

TIGER TALES

The Newsletter of the Thorp T-18 Mutual Aid Society

Issue 3 September 2011



Thorps Over Kitty Hawk 2011

N711SH – Bob Highley, Plans Built Outstanding Workmanship Oshkosh Airventure 2011!
N30WW – Bill Williams, Sun n Fun 2011 Survivor, tornado damage to ECG in 8 weeks!

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From the Editor – Lee Walton

Happy ‘almost autumn,’ everyone! That seems comical as I’m writing this on one of Houston’s 107 degree August days. Yeah, it’s hot!

I’ve been keeping myself busy on the flying Thorp “Ol Red” as well as with the “2011” project in the garage. Oshkosh was a much needed boost in enthusiasm for me; I think I’ve accomplished more in the past month than I did in the previous three. With any luck I’ll be rebuilding the motor sometime this winter with the anticipation of flying it to Kentucky Dam 2012. It’s actually getting to the point where I’m starting to feel proud of it rather than just trying to remove banged up metal. In other words I’ve turned the corner; no longer tearing things apart, but now putting things back together. If I end up short on articles for the December issue I may, put a more detailed progress report in there.



There’ll be a reminder later in the issue but for those who have either forgotten or have never attended the Kentucky Dam Gathering of Thorps, it is right around the corner (Fri Oct 7-Sat Oct 9th). If Oshkosh is Christmas to homebuilt aircraft fanatics then Kentucky Dam is New Years Eve. A must not miss for any T-18er. Please plan to attend!!

We started off the year a little rough (Sun-n-Fun and a short rash of accidents), but thankfully that did not end up being an omen on the rest of the year. The Spring Gathering was a great time and Oshkosh turned out to be one of the best all around Thorp years in recent memory. There’s a detailed write-up on both events in this issue.

Much thanks to Bob Highley and Jim Grahn for their safety related articles. We’ve had a sketchy year so far with a few unnecessary Thorp accidents. It’s time we all take time to sit down and read both articles. We cannot afford any more bent metal fellas! We’re pulling more off the fleet than we’re putting in!

One final thought regarding an idea passed along to me from Duke Raven, the someday number four in the Highley, Williams, Conwell “Amigos” group. We’ve all heard of “VAF” (Vans Air Force), well Duke suggested “TAC” (Thorp Air Command). I personally like it and think a series of shirts/caps/ patches/stickers etc are in order. I’m even considering rebranding the website. I came up with this emblem (obviously inspired by the true TAC).



Potential “Thorp Air Command” Logo

Whatever we decide to go with will look considerably more professional than this, I assure you! Let me know what you think.

Enjoy the read guys; see you at KY Dam 2011!!

Spring Fly-In 2011– Lee Walton

The 2011 Spring Fly-In (can we call it a Fly-in after the fact?) started as most of my Thorp related journeys do, with a leg from Houston to the Ft. Worth area to join up with Wendell Green and then off to Gary Green's place up in Cotter, AR. Still the most beautiful airpark on earth! After a day/night of talking airplanes a three ship of Gary, Wendell and myself was off on the three two hour leg journey to Elizabeth City, NC. Along the way was a planned lunch stop at Jim and Judy Paine's place in Hendersonville, NC.



Enroute to ECG, Gary Green, Wendell Green, Lee Walton

The first two legs went off without a hitch, a little formation practice and a few hours of autopilot talk convinced me to start looking for Trutrak units on the second hand market. Upon arriving at Hendersonville, we enjoyed a hearty

barbeque lunch at the Paine's house with Judy, Jim and Jerry Sheetz. At this point I need to give you a bit of a lay of the land. Jim's airport is quite unique, it (grass) actually shares a border with the local municipal field (paved), so a through the fence crossover exists to pass from field to field. After waiting for a shower to pass, "thank yous" and "good byes" we loaded up and started the trek across the field to the paved side. I left first followed by Wendell, then Gary. The crossover is actually a culvert over a drainage ditch, I took it first, then Wendell and finally here came Gary. Well if you have not heard yet, Gary didn't make it, the culvert collapsed right underneath him. I shut down, jumped out and arrived in time to hear Gary utter, "Damn if this is not a hard luck airplane!"



N218V – taking a forced bow!

The story goes that the culvert was constructed out of an old steel storage tank, years of rust had taken its toll and Gary was just the unlucky one, no other way to put it. The short of it is that an hour later the damage was assessed as not as bad as it could be (Basically the RH wheel pant and the prop), Gary's airplane was then tucked away in Jim's hangar, he loaded up in Wendell's airplane and we were now a flight of two on our way to Elizabeth City.

Arriving at ECG a tad bit later than planned we were greeted by the airport manager, fellow T-18 fanatic and host for the weekend Scott Hinton along with one of his second to none staff Wendy. We were given a van for transport and headed on to our home base "The Culpepper Inn".



After meeting the gang for Happy Hour at the Inn Bar (aka "The Thorp Club") we were off to eat dinner and debate fuel systems. After that some much needed sack time was in order, we had just covered 1100 miles after all!

The next day we were up for breakfast at the Inn and then treated to a tour of the local C-130 refurbishment facility which turned out to be more than worth the trip. As Scott promised, seeing a C-130 in pieces is quite a sight. In addition the manager of the facility was quite an impressive guy who, I imagine, could teach the gang in DC a thing or two.

After lunch we flew a few sorties and waited for the remainder of the attendees to arrive. They trickled in and by the end of the day we had ten Thorps (sorry Les, your GP-4 is a Thorp, no arguing that one!) on the ramp. One of which was David Read in his interim Thorp N27DW. We again met for happy hour at the Thorp Club followed by an outstanding meal cooked up by the local airport staff.



N27DW – David Read's interim Thorp

Waking up Saturday morning we had a big day ahead of us. A traditional NC Breakfast again at the Inn (outstanding!) then out to ECG to fly over to Kitty Hawk. There had been a controlled burn southwest of Kitty Hawk that threatened to put a damper on our photo mission but luckily the winds were in our favor and we were

all able to get over to the monument for in-flight photo shots and a tour of the park. It should be mentioned that we came back heavy one bottle of Kitty Hawk earth/sand. Gary has since arranged to have an exorcism performed on N218V.

After a few hours out at the memorial we headed back to ECG to eat lunch and brief the afternoon's activities. It never seems we have enough time on these gatherings, but the combination of heat and hunger always seems to put an end to the festivities and after about 2 or three afternoon sorties we headed back to the Inn for another outstanding catered meal, this time, traditional NC barbeque.



Five-Ship over Kitty Hawk, Bob Highley, Bill Williams, Wendell Green, David Read, Lee Walton

One big bonus of the Spring gatherings is that they usually fall on Bob Highley's Birthday. This year was no exception and we celebrated poolside at the Culpepper Inn.



Scott Hinton's (builder Walt Griffin) beautiful machine, I was lucky enough to fly this machine over the ECG weekend. What a fantastic aircraft!

Another outstanding breakfast in the morning and off in our separate directions we went! The entire weekend was second to none and for that we have Scott to thank! Again, thank you!

Note: The 2012 Spring Gathering destination will be determined at KY Dam this year, so if you want some input you know what to do!

Some Thoughts on Pilot Proficiency and the T-18 – Bob Highley

First, let me introduce myself. I am a retired USAF pilot who spent a career as an instructor in KC-135's, F-4's and F-16's. Additionally, I am a CFI currently instructing at Jack Brown's Seaplane Base helping pilots from all walks of life and abilities to obtain their seaplane ratings. I have approximately 2500 hours in the T-18 as PIC. It is from this vantage point I would like to address the current situation we find ourselves in; namely a rash of incidents and accidents involving the T/S-18.

This dismaying trend has involved old airplanes, new airplanes, new pilots and seasoned ones. In short, we are all vulnerable. A recent study by EAA and the NTSB has shown that maintenance issues are not the primary causal factors in experimental aircraft accidents. The primary cause of accidents comes down to PILOT ERROR! Someone flew a good airplane into a situation that was outside the ability to recover.

Every airplane has an envelope in which it maneuvers. Excursions beyond this finite set of operating parameters will lead to loss of control. It is simply a matter of physics. Given that our T/S-18s are plans built and do not meet any standards of configuration, each airplane is slightly different from the next and will respond to pilot inputs differently. I have seen Thorps with very sharp leading edges on the wings (and some with different airfoils on each!) that will produce a sharp and sometimes aggressive stall. Those with profiles that match the plans are better behaved. The Sunderlund profile seems to be the most benign, but there again; each plane will react slightly different. I bring this out to simply illustrate that what works in one plane may not work in others. You must know and respect what YOUR airplane is capable of doing.

Let's come back to the pilot. Every T-18er and wanna-be dreams of a fast, economical little fighter that will dance in the sky. The T-18 certainly fills that bill! But, as with every airplane, there are a certain set of compromises that you live with. A 200 mph tail dragger will not land like a Champ. So, as performance goes up so does the need for more skill and attention. You are flying an airplane with the performance of a Cirrus without the benefit of a

nose wheel. You need to be as sharp as those lucky guys and gals flying the old warbirds. Not only are that, piloting skills a perishable commodity down times for maintenance, weather, and the cost of fuel are reasons for getting rusty. You need to commit to staying current. If it's been a while, you need to respect your abilities (or lack thereof) when you come back from a layoff. How about at the type of flying we do when we are airborne? If all you do is straight and level flying between Point A and Point B, can you really say you are proficient? When was the last time you did a stall series? How about the practice forced landing? Do you really know how far you can glide in the T-18? These questions and others are leading up to an honest assessment of your real skill level in your plane.

The T-18, as well as many other small, fast ships, is a different animal at each CG and gross weight. Are you fully aware of how your particular plane reacts to different loads? Do you consciously have a different set of parameters for a plane loaded for a cross-country than one with half fuel headed out to the area for a little aerial ballet? I have a definite set of operating limits for the long cross-country and one for the cloud dancing mode. I silently recite these before each flight to make sure I remember what plane I'm in. You need to mentally prepare for each flight and phase of flight. The T-18 does not allow for you to be a passenger in your own plane when you are the PIC. You must stay ahead of it!

With the recent downturn of the economy, several detriments to safe flight have emerged. If you are like me, you have a homebuilt not only for the unique capabilities, but for the relatively inexpensive flying as well. This can

amount to less flying and less proficiency as we eye the price of avgas. The result is you are less proficient each time you go out than you may have been in the past. Think of the student pilot that only goes out for a lesson once or twice a month. The first hour of the next lesson is spent catching up to where he was at the end of the last. Laying off of flying puts you in that situation the next time you pull that beauty out of the hangar. Respect that! Give yourself plenty of time to reacquaint yourself with the cockpit and to plan what you are about to do.

One of the saddest scenarios is the one where a new owner of an existing great airplane jumps in pushes himself and the airplane to a limit he had no idea was there: Abrupt maneuvers beyond the red line; Operations out of a short or narrow field; Attempting things that worked in another plane, but are out of the envelope of the T-18. These are all too often called out in the accident reports.

We own, fly, and dream of a great airplane that will give us many hours of enjoyment. Let's keep that part of the experience by staying current and respecting the limits of the pilot and the plane.

If any of you have any questions about flying the T-18, you can contact me on T18.net.

-Bob

Thorp Aerobatics – Jim “Cubes” Grahn

Recently, there was a small discussion about aerobatics in the Thorp. I thought I would write a newsletter article with some of my thoughts. For those who don't know me, I am a retired USAF fighter pilot. I flew F-4s and F-15Es for 21

years. During that time, I taught aerodynamics at the USAF Weapons School (Air Force version of Top Gun). I spent the last 7 years of my commitment as an Operational Test pilot. I am writing this in the nose of a 737 at FL 340, which has been my job for a year. I did not build my T-18, but have owned the Patriotic Tigress for 12 years and 920 hours. I am not an aero engineer. My terms may not be technically correct, but they get the point across.

First, I encourage anyone who wants to fly aerobatics to do so with a qualified pilot before trying it yourself. The Thorp picks up speed rapidly with the nose down and could put you in a square corner. I also recommend everyone take upset training (whether you fly aerobatics or not).

Here are the academics....

Let's discuss CAS vs. TAS. Your wing flies off of CAS for all intents and purposes. You can pull higher "G" before stall AOA at lower altitude due to higher CAS. When you fly aerobatics, you will get the "feel" for how much of a pull equals how many "G", and when to back off the AOA. Those "feel" criteria change with altitude. Your Thorp may pull a sweet-as-you-please loop starting at X airspeed and Y altitude, but if you try it 5 or 10K feet higher, it may fall off. Have no fear; unless you have a real whiz-bang panel, you are looking at CAS, not TAS.

Every wing has an angle of attack that is its max. Beyond that angle, it will stall. What may not be obvious is that gross weight and "G" load do not change that critical angle of attack. Higher gross weight will lower the speed at which you reach that critical angle. Higher "G" load can damage a structural member before reaching that critical angle. Why is AOA important? If

you stay below your particular critical AOA, you will not stall. If you do not stall, you cannot spin!! Keep in mind that your wing has no idea if it is upright, inverted, or performing a loop. You can stall the wing going straight up, straight down, or straight and level. I **highly recommend** you stall your Thorp in multiple configurations at least a couple of times a year. Listen and feel your way through a stall. My Thorp will get light in the stick, give me one bump, and then the left wing will fall off. These flight characteristics are very common to the Thorp. Get to feel your Thorps characteristics at altitude in a controlled environment. It will help you recognize the signs before a stall in the traffic pattern. In your stall training, your most important gauge is the turn and slip. Keep the ball centered and you cannot spin.

Let's talk spin recovery. The primary spin control is the rudder. Rudder against the spin (spin left = rudder right) is the desired input. Throttle above idle will flatten a spin and prolong recovery. Aileron, if used, should be into the spin (spin left = stick left). The idea here is to use the adverse yaw of the down aileron to aid in recovery. This control is less effective in aircraft with differential ailerons such as the Thorp. Elevator should be slightly forward of neutral. This aids in lowering the nose and breaking the stall AOA. Full forward stick comes with the following cautions. First, when the stall/AOA breaks, full forward stick can cause an overload in the negative direction if not corrected quickly. Second, while the Thorp has a powerful rudder, only a small portion is below the elevator, and therefore exposed the wind in a spin. It is this part of the rudder that is effective for spin recovery. Full forward stick provides even less rudder available to counter the spin's yaw. To sum up

spin recovery, full rudder anti-spin, throttle idle, neutral to slightly forward stick, if altitude is critical, full opposite aileron.

The T-18 was designed as a +6/-3 "G" aircraft below 1250 lbs gross weight. The S-18 is +6/-3 "G" to 1600lbs. When aircraft are designed, they are tested to failure. Certified aircraft are then authorized 66% of failure load. There are a lot of assumptions here. The point I want to make is that "G" loading design is predicated on a straight pull. If rudder or ailerons are deflected, or if the aircraft is asymmetrically loaded (i.e. single pilot Thorp), the allowable "G" limits go down. I'll give you an example. The F-15 has a constant HUD readout of max allowable "G". At FL200 and 420kts CAS under most gross weights, it reads 9 "G" allowable. If you deflect the ailerons more than 1/2 stick, the readout will drop to 6 allowable in about a tenth of a second. When flying aerobatics in your Thorp the rudder and ailerons need to be neutral if you are pulling more than about 3 "G". This is important enough to re-state. If you do not pull straight back (ZERO rudder or aileron), your allowable "G" limits are reduced!!! Rolling "G"s can hurt aircraft.

If you follow aviations news, you may have heard about the Airbus that lost its vertical tail and crashed on the East coast. The NTSB blamed the pilots of course. The reason the pilots were blamed is that they flew a doublet. In other words, they applied full rudder in one direction then full rudder in the opposite direction. The point is that a structure may be designed to withstand the loads of full control deflection below a certain speed. However, it may not be able to stand a doublet at that same speed. A doublet imposes greater stress on the

structure than does a single deflection. Do not apply doublet controls.

My last point is about “G” load relative to airspeed. In the Air Force, fighter pilots study Energy-Maneuverability diagrams. These diagrams graph out the possible “G” loads and turn radii at certain airspeeds. By studying what I can do versus my opponent, I can fly my fighter in a region my opponent cannot. How does this relate to us in the Thorp? From EM diagrams, we learn that below a certain speed, the pilot can snatch the stick straight back and not over “G” his aircraft. The airplane does not have enough energy to overload the structure. At higher speeds, the pilot must be more cautious with “G” load and rate of “G” onset. As you fly aerobatics in your Thorp, be careful with the nose pointed down. The Thorp picks up speed rapidly. If you find yourself there do not panic. Select idle power, roll to the nearest horizon, center the rudder and ailerons, and gently pull up. I do not use more than 3 “G” in the yellow arc. If you must have the nose down, realize that you can load up the AOA early (while the speed is still low) and use AOA to keep your airplane from accelerating.

Hopefully some knowledge will help fellow Thorp pilots enjoy these little wonders more safely.

Fly safe,

Cubes

Airventure Oshkosh 2011 – Lee Walton

I just sat down and determined that Airventure Oshkosh 2011 was my 26th year to attend. I started off strong attending every year from

1970 up to 1987. 1988 was my first year to miss and things got a little sketchy from then on, a couple of visits during my college days and then a few lucky charters brought me after that. Oshkosh was the pinnacle of the year for my dad and I, sometimes emotions run a little too deep to “jump back in.” To this day every corner of that field and town brings back memories of my younger years. They no longer bring sadness but gratitude for the experiences I was lucky enough to have.



For the past few years my flight up to Oshkosh happens via Gary Green’s for a night (thanks Gary and Maxine!) and then up to David Read’s in Olney, IL. That part of the country is beautiful that time of year and as we have not had a drop of rain in TX in quite a while, a day or so of “green” was a nice change. Southeastern Illinois/Indianapolis is quickly becoming “Thorp Central,” the current count is 5 airplanes/projects. This is thanks to Roy Farris’ influence and David Read’s relentless pursuit of anyone needing a Thorp ride. As we all know, it only takes a one ride to get hooked!

David and I departed Sunday morning for Oshkosh. We were both solo in our machines as Karen and Megan Read were heading up via ground transport with provisions for the week. Enroute we put down in Springfield, IL to wait

out a line of Thunderstorms approaching from the Northwest. With the planes immediately tucked away in a hangar we had time to address a minor maintenance issue on David's plane, tour a local museum and get a bite to eat with a few other Oshkosh WX refugees from Arkansas.

Hours later we found a break in the line and made our way North to Oshkosh. The second leg for the day was considerably more relaxed than the first, and as I took pictures of David's new airplane off my wing it suddenly occurred to me that I had done this before, 20 years to be exact. Way back in 1981 N27DW was owned by Dick Cavin, being fellow Texas T-18'ers Dick and my dad quickly became close friends, whenever possible we would fly up to Oshkosh together. So here I was 20 years later flying with the very same airplane off my wing. In fact we put down in Springfield that year too!

Anyhow, we ended up flying the Fisk approach in a pretty decent downpour and made it in to the flight line to find a row of Thorps waiting for us. Planes tied down, tents in place and cold beverages in hand we had made it to Oshkosh 2011!



Just over 100 attended the Forum this year, not bad for an airplane most are writing off as a dinosaur!

Monday afternoon I found a note on my airplane indicating EAA/Sport Aviation would like to write an article on N589LW. I can only attribute the Tom Hunter drop tanks for drawing attention and perhaps my constant "nagging" of the people at EAA for not giving the Thorp more coverage. Regardless, press is press and I was more than happy for the opportunity to go fly.

Tuesday David Read joined me in the airplane and we were off for some ground shots followed by some air-to-air work over Lake Beautimore. I'm not sure when those pictures will grace the pages of Sport Aviation but you can bet I'll let you guys know.



N589LW in the Homebuilt Review, behind a Rocket and in front of the RV's, good position!

We had the Thorp Forum/Lunch on a rainy Wednesday this year and although Mother Nature tried her best we had a great turnout of around 100 people. So many in fact that I found myself running to a neighboring catered event to find additional brats to make sure all were fed, as well all know, one brat is never enough!

Bob Highley emceed again this year. The subject was primarily Thorp Safety and the status of the Thorp plans and kits. Richard Eklund gave a status of the T-18 side of things and Jim Grahn updated the attendees on the status of the S-18 side on behalf of Mike at Classic Sport Aircraft.

To summarize, both businesses are still active, Richard continues to sell plan sets and Classic continues to deliver S-18 kits. On the subject of Classic Sport Aircraft, although Mike Archer continues to support new and continuing builders of the S-18, his business is currently for sale. Contact Mike Archer at (559) 539-2755 if you are interested.



Friday I flew N589LW in the homebuilt review which was a lot of fun and again, good press for the Thorp. I'll volunteer again next year but as the opportunity to fly in front of the Oshkosh crowd is no longer as easy as it used to be I'd be happy to allow an interested party fly next year if they like.

The big news happened Saturday evening. A little background, Bob Highley's airplane N711SH has been coming to Oshkosh since at least 1986 (first flew in 1984). I say 1986 as that's the year I remember first riding with Bob (then as a 15 year old). His airplane is solely responsible for the 0-360 that hangs off Wendell Green's/my dad's old airplane N51863. To this day I can still give you a play by play of that flight but put short he did a number on me because once on the ground, Dad and I went hunting for more HP (we had an 0-320 at the time). My point to all of this is that Bob's airplane is almost 30 years old, has over 2500 hrs on it and in 2011 was finally recognized for the outstanding machine that it is with a Plans Built Outstanding Workmanship Award. I say finally but Bob informed me that he had never had it judged before! An award at Oshkosh is a big deal, they don't hand them out and to pick one up for an airplane that has been flying for as long as this one is may be a first, at the least it's just really cool, no other way to put it!



Bob and Susan Highley, N711SH Oshkosh 2011
Outstanding Workmanship

As with most years, contrary to popular belief, Oshkosh is really not about airplanes, it's about people. More than the incredible machines I saw this year I'll remember cocktail hour at Ben and Teresa Skola's, Dinner at Wendt's, Haases, The White House and of course gathering around the airplanes shooting the you-know-what.

We had 16 Thorps on the field, more than any other custom built type, had a record turnout for the Forum, a Thorp write-up soon to be in Sport Aviation, and most importantly an

Outstanding Workmanship Award going to one of us. All in all a great year, a hard one to beat!



This just about sums it up! Oshkosh 2011 was a great year!

Thorp Trailer Brazell Style– Rich Brazell

The basic trailer is my copy of Gus's Gordon's trailer. I had it made locally. As with most things I do there had to be changes to the basic design.

1. The trailer was made as close to the ground as possible. To reduce the ramp angle, there are no leaf springs, just a solid axle welded to axel hubs. The trailer is California street legal.



2. Additional expanded metal was placed on the "floor" of the trailer so that it could be utilized for other hauling chores. Border runs for various items.

3. (4) retractable cargo straps were bolted to the frame. Much easier to tie down the A/C rather than using separate tie downs and having to deal with the extra strap and storing them when the A/C is off the trailer. The (4) straps are attached to (2) eye bolts on the center wing section. These eye bolts remain on the A/C at all times. Plus it gives me an extra set of tie downs when I am on the road.

4. The ramps that came with the trailer are *heavy steel* and were too short. I found a pair of 9ft aluminum ramps on E-Bay. They bowed a little too much for me so I attached a center "leg" to support the middle.

5. The 3rd ramp (for the tail wheel) is aluminum U-channel with a little additional side bracing.

6. The A/C rolls off the trailer/ramps with ease. I just jack up the front of the trailer (with the attached jack/wheel) a bit, give it a slight push and it rolls right off. The center steel U-channel on the trailer floor (not the same as the 3rd ramp) guides the tail wheel on and off the trailer and helps keep it centered.

7. When it's time to on load the A/C the wheels are centered on the two main ramps and the tail wheel positioned in front of the 3rd ramp. The "hook" and cable for the 12 volt winch (Wal-Mart) are attached to the tail wheel and then using the remote control the A/C is pulled up onto the trailer. The power for the winch is provided by a 12 volt accessory plug near the car hitch. This was wired to eliminate the long jumper cables that came with the winch...PITA to hook up the jumpers to the battery every time you want to use the winch.

Once I begin winching, it takes about 3 min. to pull the A/C up onto the trailer.

8. Once the wing fold procedure begins they are rotated into cradle/outriggers on the side of the trailer. I know some folks “sling” a cross bar across the back of the fuse. And then attach the wings to them, but I needed a more rigid set-up for highway travel. There are (2) supports that hold the wing in position...both of which fold down for loading and off loading. The outboard “pole” attaches to an outboard tie down fitting (this fitting is removed for flight). The tie down fitting nests nicely onto the pole and then a pip pin is inserted. The inboard pole is then rotated up into position and a pip pin is inserted in the bottom to keep it from rotating. A small ratchet tie down is then used to take out any slack across the top of the wings. This set-up has been used at freeway speeds with no problem.



The most time consuming part of the whole operation is the ramp installation and stowage on the trailer along with hooking up the (4) retractable straps to the A/C. Getting the A/C on and off the trailer takes about 20 min. The rig is pulled with a 1984 Volvo (4 cylinder) with 415,000 miles, so that tells you how easily it rolls! The trailer stills needs a little tweaking, but it was built to be a one man operation and to that end it works!

RB

Thorp Trailer Construction – Les Krumel

Among many of the things that really interest me in the T-18 was the folding wings; being able to use less hanger space or to have it at home easily. Getting closer to finishing that project now, the time came to build a trailer and it

seemed I might be able to contribute what I came up with. It's a lot heavier than necessary, but I figured something that big lying around would be useful to haul a car or I could add a deck to it to haul hay, etc. It's also a bit oversized for the fact that someday I'd like to enclose it. The thought is without any hanger it would be great to protect the T-18 from a hail storm, vandals, or just sitting in the sun, year after year.

I made dual axles, including spindles, and bought hubs and suspension. Hubs measure about 85" face to face. The tandem set up was to protect all the time and money I've invested in the T-18, hoping it would handle better in case of a flat tire on the highway; it could also handle a bigger load too. Folks have built other types of trailers that do the job just as well. They're often low to the ground for easier loading, lighter, and less expensive. Springs, hubs, and fenders were mail-order items. Along with the steel I spent less than \$1k on materials and built it myself, but it should do more than haul an airplane.



A basic rule about trailers is to locate the CG of the gross weight mostly on the wheels, but just ahead far enough to allow 10 – 15% of the weight on the tongue for the tow vehicle. If all

the weight were on the trailer wheels the trailer would wander and be uncontrollable. Too much weight ahead of the wheels puts excess on the back of the tow vehicle. That takes weight off the front of the tow vehicle and lessens steering ability – which is also an uncontrollable situation. People have different rules of thumb on this, depending how they look at it. I tried to provide for gross weight ratio of 85/15% wheels-to-hitch on this trailer, but like W & B on an airplane, you'll be responsible for any kind of load you carry. Semi trailers are actually adjusted for every load they pick up.



This trailer started as a 6' x 20' rectangle, with a 50 degree "A" frame also welded on front, for the hitch, so overall length is about 25'. Alone, it weighs about as much as the T-18, for reasons given above. With the airplane loaded tail first, the combined CG is about 8' from the rear. Wheels are centered at about 6' from the rear. However, hauling an automobile, or a load of hay might put the CG closer to the geometric center. I added an extra set of suspension hangers so I can relocate the wheels for those cases.

The basic frame is made of 1/8" x 2" x 4" steel tubing, good for a distributed load of about 5,000 lbs. Steel typically comes in 20' sections

and I used the whole length, allowing about 7 - 8" on each end of the airplane if the trailer would ever be enclosed. Rectangular tubing is great because you can make straight cuts with an abrasive chop saw to fit it together. Cross members divide it equally into 5 'bays'. It would have been smart to use C-channel for the cross members to make it easy to attach decking.



To fully enclose the T-18, it would be necessary to utilize the full legal width for road vehicles (102" for New Mexico). I added 1/8" x 2" x 2" tubing along the outside edges to do just that. Consider that the frame is two heavy parallel members (72" outside edges) to support the load, and two lighter parallel members outside of that (100" outside edges) to provide for framing in the walls someday. As is often done, a short section at the rear of the trailer is made with a droop to improve clearance for loading. This one drops about 4" in 32". I simply cut a notch, bent the tube down and welded it together again. The frame was tacked together on the concrete floor to start with a flat surface.



The trailer is about 27" tall. Others I've seen are low to the ground for even easier loading. But that only works if wings are removed, since wheels on the trailer only afford about 6' for width. An enclosed trailer would not allow wings to be folded unless they clear the wheels. Therefore, a taller deck is necessary. Pictures I've included show my project closer to completion. Wings are not attached, but the idea should be evident.



I also had lightweight I-beams to use for tracks. These are 2" x 8" structural steel, laid on the side for the landing gear to roll on top of the trailer; they also serve as ramps. A center rail and ramp is also made for the tail wheel of the A/C. It consists of 1/8" x 1-1/2" x 1-1/2" angle iron, welded to form a "U". This track is

elevated 11" about 12' from the rear, so the tail wheel lifts the rear of the aircraft that amount as it's winched on-board. This action slightly tips the A/C forward so wheel pants don't scrape the trailer. I was concerned that the A/C might tip over in such case, but as I measure it, the tail can be lifted about 38" to where the A/C just balances on its front wheels, sitting on the level. As it rides up the ramps, the tail lifts just 28" higher than the main gear. With the winch pulling one way and the weight of the A/C on the incline I was pleased how stable it really is. Ramps are 8' long, an incline of about 15 degrees. To start loading the tail is light enough to manipulate the A/C for alignments too.

Some other things to consider are electric winch, protection around lights, spring suspension, electric brakes, front jack, and wheel stops/chocks. I think I'll add short poles to the rear corners as a visual aid for backing up.



It's a long way to see back there, and I'm afraid of running into something. Diagonal bracing in the rear corners is to keep from bending something just in case. Tie-downs are formed by an inverted "V", on one each side, which is attached to a point on the main spar of the wing. Each leg of the "V" is secured to the

trailer frame. Sloping the tie-downs at an angle provides much better security for fore-aft inertial loads. Of course, the tail wheel is also secured.

Because it's over 8' wide and quite long, extra lighting was required, that is to add 3 middle marker lights on the rear, and marker lights on the sides: red for the rear and amber toward the front. Wiring is protected by running inside the tubing.



Fenders for tandem axles were about \$100 for the pair. Pictures don't show fenders attached yet, but that's certainly something to protect the A/C from rocks and things the tires could pick up from the road. Mud flaps are also good to have on the tow vehicle. That's a given if it's a pickup registered in Texas, right?

I've seen pictures of other trailers and thought to send some with this write-up too. Just haven't seen any other write-ups, so I hope this may be helpful. I'd be glad to talk more of it if anyone has questions or comments.

Sad news Department

Dean Cochran – John Evens

I Dean was my best friend for many years, and was my mentor for all things related to the T-18, and to a great extent about life in general. We would sit in our hangar for many hours over the years, just looking at our T-18s and reminding each other how lucky we were. He was a man who was liked by everyone who knew him, and a true gentleman. He had a wonderful sense of humor and he kept it to the end. Dean told me a few days before his passing that he would “save a hangar” for me. He said that one of his only regrets in life was that he didn’t burn more avgas.

When I started building my T-18, I was introduced to Dean through a letter from John Thorp, stating that “it will be a great day when Dean Cochran finally completes his T-18”. Once when John came through Denver with his wife in the Sky Scooter, they stayed at Dean’s house. Dean was always proud of the fact that he had re-designed his flap system to a cable-less pushrod system, and was able to show that to John. Dean was a master machinist/ mold-maker, for IBM for many years.

Dean did a lot, and was a strong ambassador for the Thorp community. For instance, he personally designed and built hundreds of stainless steel cross-over exhaust systems for Thorps, and other homebuilts, when there was a real need. The sharing of his knowledge and his generosity are directly responsible for the success of at least one well-known exhaust system maker.

He was a founding member of EAA Chapter 43 in the 1950’s, and held an honorary lifetime membership. When Dean started construction of the Thorp in December of 1962, the plans cost \$125. He told me they were purchased for him by his wife, Anne. After 16 years of building, as he liked to say “a little bit at a time, on a budget”, he flew his T-18, N11DC, on January 27, 1979. The T-18 was the realization of a lifetime dream for Dean, and he told me many times that it was everything he hoped it would be, and more. It is a beautiful, classic example of what the T-18 is all about. All three of his sons, Mike, Dave & Tony fly the Thorp, and Tony earned his Private License in it. He is also survived by his wonderful wife Anne, daughter Julie, and many grandchildren.

Dean was truly a man worth remembering, and I miss him more than I can say.





Dean Cochran

John “Papa” Starr – Bob Highley

John “Papa John” Starr left us on July 1, 2011, at the age of 93. John was known to many of us as Mr. T-18 of Sun ‘n Fun. In the early days, he always assured us there would be a forum and social event for all of the Thorp enthusiasts at the annual event. He was a perennial T-18 builder who studied each and every detail while collecting parts and assembling them.

Some of his seven children lived in the west and, on his trips to visit them, always managed to get out to see the west coast Thorp gang. One of his early friends was Lyle Trusty, who he met when both of them lived in the Tidewater Virginia area. I would have liked to have been a

fly on the wall when those two were holding court.

John was never able to finish his plane. One day Bill Williams and I were summoned to his house here in Lakeland. He met us in the driveway and said, “I have a bunch of Thorp parts I want you to have. Use them as you see fit.” We ended up with the project and many extra parts. Some of you have been the benefactors of this exchange as we have provided a lot of needed bits and pieces to Thorp builders and restorers.



His project lives on as the fuselage resides in my garage where Bill and I are slowly bringing it to completion.

“Thank You!” Papa John for keeping the east coast Thorp Family going in the early days and for your great friendship over the years. We’ve got the stick now and will keep it moving forward.

From the Thorp Archive – Tom Owens

These are a few pictures sent to me by Tom Owens, circa 1979.



George Wing and Chief Engineer John Anderson with what is now Wendell Green's Derringer N644W



Ken Knowles (left) and John Thorp (Right, hand on head)

******Upcoming Events ******

10/07-10/09 **Fall Gathering** Kentucky Dam State Park, KY (M34) Reservations: (270) 362-4271 Contact Teresa Scola (terriscola@yahoo.com) or Lee Walton (leewwalton@yahoo.com) for details.

03/27-04/01 **Sun-n-Fun** Lakeland, FL Note: Forum/Dinner Friday March 30 5:00PM Social Hour, Dinner at 6:00 Tent #3 in front of the Sun n Fun Museum (tentative).

A BIG Thanks to Bob Highley, Rich Brazell, Les Krumel, Jim Grahn, and John Evens for their contributions to this issue of "Tiger Tales".

In the next issue (so far):

Kentucky Dam 2011 Gathering Report – Lee Walton

Thorp/Grahn T-18 SP/RG Project Report – Jim Grahn

Thorp 2011 Project Update – Lee Walton

If anyone would like to contribute to the next issue please contact me;

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CLASSIFIEDS

Thorp T-18 N31BD



LYC O-320-B2B 160HP, 450 SMOH (6/2006), TTAF 2470, Fresh Professional IMRON Paint Always Hangered, All Maintenance Records / Documents Available, Complete Drawing Set / History.

King KX-155 NAVCOM, King KT-76 Transponder and New Encoder, Garmin MAP 195, Davtron DVOR, Electric Flaps, PS Engineering Intercom

Contact: Barry Hall@ 678-290-6630 (home) / 678-429-4525 (cell) Barry.Hall@CH2M.com \$38,000

Thorp Parts Available – Les Conwell

Carburetor MA4-SPA	\$500
Dynafoal engine mount for Thorp	\$250
Rudder Pedal Supports (2)	\$50
Axles (2)	\$50
3-way fuel valve	\$25
Piper-style pitot static blade	\$25
Wing lights and lenses	\$75
Walking beam	\$100
Ignition and starter switch (keyed)	\$60

Lycoming O320-B3B 160 hp engine modified to Dynafocal mounts. Engine had a new crankshaft installed in 1995 and was flown with constant speed prop. Please call me for details on hours, engine history, etc. \$4,500

Also available: many parts, fittings, etc. for Thorp S-18s that can really help reduce your building time.

Great prices. Call 727-841-9764 for details.

Carbon Fiber Spinners!

I have in my possession (on loan) Jim Paine's Thorp spinner mold and have started making composite Thorp spinners.. I will make as many as needed. \$250 plus shipping

Contact: Lee Walton leewwalton@yahoo.com 713-303-1043