

# TIGER TALES

The Newsletter of the Thorp T-18 Mutual Aid Society

Issue 5 March 2012



N589LW Airventure – Oshkosh 2011

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**From the Editor – Lee Walton**

I'm writing this one day before blasting off for Sun n Fun 2012. It suddenly occurred to me that if I were to live up to my promise of a "quarterly" newsletter this was my last chance.

Let's see, since our last publication I have sadly not flown much. That's not to say I have not been working on the airplanes, just not flying. Early Last December I swapped airplanes with Wendell Green and brought my dad's Thorp N51863 to Houston for some much needed TLC and updating. As my dad was a civilian pilot he preferred the throttle in the center and along similar lines he also admired the simplicity of the original manual flaps and trim. As he was a mechanical engineer by trade he always preferred "mechanical" to "electric".

Last year after much thought I decided it was time Wendell "make it his own" and as he is a military trained pilot he much preferred the left hand throttle. With that being said I installed one of Gary Cotner's outstanding throttle quadrants and dispensed with the trio of verniers in the center. As you can imagine that opened up a whole new can of worms with the flap and trim control. Primarily the necessity to swap hands during approach to adjust the trim dump the flaps on landing etc. In addition Wendell's wife Joy found the flap handle very uncomfortable on long trips. I have to agree, putting electric flaps in the Thorp is probably the biggest bang for your buck in passenger comfort.

So for the past few months I've removed the manual flaps and trim systems and now set Wendell up with electrics. In addition I wired his Infinity aerospace stick to the trim and flap systems so that all of those buttons actually do something. I was originally going to do a write up on the retrofit and that may actually come in the next newsletter but as I'm in a bit of a rush

to get this out, and again members stepped up the plate with fresh articles (thanks guys!) I figured I'd save that one for later "just in case".

I hope to see many of you at Sun n Fun this year don't forget about Bill William's famous Low Country Boil Friday afternoon/evening (details included in this issue).

Enjoy!

Lee

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**Building the Thorp Racer – Jim "Cubes" Grahn**

Episode Two - The Thorp Racer is comes to shape

We left off last time having a skinny fuselage put together. It was looking good, Billy-Ray. Now it was time to find a place to sit in it and make airplane noises. Just imagine trying to sit in the center of your Thorp. It's a bit uncomfortable and way too high. The stab push/pull and rudder cables are in the way. The first thing we needed to modify was how the walking beam is attached to the spar. The walking beam is normally attached via a built up section that resembles a "T" on its side. The top of the "T" is riveted to the spar web.



The walking beam is attached to the bottom of the "T". We built up a section resembling an "L". The bottom of the "L" attaches to the spar web. This lowers the walking beam attach fitting by 1.125 inches. Next, we modified the angle of the push/pull attach fitting. The fitting has a 45 degree bend to it.



This has the effect of lowering the push/pull by another inch. You can see from the pictures that the walking beam is attached much lower. Next, we had to make a new walking beam. The original design is intended to have a control stick on each end. It is also, too wide for my seat position. So, we took an original design walking beam and cut it up. We cut the stick attach fitting off one side and welded a cap in place. On the other side, we cut a section of walking beam tube out to make it shorter. In other words, we made a walking beam that allowed the stick to attach closer to the Butt Line zero location (center of the fuselage).



It is obvious from the picture of the walking beam that the stick is not centered. The stick itself has a few bends in the lower end to move it to the center of the fuselage. So now we end up with a centered stick, which is attached lower in the fuselage than normal. With a walking beam attached lower, the 592 became an issue. The 592 is basically the aft wall of the spar opening in the fuselage. As you can see, it had to be modified to accept the new push/pull location. It was simply a matter of cutting a wide "U" out of the top edge, and reinforcing that edge. Next we attached the seat rails themselves.



It may not be obvious, but the seat is mounted in a reclined position. The aft end of the seat is lower (waterline wise) than the front.

Unfortunately for us, the push/pull tube also rises as it moves aft in the fuselage. That created a point at which we had to start our seat location design. We installed the push/pull tube on both ends, worked the travel back and forth, and marked the highest waterline position. We added ¼ inch to that. That became the seat bottom aft location in waterline (or elevation).



Aft that, it was simply a matter of matching the original seat recline and fabricating the rails themselves. Once the rails were installed, I built a standard CSA seat and had it upholstered. With that set in place on the rails, we could vary the seat position fore and aft to match any desired knee bend angle or rudder

pedal position. We ended up with the seat all the way back and marked and placed the rudder pedals for that position. Notice from the pictures where the standard cutout is in the aft cockpit wall versus where the aft seat rail is. That is the best depiction of how much we lowered the push/pull system. I'll be honest that the rail system has changed over the years as we needed more space to allow a gear retraction mechanism. But that's a subject for another article.

Cubes

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### Flaring the Cowl Skin – Bob Highley

This is the first of a series of articles on how I installed the clear stuff on the T-18. This article will show how to flair the boot cowl to accept the windshield under the aluminum, yielding a clean installation. Future pieces will talk about cutting the Plexiglas and mounting the windshield, making the canopy frame, and finally cutting and installing the canopy bubble.

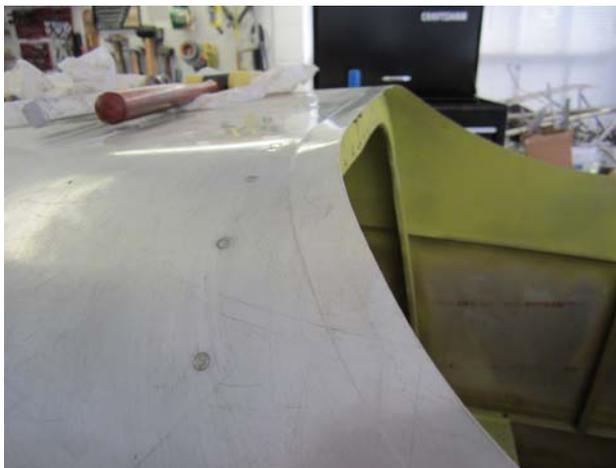


We will start with the boot cowl already riveted to the airframe. The 580-2 cowl must be cut to allow 1" overhang past the 603 dash. These numbers refer to the drawing numbers in the T-

18 plans set. This method replaces the detail "B" on the 487 drawing.

This picture shows the tool Bill Williams made to make the flare. It is made of some surplus bearings mounted on an 18" aluminum bar. Nothing critical here, just make sure the spacing between the rollers is tight on the sheet metal. In our case, the nylon side is mounted on an eccentric bushing so the spacing can be adjusted. We have used this tool on several T-18s and a few RVs that the owners wanted to do away with the fiberglass mess called out in their builder's instructions. It is also handy in modifying Model "A" Ford fenders to accept the fender mounted spare tire. You can also see the 1" overhang before forming.

Next, I begin to form the flair. Make sure the edge of the metal is smooth with no stress risers. I polish the edge with fine sandpaper before I start any forming operations. Holding the tool perpendicular to the edge of the metal, I used the roller bearing side of the tool to lightly set the bend. Be careful with this step and TAKE YOUR TIME! You just want to start the operation. Do not allow the tool to twist or walk off of the metal. Twisting stretches the edge too much while walking off will put a mark on the flair that will not look very nice when you are done.

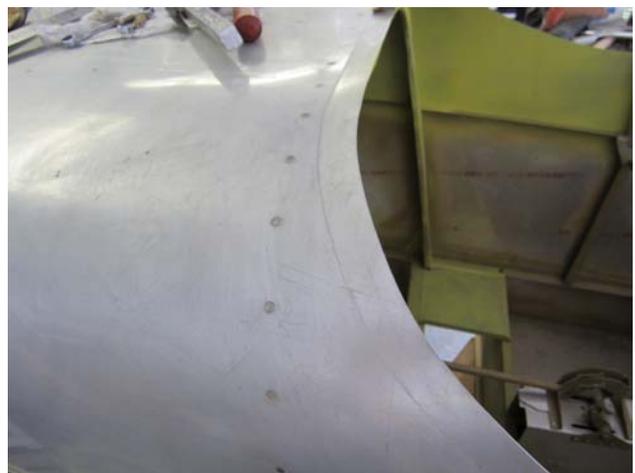


Next, after I got the center part that goes over the rollover bar support strut formed, I installed the rollover bar itself. My rollover bar came cut for shipping. Don't cut yours; just forms the area under the strut first.

I placed a straight edge between the roll bar and the bend I was forming. This check was made continually as I bent the flange.



You can see the flange starting to form. Work the whole flair as opposed forming just one area at a time. This will preclude a wavy edge.

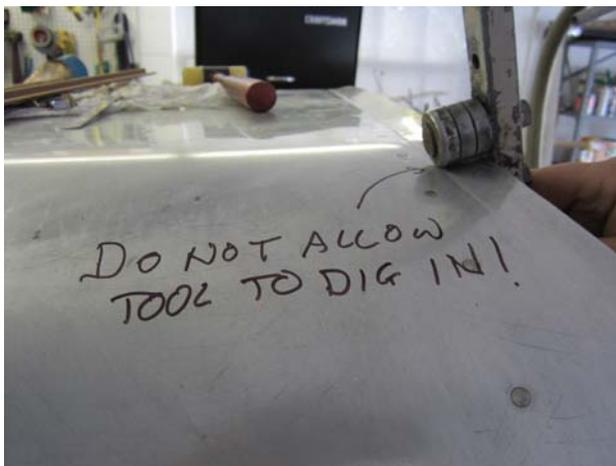


This is how the flange looked part way into the process. Using the straight edge, I slowly brought the bend up to the correct angle.

The areas in the front of the windshield and some of the sides are just straight bends with no stretching required.



As this photo shows, you only need to stretch a relatively small portion of the flange. You are stretching the outer portion of the flange with the roller tool by pulling up. DO NOT allow the tool to dig into the bend area or you will stretch the metal in the crease and not bring the metal's edge up as desired. You can work minor divots up, if you catch them early. Use standard body tools (hammer and dolly) to fix any small anomalies.



As you work the tool back and forth, use great care not to try to do too much on each pass. Again, you are lifting on the whole tool while you roll it along, keeping it fully seated. I used

some grease on the metal to help with the process.

Once the flange comes up, I bring the straight bends to the correct angle, using my straight edge to check. I begin to work more and more into the area that requires stretching.

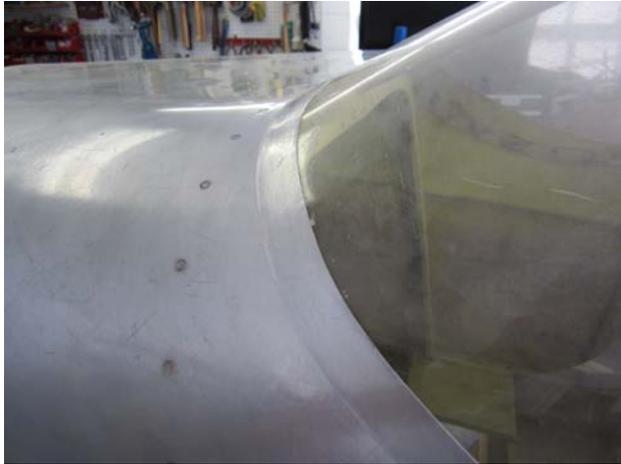


You may have to use a hammer and dolly to stretch the edge and allow the metal to come up to the desired angle. Again, take your time. Make sure the edge stays smooth. Sand out any stress risers.



You will get to the point where simply using the roller tool can't get the stretching job done. You can use a forming hammer to bring the edge up. Be careful! Some dents will appear, but you can roll them out with the tool.

Here is what the finished job looks like:



Next time, I'll go into cutting and mounting the Plexiglass.

-Bob

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#### Dual Use Tow Bar – Rich Brazell

I needed a tow bar to maneuver the A/C into position to get it onto the trailer, plus I wanted to carry a tow bar in the A/C "just in case." Well just in case proved true during the flight testing phase at Brown Field when I had a flat tire on the runway during my taxi tests. The EAA drove out a pick up and we put a dolly under the flat tire and I sat on the tail gate of the pickup truck with tow bar in hand and we pulled the A/C to the EAA ramp for a tube change. That was the first use of the tow bar. Looking at the design, I decided to try and make one of my own after purchasing the first one from Bogert Aviation (you can also get them from Spruce) for \$100.00 (tax and shipping). I went to the local metal yard and purchased less than \$10.00 worth of tubing and coupled with my outstanding welding skills (scale of 1-10 about a 7), I made almost an exact copy of the Bogert unit. No jig required. All bends were done on the vice with "soft jaws." The flat areas where it was needed to be bolted together were flattened with a 5 pound sledge.



My second encounter with using the tow bar (other than aligning the A/C for trailer use) came at KSEE when I had an over the numbers engine shut down due to carb flooding. Having enough speed I was able to make the first turn off between the dual runways and stop. Again I was towed to the ramp with me sitting on the back of a pickup truck holding the tow bar. All is good except when you reach an incline (however slight) when your arm will try to be pulled out of its socket! It was then I knew I needed a little something extra to make my arms the same length! I went to the surplus store and bought a "tie down" ring and welded it to an extension that replaces the "T-Bar" handle. The ring slips over the trailer ball while I can sit on the tail gate and monitor the tow progress. The modified extension along with the "copied tow bar" remains in the A/C, "just in case" I need it for future tows. It is also available when I go cross country for anyone needing it that has an Aviation Products double fork tail wheel. I suppose it would work for the single fork wheel? Having the "spare" bar makes it a lot easier rather than R & R the bar in the A/C each time I need it. No...I am not that lazy, but for \$10.00 I say it was a worthwhile investment.

Happy Towing!

Rich Brazell "RB"  
NX115RX

**Kentucky Dam 2011** – Lee Walton

This is of course a bit late to report on our Fall gathering but as the last newsletter reported on the KVIS gathering I figured one event per issue would do. So where to start?

KY Dam was again a perfect weekend. As has become the tradition Wendell Green and I flew our birds up the Gary Green's place on the Thursday, spent the rest of the day talking airplanes drinking a few barley pops and inspecting Gary's Cub project (which will certainly turn heads when complete!).

The next morning we blasted off and the three ship made it over to Kentucky Dam State Park (M34). Upon arriving we were greeted as usual by the weekend's social chairman and extreme coordinators Teresa and Ben Scola. I don't mean to present that lightly, they both work their tails off! Teresa handles the daylight hours and Ben the evening "Happier Hour". The behind the scenes work for this event is quite a task and we all owe Teresa and Ben huge thanks for all they do! Thanks guys!!



Wow those are some good looking Thorps! I especially like the paint scheme! ;)

Friday afternoon was spent putting flying a few sorties. I fly my airplane over to nearby Paducah, KY to meet up with David and Karen Read in their interim Thorp N27DW and his hangar neighbor Kevin Kegin and Derek Fritschle in Eric Smithhenry's N4588. After giving them a proper escort into KY Dam we set down and waited for the trio from Florida to arrive. They did just that shortly thereafter, unfortunately after arrival we soon found out

that our supreme leader and co-formation instructor (Gary Green being the other) alternator had failed on the way (more on that later).

Friday evening we, as usual made the short journey over to Patti's for dinner. The majority of us enjoyed the restaurants specialty 2" pork chop and plethora of dessert options. After dinner we convened at the Scola-mobile-party trunk for a few before retiring for the evening.



Patti's Friday night

Saturday morning the focus was how to get Bob's alternator going again. We divided and conquered. Bill and Bob would search out the local auto parts while the rest of us would get his battery charged up. A few hours later we thought we had accomplished the mission only to find out Bob would be running on his battery for the rest of the weekend.



Now that's teamwork!! Note Bill Williams acting as foreman!

Feeling somewhat defeated we headed over to Murray, KY for the second most famous feast in the Thorp group (Second only to Bill's LCB) the Murray Fish Fry. As usual the town filled up 40 feet of table with just about every possible side, dessert and complement to fried fish a person could want. My mouth is watering just thinking of it, and I just ate!



2012 KY Dam Formation Team (Team members off eating fish!)



In the missing man formation

Saturday afternoon we blasted off for some much needed formation drills with Gary Green trying to whip some sense into those of us who sometimes forget our right from left and then flew a missing man for those Thorp brothers that we lost in 2011.

Saturday night we again as usual met in the Lodge Restaurant and enjoyed the now

traditional Saturday evening buffet and social hour.



Most of the 2012 Thorp fleet waking up Sunday morning (thanks Matt Smith!)

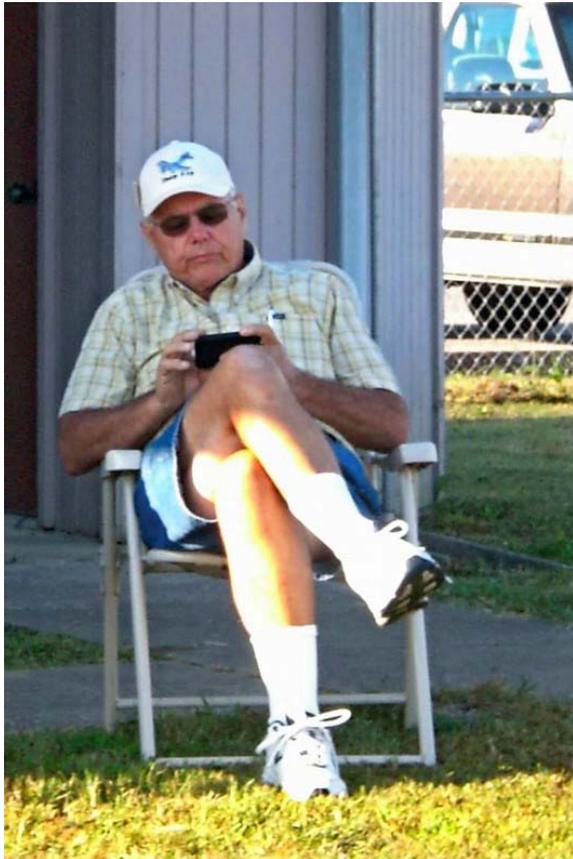


Ron and Jane Hayes headed home.

Sunday morning the typical goodbyes and see you next year/Sun n Fun etc occurred and we all flew off in different directions on home

Lee

P.S. Will someone please tell this guy to stop playing with his phone!!!



Bill Williams, closet gadget junky!

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**Sun n Fun 2012 Information – Lee Walton**

If you do not fly in please come by “Thorp Row” at this year’s event and catch up with those of with our airplanes there.

**Sun n Fun Thorp Forum and Dinner**

Bill Williams will again be serving up his famous Low Country Boil this year, details are as follows.

Friday 30/12 Gather up at 1700 (5:00), for hanger flying, 1800 (6:00) for dinner, then those that are interested will join us for the night air show.

Location; Bueller Restoration Center, located just East of the museum, air conditioned building

\$15.00 per person, all you can eat and drink

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**Spring Gathering Information – Lee Walton**

Our 2012 Thorp T-18 Spring Gathering will be held in Fredericksburg, TX (T82) this year. More details will follow but if you would like to join us for a weekend of flying, food and fun please make your reservations prior to May 8th.

I've reserved a block of 30 rooms at the Super 8 on Main St. They've been kind enough to give us a very good rate, the facility is very nice, right in the heart of town and yes (you know who you are) they have a continental breakfast!

Here's the contact information, be sure to tell them you with the "Thorp Group"!

**SUPER 8 FREDERICKSBURG**

**514 EAST MAIN STREET**

**FREDERICKSBURG, TX 78624 US**

**Phone: (830) 997-6568**

Any questions feel free to call me 713-303-1043

Lee

Please join us, I guarantee a great time!

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Upcoming Events

03/27-04/01 Sun-n-Fun Lakeland, FL Note: Forum/Dinner Friday March 30 5:00PM Beuller Restoration Center.

06/08-06/10 Spring Gathering Fredericksburg, TX (T82) Reservations information in the next issue. Contact Lee Walton 713-303-0143 [leewalton@yahoo.com](mailto:leewalton@yahoo.com) for details.

07/23-07/29 Oshkosh Airventure 2012 Thorp T-18 Forum/Lunch Wednesday 7/25 11:00-2:00 Nature Center Tent #1

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

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In the next issue (so far):

**Building the Thorp Racer Part 3** – Jim Grahn

**Installing the Windshield** – Bob Highley

**Sun n Fun 2012** – Lee Walton

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

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713-303-1043

CLASSIFIEDS

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Thorp T-18 N31BD



LYC O-320-B2B 160HP, 450 SMOH (6/2006), TTAF 2470, Fresh Professional IMRON Paint Always Hangared, 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](mailto:Barry.Hall@CH2M.com) \$35,000

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Carbon Fiber Spinners

I'm still making carbon fiber Thorp Spinners/Back-plates.

\$250 plus shipping

Contact: Lee Walton [leewalton@yahoo.com](mailto:leewalton@yahoo.com) 713-303-1043