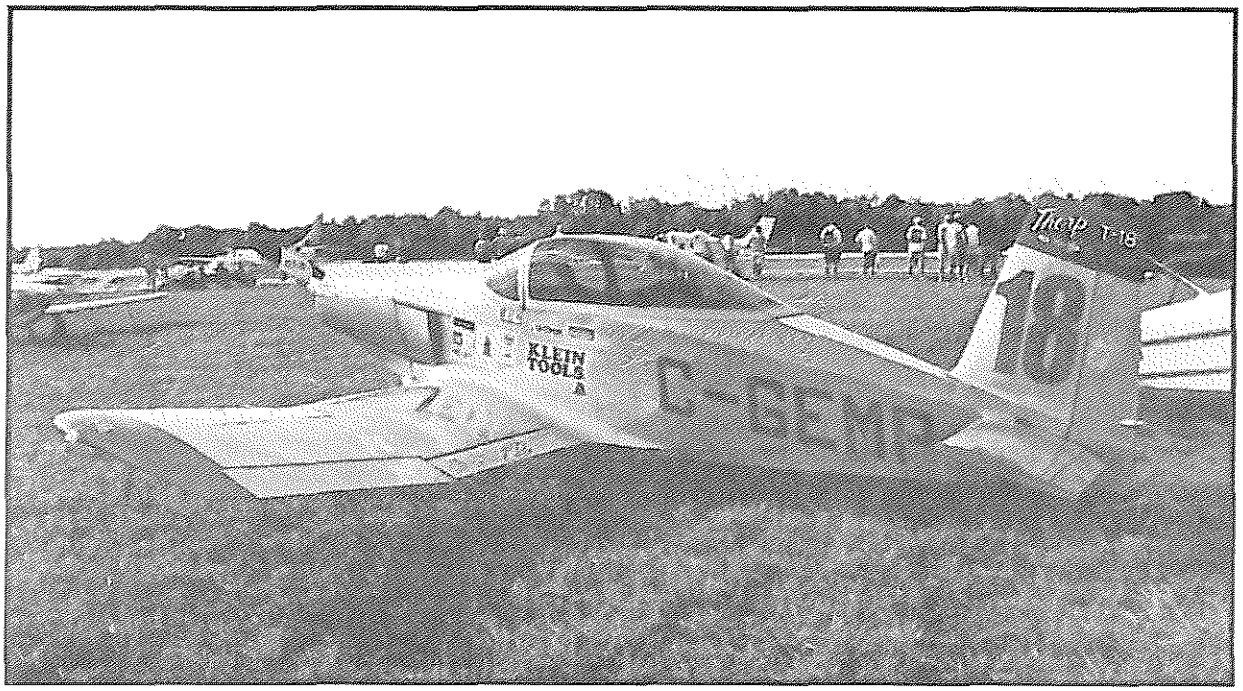
T-18 Newsletter

May 2002



Robert Affleck ~ Harrow Ontario ~ C-GEMP

IN THIS ISSUE:

Thorps Win Awards at Sun'n Fun 2002

Editors Notes

By: Roy Farris

Well gang, here I am again sitting in front of my computer attempting to put together another newsletter filled with action packed stories and technical articles that will boggle the minds of those among us who are engineers. Unfortunately, our membership has not been generous in suppling me with information for which to attempt such a feat. I have not even received any photographs that I can use as a cover shot. I do thank those of you who have supplied me with information, but I sure could use a lot more. It constantly amazes me how many calls and emails I receive wanting to know why someone hasn't received the next newsletter, only to find out that the member has not paid membership dues in three years, and has never contributed even a single piece of information, yet this person is upset because he/she thinks that they have missed an issue. Come on members ... this is our newsletter. Everyone out there has something that they can contribute. Send me something, a write up and some pictures about your airplane, or a trip that you took in the Thorp. Anyone that is still building has hundreds of things that could be shared with the group. Take pictures of your project and send them to me. I always need good pictures to use on the cover.

Now lets talk about membership dues. People, I have had all I can take on this subject. I do however want to thank all of you that have kept you membership dues current. Those of you that are constantly up to date know who you are. Again I want to thank you and to let you know that I appreciate it. I have dropped one hundred and seventy two members this year for non payment. All of them were at least two years past due. In years past, in order to promote the T-18, we have always extended a courtesy to members, and gave them the benefit of the doubt. That policy has been terminated as of this year.

cont.

I have accepted the financial burden for as long as I intend to. Don't get me wrong, I love writing this newsletter, and plan to continue unless you decide otherwise. I did as some of you suggested and contacted the delinquent members. You would not believe some of the names I was called, and the cussings I took. From the one hundred seventy five members I contacted, only three paid their back dues and wished to continue their membership, the rest are history. So this brings us to the end of this story. Beginning this year the T-18 Mutual Aid Society is adopting a new membership dues policy. Read on for more information.

New Membership Dues Policy

Beginning this year, 2002, the annual membership dues for the T-18 Mutual Aid Society will run from January 1 to December 31. This means that your membership will expire on December 31, 2002. If you have not sent your 2003 dues by then, you will not receive any T-18 Newsletters after December 31. I will have membership dues reminders in the last couple of newsletters per year. If you let your membership expire, you simply will not continue to receive the newsletter.

I hate to do it this way, but I just don't see an alternative. I can't afford to send out hundreds of free newsletters, and the cost of sending letters and reminders is just to much. If anyone has any questions, please don't hesitate to ask.

Fun Aviation Terminology

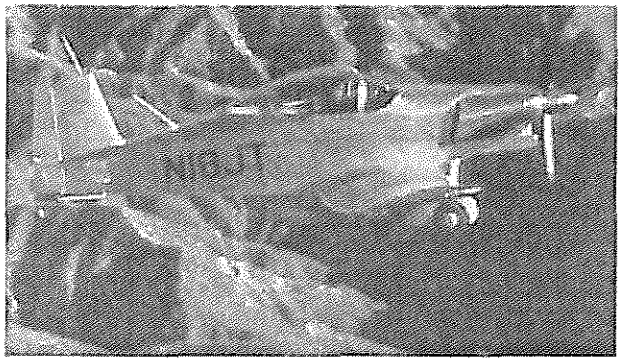
Knots - What full stalls do to some stomachs.

Slow Flight - Flight that extends beyond pilot and/or passengers bladder limits.

A Look At T-18 Cooling

Submitted By: Richard Eklund
Eklund Engineering

John Thorp's N18JT incorporates the metal pressure cowl he designed when it became apparent that this would be a high performance



homebuilt. This is the shape that was copied for most of the fibreglass cowls used on the T-18. John appears to have sized the inlets for a hot day climb condition at 100 mph. This would be consistent with the lowest (125 hp) powered airplanes. He knew from experience that this relatively large inlet would be efficient on the higher powered airframes if the engine baffling were kept tight. At higher climb speeds (120 to 140mph) the air would simply spill around the nose of the well shaped cowl. I believe he violated his standard rule for the exit area in order to simplify the metal fabrication. Normally the exit area is only 10% greater than the inlet for a system with well designed baffles. John's compromise was to use a flat wrap of metal for the cheeks aft of the inlet nose bowl. This resulted in about twice the exit area required. The exit is located in the low pressure field of the wing, improving the cooling during climb. John was a master at weighing the necessary compromises of engineering design.

If one wishes to make the greatest improvement in lower drag, the exit area and the internal entrance to this area can be modified. One of the early efficient examples is on Tom Kerns' cowl. It is carefully sized to his Lycoming engine power, while the bugeye inlet has been unmodified

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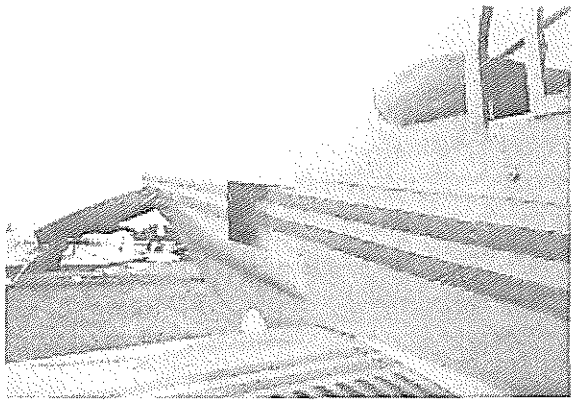
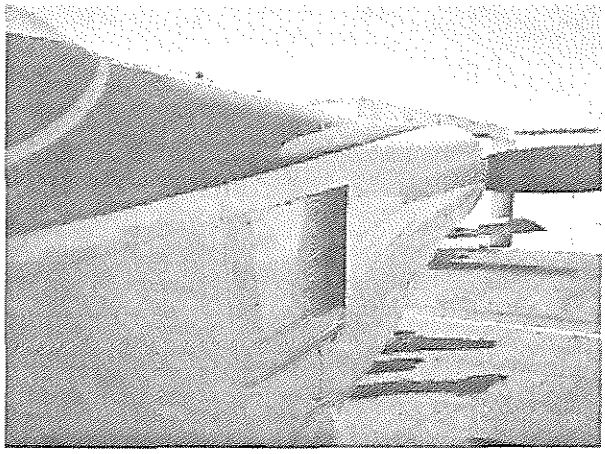
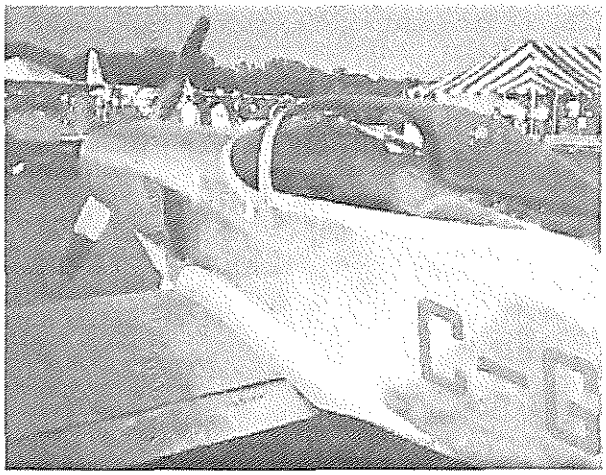


Tom Kerns Cowling

Other builders have incorporated cowl flaps on the exit both internally and externally as shown. These are probably an unnecessary complication unless extreme variations of temperature must be addressed. Of these, the internal cowl flap is the lowest drag.



Internal Cowl Flap

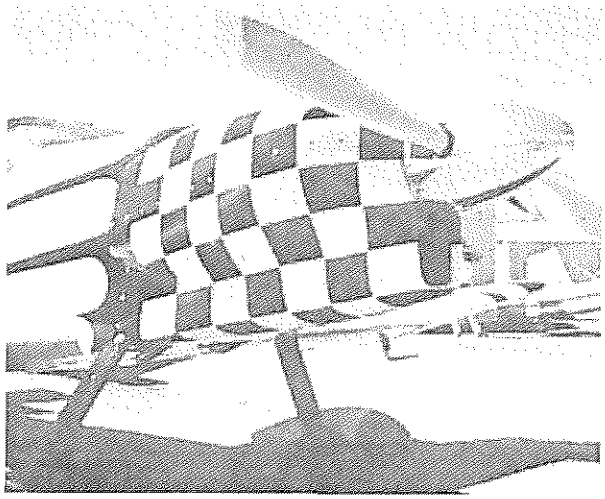


External Cowl Flap

cont pg. 4

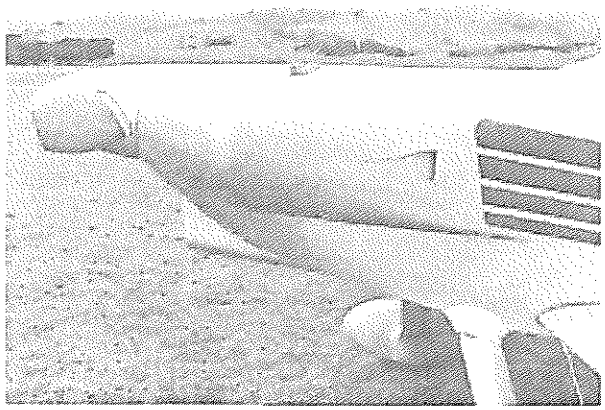
A Look At T-18 Cooling, cont.

Peter Garrison designed a cowl for the T-18, which placed the inlet at the highest pressure point in climb attitude and modified the shape and size of the exit for lower drag. This design retained the downdraft engine cooling airflow. The Garrison cowl offered several knots of performance improvement.



Peter Garrison's Cowling

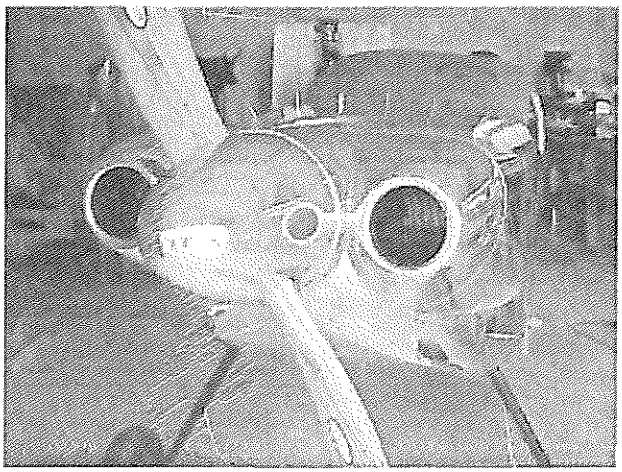
Tony Schischka also uses the low front inlet with the outlets located on the top forward portion of the cowl. The inlet has an efficient diffuser shape, which aids pressure recovery. This pressure recovery is also available to the engine induction system thereby increasing power at altitude. He also separates the oil cooler air exit flow. This is similar to a Rutan design and successfully uses updraft (reverse flow) cooling of the engine.



Tony Schischka's Cowling

A Look At T-18 Cooling, cont.

One trend that will improve the bugeye inlet recovery, is the move to circular inlets that match the recovery chamber with less loss than the rectangular inlets. They also incorporate a boundary layer path from the propeller flow to increase prop efficiency. Although not yet tested, Dave Neustel's cowl should provide these benefits.



David Neustel's Cowling

The basic function of a good cowling design is to optimize the following as much as practical:

1. Low drag exterior shape.
2. Minimum airflow through the system to adequately cool the particular engine under the expected conditions. Lycoming can provide cooling air mass flow and pressure drop requirements for their recent engines.
3. Maximum inlet pressure recovery.
4. Maximum velocity recovery in the exit air to reduce its drag or possibly provide thrust.
5. Minimize weight (complexity) of the system.

All these modification efforts are designed to minimize the cooling drag without unduly complicating the system or the installed weight. Just remember that you should carefully instrument your system including thermocouples on all cylinders if you make major modifications to John's cowl. Also, please try to accurately quantify your

cont pg. 5

quantify your results and share them with the T-18 community. And remember that a well-built T-18 with the original cowl will still run away from the competition.

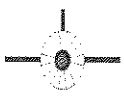
Richard Eklund
Eklund Engineering
thorpt18@jps.net
(209)727-0318

Readers Comments on T-18 Cooling

General rule of thumb for cooling is that the exit should be about 10% larger than the inlet. For an O320 150 HP the inlet should be about 48 square inches. These are the figures for my installation which works OK. Mind you I have a true updraft cooling system on my engine, ie. the intake is chin mounted and is a divergent duct (lowers velocity & increase pressure). The baffling is completely reversed on the engine and the exit is directly above the cylinders on the top of the cowl. Cyl head temps are very consistent a vary little between climb , cruise and descent (about 50 - 80 F). This installation is similar to the Rutan Defiant front cowl.

If any one is interested I could take some pictures.

Tony
ZK-VMS
a.schischka@xtra.co.nz



I have the Spruce pressure nose bowl, and the air inlets look very large. Originally I was going to use a water cooled engine, and planned on plugging them, putting radiators aft of the baggage compartment, sort of P-51 style.

cont.

Then I bought a Lycoming engine, and I have the same problem as everyone else. I have read some stuff on cooling drag, but have come to the opinion that it is not an exact science.....i.e. trial and error.....change one thing at a time..... From what I have read, Thorp, Cessna, Piper, etc scoop up all of the cooling air then slam it into a wall, forcing it down through the cylinders, letting it escape through the bottom of the cowling. As air is heated in the process of cooling the engine, it tends to rise, which is opposite of the airflow, causing resistance, i.e. drag. Also, from a fluid mechanics standpoint, when you force air to make a sharp 90 degree bend, it looses all of its velocity momentum, because it goes from say 200 MPH to zero when it slams into the wall, then has to accelerate again. This causes resistance.. i.e. drag. I have seen some Piper's that have the intake under the cylinders, forcing the air up through the cylinders and out over the top of the engine. I have heard this causes other problems too, but do not know exactly what they are. I think they look kinda funny too. This is pretty tricky stuff, because if you get the air going too fast across the cylinders, it doesn't pick up as much heat either.

Robert Mardis

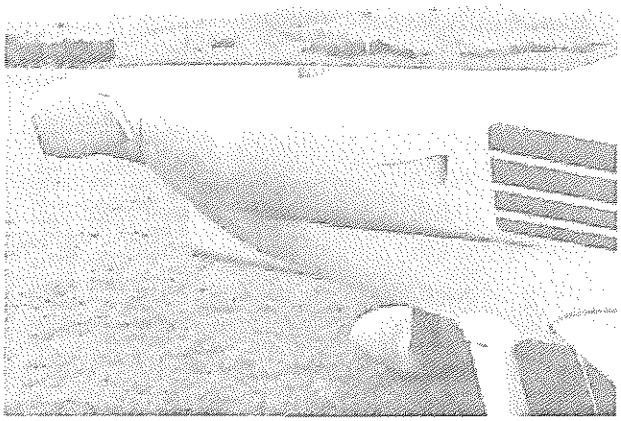
Fat Cat has a cooling air intake under the spinner that is less than half the area of a "standard" Thorp intake. By carefull baffle sealing, sealing the spinner gap, and a faired outlet with a cowl flap on the bottom, my engine cooling is fine, even on hot days. Thorp, Cessna, Piper, etc. took the easy rout by oversizing their inlets to obtain enough air to cool the engine even with leaky baffles, etc.—conservative, but inefficient.

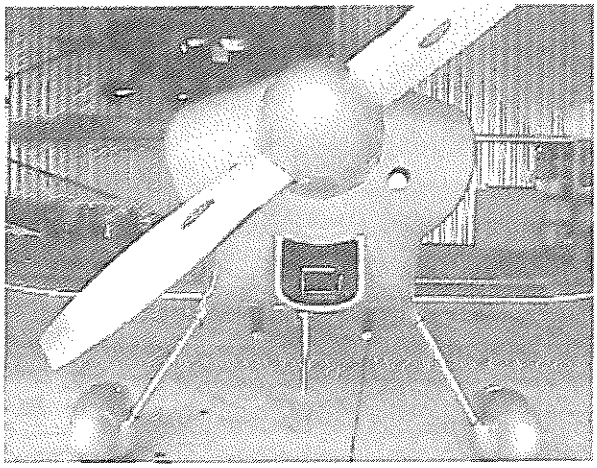
Harvey Mickelsen

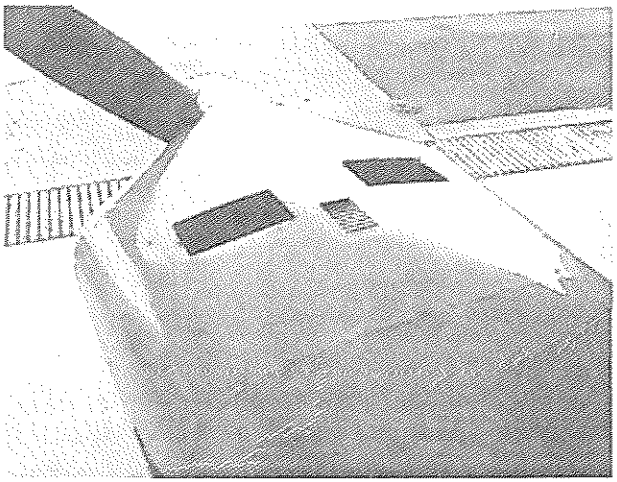
Tony Schischka's Updraft Cowling

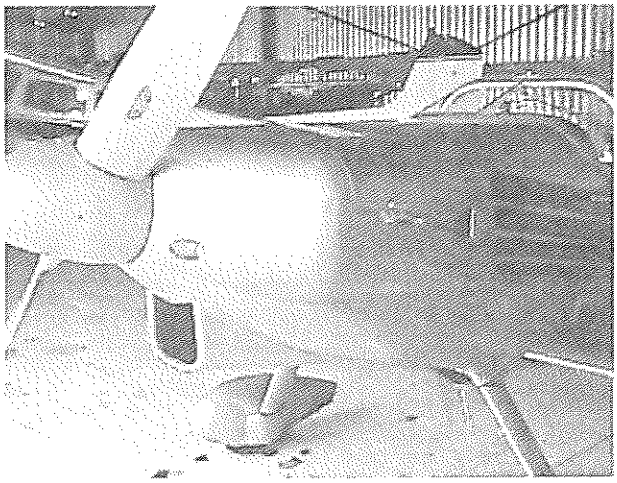
Here's some pics of my updraft cowl I took today. As you can see the lines are clean and lots of clearance between prop and cowl (necessary for efficient prop). The metal object you can see in the intake is the standard T-18 filter housing with the front cut off.
Top view shows main outlets, I had to put on lips to get sufficient flow. The reason for this is that in level flight the cowl is very nose down to the point that there is a positive pressure on top of cowl tending to choke the outlet. I think the drag is less than normal cowl as I have O-320 A2A (150 hp) and at 8500' @ 2600 rpm get a TAS of 155 Kts and this with Sensench W66 LM 76 wood prop.

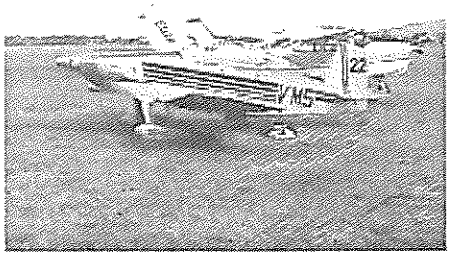
Tony Schischka
ZK-VMS

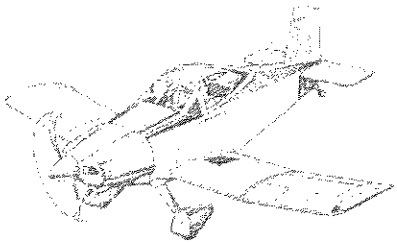




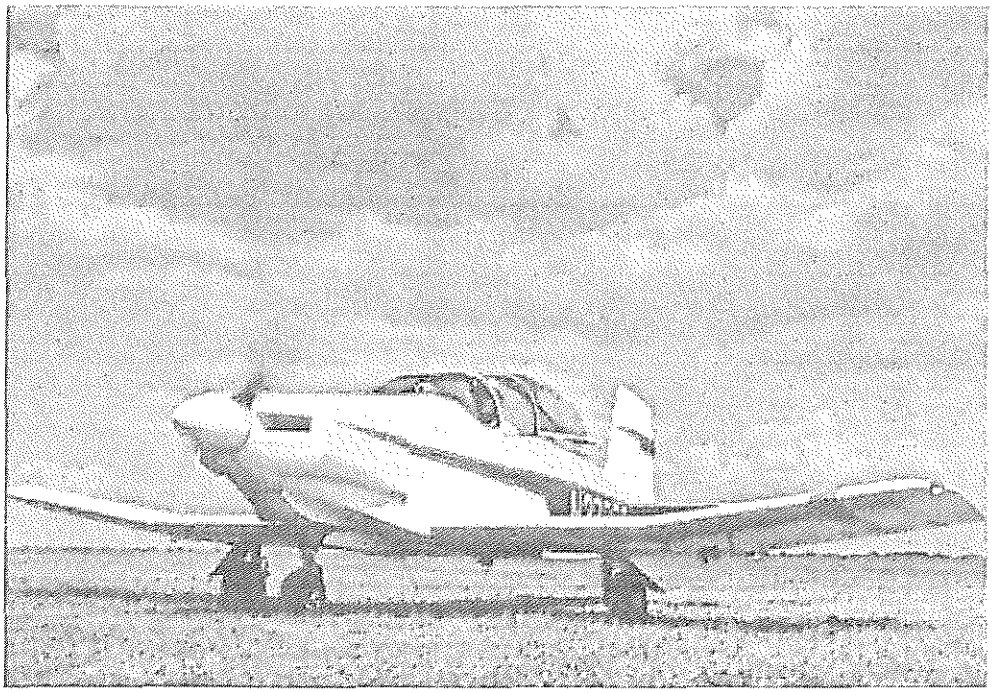






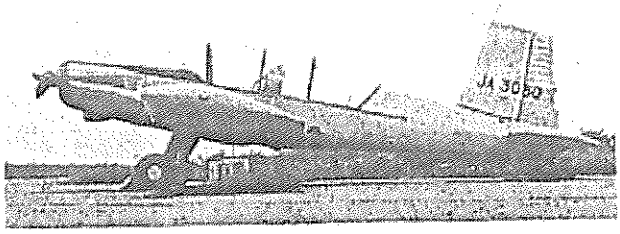


From the Past

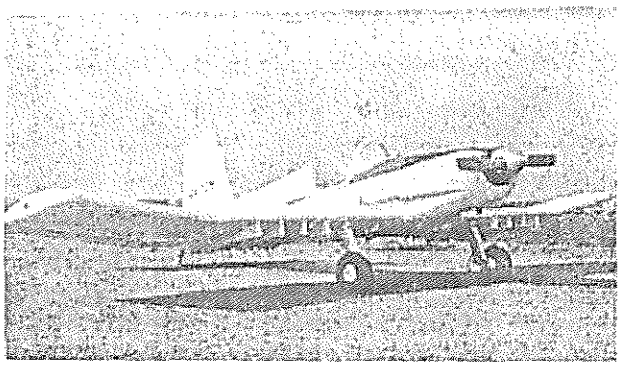


While throwing out some old magazines, I came across this old picture. It was in the December 1969 issue of air Progress. This picture was contained in an article about the Rockford Fly-In. I have never seen this airplane. Wonder what happened to it. Does anyone out there in T-18 land know any details about this airplane ? Dave Eby ~ Wichita Falls, TX

John Thorp's Defender



Toyo FD-25A Defender



Toyo FD-25B Defender

The Defender, an American design, owed it's inspiration to former Lockheed design engineer John Thorp, who sold his idea for a small, low cost ground support aircraft to the Fletcher brothers in 1950, soon after the out-break of the Korean war. Three demonstration aircraft were built in the USA, the first being a single seat FD-25B (flown on April14, 1951) and the second a tandem two seat FD-25A with a slightly longer fuselage.

Thorp's idea was that such an aircraft, costing less than 10% as much as a complex jet fighter, was also far more suited to the type of combat operations encountered in south-east Asian territories and was capable of carrying an equally lethal load.

The Defender, weighing only 1 1/4 tons fully laden, had a pair of wing

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John Thorp's Defender, cont.

mounted 0.30 in. machine guns and under wing racks for two 33 gallon napalm tanks, two 250 lb H. E. of fragmentation bombs, up to forty 2.75 in. folding fin air rockets, four 5 in. heavy rockets, or twenty 80mm Oerlikon rockets. It was received enthusiastically at numerous demonstrations to field units throughout the USA, but no official support was gained and the US forces lost what today would have been a useful COIN type.

In 1952, the Toyo Koku K.K. in Tokyo realized the aircrafts possibilities and acquired a manufacturing licence for the Defender, with the aim of selling it to South East Asian Airforces. The first Toyo built Defender (an FD-25B) was flown in March 1953, but in August 1954 the company went bankrupt and production ceased. About half a dozen FD-25B's had then been sold to the Cambodian Airforce, and two FD-25B's and a FD-25A to North Vietnam. A number of completed but unsold aircraft were stored on Fujisawa Airfield and three of them were bought by a Toyko aeronautical engineering college early in 1961, for study purposes. All models of the Defender were powered by a six-cylinder, 225 hp Continental E-225-8 air cooled engine.

Submitted by:
Mac Nussey ~ Pembroke Ontario, Canada

Editors Note: Thanks for the article Mac, sure looks like they have some T-18 in them.

Letters From Our Members

VFR/IFR Paso Robles Journey
By: Tom Worth

After checking the wx on my course for the Paso Robles Fly In, I left Tacoma (TIW) in mid morning on Friday (03/22/02). What a beautiful day to fly. ..down across the Portland airport, past Mt. Hood, and across the

cont

VFR/IFR Paso Robles Journey, cont.

Cascades. As I crossed the mountains, it became a little rougher and then turbulent on into Kiamath Falls (LMT). With a runway that's 10,000 feet, there isn't much danger of an overrun (F-is squadron - none flying).

After refueling, the tower reported 21 Knots at 170 degrees with some gusting higher. I elected an intersection takeoff with 7,000 plus feet remaining. Now this runway is 14 (150 feet wide), so I gingerly taxied to the very left (NE) edge for a diagonal takeoff (trying to minimize the crosswind). That trick works as I lifted off just prior to the very right edge.

As I continued on southwest to Red Bluff (RBL), the tops kept building, so at 13,000, I air filed for the remaining 40 miles inbound. Now this is near Mt. Lassen, so when I asked for 10,000, the controller really would have liked me at 14,000 ...but he gave me 13,000 (the normal hemi rule for east bound). Recently Bill MNick (recently traded his T-18 for a Mooney 252) told me of an ice encounter at 11,000 feet on the East Coast. His case of ice plugged up his tank ram air tube causing an engine stoppage. He descended through JFR to 3,000 feet until the ice melted (a chilling thought for my situation).

Well, after descending through the ice band with my prop continuing to turn, I made a VOR approach into RBL. Others were going into Redding (RDD) because it has an ILS. But it's also between some ridges. I heard the controller counseling some of those rusty IFR fellows about their off course deviations. RBL is further down the valley and flat. So I was more comfortable with the VOR approach and hit the field (near minimums).

Many planes were tied down at RBL, and the wx man said I'd be flying down the middle of the front with only a few spots of VFR. In the valley, the minimum enroute is only 3,000 feet however, so I filed for 7,000 feet and continued my flight. It was the usual NW type of clouds and rain (but no ice) (Town to PRR. A VOR/DME approach brought me to the field and Tom Hunter came by and picked me up.

cont.pg 9

VFR/IFR Paso Robles Journey, cont.

Though the fly in was not well attended due to the wx, those that came had a good time and traded a lot of good information. About mid afternoon, I departed northbound on an IFR plan. The wx man said Ukiah (UKI) was a better choice as RBL was really bad with a tornado north of Sacramento.

Jack Kenton left about the same time (towards LAX) and he reported that he had hit ice at 9,000 until reaching visual at 10,000. I had filed for 8,000 which was in and out of the tops. With the first one I went through, there was ice, so I went up to 10,000. A LOC/DME approach into UKI could have been performed better, but broken clouds helped.

On Sunday, I departed UKI VFR and found a beautiful clear day at Crescent City (CEC) where I had lunch with an old friend. As I was going on up north on the backside of the front, my luck ran out at Tillamook (S47). A new front was moving in and met the old one north of there. After refueling, an IFR flight plan out of there was on top after climbing through the wx. Great trip ...14.7 hours - 54% IFR.

N18XT Sun-N-Fun 2002

By: Tom Hunter

18 XT was built over a 32-year period. During that time a number of modifications were made to enhance the usability of the airplane. And during that time the builder wondered if he would ever get it finished! I think I fell in love with aluminum and also experimenting as I went along. However, I was always careful to ask the opinion of John Thorp in the early days when I worked in his shop in Burbank. And latter, other experienced builders. All along, keeping the plane light was a foremost goal.

N18XT Sun-N-Fun 2002, cont.

The original design carried only 29 gallons of fuel in a main tank. I initially built a standard wing. Then I considered a folding wing. Finally I decided to build a new wing with a new airfoil and wet the "D" cells in the center wing, added an additional 10 gals per side. The wings are sealed with Pro-Seal and there are access panels under each bay in the center "D" cell.

This wing was scratch built using only a master wing profile supplied by Lyle Trusty as a starting point. Flat layouts for inner and outer wings as well as flaps were made. Ribs were formed over form blocks made of ash. 2024-O .032 and .040 was used and then the ribs were heat treated to T-4. Using the O (dead soft) aluminum allowed for a full 90-degree radius on the leading edges...even on the small flap ribs. Which you can see if you pull down on the trailing edge of a flap and look inside the end of the flap. Another added advantage is the additional stiffness you get with 2024 ribs over the standard 6061 ribs.

A special feature of the wing is a leading edge strikelett, which near the fuselage is at a higher angle of attack. The rib nearest the fuselage is 20 % longer and inverted. The logic is that the air stream off the prop at the position is more downward in moment, and upturning the wing close to the fuselage will reduce overall drag. This piece of metal, which includes the wing filler caps, is a complex shape and was difficult to make.

The wing tips are custom. They were first made as solid male plugs and then female molds were made over these male plugs. From these female molds, one-piece wing tips were created. Running your hand along the surface of the wing tip will show the benefit of the single piece construction possible within a single piece female mold. And, if you sight down the wing tip, you can see that the rear edge of the wing tip is upswept. Access to the landing light is thru the left wing tip; there fore the lens could be made smaller.

cont.

N18XT Sun-N-Fun 2002, cont.

The wings were guide coated twice to achieve a high degree of surface smoothness. Dupont base coast clear coat was applied over primer surface water sanded with 600 weight.

All the wing ribs are anodized. The ribs in the outer section are anodized gold…those in the inner wing are clear. All wing ribs have lightening holes with 45-degree flanges. The left outer wing rib has a flanged access hole to access the landing light.

For those of you who need some light in the cockpit for instruments, I saw this add in a news-paper flier the other day and thought that it might provide sufficient light so that I could mount it under the lip of the instrument panel cover and the light would shine down and illuminate the face of the panel. I haven't mounted it on the cover but have made other tests and I think that it will be just the ticket. The name of the product is NEON WIRES and was purchased at my local TARGET store for under $20. It consists of small transformer,a short length of wire at the end of which there is some type of thin flexible neon tubing which glows very bright when connected to a 12 volt source. Since the shortest length is 6 ft I just doubled it over to obtain the length I needed. The color I chose was blue,there is also purple. The diameter of the neon part of the wire is smaller that a soda straw and the whole system is very light.

Paul Mac Michael

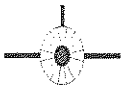
More Letters Form Our Members

Gentlemen (and Ladies):

We can be justifiably proud of one of our own. If you saw the perfectly timed fly-by by F-15E's at the Las Vegas Busch Race, you saw our own Jim Grahn lead a nearly flawless flight for the start of the race. Way to go, Jim!
And how about the lead solo's rendition of the National Anthem!

Check Six,

Bob Highley
N711SH



Do It Yourself Electronic Ignition

I ran across the guy with the plans for the do it yourself electronic ignition on Ebay, if anyone is interested. His e-mail address is [ronvdw@xcelco.on.ca] Here is his reply to me if anyone is interested.

If you would like a set of plans, send a money order for $35.00US to me at:
Ron Vande Weghe
499 London Rd.
Sarnia, Ontario
N7T-4X3
Canada
Be sure to include your return address.

Robert Mardis

Need More Legroom ?

One Members Answer

I am about 6'5" +/- and have been somewhat concerned about headroom and legroom in my S-18. I originally approached Mike Archer about getting

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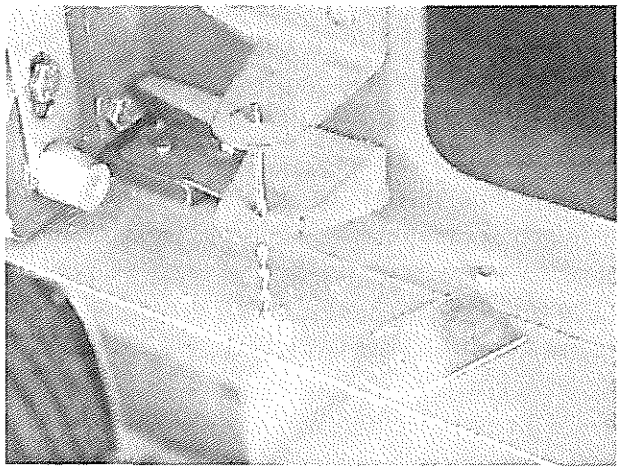
Remarks From Another Member

I don't have any earth-shattering tips or know how on building the T-18, but I do have a few thoughts after all these many years - almost 30 since I bought plans #888. I know I'm not the leader in building longevity, but I am close if I don't get in the air soon. Spending this many years on any project is more an exercise in commitment rather than in common sense. By that, I mean, I am now 70 and in pretty good health. What does that tell you. I know, shift into high gear!
Another down side to all this time is, unless you are a meticulous record keeper, you will forget what you did long ago and how you did it. Many of my parts turned out pretty good, but I can't tell you exactly how I did it. So much for building tips. I have pretty much worked alone all these years not having lived and worked among many T-18 builders like many of you have and I have worked two jobs in order to pay the way. Lu Sunderland told me once that if I had to work two jobs, I would probably never finish. Well, he was almost right, but if I can get these folding wings on (which I will never fold now), it will fly. I would like to harp on this point again - If you really need to fold the wings, fine. Otherwise build the standard wing. There will be a weight reduction and a much less complicated building process.

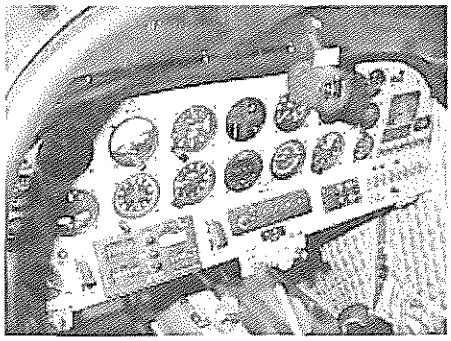
This my method for drilling the holes (after everything was put together). I hope the photograph (Reference photo on pg. 12) shows well enough to show what I did. First, I made a little template out of 050 material (the thicker, the better in order to guide the #40 drill bit). Of course, I started with the inner wing. I carefully (everything is done very carefully) taped the little template to the upper bracket, which matched the radius of the bracket. Drill a #40 hole in the upper bracket. Remove the template and tape it to the lower bracket and again drill down through the upper bracket using the template to guide the drill through the lower bracket, again very carefully so as not allow the drill to wander. Now the tacky part, which seems to be a little primitive, but it worked. From the pic you can see I placed a very sharp #40 bit through the two brackets, and carefully twisting the bit with my fingers, drilled through the bottom wing skin. You can't drill from the top because of the upper surface of the wing skin and I didn't want to use my angle drill with a longer bit because it is a little to hard to control (at least for me) and I wanted to get it done, so this is the way I did it (about 10 minutes of twisting). Now I installed the outer wing, got on my back and with a longer # 40, guided the bit up through the bottom skin through the two holes of the bottom bracket of the inner wing. My this is wordy! Now I have the two holes of the bottom bracket guiding the bit to the upper brackets of the inner wing. Now, very carefully so as not let the drill wander, drill up through the two upper brackets. This now gives you a common axis for the brackets. Now very carefully (as you can tell, everything is done very carefully, so I'll shut up about that), continue to enlarge the holes with successively larger bits until you can finally finish with an E drill (you may have to buy a few long bits to do the job). Voila! Common axis and the pilot hole, now an E size is on the bottom skin instead of the top, and I'll just cover it with a little chassis plug from the local electronics store. I can't reinstall the outer wings now until I move to a hanger. In the meantime I have to remove the bracket on the rear beam, inner wing and make a new one, which entails de-skinning a portion of the bottom skin in order to get at every thing. Problem - holes didn't mate on the inner and outer brackets of the rear beam, but that's another story. This is why it has taken me (I started in about 1977) a few years to get to where I am (close, but not close enough). Hint, hint — pay attention, work very carefully and don't make mistakes (and don't build the CW wing unless you REALLY NEED IT).

Bob Clayton
Salt Lake City, home of the 2002 Winter Olympics!

More From Our Members



Bob Claytons Method of Drilling



Bob Clayton's
Panel and Interior

Bob Clayton's Project

Need More Legroom?, cont.

more legroom in a S-18 and brought up moving the firewall forward a couple of inches. He did not like that idea, and suggested that possibly the cockpit aft bulkhead could be moved aft an inch. I got to exploring this, and feel that it is possible. I sent all of this to Mike and he thinks it might work too. I did all my work in CADD (Microstation), and feel that it is about as accurate as I can be. As I recall, Mike told me that he had someone that was 6'5" sit in his and he was OK. Also, since then, I have met Sam Tilleman who lives near Granbury, Texas. Sam is 6'4" and flies an original T-18, with what appears to be conventional seating arrangement. The only problem he has is that he has had to notch the instrument panel to clear his knees.

I am attaching Drawings 598-1 and 609mod1. (refer to drawing on pg. 14) Let me try and do a little explaining. Look at 598-1. Keep in mind that the cockpit aft bulkhead consists of two parts, the smaller 596 bulkhead on the bottom, and the larger 598 sloping bulkhead on top. Also, the 597 fitting, which the wing rear beam attaches to, is attached to the 596 bulkhead. In doing this, we do not want to move the wing, so it is imperative that the 597 fitting remain in the same location. What I did first was basically move the location of the 596 bulkhead from the front side to the rear side of the 597 fitting. This results in moving the bulkhead .220 inches aft, which is the sum of the thickness of the fitting (.188") and the bulkhead (.032"). Next I placed the top and bottom angles on the rear side of the 596 bulkhead. Originally they were shown on the front side. I have tried to show the original locations of these angles with dashed lines. I am planning on putting a lower angle on the front side of the bulkhead too, but this has nothing to do with moving the bulkhead back. More on that later. After you have reconfigured the 596 bulkhead, it is possible to slide the 598 bulkhead 1" aft. The only thing I am concerned about is that you don't want to upset the smooth lines of the fuselage sides by moving the bulkhead. Therefore, before I drilled the fuselage sides or the longerons,

cont.

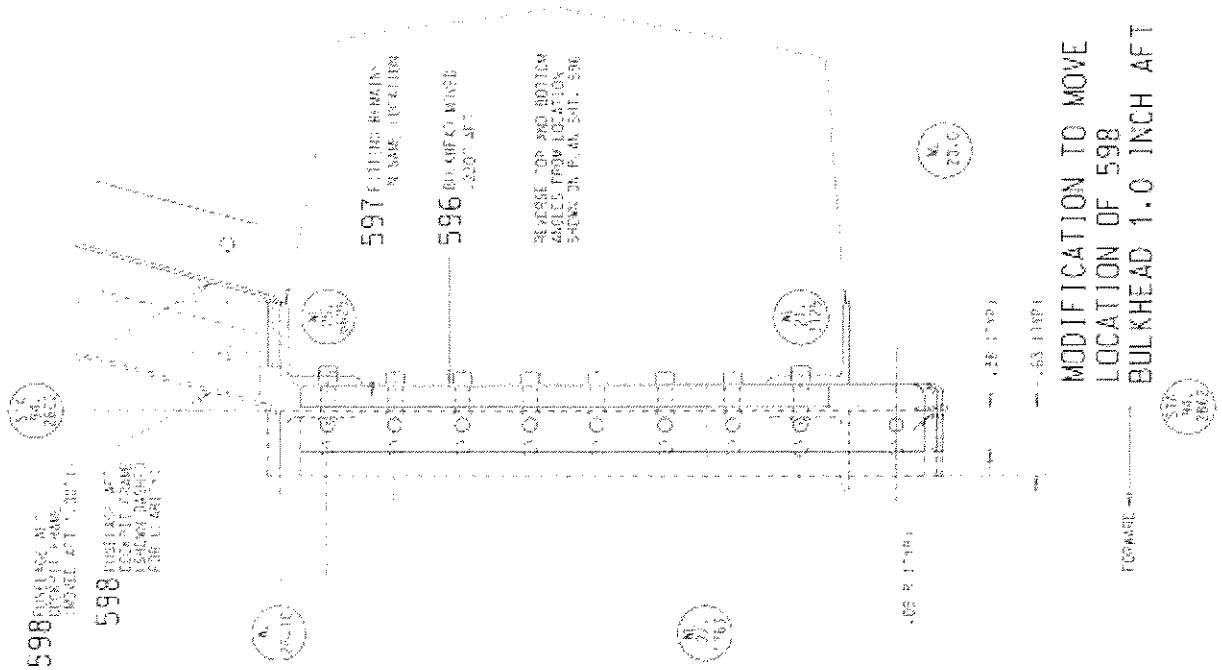
Need More Legroom?, cont.

I would clamp all of this together, and just eyeball down the fuselage sides to see if everything is a nice smooth curve. I really do not think it will make any difference. I have not built this, so I cannot yet say. Now, the reason I put the extra angle on the front side of the 596 bulkhead is to support the seat bottom. I am planning on lowering my seat, and not using all of the planned seat support apparatus that are given in the Sunderland plans. Look at the drawing 609mod1. This was also done in CADD, and shows the bulkheads moved 1" aft. The reason I sent it to you was to show you how I was planning on supporting the seat bottom. A couple of more things. After talking to Sam Tilleman, I feel that raising the level of the bottom of the instrument panel will be necessary to clear my knees. Also, consider this. The S-18 and T-18 show the rudder cables going down the center of the aircraft through the center console. Last weekend I saw the T-18 project of Bill Manning with the rudder cables routed down the sides of the airplane, by connecting them to the ends of the rudder pedals. What this does is eliminates the need for a console forward of the main wing beam tunnel , which gives you more room to move your feet around when getting into and out of the airplane. *(Editors Note: The outboard rudder cables are an old modification and been in the newsletter many times in the past)*
If you have any questions, please feel to e-mail me at: Robert.Mardis@Halliburton.com .

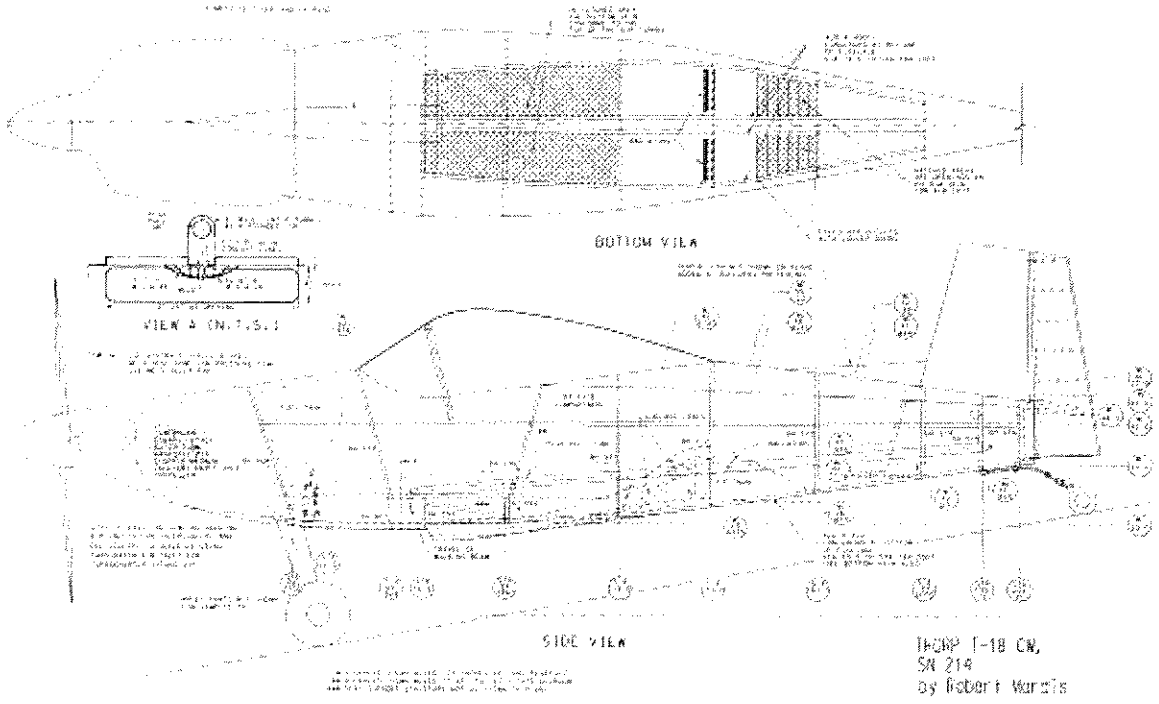
Robert Mardis

To most people, the sky is the limit. To those who love aviation, the sky is home.

Need More Legroom ?, Drawings
Submitted by: Robert Mardis



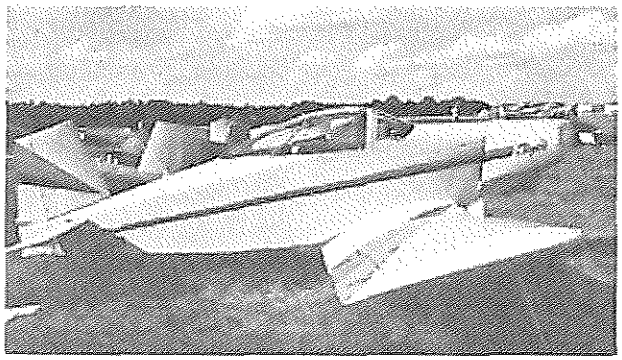
Drawing 598 Mod1.



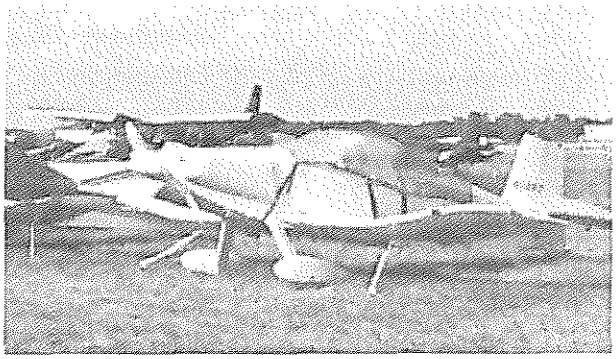
Drawing 609 Mod1.

Sun' n Fun 2002

Submitted by: Andrew Robinson



Bernie Fried's S-18



Tom Hunter's T-18

I arrived at Sun 'n' Fun right at 11:00 am last Tuesday, so I scurried straight to the Thorp builders forum where the mornings talks had just started. Someone I don't know was leading the forums and calling on more people I don't know to come up and speak. We need some nametags next year. I tried to write down names for this article, but please forgive me for places where names are missing. The big news (in my humble opinion) is that we have two award winners within the T-18/S-18 crowd. That means that our guys walked away with 10.5% of the homebuilt awards; not bad for our relatively small contingent.

The forum was opened by John Starr, a Sun & Fun Chairman and T-18 owner from Lakeland. Mr. Starr proceeded to call several builders up to the front to talk about their projects. One person who we did hear from was Tom Hunter, who after 30+ years of building now has his Thorp completed and flying. Yer inquisitive reporter was tacky enough to inquire if this was with or without using the "quickbuild kit". Fortunately Tom does have a sense of humor and didn't throw anything at me. I later made it out to the flightline to examine his aircraft, and while I hope that I finish my T-18 more quickly, I will be hard-pressed to match Hunter's aircraft for features and workmanship. Tom handed out a three page document of his airplane's features, so there isn't enough space for all of it here, but I will list a few highlights: leading edge strakes at the wing roots, integral wing tanks in the strakes and leading edges of the inner portion of the center wing, beautifully formed edges on the metal tips on the horizontal tail, a Lang tailwheel installation, and much more. Maybe Tom will post his document for those who weren't there. Apparently the Sun 'n' Fun judges agreed with me and they bestowed Tom with an Outstanding Aircraft (Homebuilt) award for N18XT. Another speaker was Bernie Fried who talked about his S-18. This is a beautifully done airplane with a gorgeous paint job and a lot of attention to fit and finish. In fact, this airplane is a 2001 Oshkosh Silver Lindy winner (Homebuilt Reserve Grand Champion-Plans). In something unusual for our airplanes, Fried has equipped his with aileron spades to get the control feel as he likes it. At the dinner later that night, Fried received the T-18 builders award for his airplane, appropriately tail-numbered N18XS (his words, not mine). Bernie was also presented with an Outstanding Aircraft (Homebuilt) award for N18XS. I am currently working on my center wing, wanted to look at the fastener patterns, and made the mistake of looking at Tom and Bernie's airplanes. The problem was that they have such nice, smooth paint jobs that I couldn't really see the rivets! Chuck Borden showed us his kit for installing a landing light kit in the leading edge of the wing. The parts are all laser cut and ready for installation;

cont pg.16

Sun'n Fun 2002, cont.

even the light is included. I believe he said that the whole kit cost about $60. Chuck is from Atascadero, CA and has a laser cutter for fabrication work. Anyone who wants an instrument panel should talk to him. Cborden@slonet.org We also heard from Lloyd Toll who informed us that he learned to fly at a small strip known as Mines Field. He wouldn't be able to get instruction there now as it is known as Los Angeles International. Mr. Toll also told of us his short field landing technique (part of which involves diving at the ground and scaring the daylights out of your passenger) which results in a 500-foot landing distance. However, as Bob Highly later mentioned, this does point out a "secret" of landing the Thorp: a power-off landing (such as most of us learned in Cessnas) forces you to keep up your airspeed in order to keep the tail effective in a Thorp. Landing with some power keeps air blowing over the tail, and the additional tail authority means that the Thorp can actually be landed in a shorter distance by using some power. I think that I will try it first on a big runway. Just in case. Mr. Toll was there with his daughter; Lloyd still has his T-18 and mentioned they may sell the bird to an interested party. A day of listening to Mr. Toll's aviation experiences would be time well spent. Tom Hunter also talked about parts procurement at the Walmart aviation department. He was able to purchase an oil separator for less than 4 dollars, or about $214 less than you can buy one from a major parts supplier. This is a stainless steel vessel that only requires drilling a couple of holes for the inlet and outlet tubing. Pack the canister with a scrub pad to help separate the oil. If you have trouble finding one at the Walmart, remember that it will probably be labeled "COFFEE". I think that must be the Chinese translation for "air-oil separator." We also heard from yer author about his experience with the Office Depot Aviation Tools department. Not wanting to spend hundreds of dollars on a sheet metal shear, I found that an $80 paper cutter will satisfactorily cut up to

cont.

Sun'n Fun 2002, cont.

I finally made it out to the flightline late in the afternoon after the airshow. I will say one thing about part of the airshow: the picture was a WACO biplane going straight up on a plume of smoke; the sound was clearly jet noise. That can seriously screw with your head if you aren't careful. And seeing a Learjet 23 doing aerobatics was pretty different. Anyway, I counted a total of 13 T-18 and S-18 aircraft and I took some photos of all the airplanes lines up there. Careful observers will note that the ranks of Thorp aircraft were infiltrated by Midget Mustangs; not much I could do about that. I did see one oddity that left me thinking "that looks different": it was a Midget Mustang on trigear. I am looking forward to Mike Archer's upcoming release of a tri-gear modification for the T-18. While some purists will howl, it will no doubt be good for cheaper insurance costs for some of us, and for broadening the appeal of the airplane.

The dinner that night was attended by about 40 Thorp builders, wives, and friends. The food (steak, potatoes, salad and desert) was excellent and no one went away hungry. After most people were done eating, we went around and all introduced ourselves. It was good to be able to put faces with names that I have seen in the newsletters and on the email lists. Next year we need to bring a bullhorn to pass around while talking to the group as most of the speakers could not be heard by any of us sitting more than one table away. It seems that every time someone went to speak, another airplane would fly over. Go figure. Among others, I had the pleasure of talking to Paul Tyrrell, a T-18 owner who hails from Canberra Australia. Paul says that he is planning on attending Oshlosh in 2003, so make plans to say hi to him if you are going to be there (or in Canberra). There was also a gentleman from England, but I was not able to get his name in time for this article. There was also someone there from Canada with a very nice looking polished finish C-GEMP. In addition to being all-metal from front

cont pg. 17

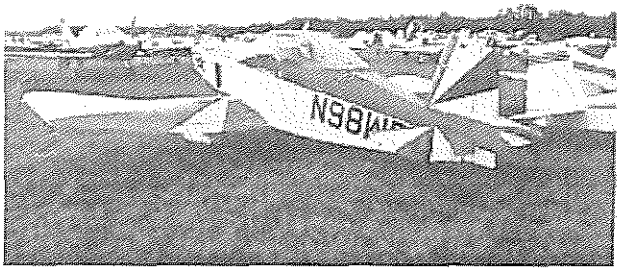
Sun'n Fun 2002, cont.

to back, this airplane also had adjustable cowl flaps. It would be interesting to read an article about this airplane (hint). Add to this our Thorpers from the left coast, and we were pretty well represented at SnF.

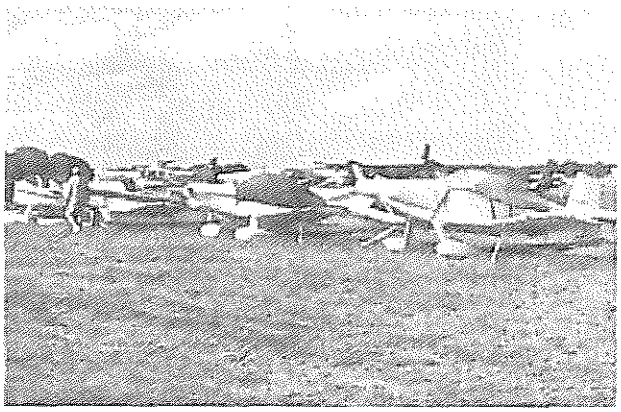
(By the way, the oil-separator is a slightly modified travel mug).

Andrew Robinson

Editors Note: Thanks for the excellent write up Andrew.



Sun'n Fun Photo



Sun'n Fun Photo

Technical Information

Saftey Issue

Tailwheel Condition - Check your solid rubber tailwheel tire for small radial cracks that start on the inner radius and work their way out. I noticed some of these on my tires, but didn't think to much about it - "I'll just change it at the next annual." A short time later while taking off heavy on a hot day at Mojave, I heard a funny sound just before lift-off. I heard the same sound upon landing 600 miles from home in Jackpot, Nevada. What I found when I jumped out of the plane was a mushy tailwheel tire that felt as if I could roll it off the rim. I took the tire off to find a thick steel cable had worked its way through the inside diameter and had relieved all strength from the tire. I was on my way to Kalispell, Montana but not until I got a new tire installed. I called some friends and they brought me a new tire that was going to be installed at the *next* annual.

We recently lost a friend due to the loss of directional control on the ground. The price of a new tire is cheap in comparison to what could happen. Check your tailwheel tires by looking for the cracks and by checking to see that the tire is solidly mounted and can't be easily rolled with side pressure.

Tony Ginn

Just a quick letter to warn anyone with a Maule tailwheel not to make the mistake I made. During a few landings the other day I was picking up a little shimmy. At the hanger I thought I'd look the wheel assembly over and see if there was anything noticeable. I popped the cap off and seen the large fork retaining nut and it seemed not as tight as it should be based on movement. With the appropriate wrench and a small amount of torque applied the nut simply snapped off in the wrench. The threaded top of the fork itself broke off. In further review it seems the movement I noticed was simply the spring loaded plate beneath the nut for centering the tailwheel.

James ~ N2NE

T-18 Flap Kits Now Available

Eklund Engineering now has laser cut flap kits available.

All sheet parts laser cut, with all holes. Skins free formed with leading edge radii. Ready for light deburr, dimpling and assembly. Left or right hand flap kit $536.50 plus shipping and sales tax in California. Contact Eklund Engineering at: 209-727-0318 or email: thorpt18@jps.net

For Sale Items

Propeller for sale: As removed from mt T-18. Lycoming 0-320 flange forward, 4" extension, spinner, all bolts and Warnke 70 x 70 Almost Constant Speed. Plus a steel ring harmonic dampener. All in excellant condition. $600.00
Phone:(406)227-8898

Bob Ryan

I have a complete set of templates and wood form blocks that were used to build T-18 SN# 411. These are for the standard T-18. I will sell for $50.00 if someone will just pick them up. For info call: (414)541-0318

Gerald Czarniak

Bendix Mannetos with shower of sparks(SLN-200, part# 10-163005-2: SLN 204, pt# 10-163045-3) completely rebuilt 20 hours ago by IA. New Slick harness $500.00 for all

Flap Handle, beautifully chromed. $100.00

Maule Tailwheel Asmy. 125 since new, 10 hours on new wheel. $100.00

Rochester Guages (pg. 349 Spruce catalog) fuel level - $50.00, voltmeter - $50.00

cont.

For Sale Items, cont.

Ammeter - $50.00 All like new.

Cessna 3-in-1 Guage (oil press, oil temp,cht) 125 hours since rebuild by Pacific Southwest Instruments. Perfect cond. $150.00
Phone: (909)315-9888 or email: N89BJ@aol.com

Byron Janzen

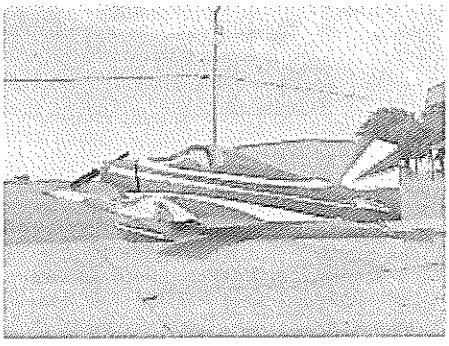
T-18

My name is John Dors. My friend, George Truver, passed away recently. He was an avid member of the Thorpe set. He has a pristine T-18 that he built and many extra parts and jigs. Do you or anyone in your organization know anyone interested in any or all? The airplane is (was) pollished with one gold stripe. All rivets squeezed or bucked, no cherry max. It even has metal wing tips. He also has ten extra sets of tips and the forming jig. The T-18 has a Lycoming factory new 0-360 with constant speed prop. It has only flown 5 hours then George got sick. It has been sitting in the hangar for about 18 months. Please inquire by email.

John
jos@adnc.com

T-18

I am selling my extremely clean, light, 135hp T-18 for $25,000. Email for pictures and spec sheet, or call Glenn Smith
209-848-4648
Cell-209-605-3248



Glens T-18

For Sale Items, cont.

I have several GPS units for sale. The units are the hand held Trimble Flightmate Pro. These units work well and can be mounted in a Thorp or any aircraft.So if anyone is looking to get into using a GPS receiver real cheap now is the time, I see these same units selling for $195 on Ebay and we're asking just $135 each. If interested contact me at Rotortime@Aol.com and I'll be glad to send you one or just relay additional information.

James N2NE

I have a prop extension for sale. Contact me at: n98bj@aol.com

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Jim Critchfield, builder of N8TT, was asked to reprint his GPU Overhaul Manual which he did for a couple of guys.....who then said they got one elsewhere. So Jim has three (3) reprinted manuals for sale. $19.95 each. His phone number is 530/ 621-1584 or critch2@earthlink.net. Contact him for details.

Hal Stephens

More T-18 Friend's

We live north of Anchorage, Alaska and own a T-18 built by Glen Patsch in 1976. In one of the Newsletters you encouraged members to volunteer their homes for Thorp owners visiting different parts of the country. PLEASE put us on the list. We live on Wolf Lake Airfield which is less than 5 minutes flying time west of Palmer, Alaska which is about 50 miles north of Anchorage. We are in the Alaska supplement, but not on the Anchorage Sectional. Wolf Lake is a residential airpark with a paved 3800' runway, paved taxiways, two FBO's, fuel, a lake with float plane slips and hangers. I have most of the fish named in the lake so one does not have to go into the bush for good trout fishing. We have two extra bedrooms with baths. We live midfield on Wolf Lake across from the fuel pump. Our yard is one acre of lawn with plenty of room for aircraft parking. We recommend coming up in late May - June as that seems to be our best flying weather. We would love to have anyone in the Thorp family stay with us !!

Lane Olson ~ (907)745-8392

Thorp Events for 2002

Airventure 2002 ~ Oshkosh, WI. ~ Annually at Oshkosh, at noon on Friday, we have a lunch/ forum get together in the Nature center. I will post more information as soon as I get it.

Porterville ~ Porterville,CA. 11th Annual Fly-In , Likely we'll do another P'ville Thorp Gathering as we have done in the past ten years. We have used the Labor Day week end as late as it doesn't conflict with the Reno Air Races which took our former weekend. You can post it as a tentative as I have not conversed with "the committee" a dedicated group of Thorp people who work with me as the organizer of the event. Hal Stephens ~ aerohal@earthlink.net

Kentucky Dam Fly-In ~ October 11-13, 2002 at the Kentucky Dam State Resort in Gilbertsville, KY. For more information contact Teresa Scola ~ btscola@aol.com

T-18/S-18 Thorp Newsletter
Roy Farris
P.O. Box 182
Noble, IL. 62868
Phone: (618)723-2594
email: rfarris@wworld.com

May 2002

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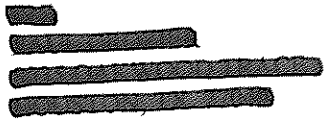

Please check your mailing label for the "PD" entry in the upper left corner above your name. If you don't see the "PD" entry, then you have not paid this years dues. Please send the dollar amount listed on the label. Any amount over 25(US) or 30 (outside US) indicates that you have failed to send previous years dues. Please be kind and send your dues now.

THORP T-18 MUTUAL AID SOCIETY ----- 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.

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