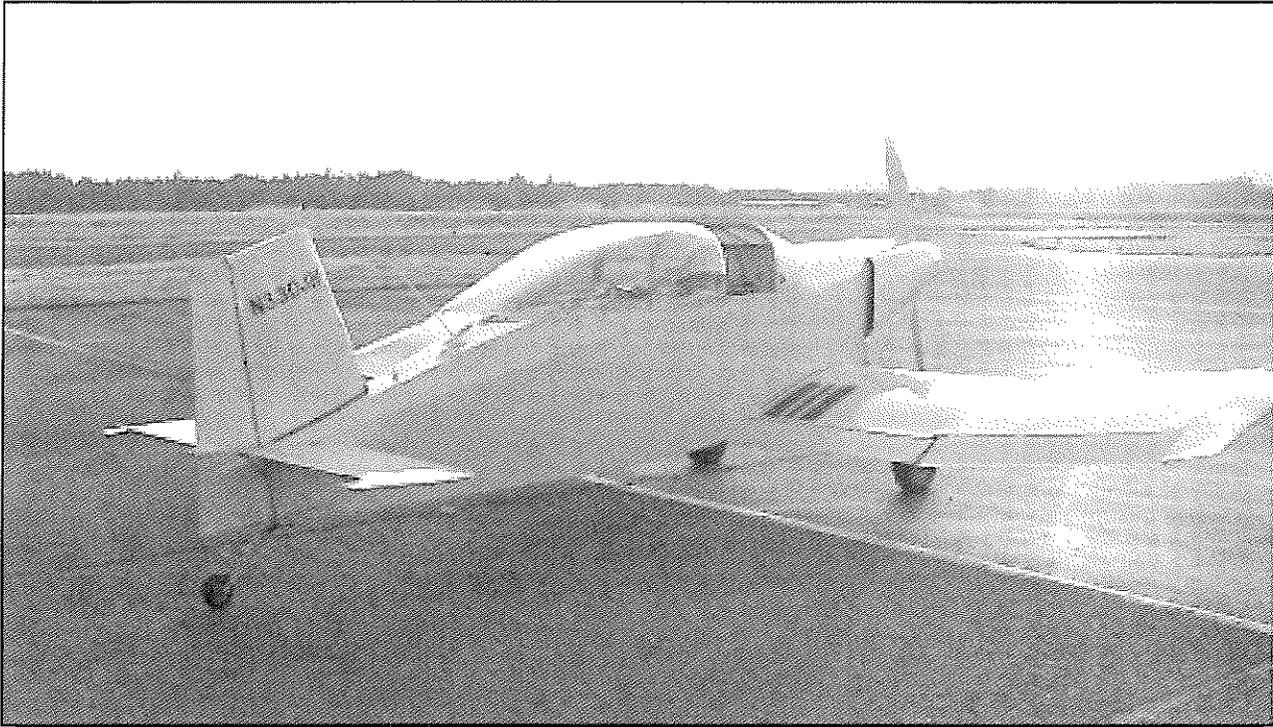


# T-18 Newsletter

October 2008



N330JH ~ Jerry Hoover ~ Yelm, Wa

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*Notice: (Standard Disclaimer) As always, in the past, present, and future newsletters, we would like to make you aware that this newsletter is only presented as a clearing house for ideas and opinions, or personal experiences, and that anyone using these ideas, opinions, or experiences, do so at their own discretion and risk. Therefore no responsibility or liability is expressed or implied and is without recourse against anyone.*



Its pretty darned exciting to see all of the new Thorp completions and first flight this year. To me that means the T-18 is still in the public eye and seen as a great design and great airplane to build and fly. I believe that we, the Thorp Community and the T-18 Mutual Aid Society are the reason that our little airplane remains a viable plans built airplane. We are the best advertisement that the T-18 needs to stay in the game. We all know that the other more pre-fabed kits will always rule the home builder, and we know that that's perfectly ok. Those potential builders and owners that are looking for the best will sooner or later look at the T-18, and we will be there to motivate and explain why it is the best. Its great to see these new airplanes .. let all pat ourselves on the back and keep it up.

I can tell you that it has motivated me once again and I am slowly but surely picking up the pace on my project. I have myself buried in flight instructing and have lost the spare time to build, but the time will change soon and I will have evening again to get to work. That's my plan and I am sticking to it.

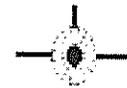
For those still building I can say that getting rides from time to time sure helps the motivation. I know what all you guys that know me are thinking ... yeah I know I have rode in just about every Thorp out there, but as you all know that's the best motivation in the world. I want to thanks each and everyone of you. Lately David Read has been the motivating influence to get me going again .. I get to fly his T-18 on a fairly regular basis and its really got me wound up again .. Thanks Dave.

Over the next several months I plan to do some updating on the T-18 website. I have heard some input from you guys that visit the site regularly and have noted some changes that need to happen. I have also recently experienced some hackers getting into the "Classifieds" page and really messing it up. Well that is all fixed for now but some update security is probably in order. Currently we are working on an update

to show you your T-18 Mutual Aid Society dues status and possibly the current e-mail address I have on file for you. For those of you that forget your "Members Only" entry password, I am planning to add a method for you to find out your password if you forget it. Your current e-mail address will be needed to do this, so it will be important that you verify that I have your current e-mail address on file and that you notify me of any e-mail address changes.

Hopefully the upcoming website changes will make it a bit more user friendly, and make it even more appealing to those potential Thorp builders and owners that explore the pages for the information they are seeking.

Enough for now..



### **Short Field Landings**

I am a new owner of one of these fine machines. I used to have a RV-8 and thought I was trading down, but have discovered that these Thorps are really fine flying airplanes. I have not, however, mastered the short field landing. What is the recommended speeds and procedures. Mine is 180 HP and fixed pitch. My manual lists the approach speed as 90mph, but this feels way too fast. Approaches at 80mph with 1 notch of flaps leaves plenty of flair energy. Comments?

Andy McCain

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I very seldom ever give advice on how to fly an airplane as I have found that every airplane is just a little different from all the others of the same make and model. However I have spent most of my flying career flying STOL aircraft in and out of jungle and high mountain airstrips. The best advice I can give to you is LEARN TO KNOW YOUR AIRCRAFT. Fly your aircraft (no matter what make and model) by the numbers until you are completely comfortable with it. Then take it to altitude and start from cruise keeping it straight and level. Slow it down to the published approach speed keeping

cont pg. 9

## Refinishing a Thorp

I've recently completed a cosmetic overhaul/restoration of a Thorp I acquired through Dave Alden of Baytown, TX about 7 months ago. The airplane was completed in 1973 by Mr. Paul Stanley of Galveston, TX, from the aircraft logs it looks like the airplane never ventured past its home base in Baytown for some 400 hrs. I was told that Paul flew it like a J3 cub "puttering around the pattern", fittingly it was painted yellow and black ala J3. Dave acquired it after Paul's passing in a rather depleted state and performed 90% of the hard work before deciding to sell it to me. Since this is an article on "painting" I'll spare the details of the entire restoration process but would be glad to do another write up on that as well.

When I started looking into painting the Thorp I picked up a few books on painting cars, found whatever I could online and pulled what I had left in the "archive" that is my brain from when Dad and I painted N51863 (Wendell Green's airplane now). I knew the airplane needed to be stripped down to bare metal, primed and painted. The existing paint had apparently been applied with a paint gun made out of a vacuum cleaner!! Without getting into details I'll just say that the builder was obviously a craftsman (the airframe is first class) but fell a bit short on his painting technique. Of course in his defense it was 1973 and I'm sure it looked a lot better back then. I knew I wanted to paint the airplane unassembled, one of my pet peeves being painted screws, rubber or pulling an inspection cover to reveal unpainted metal or chipped paint around the previously sealed areas when maintenance is required. Also, I simply didn't have the room for an assembled T-18 in my garage.

When reading current articles or books it seems almost unthinkable to;

- 1.) Paint anything without constructing a paint booth or renting a professional booth.
- 2.) Use anything but an HVLP (High Volume Low Pressure) Gun/System.

Neither of these was a possibility for me, my compressor did not have the output for an HVLP nor did I have the time or \$\$ to rent a booth or the space needed to construct a booth. I decided to "do it old school", with a plane old spray gun and draped, clean, well lit and ventilated 2 car garage (heck it was good enough for us back in 1980!) I did however spring for a Hobby Air forced air breathing system (health was something I wasn't going to play with). Without getting ahead of things I'm happy to report that you can still get great results with the old equipment as long as you follow some simple rules;

- 1.) Get the pressure right, this means that whatever the spec sheet calls for, that's what you need at the gun (a gauge/regulator at the gun was a necessity for me).
- 2.) Keep the gun perpendicular and at a constant distance to the surface being painted.
- 3.) Work at a consistent pace, think of yourself like a robot that has only one speed.
- 4.) If your painting in warm climates, paint when the air is calm and as cool (for me 4:00 am).
- 5.) Make sure the area is well lit, paint by looking at the reflection of the wet paint hitting the surface, not the coverage.
- 6.) Before any painting is done clean the paint area very well, and make sure it stays this way for the duration. (A lot of people like to hose down the floor to try and keep/capture any particles floating around I found this to be somewhat troublesome and messy. I think as long as the area is clean and kept that way you'll be fine). Also, drape the anything in your space you do not want overspray on.

I chose to go with PPG 1791 etch primer; followed by PPG DP90LF epoxy primer, then followed by PPG "Concept" Acrylic Urethane. I'll make a quick pitch for these products, they all made life really easy for me. I cannot say a bad thing about any of them. The etch primer stuck, the epoxy primer dried quickly, hard and provided excellent adhesion to the etch primer and for the top coat which went on smooth and was very hard to run. All in all great stuff!

I stripped the bird with standard paint stripper, followed by several weeks of "Scotchbriting". To clean each rivet I used a 2" orbital non metallic abrasive disk in a hand drill. This was the most "unfun" part of the project but I have to admit, it looked so good when I was done I was tempted to polish the whole thing and leave it unpainted! After a going over one final time with 400 wet/dry, AcrylicClean (PPG Product) and a tack rag I applied the etch primer and epoxy primer in a day, fuselage first, followed by center wing, outer wings and everything else, putting them outside in the Spring Houston, TX air to cure in the sun. As this was the primer coat I was not too concerned with bugs/dust as I knew I'd be sanding the whole thing again come topcoat time.

A few months passed working on the new panel, interior, engine installation and other misc items (understatement) before I started to tackle the top coat. I again went over the bird with 400 grit and then came up with a plan to actually paint the beast. One quick note, for the primer coats my garage door was open (as I mentioned I didn't really care about dust and bugs at that point) for the top coat I needed to try my best to avoid any foreign particle invasion as well as keep the area well ventilated (remember old school spray gun = lots of overspray). I came up with a pretty cheap and as it turned out effective plan. Three standard box fans with 20" X 20" air filters taped on the intake side. The boxes for these fans came in were disassembled and chained together to create a 20" X 140" barrier. In addition I purchased a 20" X 40" air filter to act as an incoming filter. I raised my garage door, then placed the three fans in one end (this is the outgoing air), then lowered the garage door on the fans, placed the air filter at the other end and the "box barrier" in between. This provided adequate airflow in the garage (as evidenced by the filters on the fans needing to be replaced every couple painting sessions).

Here's the sequence of the base coat (each step represents a day ... remember I have very limited space) before each of these steps I wiped the surface down the PPG Acrylic Clean (a degreaser/cleanser ... spirits and naphtha), then wiped it down again with a tack rag;

- 1.) Fuselage Underside, Tail gear assembly. I did this separate for a few reasons;
  - a. I wanted to paint the belly without the tail gear or main gear fairings on the plane (in order to get good coverage underneath the fairing to fuselage juncture as well as under the bolster plate).
  - b. I wanted the airplane "in the air" in order to have a decent view of the underside.
  - c. I needed my gun configured with the pickup facing aft, making it undesirable to paint anything where I was not shooting up (on my back).

Considering the combination of these I decided to make the belly its own operation.

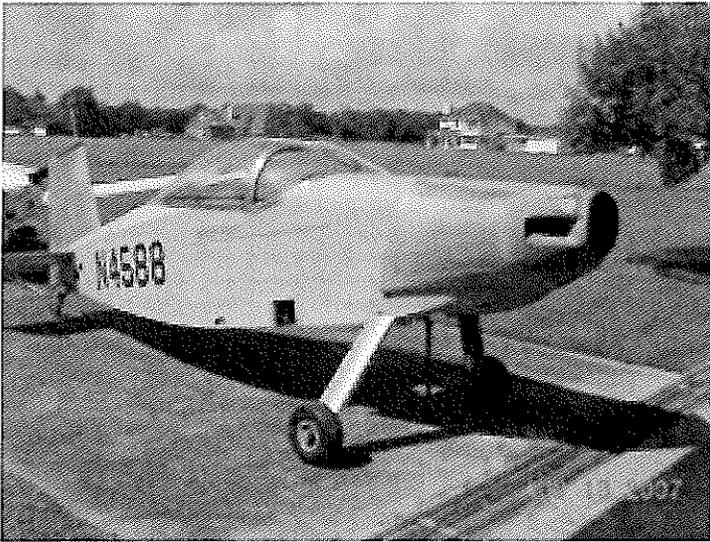
- 2.) Fuselage top side. Once the belly had dried, I installed the freshly painted tail spring and previously primed main gear fairings and painted the remainder with the belly masked off.
- 3.) Stabilizer, Tabs, Vertical Tail.
  - a. Horizontal tail was sitting horizontal on two saw horses and rotated as I applied coats 2 on the underside 3 on top.
  - b. Tabs were strung up hanging vertically with wire
  - c. Vertical Tail was sitting vertical on saw horses.
- 4.) Cowl, Rudder. Rudder was painted vertically.
- 5.) Center Wing. Painted similar to the stab, on two saw horses, I had a 1 X 2 bolted to the aft spar attach points to aid in this. I rotated it as I went with 2 coats under, 3 coats top.
- 6.) Outer Wings. Painted vertically. Same 2 coats underside 3 coats top.
- 7.) Canopy
- 8.) Wheel pants, misc inspection covers etc.

After each of these steps I went to work (or out to the airport to fly N22DS!) and let it sit undisturbed all day. While painting I wore a "Shoot Suit" available from paint supply shops (that's the brand name) and used the "Hobby Air" fresh air system with the main unit inside the house (attached garage) and the hose running 4

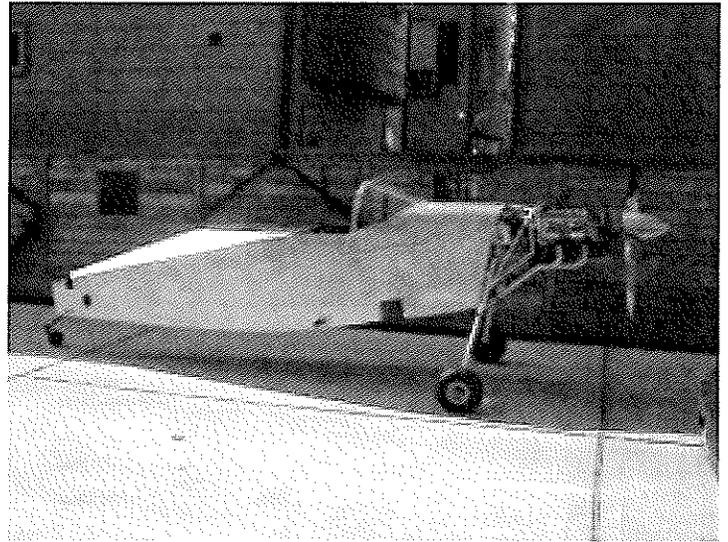
through the door. Once I was inside I sealed myself in the garage running pipe insulation around the cracked door and duct tape to seal it. This was to keep the bad air from making it into the house and thus into the fresh air system.

I'm not going to go into detail on the trim. But real quick, after laying out the stripes with fine line tape (don't skimp here, applied on a clean surface this stuff will make you look good!) and masking off the portions that were to remain white, I hit the areas to be painted with light "ScotchBriting". After painting I waited about an hour before removing the tape, I probably could have waited longer but the hour wait worked out with no ill effects.

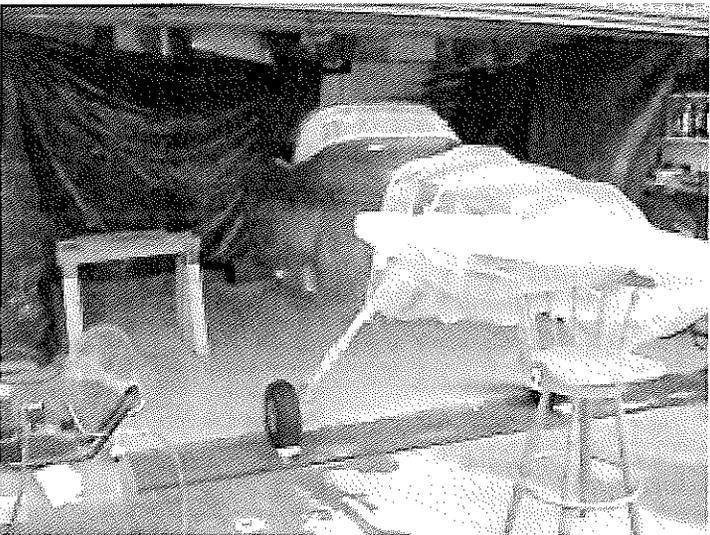
I hope this helps anyone approaching this point in the build process. As far as how it came out, I'm very proud of it and my pocketbook is not depleted the several \$1000 a professional job would have cost. If anyone is wondering what it looks like it's a carbon copy of N51863, white with two-tone blue.



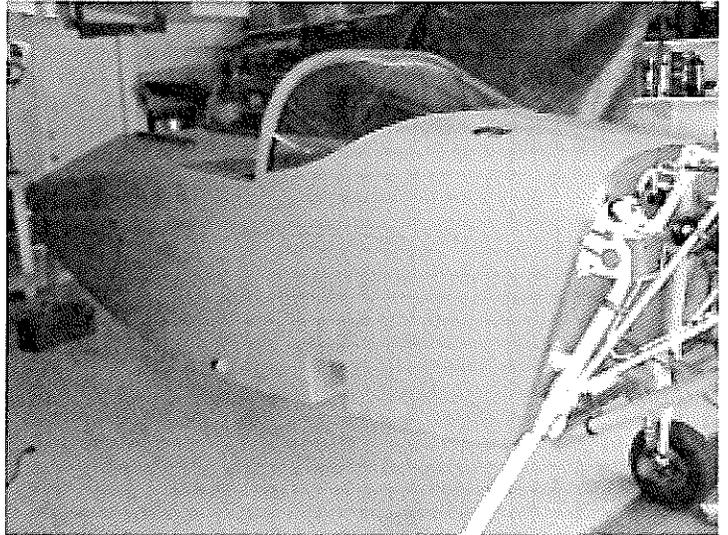
Here is the beginning



Here is the stripped fuselage



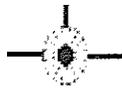
Wash Primed



Fuselage in primer

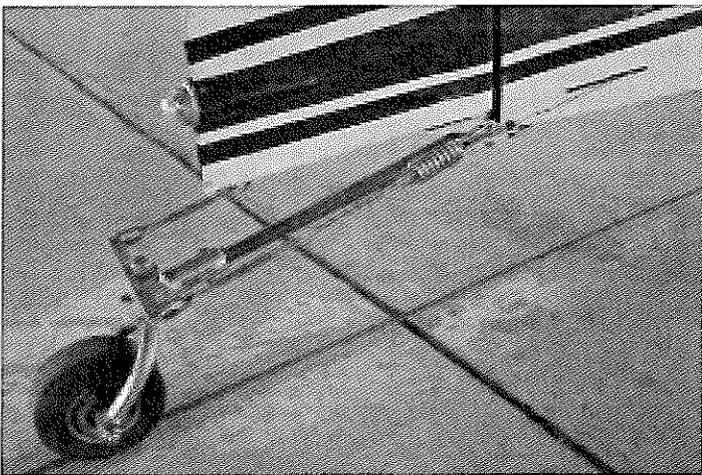


Lee Walton  
N22DS, N4588, N51863 (crew chief)



### More Tailwheel Stuff

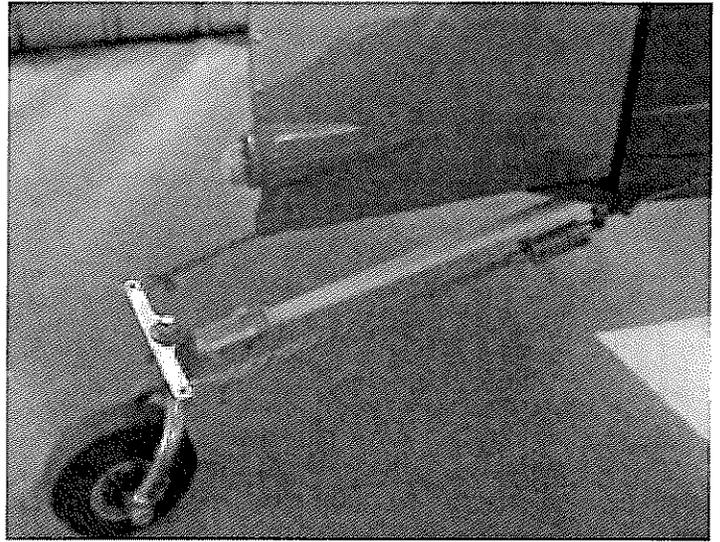
Managed to sneak away from the Pharaoh for a minute this morning and pop a pic of the tail wheel chains of love.



Fraser  
886Y  
Draper, UT

I finally took a picture of my tailwheel spring set up. I like the simplicity of it. Only using one clip on each side.

I do have the left chain one link longer than the right but that is only because the tailwheel seems to break faster with left rudder input. Next weekend I plan on disassembling the tailwheel and modify the ramps like Jim Grahn did. Then I will shorten the left chain and the springs will be tighter.



Matt Smith  
Des Moines, IA  
55RC

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### Turnbuckles on the Tailwheel Chains

Page 139 of the '08-'09 Spruce catalog shows turnbuckles. I used a pair of AN140-16S in series with compression springs (P/N 06-15700 on page 250) and chain links.

Too adjust them, put the a/c on a flat surface. With the rudder centered, push the a/c forward and adjust the turnbuckles so the a/c rolls straight. This can't be done using links.

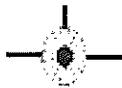
Dave Eby

Aviation Products Tailwheel bearings

There are some direct replacement precision bearings with the flange: I bought a pair for about \$20 at my local True Value hardware store. Aircraft Spruce sells the same bearing; Catalog # 06-00060 for \$11.95 each: you will need two for the tailwheel.

The original bearings are very noisy but they seem to work OK. I have been flying Aircraft Products tailwheels on both my planes, with both original and upgraded bearings. I prefer the precision bearings just so I do not have to listen to the awful noise coming from the tail on roll-out. Otherwise, I have had no problems with the tailwheels.

Tom Kerns



Engine Baffles

I now have well over 50 hrs on the new T-18. You may recall that the engine has new ECI cylinders and had not been run in at all. I have been concerned with high CHT on the right rear cylinder since the initial flight. The temps have come down a lot as the cylinders break in, but the right rear continues to be 40 to 60 degrees hotter than the others.

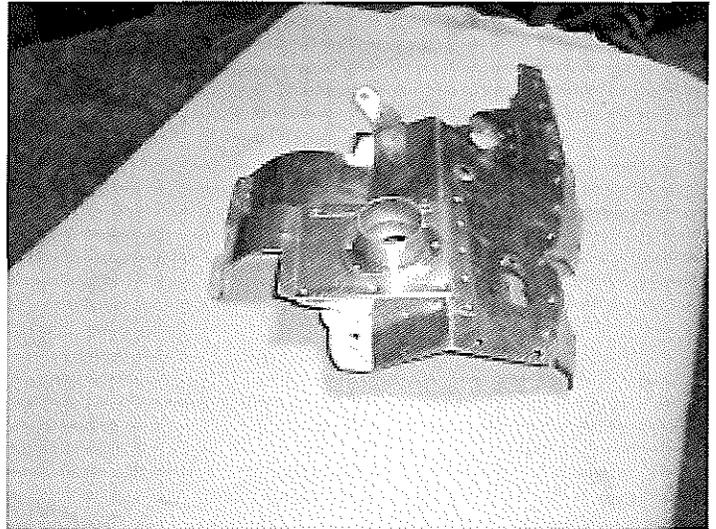
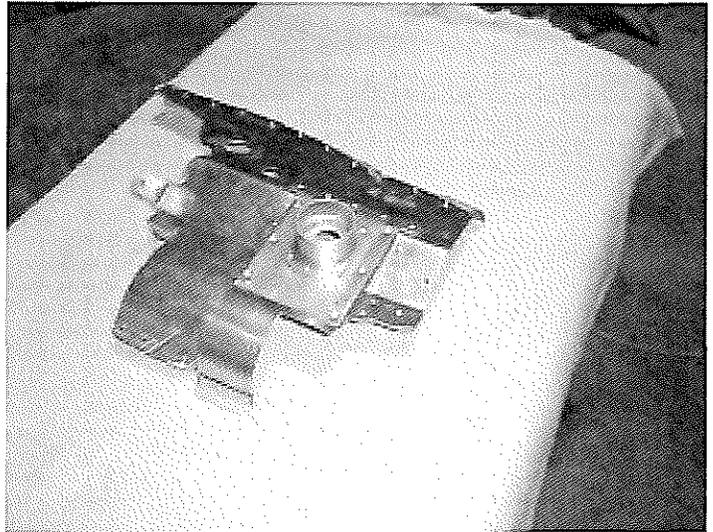
I used the baffle kit that Van sells and it is a good one, but I think it is poorly designed at the right rear cylinder. I closely studied my old baffles on the yellow Thorp which has always had excellent and even CHTs.

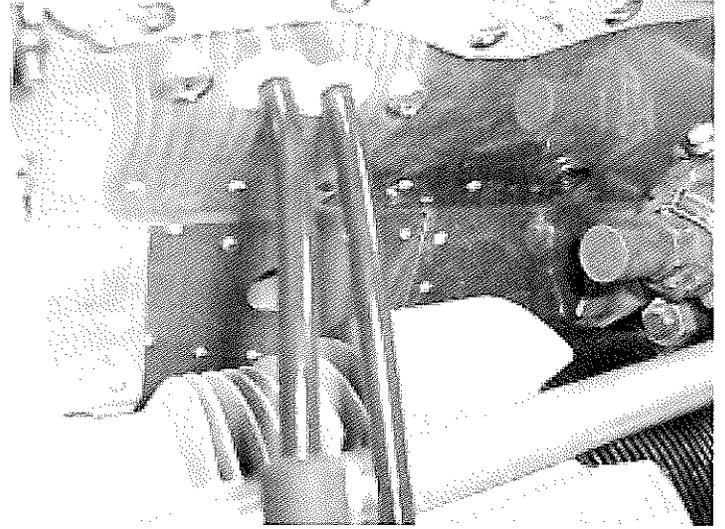
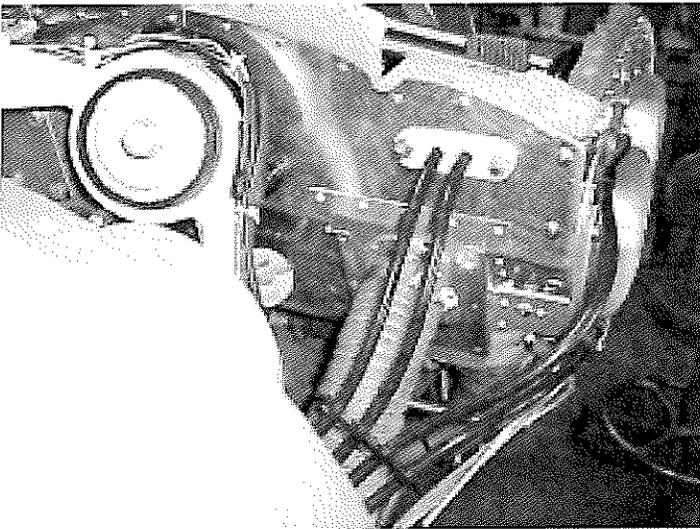
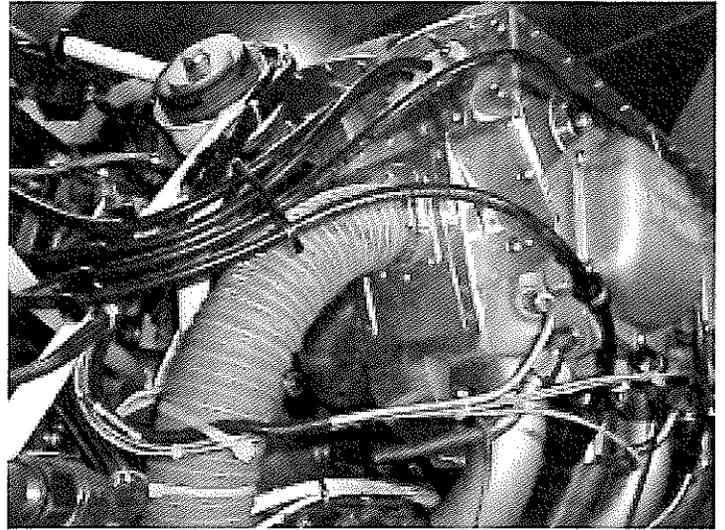
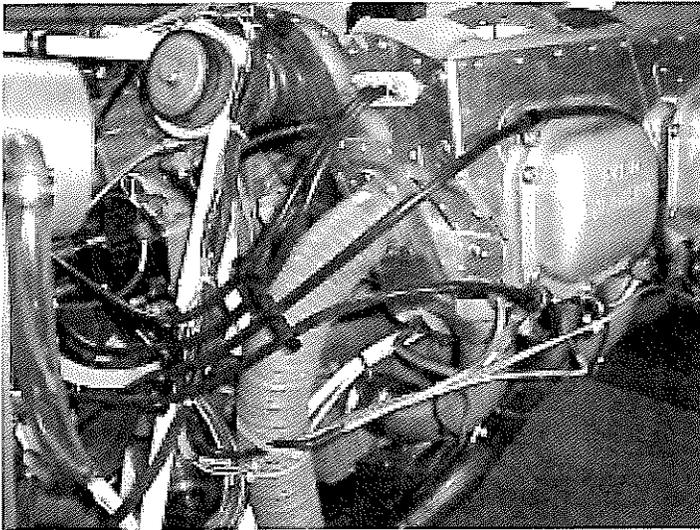
I have modified the right rear baffle to more closely resemble the way it was done on the Mooney M-20C and the old plane.

The way Van makes the baffle, it lays flat up against the right rear cyl fins where they are milled off nearly flush. That prevents cooling air from flowing down into the deeper fins on the bottom of the cylinder.

While you are working on your engine installation, you may want to take a look at this if you are using Vans baffle kit.

Here are some photos of how I modified mine.



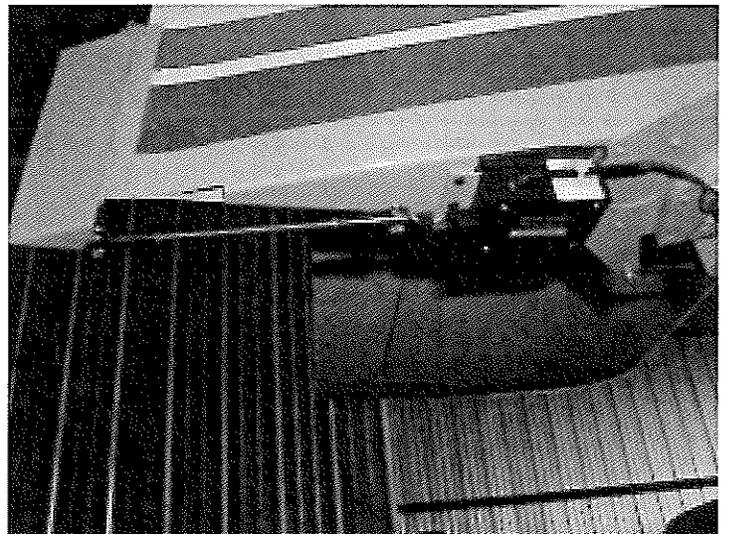


Gary Green

**Electric Rudder Trim**

I have installed electric rudder trim using a RayAllen servo and linkage, and a tab of my design. I have included a picture here. The linkage is set to tab neutral with the servo at the midway point in it's travel, so it is effective in either direction. Works great, no more resting my foot on the rudder to keep the ball in the center.

Bill Beswick N54WB



it straight and level and maintaining altitude. Note the rpm and mfp that it takes to do this. Practice, practice, practice. Make a series of 15 degree bank turns still holding altitude. When you can do this comfortably reduce the airspeed by 5 mph and repeat the routine. After you feel comfortable reduce the airspeed another 5mph and keep this up until you know how the aircraft flies at each airspeed and what rpm and mfp is used. In each one of the configurations you will come to the stall speed. Note the indicated airspeed that the stall happens. If you have practiced these routines at altitude you will know how the aircraft will handle at any given airspeed in the pattern. In the pattern start at the published approach speeds and work down from there. Never go slower until you are comfortable with what you have been doing. The Thorp will not land as slow as the RV so do not try using the RV's speeds. I have flown the RV's and like them very much but the money that you have to put into them the Thorp can not be matched. Short field has a far different meaning for each kind of aircraft, 300 feet for one and 3000 feet for another. Know the envelop of your airplane, fly within it and live to a ripe old age. Thorps, you have to LOVE them.

Jay Clinkingbeard  
N1051Q

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I bought my T-18 in 1983, and when I first got it, I had trouble getting it down and stopped in a reasonable distance. It seemed to me also that I was going a lot faster than the clock said I was. I decided to rig up an alternate static source inside the cockpit and see if there was any noticeable difference. Turns out the airspeed indicator was 10 mph slow. The 80 mph approach speed I was using was really 90 mph, and it would float forever in ground effect. The culprit was the pitot-static head, which had been liberated from a Piper Cherokee. There are two types of these units, one with a shallow angle on the bottom where the static port is (used on the Arrows), and another with a steeper angle, which was used on the 140s. My airplane has the one from the 140 with the steep angle. On the back of both types is a small bleed hole which is connected to the static air passage in the head. Apparently the 140 head was holding too much ram air pressure on the static side, causing the airspeed to read

low. I fixed it by drilling out the bleed hole one drill size at a time until I got no difference between the fixed and alternate static ports. It was amazing how much shorter I could land the airplane! Solo I fly final at 80 mph and about 70 over the fence, with plenty of reserve for the flare. However, like the others said, every T-18 is different and may require a different speed. My airplane has the standard fuselage with the folding wing and LDS-2 airfoil. Might want to check your airspeed calibration-it sure helped me.

Doug Frantz  
N58K

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David Read and I just practiced some short field landing in Dave's airplane 718DR. There is a fly in community a few miles from my house and I have thought about buying property and building a new home there. This runway is 2100 feet long, paved, and has trees at both ends. The trees on the south end are not right on the end of the runway but are close enough to get your attention. The north end has a large hill a bit off the end with trees completely covering it. Dave was flying and we approached the landing over the hill first landing to the south. Dave approached at about 80 MPH with 30 degrees of flap and enough power to keep things stabilized. This put us down right on the end, and we used up about 75 percent in getting it shut down and stopped. We taxied to each end of the runway and look at the departure path. IT was a hot humid day and the density altitude was up there pretty good. That hill to the north looked ominous, so we decided to depart to the south. Dave's T-18 has 150 HP and an fixed pitch prop .. we got out ok but those trees began looking really big on climb out. I am sure a 180 HP and constant speed prop would have made it a non event. We made about three landing approaching from both directions, each time using the same setup on power, speed and flaps. The airplane felt solid and we went right in with no problems.

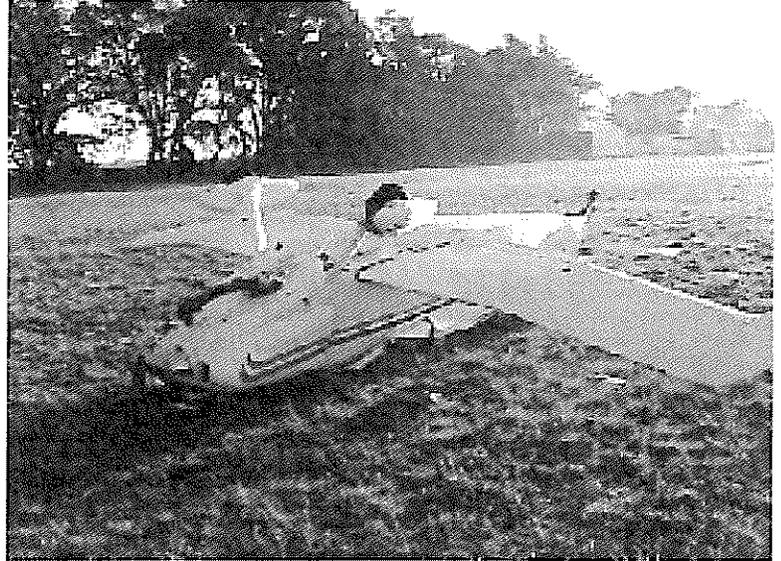
I decided that 2100 feet on a hot day with a 150 HP T-18 is probably not something I would want to deal with on a daily basis, however it was very doable and proves that the Thorp can indeed be a reasonable short field performer.

Roy Farris

**Accident Woe's or Why Not To Call 911**

It wasn't a dark and stormy night as I lined up for a landing at my home field, a lighted turf runway, just as I had done dozens of times before. But instead of another landing, my passenger and I ended upside down near the end of the runway hanging in our straps with our faces in the grass. Among other factors, the stiff geared Thorp bounced when I touched down and I hit the brakes too hard upon next contact, catching the prop, coming to a stop with just enough momentum to go over on its back. Not Good!! There is no denying that I screwed up the landing, but fellow aviators that was just the start of a nightmare that I still can't fully comprehend.

Fully expecting to be able to crawl out after we flipped, that possibility vanished with the collapse of the canopy rollbar as we contacted the ground inverted. Instead the tail absorbed the full impact and left us with our heads in the dirt, hanging in our straps with a dripping fuel tank in our laps. Unable to move, I directed my cohort to turn off the mags, fuel and master. Trapped in the aircraft with no help available and a fire potential, I got my passenger to find a cell phone and call 911. That decision I found I would soon regret. A neighbor arrived as we were waiting and attempted to raise the tail, but she was unable and we sent her to get more neighbors to help. The cavalry arrived in minutes, and fully expecting all those rescue personnel to raise the tail and let us crawl out, we released our seatbelts and harnesses, another bad move. Upon arrival, the first responders asked if we were injured. I replied "No, but we needed to get out since the risk of fire was high with the hot engine and the leaking fuel tank". The 911 personnel responded that they were not authorized to move the aircraft or try to rescue us, and had to wait for the "right equipment" to arrive. My neighbors then attempted to pick up the tail, but the fire chief and the Kentucky Highway Patrol officers prevented them from moving the aircraft. (The aircraft weighs less than 1200 pounds empty.) The "rescuers" moved back about fifty feet in case of a fire and a neighbor asked the fire chief to at least move a fire extinguisher next to the aircraft in the event of a fire. He did and then moved back to a safe distance until the right equipment arrived. After about fifty minutes lying there on our heads with aviation gas dripping on us, the right equipment arrived. You Got It --- The JAWS OF LIFE!! I protested that there was a possibility of a spark when cutting wires or metal, but they cut the sides out anyway, causing significant damage. Once out we dusted ourselves off, we walked to the tail and lifted it demonstrating how simple and rapid extraction could have been using common sense. Of course we had to sign a release in order not to be taken to the hospital via ground or air via EMT. I then left some one hundred and fifty people who had gathered (including TV reporters from twenty five miles away) and walked to my house, located on the airport.



Wait, there's more -- it gets worse! Back in my home, ten minutes later, I was washing the dirt out of my hair and the phone rang. It was the FAA, NTSB, Memphis Center, and FEMA on a conference call, demanding to know what happened. FEMA ????. I relayed that no one was injured, I really wasn't keen to talk about what just happened since I had just crawled out of the wreckage. I hung up. About five minutes later, three Kentucky State Troopers appeared at my front door. I opened the door, they brushed me aside and walked into my kitchen. No "how are you" or "can we come in", just walked into my home with no request, no reason given. Once inside, the lead trooper dialed his cell phone and shoved it in my face. Guess Who??? The FAA, NTSB, Memphis Center and FEMA ?? demanding to know what happened. I told them that my rights were being violated, since I was not required to comment on an incident, but since three troopers with guns were making me talk, I had

no choice. I again relayed that no one was injured, if that mattered, apologized for being rather short, but I was still a little shook up, but still was not commenting on what happened. NTSB then threatened that I had only ten days to make a formal report (or else). I informed them that I was aware and still had over nine days to report. I assured everyone that when the investigator arrived, I would, and did, fully cooperate with the proceedings. I ended the call. Not good enough for the troopers. The lead trooper started asking questions about my flight qualifications - night hours, cross country hours, total flight hours, number of night landings, was I drinking. He obviously had no idea of the information gathered and although there was nowhere on his investigation form to enter the info, he insisted this was necessary. It was. The guy with the gun can ask anything he wants, since he makes the rules. I was drinking after this ordeal. I didn't get much sleep that night, thinking about the crash and burn scene in the Great Waldo Pepper. Although its unlikely that any reader of my ordeal is likely to bend an airplane, I would like to relate several lessons I learned during my tour of post-mishap bureaucracy.

You don't have to initially divulge any information about your actions in an incident, (even with a stare trooper pressuring you) and I recommend AOPA legal coverage. They offered expert advice and followup which allows you to not make critical errors during a very trying process. However, once the dust has settled, the incident has been investigated, don't try to BS the FAA. They are professional, experienced aviators who can quickly access what happened, but are not out to bust you. They have a process that must be adhered to, but my experience was entirely cooperative, from the investigation to the reexamination. My compliments to both Louisville and Nashville FSDO's. However, I can't say the same for the NTSB, since they never acknowledged receipt or followup to my narrative of the mishap, and published a totally inaccurate account of the event.

Are you current for flight operations? Current flight review, current medical, instrument currency, night landing for carrying passengers? Is your logbook up to speed, proper endorsements foe currency? Is the aircraft certified for the flight operation involved? Is it in annual? Certified for night flight? Transponder current? Instrument static system check current? AROW documents in the aircraft? STC's affecting flight operations in the aircraft? If Expermental, are incident operations allowed in the initial (certification) operating limitations (can it be flown at night, most can't unless certified by an A&P?). Are the operating limitations for initial certification in the aircraft (Must be onboard during flight)?

Is your insurance current and in effect, or expired? The insurance company is also interested in the aircraft currency, and your currency. Its amazing how many pilots let their medical or flight review just barely expire and go flying. It's in the contract, your and your aircraft must be current, or no claim. I found the insurance company to be fully cooperative, but I know a local pilot who was left holding the bag because his flight review had expired.

Expermental aircraft present unique challenges. MY roll bar collapsed because of the weak welds. It looked crashworthy, it wasn't damaged in the crash, but almost took my head off as it broke loose. Do you preflight for other than ordinary items? Do you unlock your canopy on takeoff and landings? You probably won't be able to open it if your knocked out or immobilized in a flip over, nor will someone trying to rescue you be able to open it if it is locked. Got shoulder harnesses? They work!!

If required to take a reexamination flight, contact the examiner directly to define the parameters of the flight and the equipment required. I needed a tailwheel aircraft and demonstrate takeoff and landings. Obtain the examiners weight, and calculate a weight and balance for the flight. Double check the ARROW items, check your logs for currency and STC's. Tab annuals for quick reference by the examiner. I went through three aircraft because of exceeding weight limits with two people on board, transponder out of currency, no STC's or complete records on board. Don't show up without proper documented pilot and aircraft logs. You just put the examiner in an awkward spot and you'll be sent home. On the flight, stick to the flight plan, keep it simple. The examiner just wants you to demonstrate the maneuvers he asked for.

I won't deny that I still think about the lack of common sense and what I feel was a gross violation of my civil rights by the state police. However, with the help of the local regional airport manager, his fire/crash experts and a FAA post crash expert, we are scheduling a hands on seminar for local fire fighters, EMT and the local and state police. We plan to record the session and make it available the EAA and AOPA and for other

local first responders. America is spring loaded to call 911, thinking that the first responders are experts in all scenarios of rescue. I found that very untrue in Aviation mishaps. When you call 911, you turn your fate and control over to the "rescuers". Unless they have experienced an aviation event, your probably are much more knowledgeable than the local fire brigade. Obviously, if seriously injured, 911 is probably the best call. In a minor incident, however, consider the process you start when you make that call.

Keep the shiny side up.



### Winter and Cabin Heat

The pitfall of owning a Texas built airplane is it's lack of a heater. Another owner of a Utah Thorp refuses to fly with me because the interior cockpit temp can be known by looking at the OAT. I am originally from Canada "eh", so to me, cold is no biggy, however "mid life mistress" is offended and now demands a heater. Have any of you ever used that DC heater in A/C Spruces catalogue? It looks pretty small and simple and could possibly mount up in the middle between pilot and passenger legs. Any pros and cons, vs the heat muff/valve and duct route? - Thanks for any opinion.

Freezer  
886Y

I considered the use of an electric heater and in fact purchased a small 12 volt model at SEMA a couple years ago from the manufacturer who had a display there. In testing it, I found it did not put out sufficient heat to make any difference in my Thorp. I recently purchased a heat muff from Van's on line catalog and mounted it on the opposite side of the exhaust thus making the ducting runs easier to deal with, though somewhat longer. I find that it puts out plenty of heat. Going back to the electric ones, I think one would need a rather high capacity unit to make meaningful BTU's and the price of that model when I looked at in Air Craft Spruce was much higher than using the standard exhaust heater. I did purchase a CO detector

that reads down to 1 PPM so that I can test my cabin for that deadly gas.

Those are my thoughts, for what they are worth.

Tom Hunter

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I'm convinced that the cold air comes from two sources. One is the air coming from the back fuselage, but may not be the major source. That appears to be from the flap tube openings which are arc shaped. I glued some rigid foam to the flap tube to help some. But I'm assuming the air pressure from outside pushes that in a bit which allows leakage. The suggestion by one Thorper was to put a thin rubber or plastic diaphragm (engine chafing strip might be too thick) on the outside of the fuselage with a slit for the tube to move through. I looked at that and it would require some Dremel work to provide clearance, so it hasn't been done. The muff that RS put on when building works reasonably well down to freezing level. However, down in the low 20 degree F, it isn't up to overcoming the cold draft from the rear. Some cold comes from the stick boot if not on tight. Paul MacMichael gave me some round foam wrap around (for pipe insulation) to stick below the seat at the front and that helped considerably. Paul put a metal shield down behind his seats to shut off most of the draft from the rear.

Tom Worth - Tacoma, WA

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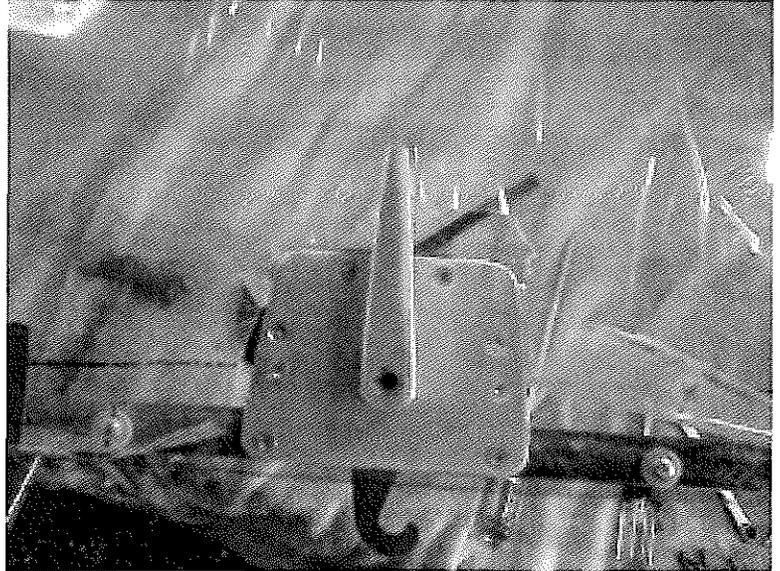
Realize to that if the cabin IE (canopy) is sealed real good any outside air will not have a path into the aircraft. I know this to be true as my canopy is horribly loose and it even sucks my shirt sleeve out. I know if it were sealed more the air coming in from the flap tube holes would be a lot less. But I agree its the air from behind that's a killer. And its awful hard to bundle up in a stock cockpit with heavy coats and still have free movement. I am doing a complete rebuild of my bird soon and will definitely redo the canopy as I see this as a major source of cold air leakage.

Skeet Wyman

**CONSTRUCTION AND INSTALLATION OF THE T-18 CANOPY LATCH**

Submitted by: Richard Brazell

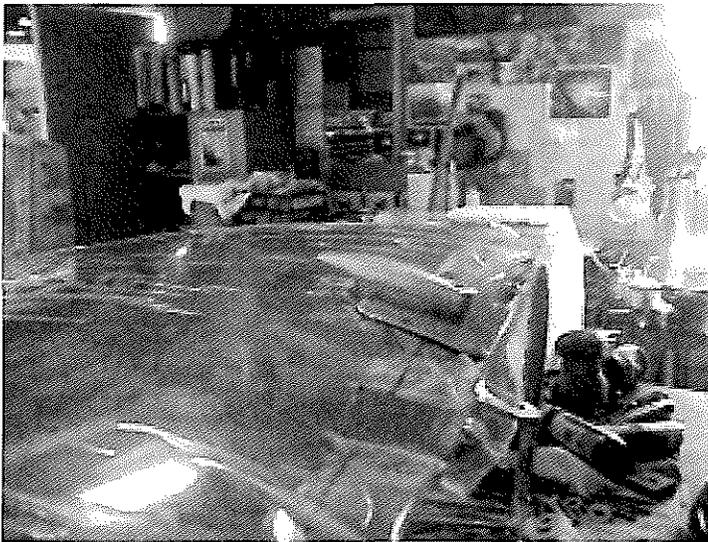
When I first looked at the drawings for the T-18 canopy latch, it seemed that it was beyond my paygrade to construct such a beast. So I put that set of drawings aside and began trying to find a "ready made" latch that would satisfy my requirements for canopy latch that would close and open from both the inside and outside. The outside requirement more for a safety concern..."Emergency Egress." After many days and hours of searching for such a latch (even looking at other homebuilt sites), it became apparent that the best solution was to try and construct the Thorp latch. The end result was that making the latch, even with all it's seemingly intricate bends on P/N 875 (latch body) was not all that difficult. The flat layout (P/N 875) was copied and all the bend lines and hole placements were traced onto the .06 "mild" steel sheet. The traced sheet was placed in a vise and heated with an acetylene torch and "wacked" gently with a hammer to the shapes shown on drawing 867 (Body-Canopy Latch). I think the key here to bending the correct angles was the accurate tracing of the initial bend lines. Even with these accurate lines the length of the "legs" came up a little short. The legs meaning those 3 points on the body that attach to the Plexiglas with screws. It was actually better to come up "short" on these legs rather than be "long." I just took a piece of scrap canopy that had the same curvature, glued some 1/32nd" rubber chafe material to each side of the "shim" and when it was screwed into place it filled the gap nicely!



See photo of the shim with rubber material. Both handles were made according to the plans with alum. bar. No special machining here...just trace the outline onto the bar. Drill the holes first, then cut the ruff shape out on the bandsaw. Using a disc sander and 3M wheel yielded pretty good results. I did cut down the top handle a bit and added a little "curve" to it to blend better with the top of the canopy. For both pins I did not use "drill rod.", but instead used steel bar "bushing material" from Spruce. I did add (see pic) a nylon "bearing" to the latch body so the canopy pin could ride smoothly in the slot. Both the hook (#868) and the plate (#876) were traced and made according to the drawing. The "stud" (#872) for the canopy latch was not made from a solid piece of stock, but two pieces cut to size using bar stock with the same wall thickness. The "stud" will be fitted to the windshield frame after the WX stripping is in place so as to get a nice tight seal. Attaching the assy. to the canopy frame and Plexiglas. The drawings do not give a "hole size" to drill in the Plexiglas for the screw attachment so I used 1/4in holes. The drawings do not indicate any type of a "seal", other than the canopy seal, so I used 1/16in rubber and made a gasket to go under the cover plate (#876). I made undersize holes in the rubber (using a gasket hole punch for the for the center hole and a "Whitney Punch" for the screw holes). The under size holes will hopefully seal the screws and the center opening for the latch body (see pic of gasket). They were nice and snug during the fit of the latch to the canopy. Maybe a little dab of some "tube" sealant might also be a good idea around the screws during assy. Attaching the latch body to the frame was not done according to the plans. The plans show "rivets." The three rivets on the bottom of the body attaching to the frame were doable, however because the length of the bends did not come out as planned the other two attachment points that call for rivets would not work. So instead I used -6 rivnuts for all 5 attachment points and it works just fine...in fact it made mounting the whole thing easier as you could tighten up each screw a little at a time to help with the overall alignment. One other thing I did add that is not on the plans is a small nylon "bushing" between the #876 plate and the top handle. I may redo the top handle and not drill thru the entire piece as called out for on the plans...

CONSTRUCTION AND INSTALLATION OF THE T-18 CANOPY LATCH, cont.

or I may just get a fancy plug and put in the hole. One other mod that may be done is to trim down the inside handle...I think it is stronger than the aft door hatch handle on a B-17! A few OBTW's I learned attaching this thing. Most of you remember the problem I had with my first canopy and the "Crack from Hell!" After working with this new canopy I firmly believe the problems I had were from "Age Brittleness" of the Plexiglas. This "new" canopy is much more flexible and drills a whole lot easier. I enclosed a pic of my last X-Mas gift...a B & D 7 volt lit. battery drill. It has two speeds 195/625 RPM. The 195 setting was perfect for drilling the holes. I used a "dull" #40 drill to make pilot holes and a "dull" UniBit for the final holes. I purchased a new Unibit to make the holes, but after trying it out on scrap Plexiglas I found it tended to grab the glass and the "dull" one cut/melted it's way thru making a nice smooth hole. AC43.13B recommends using the UniBit to drill Plexiglas. All in all it started out as looking like a Pit Bull, but ended up being a lap dog. Total time to make all the parts I think was about 2 days. If anyone has questions please feel free to email me at: [rx115@gte.net](mailto:rx115@gte.net)

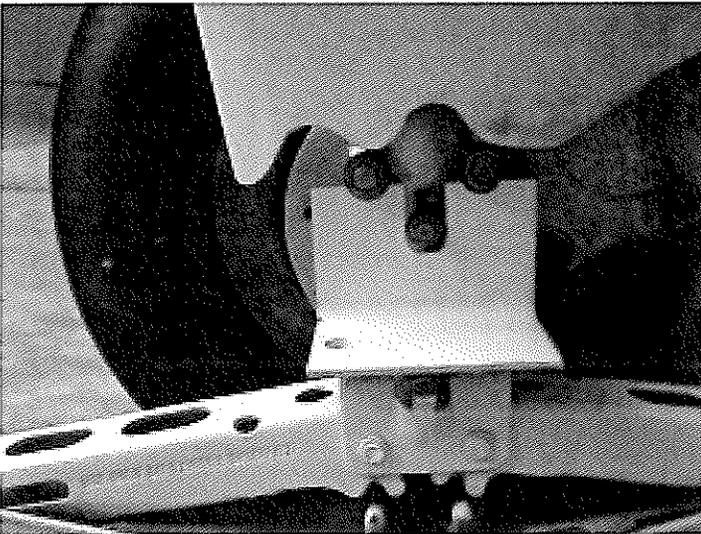
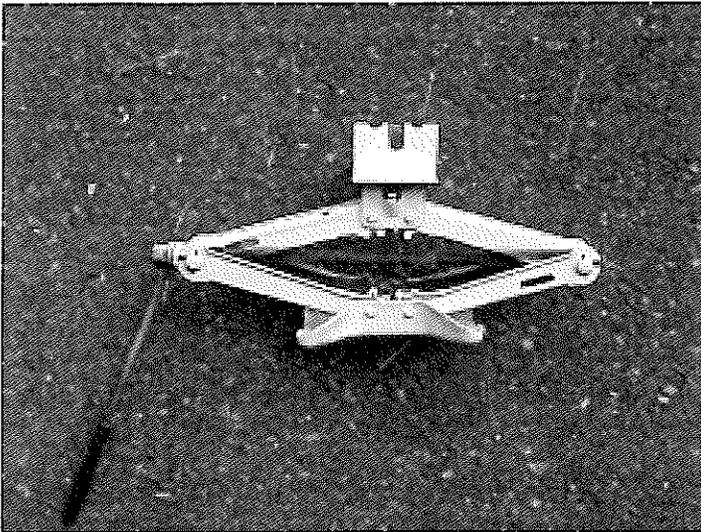


N181MS ~ Mike Stewart ~ Snellville, Ga

## HOW TO JACK UP A T-18

Submitted by: Paul Macmichael

1. Go out and buy a import car scissor jack, or take the one out of your wifes car.
2. Find a piece of 1/8 in steel plate about 3in x 2in.
3. Cut slots in plate as depicted, weld vertically to top center of jack.
4. After chocking plane, place jack as shown with a small 3/4in thick under one end to accommodate angle.
5. Jack up plane, place a small block under axle for support as needed for safety



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### Winter and Cabin Heat, cont.

My old Thorp did not have a heater either. The new one does. On the old plane, I did install small (about 1/4" diameter holes) slide valves on the left and right sides of the firewall just ahead of the outboard rudder pedals. I can control them with bowden cables and

Newsletter No. 140

they permit warm engine compartment air in around your feet. They are adequate for flying in moderate temperatures during the winter, but if it is colder than about 40 degrees you have to bundle up.

I installed a heat muff made by John Forsling and one of the stainless cabin heat valves on the new plane. It works great. The heat muff and valve are made to use 2" hoses. John Forsling told me to not make a 2" hole in the back baffle to feed the muff intake. A smaller hole lets less air into the muff, slows the velocity and permits the air to absorb more heat from the muff. I used about a 1" hole and it seems to be just about right. I have been doing some of my test flights with an OAT around freezing and the cabin heat system gives out plenty of heat.

It would be tough to retro-fit the system to the old plane without removing the fuel tank to gain access to both sides of the firewall. That is a major job.

Gary Green

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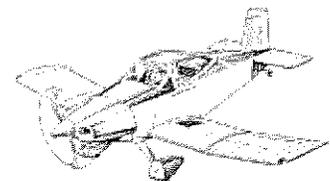
When I had my mild steel exhaust system, the heater would really run you out, but after installing the stainless exhaust, I had very little heat. I ended up getting a stainless steel scouring pad, stretching it out and putting it inside my heat muff to slow down the airflow. Now it works pretty well. I guess the old thicker steel pipes held alot more heat than the stainless. I agree with Gary G. that the smaller hole would also slow the air some so it can pick-up a little more heat off the pipe. Another way I have seen for the really cold climates, is to double up the heat muffs, one per side, and duct the air in series before it enters the cabin.

Dean Houseman  
N509CB  
Cape Girardeau,MO

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Here is a good source of high quality heat muffs.  
<http://www.robbinswings.com>

Wally Hunt



## A Thorp Tale

As a young boy, growing up in Colorado and Montana, I believe I always knew that I would someday build an airplane. My father, Ralph, was a pilot, and old photos of his SR-8 Stinson (whose tail-feathers were recovered in our apartment in Chicago), and of me and my little sister climbing into his Howard DGA-15, attest to what surely sparked my early love of airplanes and flying. Although my dad did very little flying and never owned another airplane after my very early years, the seed was planted. My first homebuilt "airplane" was a coat hanger, covered with a piece of old sheet and "doped" with some old silver paint. Like so many other pilots, I grew up building and flying models – hand-launched gliders, rubber-band powered, control-line, free flight, and eventually radio-controlled.

In the early 1970's, after marrying my sweetheart in Montana, Vicki, and learning to fly, I purchased a set of plans for the BD-4 and started collecting tools. I joined the EAA and Mile-High Chapter 43 in Denver, in 1974, where I have served as President, Secretary, and in other positions. Then one day, while looking through a magazine about homebuilt aircraft, a picture of a Thorp T-18 caught my eye. It was love at first sight, and further research into the design and the accomplishments of John Thorp convinced me that this was it – I wanted to build this airplane. I sold my Bede plans. Our first child, Matt, was born and 6 months old when I purchased the plans set from John in 1975. Being an engineer myself, I was very impressed when they arrived, neatly folded in a box – 219 beautiful blue line drawings. As the project progressed, I was even more impressed with the lack of discrepancies, dimensional errors, etc. It was obvious that John was an extremely competent and careful designer. I had never flown nor had I even seen a T-18 in person, but I was on my way, confident I had made the right choice.

I was so sure, at the time, that I would accomplish this monumental project in just a couple of years. Little did I know that 15 years would pass before it would leave the ground on its first test flight! Eventually, 2 years came and went, our daughter Kathleen was born, and it dawned on me that maybe I "bit off more than I could chew". I had purchased a lot of pre-made parts from vendors, and gradually realized that many of them did not meet my often too-critical standards. Sometimes "matched holes" didn't match, etc. I ended up wasting some material and selling much of what I had to other builders around the country. It was a real low point in the project, and time to regroup and start making everything on the airplane that I could myself. I want to say that although it isn't unusual for it to take 15 or more years to complete an airplane like a T-18, the fact is that they have been completed in as little as 6 months by experienced and dedicated individuals. When I finally got my first ride in a T-18, in 1977 at Oshkosh from B.C. Roemer in N18TT, it really gave me a much needed boost!

I'm sure that many builders, like me, start off thinking they are going to try to build the "perfect" example of the type. For me, that was an unrealistic dream. Like many T-18 builders, I had to build a lot "form-blocks" out of wood and other materials for the ribs, fuselage frames, firewall, etc., before bending metal. Today's "kit" builders are very lucky. How many have fabricated their own tail spring, for instance, only to find it very difficult to get someone to heat-treat it? I could tell many stories like that. I finally learned to keep my mouth shut when it was tempting to say "this is for an airplane I'm building". Times sure have changed. Many new skills were learned, including a lot of sheet metal fabrication techniques needed to build a metal airplane, hand stretch-forming of aluminum, etc. By the way, I was entirely too picky about details in the beginning, and finally realized that if I was ever going to fly this bird, I had to "lighten-up." I would make a part, like a rib, and it would be perfectly fine, except perhaps for some minor cosmetic flaw. I would then proceed to make another, and sometimes even a third. More times than not, the first would be the best.

It was often not easy for me to find the proper parts and materials. Homebuilding is big business today, but, of course, it wasn't always so. And, again, you'd better not mention that the piece of aluminum you wanted to purchase at the local metal supplier was for an airplane, or frequently they wouldn't sell it to you. I did buy a lot of aluminum from Airparts in Kansas City, and they were wonderful folks.

The engine for my bird was purchased (a brand-new 160 hp Lycoming) over 10 years before it was finally started-up for the first time, for approximately \$5400. What a fortune that was at the time! It seems like a bar-

gain now. I never “pickled” it for long-term storage, and was a little worried about that (I never thought it would be sitting for so long), but between desiccant plugs and our dry Colorado climate, it did just fine. It has been a wonderful, strong engine, and still uses only about a quart of oil between 25 hour changes, with over 1000 hours total time.

I researched and built my own chromic acid anodizing set-up. Every aluminum part that would fit into the small tank was anodized, and all others were alodined inside and out before assembly. I designed and machined my own spin-on oil filter adapter, oil separator, and many other special parts. I also painted the airplane myself in our garage, using PPG Durathane, a homemade fresh-air breathing system and a homemade filtered ventilation system. Every paint flaw known to man can be found somewhere on my Thorp, but all in all it turned out ok, and it still looks good to me 17 years later.

I had a lot of help along the way. Vicki “bucked” a lot of rivets and was always there and always encouraging, although I’m sure she wondered if I’d ever truly finish it. My best friend, Dean Cochran, helped in more ways than I can tell. Our T-18s have shared the same hangar at Jeffco (now Rocky Mountain Metropolitan) Airport, in the Denver area, for over 16 years. Many other friends helped in many ways – that is the wonderful thing about homebuilders and airplane people in general. And finally, John Thorp was available to answer questions in his very thoughtful and deliberate way. I treasure the letters I received from him during the early stages of building.

There were frequent “work-stoppages.” Once, while making cardboard patterns and form-blocks for the engine baffling, I became so frustrated trying to make parts fit correctly that I walked away, and couldn’t force myself to get started again for over 2 years! Every time I’d walk past the airplane, which was in the garage at the time, I’d feel guilty. It was extremely hard, but I finally got with it again and finished the baffling in less than a week. I’m proud of that baffling. My best advice to builders is to avoid those extended layoffs. Do some little thing every day, or at least every week if you can, even if it’s just planning exactly what you’re going to do next. Avoid television like the plague – it’s a time killer. Also, for me, it helped to avoid thinking about the whole big project and everything that was going to have to be done, and just thinking about and concentrating on one particular thing at a time, to completion if possible. Then, all of a sudden, one day, everything is done and you have a flying machine!

The big day finally arrived in October of 1990. I had been fortunate to get a couple of hours of left-seat time in my buddy Dean’s T-18, N11DC, and felt good about doing the first flight myself. My family and Dean were there, and the flight was short and uneventful. Words cannot describe my feelings at the time. I can truly say that it was one of the most emotional flying events of my life – greater than my first solo over 30 years ago.

There have been many, many wonderful trips in our “magic carpet” in the 17 years since then. We make frequent trips to Montana and have been all over the country. I have been fortunate enough to win several awards at fly-ins over the years, including “Outstanding Workmanship” and “Best T-18” at Oshkosh, the “Wright Brothers Award” at Dayton, Ohio, “Colorado Grand Champion” and “Best All Metal” at the Rocky Mountain Regional, and “Plans Built Custom Grand Champion” at the Southwest Regional in Kerrville, Texas. I have flown it to Oshkosh/Airventure 11 times from Denver, solo, with Vicki, and for the last few years with my Son, Matt. I’m a lucky guy whose family likes to fly with me.

The Thorp T-18 is one of the sweetest flying airplanes imaginable. Mine, N71JE, will climb to over 20,000 feet, will cruise at 180 mph TAS at 7500 feet MSL burning around 7 gph, and will run over 200 mph straight and level at full throttle. It is a joy to roll, lands nicely on the wheels or 3-point, and is just plain fun. It has good over-the-nose visibility, making s-turns on the ground unnecessary. There are still many being built around the world, and there is a wonderful support group, known as the T-18 “Mutual Aid Society.” “Wide-body” and folding-wing versions can be built. Plans and parts are available, including complete “kits.” Check out:

<http://www.t18.net> During the year, we have fly-ins in various parts of the country, and the builders and owners are truly great friends.

John Thorp introduced the homebuilding world to “matched hole” tooling over 40 years ago with the T-18. It’s a wonderful technique, allowing accurate assembly without the use of jigs. I notice that other “kit” airplanes are just recently starting to use it, with the aid of computer-controlled machines.

In the minds of many, the T-18 truly led the way with that and many other unique features and innovations, which even today make it a desirable and highly capable airplane.

To paraphrase my friend Dean, "I can't believe how smart I was, all those years ago, to choose to build this great airplane." I can't say it any better than that.

John Evens  
EAA #89223  
Arvada, Colorado  
[jrevens@comcast.net](mailto:jrevens@comcast.net)



### 2009 T-18 Mutual Aid Society Dues

For most of you, your T-18 MAS dues will expire on December 31, 2008. If you are still receiving the printed and mailed hard copy of the newsletter you can check your expiration date by looking at the top line of the mailing label on the back cover. For those of you that have opted for the on-line downloaded version I am working on some new website enhancements that will help you remember when your membership expires. When you log in to download the newsletter your membership expiration date will be displayed as you enter the "Members Only" page.

I apologize that I was not able to get out more newsletters this year but life seems to get in the way and take the needed time from me. I will attempt to get back to it and create more time to put these newsletters together.

I always get a lot of questions every year at renewal time about the yearly dues amount and where to mail the check. The T-18 MAS dues are as follows:

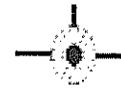
- \* U.S. dues are \$25.00
- \* Outside the U.S. dues are \$30.00 for the printed hard copy and the web version access.
- \* Outside U.S. dues are \$25.00 for the web version only

All funds are U.S. currency and can be via check or money order sent to my address. Credit card payment is available from the T-18 website using PayPal. In or-

der to use PayPal you must have created a free PayPal account. Its fairly painless and once completed its easy to use the system to pay your membership dues. There are links on the T-18 website to the PayPal website so you can create your account. If you already have an account then your all set to go. If you have any questions about using PayPal just send me an email and I'll do the best I can to answer them.

Make your check or money order payable to: Roy Farris and send by snail mail to:

Roy Farris  
1220 Stellar Drive  
Franklin, IN. 46131



### Aircraft Wisdom

It's better to break ground and head into the wind than to break wind and head into the ground.

It only takes two things to fly: airspeed, and money

I give that landing a 9 . . . on the Richter scale.

### Cooling Plenum

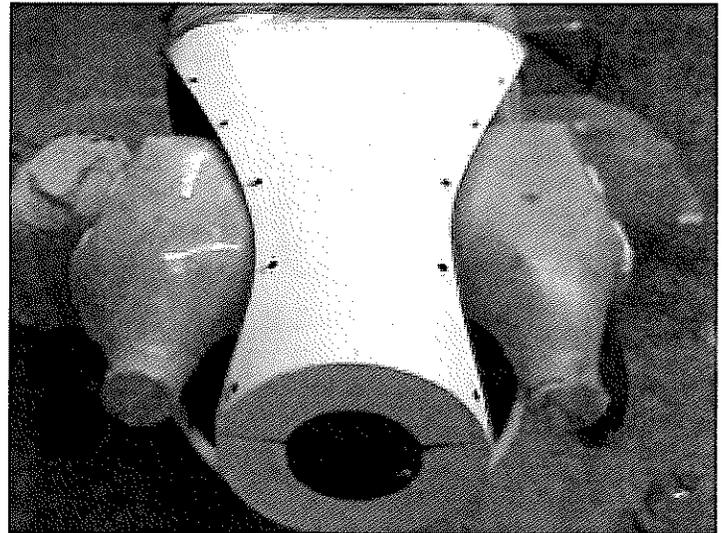
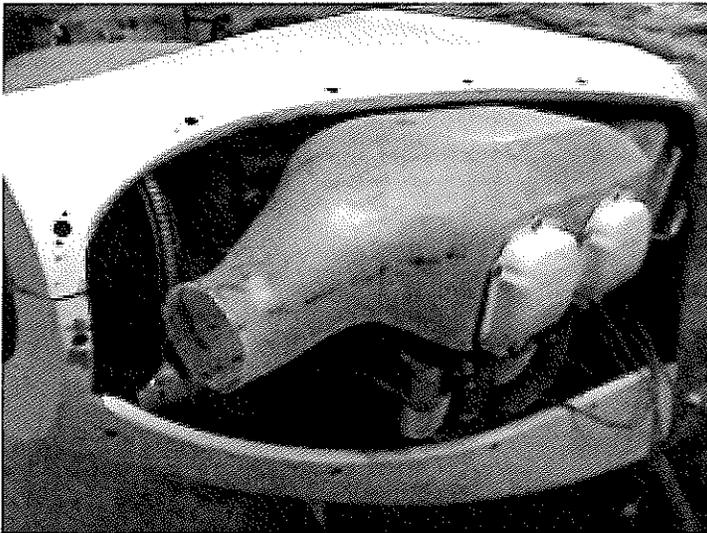
This is my daughter Natalie Adams at the midpoint of her first ride in our new T18C at O23 Chico, CA, where she will be attending California State University, Chico. Our plane now has 56 hours and has already visited Oregon and Washington from its home in Stockton, California. Our plane was built with Ken Knowles and Ken Brock parts, and has a IO-320-E2A swinging a Sensenich 68 x 72. An APIC color moving map makes navigation a pleasure while I communicate with a Narco 810 and a ARC 829 transponder. My major modification is cooling plenums over the cylinders fed by 3.75" round bell mouth intakes rather than baffles. This change has proved to be preferable and my next exercise is to make cowl flaps for the side cheeks. Pictures on page 19.

Terry Adams  
N51079

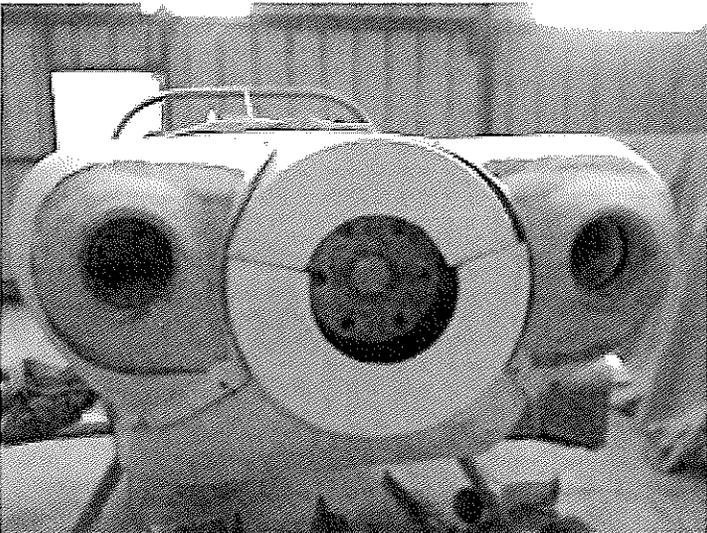
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Natalie Adams and N51079



Terry's cooling plenum installed on his Thorp.



*Editors Note: This really makes a slick and streamlined installation. We have been told that the T-18 cowling air inlets are oversized and may be causing unnecessary cooling drag. This may be a good way to eliminate the problem. It would be nice to get a detailed report from Terry on how well his setup works, what temperatures he is seeing, and what if any extra speed is realized from reduced cooling drag. How about a report Terry?*

T-18/S-18 Thorp Newsletter  
Roy Farris  
1220 Stellar Drive  
Franklin, IN. 46131  
Phone: (317)736-8903  
email: [royfarris1@comcast.net](mailto:royfarris1@comcast.net)

Newsletter No. 140  
October 2008



C-GIXP ~ John Kossup ~ Welland, Ontario, Canada