information

A while back a friend asked me if I had the short gear or the long gear on my T-18, referring to the original one piece landing gear "A" frame, the legs of which were about two inches shorter than the legs on the gear commonly sold now.

The original gear design goes back over thirty years. Mine is one of the original length, per plans. After flying it for a while I heard about the longer gear, (which moved the wheels rearward about two inches) and, along with it, about rare occurrences of lifting the tail during high power runup at forward CG, or when taxiing in the rough. I couldn't see replacing a perfectly good gear, so I made a two and five-eighths inch extension that drops the axle straight down, so as to disturb the gear geometry as little as possible. (I made it from three-eighths inch thick 4130 normalized steel plate and, after the cutting, filing, and pilot hole drilling tempered it to 180 - 200 ksi) It did several things; It Increased the ground angle of attack by a degree, without moving the tire contact point rearward, provided a cleaner aerodynamic juncture for the landing-gear-to-leg-fairing (Similar to the setup a formulae one racer uses) increased the prop ground clearance, decreased the takeoff and landing speed and distance, and softened the ride a little. It's a good mod that allowed me to use the original gear, yet accrue the advantages of the new longer gear, all at a very modest price.

John didn't incorporate flaps in the original design of the T-18, which leads me to conclude he followed convention in making the aircraft ground angle 9 degrees by landing gear design, to coincide with the wing design stall angle of attack without flaps. When Bill Warwick flew the first T-18 with 180 HP and a clean wing, he found it required a very low final approach angle, and was hard to slow down and get on the runway. Perhaps that's why he named his T-18 "Tiger." John was involved with the evaluation, and saw the need for a flap installation. This was a pretty tricky design task, and it's a credit to John that he was able to integrate a new flap system without introducing other problems. For example; he used a combination of characteristics provided by NACA Flaps

Information Cont.

with long hinge arms. With the modified NACA flap design he achieved some fowler flap action during the first 20 degrees of travel, and after 20 degrees the drag increases rapidly, allowing you to go to a higher approach angle without gaining speed. The bottom line; the wing stall speed decreased about 5 MPH and the flaps acted like speed brakes in the last notch. However, the stall angle of attack with the flaps down 30 degrees increases to about 12 degrees. You see how you get into the situation where, if you fly slow enough, you can put the tailwheel on the ground before you get the main gear on? As a consequence, It's more comfortable to carry a little bit of power to touchdown, but it costs you some runway performance.

After thinking about all that I decided to try to get a little bit more ground angle of attack with a different tailspring design. I went through several prototype spring and wheel configurations before settling on the one I have now, a round, tapered, coil spring steel rod with an adapter to use a Scott tailwheel, fork, and tiller bar. The biggest benefit from it is the additional one degree ground angle. Which brings the ground angle of attack closer to the wing stall angle of attack, which lets you get closer to the maximum takeoff and landing performance potential of the design. The other benefits are lower drag, a rebound rate more closely matched to the main gear rate, and a full swiveling tailwheel with standard tailwheel steering capability. You could also put a wheel pant on the tailwheel too if you really want to get fancy.

On another subject, I put the "LongEze" heavy duty brakes (three-eighths inch disc and heavier pucks) and Go Kart Nyloflow tubing/fittings on my airplane in 1983. They've been trouble free and I find it extremely easy to reverse service them. I hook up a squirt can filled with brake fluid, attached by a clear piece of tubing to the brake bleeder fitting on the caliper, and pump a couple of ounces of new fluid back up through the system at each annual inspection. Just put some rags under the master cylinder and catch the excess. The LongEze brakes work much better for the higher horsepower/heavier

Information Cont.

airplanes. They are powerful enough so that you can hold the airplane for runup and slow it down quickly on landing, no matter how old they get. Beware, however, you can also stand the airplane on it's nose on runup, or rollout, if you're not aware of their braking capability, or asleep at the controls.

Lyle Trusty

I have flown my old Thorp for 20 years with the stock flat steel leaf spring with a Maule tailwheel. That is the most common setup one sees on Thorps. My T-18 has the stock short gear also. I have always found it difficult to make pretty 3 point landings because the tailwheel always rolls on first, while the mains are still several inches off the ground. This causes the mains to plop down and sets up the common Thorp frog hop down the runway. Also, if you catch a little gust, you balloon because you've still got a little bit of flying speed. You are not fully stalled yet. With this new tailwheel, the tail sets 2 or 3 inches lower, increasing the deck angle. You are a lot closer to being fully stalled when the tail wheel rolls on. With the 2 inch longer gear, I think it'd be just about perfectly stalled and all 3 would touch simultaneously. With my short gear, the tail rolls on and it seem the mains are about 1 or 2 inches off. They settle gently to the pavement an instant after the tail, you can hold the stick full aft and it sticks nicely right there with no frog hopping. Surprisingly, I can't tell a significant difference in the view over the nose while taxiing. It obviously sets at a higher angle, but its not noticeable. The view over the nose is still outstanding. The softer feel and quieter ride when taxiing over rough pavement or ground is dramatic. No more rumbling oil-canning. I really like the full swivel RV-6 tailwheel (I think its made by Aviation Products out of Ojai, Ca). I got it from Aircraft Spruce. I'd highly recommend this mod.

Cont.

Gary Green

More Info

I've been building a S-18 for a "few" years now and enjoy the questions and responses on the Thorp list. I do have some news to pass on for anyone interested. While researching how to do the electrical systems in my project I was told to check out a website that really was too good to be true. www.aeroelectric.com For those who have known about it, shame on you for not sharing and for those who are about to build their electrical systems his site is really superb. For free he offers diagrams for each circuit in PDF form and also offers parts and pieces for sale that are usually very difficult to locate. The guys' name is Bob Nuckolls and knows way too much about aircraft electrical systems and the way they need to work. He also offers ideas for alternative ways of modernizing how things are accomplished using modern electronics. It's well worth the look. If you check the seminar info, which he gives regularly, I've convinced him to set up a seminar here in St. Augustine, Florida for January 2001. Anyone interested can sign up on his website or contact me at my email address or evenings by phone for any information that I can furnish. An idea was that if a chapter was in favor of sending their technical advisor, the chapter would pick up the cost of the seminar. Anyone is welcome to the seminar. Some are limited to capacity, like the one "I'm" hosting here in St. Augustine.

Good Flying,
Dave Goff
dgoft@megasystem.com
904 797-6046

I have a friend in Denver, Ron Denight, who makes and sells a nice starter bracket. He also has the proper gears to install on your automotive starter, depending on whether you have the large or smaller ring gear. Had an article in Sport Aviation about it a few years ago, I believe. They are cast aluminum, and then machined. Reasonably priced also, I think. He doesn't have email, but his phone number is: (303)452-0458.
John Evens N71JE

More Good Stuff

Dear All,

Fitting ailerons to the wing and was a bit surprised by the size of the gap between the wing skin cut-out and the edge of the aileron. Only other UK example seems to have a thin metal cover bridging the gap. Can anyone tell me if this is OK? as the plans do not mention this.

Alan Fraser"

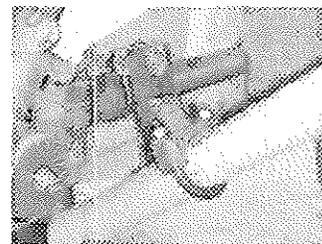
In answer to Mr. Fraser, the gap between the aileron hinges (aileron to wing skin gap) should be filled with a flexible adhesive tape or doped on dacron fabric. The seal should be placed on the underside of the aileron and wing lips where it is out of sight. The aluminum foil 2" wide tape sold for joining the aluminized bubble wrap home insulation works well. The brand available at Orchard Supply Hardware is "Reflectix" and their phone number is 1-800-879-3645.

Richard Eklund

Tailpipe Attach Idea

I really appreciated the feedback I got about securing the tailpipe. The feedback led me to scrap the steel ring I had installed and now I have put in its place a strap I got from a muffler shop. It appears to be a section cut from a multi-corded tire wall probably.

Hal Underwood



Last Minute For Sale

For Sale

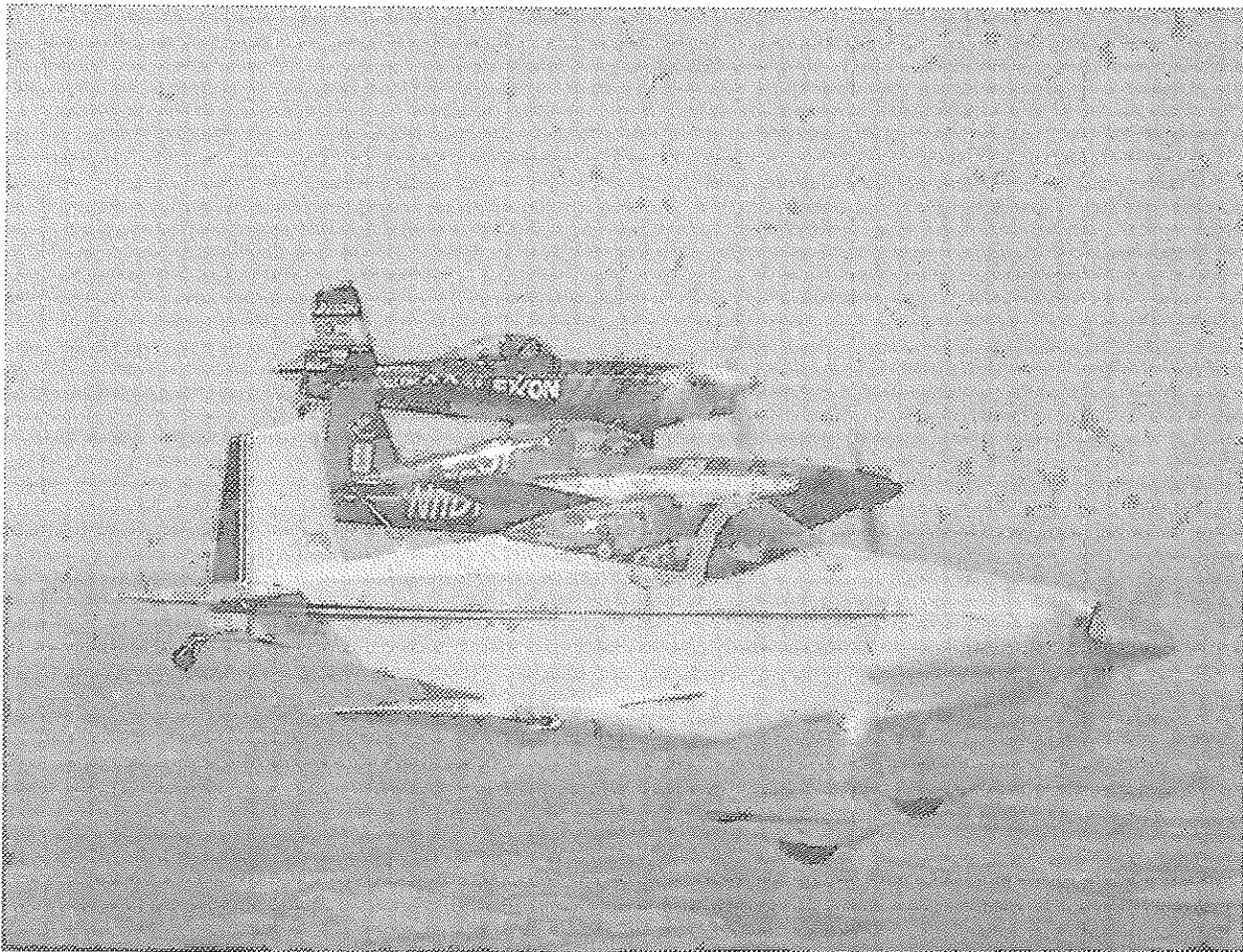
VOR Wingtip Antenna ---- \$50.00

Russell Ross
1403 120th Street
Sioux City, Iowa 51108
Ph. (712)239-5681



S-18 Accident

On Sept 2nd , in the desert near Wendover Utah, a T-18 CW (folding wing) was observed doing low level aerobatics. The aircraft made a steep pull-up from very low altitude, and as it reached the vertical, the engine quit. He was unable to recover and hit the ground in a nose down attitude- upright but with a very high sink rate. The aircraft was destroyed and the pilot and his girlfriend died on impact. A T-18 builder in the area who knew the pilot viewed the wreckage and noted that in spite of the terrific damage, the Thorp design shoulder harnesses did hold. At this time, there is no concern about the structural integrity of the design. The report will be available on the NTSB home page. Should there be anything of interest in the final report, it will be shared on this Thorplist In the meantime, enjoy your T or S-18, but always try to leave your self an extra margin.



Gary Greens T-18 in the lead, Polen Special #2, and the Exxon Tiger in #3 position.
Neat formation !!

T-18/S-18 Thorp Newsletter

October 2000

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Please check your mailing lable for the "PD" entry in the upper left corner just above your name. If you don't see the "PD" entry, then you have not paid this years dues. If you see an amount, ie \$25, then that is the amout you currently owe. Please be kind and send your year 2000 dues now.

THORP T-18 MUTUAL AID SOCIETY ----- 2000 DUES

Please continue your support of this valuable exchange of ideas, building tips and safety information covering John Thorp's greatest design. Please make checks payable to: Roy Farris P.O. Box 182 Noble, Illinois 62868. Make check for \$25.00 US, \$30.00 for outside the US.

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