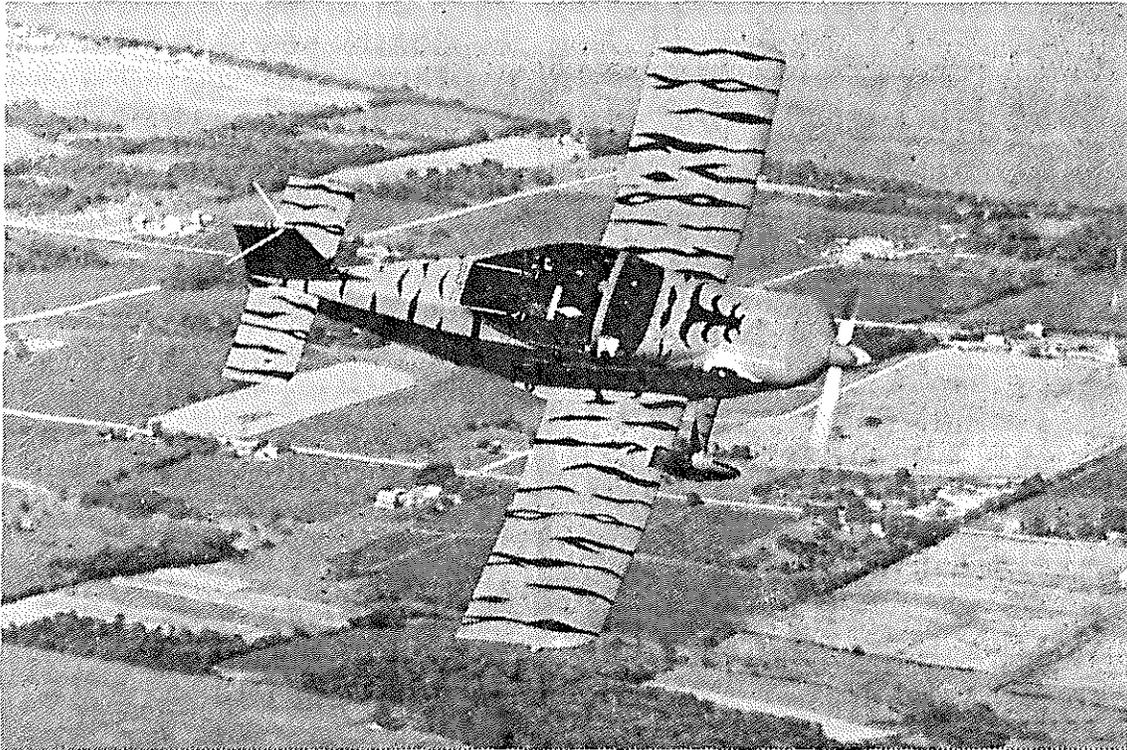


T-18 NEWSLETTER



Harvey Mickelsen's "Fat Cat" Thorp

IN THIS ISSUE:

FLAP ACTUATOR by Gary Cotner

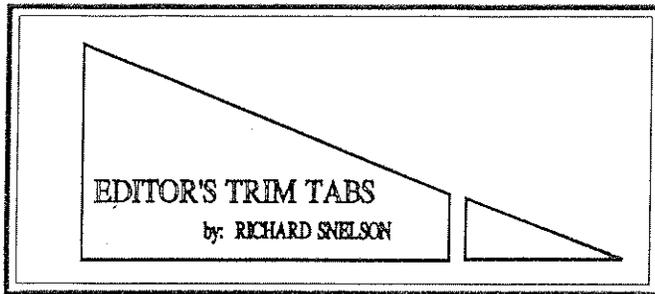
REBUILD OF N9008Z by Steve Hawley

IVOPROP FAILURE by Harvey Mickelsen

Sun N Fun to Placerville by Susan Highley

FLASH! FLASH! THORP KITS!

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.



1998 EVENTS!

Sun' N Fun

2nd Annual Thorp Award Dinner

* Trophy for the outstanding Thorp presented at Sun N Fun

* Sirloin Strip Steak & trimmings

Wed, April 22, 1998

6:30 at the Sun N Fun Special Event Tent

* Price \$10.00 per person. R.S.V.P. to Bill Williams c/o Sun N Fun

P.O. Box 6750, Lakeland, FL 33807 by April 10, 1998

Spring Fly-In at Coles (MTO)

Mattoon, Illinois

June 5-6-7

Oshkosh 1998

Picnic and Forum at the Nature Center on Friday, starting at 11:30 AM

Thorp Fly-In Placerville, California to be announced

Fall Thorp Fly-In at Kentucky Dam

Oct 9-10-11, 1998

Memo from Ken & Marie Brock

It's good news! We have Thorp spinners back in stock. This is the only spinner that fits the Thorp cowling correctly.

To The Members of our T-18/S-18 Mutual Aid Society

Here's another issue folks and it's packed with excellent contributions from our members. Gary Cotner sent us some fine drawing of a flap actuator he designed using the flap actuator motor from the RV aircraft. Steve Hawley reports on the rebuild of N9008Z and Harvey Mickelsen has word on the failure of his IVOPROP. The traveling Highley's tell about their trip from Florida to Placerville, California. I've included a report from each of our suppliers. Both Ecklund Engineering and Classic Sport Aircraft are working on getting a Thorp kit on the market. Classic plans to ship their first kit early in 1998. Read the reports that follow.

Those of you planning to go to Sun N Fun be sure and attend the Thorp Steak Cookout. The Red Carpet has been rolled out for the T-18 bunch. So come on down and joins us for the 2nd Annual Thorp Award Dinner.

Let's hope the weather is better this year for the Illinois Fly-In. It would be great to have all you distance folks flyin and joins us at the Coles County Airport.

We will do our best with the help of some other volunteers to put on the lunch at Oshkosh again this year. It will be followed by the T-18 forum also in the Nature Center.

You folks in California let me know when Placerville will be held. I'd like to get the date on our homepage.

Here's a good one for you. How would you like to spend the night in John Thorp's old homestead. "The Locke House and the Inn at Locke House." Richard and Lani Ecklund with Kay Thorp, John's widow are continuing the preservation and restoration of the famous homestead. It's now a bed and breakfast! See displays of John Thorp's works and accomplishments in the barn where he and his friends worked on building their own T-18s. For reservations call (209) 727-5715.

Report from Classic Sport Aircraft

Greetings from Classic Sport Aircraft. You have probably wondered why you have not seen a lot of advertising, etc. Well, we have been working very hard to achieve our goal of making the S-18 available in kit form. We have another S-18 under construction for show at the various fly-ins and more proofing of our templates and drawings.

THE GOOD NEWS is we are happy to announce that we are working very hard on our first complete kit for shipment to New Zealand. Delivery is scheduled for early 1998. We are currently working to increase our inventory and coordinating with suppliers. We also anticipate shipment of a couple of wing kits.

This kit includes every part for the complete airframe. All welded machined and formed parts are complete. This will really enhance the time it takes to build an S-18. We are supplying canopy, windshield, spinner, engine mount, landing gear, cowling, etc.

We now have in stock, horizontal spars with the 509/510 and both 502-3,-7 tubes completely riveted ready for rib and skin installation. Some time in January 1998 we will have completed main spars for both the inner and outer wing.

We have received many inquiries for alternate engines for the Thorp, so in our spare time (ha, ha!!) we went to work and are developing a 180HP, V4 engine. It is our goal to develop a package that fits within the existing cowling. Anyone with interest, please drop us a line.

Our Fly-In schedule for 1998 is:

Sun N' Fun	April 19-24 (Booth 31)
Arlington, WA	July
Golden West EAA Fly-In	September (1st Annual)
Castle AFB	
Placerville, CA	September
Copperstate (Arizona)	October

We hope to see you AND YOUR THORP at some of these fly-ins. We have some recently completed S-18's (the ones we are aware of). Jeff Taylor - Washington (Jeff was kind enough to let us put his beautiful plane in our booth at Arlington and it drew an awful lot of OOOHH's and AAAHHH's. (our aircraft, due to bad weather was stuck in Redmond, Oregon and we had to drive from there to Arlington.) Byron Janzen of Redlands, California and Doug Perkins of BC, Canada. These are real beauties, plus there are more soon to be completed.

That is all for now and thanks for the patience of all of you. LET'S SEE SOME S-18's and T-18's at these fly-ins.

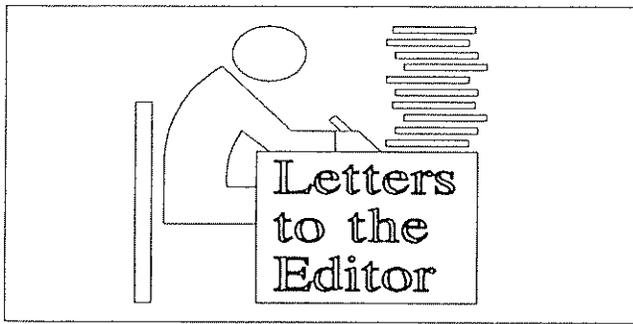
FOR THE LADIES. (From Frankie Archer)

We have had inquiries from some of you ladies about jewelry. I have made contact with a jeweler that will make us some earrings, necklaces, etc. He will make a mold and away we go. Do not know cost as yet, but depending on which gold used determines the price. NEED TO KNOW HOW MUCH INTEREST BEFORE we can do anything so let me know PRONTO of your interest. Would like to have some ready for Sun N' Fun. He can also do belt buckles. CALL ME EVENINGS preferably and let me know what your interest is (209)539-2755 phone/fax or E-mail T18THORP@AOL.COM. Thanks - Frankie Archer

Memo from Ecklund Engineering:

There is an error in the price I listed for the #517-1 Horizontal tail tab kit. The price for one tab skin (517-1), one Trailing edge strip (517-2) and one Rib (517-4) should be: \$39.00 plus shipping.

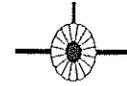
We are currently pricing the remaining parts for the Horizontal Tail Kit. Next will come the Vertical Tail to complete the empennage kit. We are also trying some methods of production forming the Flap skins in preparation for developing the Wing kit.



CAUTION MAIN SPAR WEB RIVET DETAILS

A word of caution on the proposed changes recommended by Les Krumel for the main spar web rivet details on either the T-18 standard or S-18 folding wings. While the details he included from E. F. Bruhn's "Analysis & Design of Flight Vehicle Structures" are accurate, he did not include "The rest of the Story". While I have not checked the exact numbers for the rivet spacing used by John Thorp, I suspect he has included many more rivets than required for the allowable rivet loads in either Bruhn (Table D1.7) or the defense industry bible MIL-HDBK-5E (Table 8.1.2.2(d)). Each indicates a yield strength for 1/8" AD(2117-T3) rivets in countersunk 0.040 clad 2024-T3 aluminum to be 231 pounds. Yes, the 0.042 head thickness of that rivet makes this a knife edge joint, and MIL-HDBK-5E states this to be undesirable but approvable by the procuring agency. To my knowledge, there have been no cases of main spar web rivets loosening in service when installed per John Thorp's design. If there were loads equal to or greater than the allowable rivet yield strength, we would see working of these rivets. The fact that this is a 30+ year old design with lots of experience, reinforces the soundness of the aircraft as designed. The bottom line is again "BUILD IT TO CURRENT PRINTS" in the case of all loaded structures unless you are willing to fully evaluate the effects and accept responsibility for your changes.

Richard Eklund
Eklund Engineering, Inc.

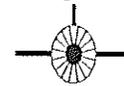


Richard,

I have been dragging around and (sometimes) working on my T-18 project for more than a decade. I am glad that it's on the last stretch to completion (minus paint). I think I could tinker with it for another month or two to assure that all is done and done right but I need to get some instruction before flying it. I am an A&P with a Pilot's license and I have 400 + hours in a Super Cub but haven't flown much in the past 10 years. I need to find a good instructor that can check me out in a Thorp. I live in Anchorage but plan to go to Boston and Detroit this Dec. and Jan.

As far as I know, I have the only T-18 in Alaska so I haven't seen too many. I would also like to see some Thorps and talk to some experienced builders on my trip. I want to make the flight time in this aircraft as safe as possible. Can you point me in the right direction? Thank you,
Richard Marson

Editor's Note: I got to fly with Richard Marson this week in my Thorp. Enjoyed the experience of meeting the very nice gentleman.



From:

"Sun 'n Fun EAA Fly-In, Inc." <fly-info@sun-n-fun.org>

Rich,

Danny Cummins of Tennessee informed me that the phone number for Applewood Shirts has been changed since Susan gave it to you for the MAS Newsletter. I checked it out and found that the correct number is: (704)654-9711. Perhaps you could run it on the Web Site.
Cheers,

Bob Highley
Sun 'n Fun EAA Fly-In, Inc.
PO Box 6750
Lakeland, FL 33807

Editor's Note: I have it on my homepage, Thanks

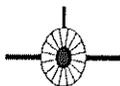
Hi again, Rich,

Just got the newsletter today. I sure do enjoy it. When they come, I have to read them before I do anything else. I truly love hearing about, reading about, talking about, looking at, and flying T-18's!

There were some very good letters. My friend Dick Penman's drawings were great, and I really enjoyed his letter. I too remember many of the "old guys". I got my first T-18 ride from B.C. Roemer, the "feather merchant". It was at Oshkosh in 1977, and I was already building mine, never having even flown in one until then. He took me out over the lake and rolled it! What a thrill! But I didn't need that, to know that this was one good airplane. Most of those guys were there... Lu Sunderland, Bob Dial, Don Taylor and his "Victoria '76", Ken Knowles, Dick Cavin, etc., etc., etc. They wouldn't know me from Adam, but I was in "Hog Heaven". Those were "heady" days for the T-18.

A quick comment regarding Dick's statement about "...how many aircraft can cruise at 170 MPH, at 10,000 feet on 8.6 gals. per hour...".....How about 180 MPH at 7500 feet on 7.5 gph? This is what I and Dean Cochran (N11DC) both do consistantly. Sometimes we even do better than this on the fuel burn. We've done long cross countries together (for instance, from Denver to Placerville, twice), and that's the performance we're getting. And we don't have a lot of fancy fairings (there is room for improvement). We both have 160 HP, and both aircraft are straight, and pretty light. I think this is one of the keys...keep 'em light. That's all the rambling for now.

Best Regards,
John Evens, N71JE
JREvens@aol.com

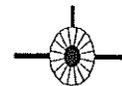


Rich,
Now, I think it is going to work!
Still need info on an alternate static source and a source for the little Mode C box - I have a Narco transponder. Also, what about vapor lock with a gravity feed system? I have air going to the

gascolator, but that's about all I can do other than the usual fire sleeves. I couldn't find the Scott filter material for the oil separator than John Evans referred to, so I put a sheet of gray Scotch-bright in instead. Oil won't attack it and it seems like a pretty good filter. If this gives anyone heartburn, it is easy to change. I'll send a couple of pics later on my progress.

A few people here think I'm nuts for taking off the fuel pumps, but the gravity feed sure looks simple. Right now I have the plane propped up about 10 inches at the mains and the tail up on a sawhorse to keep things level. This is to help my bad back. I can actually stand up inside while working around the panel and firewall, which I'm almost ready to cover up. Your feelings on a firewall cover? There are a lot of different materials out there. Well, the weather is turning a little cold, my garage heater is working well and I'm on a roll.

Regards,
"Robert F. Clayton" <rclayton@utah.uswest.net>



Dear Rich,

I just installed the latest version of Netscape and I always get in trouble whenever I try to update anything, so I'm not sure you can get back to me, yet. I know this is going out, so let's see what happens.

I finally got my B&C alternator and starter installed and hooked up. In fact I have my panel all finished except leads to my Skysports fuel probe. I have gone by Tony B.'s recommendations - one wire at a time. I have a new overhauled MA3-SPA carb all up to date and a new set of Slick mags. I have Gary C.'s throttle control installed and ready for the cable controls, (as soon as I can contact Cablecraft). I had an oil separator from John Evans plans made and it is installed. I had to move my oil cooler for the 3rd time to give me more space between it and the gear leg. That's done. Now I can get back to

finishing the baffles (a baffling job at best), and then back to working on Gary C.'s cowling. I have a few questions, but I'll see if this gets to you and comes back. Bob Clayton



Hi Rich,

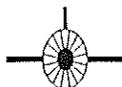
Thanks for responding to my inquiry. My Dad, Stewart Schureman built his plane back in the late 60's. He completed it ready for the first flight in 1969. The test flight and most of the flying was in Southern California. Most of the plane was hand fabricated. The prefab parts were not as common then. He worked in the aircraft industry for "Areoquip", Burbank, CA. He was also fortunate to be friends with John Thorp. The T-18 was originally polished aluminum, and later painted red. It was a fine example.

A stroke forced the sale of the plane in the mid 70's. Someone got it for a "song". I can remember finishing up the new exhaust system for it so it would pass the inspection. I was lucky as a kid to have a garage full of tools, and a Dad to teach me to use them.

My Dad passed away this year. Locating the old T-18 became important to me. I still have the original plans and correspondence from John Thorpe. If you hear of any contacts please let me know.

We just got "on-line". The information that's out there is amazing. I have made some great contacts for Vintage Motorcycles as well.

Take care, John Schureman
email to: Jwskurman@aol.com



Hi Rich,

Haven't heard from you for a while. How are you? I had a great trip to the Kerrville fly-in the weekend of October 17th. I counted 5 Thorps

there. The weather was absolutely beautiful. What a nice weekend. Then to top it off, they gave me the "Plans Built Custom Grand Champion" award! I was really surprised. I haven't had my airplane judged at any of the fly-ins for several years now. Just did it on a whim this time. Not too bad for a 7 year old ship with 600 hours on it, huh? Figure it's just another tribute to a wonderful design.

Here's something that might interest some of the guys. I have a single cylinder head temperature probe, and have always wondered if I guessed right about being on the hottest one. So....I built 4 homemade thermocouple bayonet probes, and used my digital test thermometer and a rotary switch, and went up for a test flight this weekend. Climbing out of my home airport (elevation 5670 msl), the O.A.T. was 40 deg. F. The hottest cylinder turned out to be #2 (left front), followed closely (only 1 to 3 deg. difference) by #4 (left rear). #3 (right rear) was the coolest. As you know, I have the original Thorp style cowl, and I have my oil cooler in front of the #2 cylinder. I saw a maximum difference between the hottest & coldest of only 12 deg. F. (in climb, 1000 fpm, 7500 to 9500 msl). In cruise, the difference was just 8 deg. (7500 msl, 2550 rpm, 20" manifold pressure). The maximum temperature I saw was 338 deg. (in the climb). I believe that these are excellent numbers, and I attribute them to the excellent design of the cowl and baffeling. I can see no need for the "dam" across the top of the engine that some of the guys have been installing, at least not on my installation. My baffeling is tight, and I'm using a thin (1/16") silicone rubber sheet as the seal material. It has held up very well for 7 years now, with no cracks.

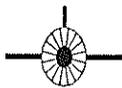
Something else that may be of interest...I recently replaced my rubber engine mounts. They were about 22 years old, since I had bought them early in the project, and were getting a lot of cracks in the rubber, although the sagging wasn't that bad. I bought the Barry brand units this time. Anyway, a word of advice...it's obvious, but don't torque or introduce any twist in the rubber

between the steel plates on these mounts. The rubber can start to crack or tear right away if you do. It's easy to do with the dynafocal mount, even with a washer under the bolt head. I think a little lubricant between the bolt head and washer when you're torquing them might be a good idea.

One final comment.. I've got quite a few friends flying RV's now (who hasn't? As Dean Cochran says "They're a growing menace!"). I remember a comment from a gentleman at the T-18 forum at Oshkosh several years ago. He said words to the effect that one of the bad design features on the T-18 was the landing gear. With all due respect to this fellow, that really "stuck in my craw", and I spoke up right away, but I feel it bears repeating once in awhile. The T-18 gear may be a little stiff on the ground, but it is an elegantly simple, strong design, with "real" axles and axle pads, which can be shimmed to get your wheel alignment just right anytime. It's a wonderful gear when you're coming in slipping, in a strong crosswind, and touching down on one wheel first, and I'll take it anytime over the "other brand's" design. Also, I seem to be getting at least 4 times the tire life of the RV's! Enough said.

As always, thanks for the good job, Rich. By the way, we miss you on AOL.

Best Regards,
John Evens, N71JE



Dear Richard:

Timpken wheel bearings for Cleveland wheels can be obtained at a NAPA store half price of aircraft suppliers. Ordinary 12 volt auto taillight bulb with one indexing pin filed off will substitute for Grimes. I have been taxiing but would like to get some dual time in a T-18, can you suggest someone in Washington state who might teach me to fly the T-18?

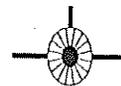
Best wishes from Ted Strange
email address: strange@silk.net

Hi again, Rich,

For those guys who may balk at the price of cutting up a Bracket filter to fit in the style of air-inlet shown in Dick Penman's drawing in the last newsletter, or who don't have access to filter material locally, I have a pretty good supply of 1" thick "Scottfoam", dark grey color. This is material manufactured for air filters. I like to saturate it with a good quality foam filter oil (such as Belray brand), available at most motorcycle shops. This repels water, and makes the filter more efficient for fine dust. I even carry a pre-oiled spare in a sealed baggy in the airplane. I can furnish a 7" x 12" piece (more than enough for 4 filters) for \$8.00 plus postage.

John Evens 6855 Allison St. Arvada, CO 80004
JREvens@aol.com

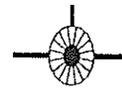
Editor's Note: Another great tip from John.



Rich,

The landing gear strut fairing modification in the November issue should probably have a wear strip stuck to its inside, ie some Polyethylene flashing tape or similar to stop fretting and intermetallic corrosion and perhaps a false rib, hose clamped to the leg, to stop any rotation. You will have to forgive me but I just spent \$14,000 getting my Cherokee back in the air due to Piper's poor anti-corrosion treatments so I am a little sensitive about it.

Gibson Allan
email address: Allan.Gibson@wmc.com.au

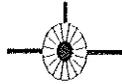


Rich, Jim & Judy Paine are in the process of moving to Hendersonville, NC and they must vacate their house no later than 24 Dec. Not a pleasant way to spend Christmas, but I know they are happy to have the house sale complete. The four of us, with our two Thorps, are hoping to make it to Sun N Fun this spring and are planning on spending the whole week. Will you be going to FL this year? Hope so! If not, we probably won't see you folks until the June fly-in. Dan & Janey Wolf.

FOR SALE

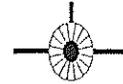
Will you please include the following items for sale in the next newsletter?

- Starter Ring Gear Assembly 122 teeth, .625 driving lug holes, \$100
 - Starter Ring Gear Assembly 122 teeth, .75 driving lug holes, \$200
 - Lycoming Direct Drive Starter Delco Remy #1109657, 10/12 pitch \$100
 - Generator 12 volt/12 amp, #1101875, including bracket and pulley reconditioned and never used. \$150
 - Lyc. 0-290 pistons + .020 oversize \$200
- Thanks, Jim Hockenbrock, Fawn Road
Reedsville, PA 17084 Phone:717-667-2790
e-mail: jcorbin@acsworld.net



Hi Richard,

Just a short note to let you know that you have another interested T-18 builder to be. I purchased my plans from John T. about 16 years ago. (Possibly the last set that he sold) and also the wide body and conv. wing drawings from Sunderland. Unfortunately my job decided that I should relocate and so I have been in 4 different locations over these years and started a new family, so I haven't done much but think about flying. But, if nothing else, I'm pretty close to you now. Just 16 miles N. into Michigan, Bridgman to be exact. But in the recent issue of EAA I saw another T-18 and decided to go looking on-line for other interested people and came across the T-18 Forum and thought that I'd let you know that I'm here. There's always been questions in my mind on how to start and maybe that's kept me from beginning. Maybe my finding you will be just what I need to get going. I hope that this gets to you and you have time to respond. I really enjoyed your web page with all the nice T-18's. Take care. Dennis Richardson
email: DK4rich@aol.com



Dear Rich,

Slowly but surely I'm putting 118JC back together with many improvements. I've added a hinged floor panel to make access to the rear of the instrument panel easier, and a cutout over the baggage compartment for access during flight. I'm trying to incorporate every neat idea I've seen that is affordable. I would like some feedback on some ideas I've seen in the newsletters:

- 3/32" wing rivets instead of 1/8" on the wing ribs at 1/2" spacing? (Easier to drive).
- single piece aileron & flap skins with folded trailing edges? (lighter stick forces?)
- 5 ribs per wing section instead of 4? (This brings the ribs spacing closer to what you see on the RV's).

Please, anyone call or write me with comments.

Also I have some odds & ends for sale: - Main center wing spar, - main gear with damaged right leg (short gear). - standard wing ribs .025" (2 sets) - Narco ELT 910 (Top of the line!) - prop extension.

Lastly, I am building the outer wings with wet leading edges. I'm looking for 10 nose ribs for a standard wing made from .032. If anyone wants to contact me I can be found at: Jimmy Cash
9003 Green Leaves Dr. Grandbury, TX 76049
Phone (817)573-7766

Thanks for the great work. Keep it up and fly safe. Jim.

Editor's Note: Stay with John's design for rivets and the number of wing ribs. Keep it light, without unnecessary ribs, etc. As to the single piece aileron skins: If you don't shape the rear of the aileron correctly the stick forces can be heavier not lighter. Several of us talked about this at Ky Dam and I think the general consensus was that the rear edge needed to be flattened to break up the flow across the rear of the aileron.

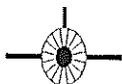
Dear Richard:

Please find enclosed \$ 25 for the 1998 MAS Newsletters. I always read them from one end to the other as soon as I pick them from my mail box. My T/S-18 project is still under slow construction, right now I have most of the inner-wing clecoed and soon will be ready for anti-corrosion treatment and final assembly. I ran into many dimensioning discrepancies in Lu's drawings and I am sorry to say that there were some in material received from Phil Tucker, maybe both ran into battle fatigue in these instances of work.

Other; some time ago I bought a canopy frame (obtained from Phil Tucker, he said) for the S-18 from the same Alabama gent that now is trying to sell his entire project as the last newsletters indicate, I noticed the rear rollers' brackets on the frame's cross-bar are welded aft on the bar and the drawings show them to be welded fwd on the bar. Photos that I took of several T-18s an S-18s show the detail as per the drawings, that is fwd on the cross-bar, I believe one exception is Jim Paine's from OH; comment?

Thorp pitot: I cannot find any comments in the newsletters as to why, it seems, the original over-the-fin pitot concept is not used. I asked comments from several builders that do have them and all I could get was "it works fine for me", the others would say generally "oh no, don't mount the fin pitot, not practical, not accurate, not good for hangar hazards, too far, the Piper way is better, etc. but not one could give me a good understandable reason one way or the other. Comment? Well I guess I am getting too winded and taking your valuable time. The newsletters are always super, thanks for your dedication. If you want, you may use my E-Mail:

pereOO9@ibm.net. Wishing good health and good times for you and your wife, I send you my regards. Sincerely, Al Pereira



For Sale:

Dynofocal engine mount for T-18

Lots of 1/8" Clecos

Call: 217-935-4215

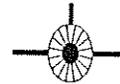
Hello Rich:

Thanks for forwarding the latest copy 104 of the newsletter. As I had to cut my visit to Oshkosh short this year I missed seeing you.

I received from Ron Davis Racing Products in Phoenix Arizona in August, the aluminum radiator, that with their help I custom designed "to fit into the inner wing of the S-18". Due to business pressures I haven't had any time to get at the installation to date. December should be less hectic. I'll send you a writeup and photos when I've completed this task. Keep up the excellent job your doing with the newsletter it's a treasure of data for all of us involved in the type.

Best regards,

W.T.Forsythe 8766 Marcel Cadieux Montreal, Quebec, H2M 2L1, Canada Tel: 514 388 7633



Hi Richard:

Well I got in two hours of touch and go's before the weather closed in. I have done a lot of work since then and she is now ready for flight come spring.

There are a few more jobs to do but I will be able to fly without them.

Is there a flat pattern available for LG fairings as mine are getting kind of ratty?

Best wishes to you and your wife for 98.

Ted Strange<strange@silk.net>

FOR SALE: HARTZELL CONSTANT SPEED PROPELLER FOR 0-290, 0-320, 0-340 LYCOMING (No RPM restrictions) HC 82VL-IC 71" Dia. 260 SMOH O-SPOH Inspection Return to Service Tag. (Matching governor exchange at Aircraft Accessories)

Marion Smallwood
501/756-6565

Steve Hawley's N9008Z Rebuild

Sure did have a good time at the Kentucky Dam Fly In. The weather was beautiful and the company was great. Thank you for your efforts in furthering the T-18 movement and the newsletter. Your dedication is appreciated by everyone. Here is the account of the rebuild of my 18 year old airplane.

My wife bought the set of plans for my T-18 for a Christmas present back in 1971. The serial number was 810. I started work on the plane in early 1972 and finally flew it in 1979. I worked in heavy construction and a job usually lasted about 2 years. During the seven years of construction we moved seven times in four states. I guess it slowed me down a little but I never lost my enthusiasm. I finally flew it at Skiatook, Oklahoma. It was painted in 1980 with Sterling Lacquer Co. urethane paint. I chose a basic tan with orange trim with dark brown pin stripe. I thought it looked good but my wife never liked it.

The plane finally got 1000 hours on it and I decided that I would do an extensive annual. You know how one thing leads to another and before I knew it the plane was scattered all over the hanger. I then decided that I was tired of the paint and I would start all over. I started stripping the paint using a Turco product (No.6776 LO) and it sure was a tough job. Once I got started I couldn't very well quit so I stuck with it but with lots of second thoughts and sometimes regrets. The brown paint really wasn't all that bad!! I would guess it took about three months to strip the paint working four days a week, eight hours a day. I then steamed every part using a commercial grade detergent taking special care at every joint. I would guess that about 12 hours of

steaming was done to be sure no stripper would weep out of the joints and ruin the paint job. I then acid washed everything using scotch bright and lots of elbow grease. I then steamed it again but this time not using the detergent but again concentrating on the joints. Everything was then alodined. She sure looked good all gold but it was kind of 'splotchy' so I continued on. I chose to use PPG paint and was very pleased with the way it went on. I did everything myself and I am not a professional by any means so PPG must be user friendly. I am very pleased with the results. I chose gloss black with a metallic gold diamond and flash and a Tucson cream pin stripe one quarter inch away from the gold. I think it is spectacular but it sure is tough to keep the dust off. I can't see any difference in the temperature inside the plane because of the black color.

I also did a lot of rebuilding during the refurbishing. New instrument panel, new upholstery, new avionics, and new windshield. I removed the outside main wing rib for access to the aileron bell crank that hadn't been lubricated in 17 years. This time I installed a grease zerk so it can be greased by removing the wing joint gap strip. I removed the pitot static airspeed indicator source from the vertical fin and plumbed the left wing with a 30" bayonet type pitot tube. The static is simply some 100 mesh screen safety wired over the fittings on the back of the effected instruments. Not very elegant but very simple. About 50 rivets were replaced and a lot more were "tightened". There was about 3/8" of 'slop' in the stabilator so I made new bushings. This turned out to be a rather difficult project. I discovered that the holes in the aluminum attach plates that the bushings rotate in were slightly cone shaped. I turned a grade 8 bolt down and made a 'stepped' reamer. The smaller end acted as a pilot and in the larger end I cut longitudinal slots with a 1/16" cutoff wheel mounted in my Dremmel. These slots acted as both cutters and receptacles for the material removed. I used the bolt head to turn the reamer using lots of cutting oil. It was a slow process but worked very well. I then made new bushings from a grade 8 bolt.

There is now no play at all in the stabulator. I also made new ailerons and anti-servo tabs using the "folded skin" technique. They look great but the forces on the ailerons are now unacceptable. I would guess that I increased the force necessary to move the ailerons by a factor of four. I will eventually make new ailerons using some advise I received from Bob Highley when we met at Kentucky Dam. I also rebuilt the wheel pants. They are of fiberglass and were in pretty sorry shape. Someday I hope to improve my metal forming skills to where I can make them out of aluminum.

There is no doubt in my mind that the the plane is now a little faster than before the rebuild. This is due to two factors; drag reduction and weight reduction. I have flown it about 30 hours since the rebuild and am confident that the following performance figures are correct. I cruise at 166 knots at 2500 rpm at 7,500 feet. By myself but with full fuel (29 gal.), I can climb to 7,500 feet and average 1,500 fpm. I have a Lycoming O-360-A3A turning a Warnke 72" diameter by 84" pitch wooden prop. I also have the harmonic damper installed. This doesn't make it any smoother but it allows me to idle the engine slow enough that I don't either drag the brakes or else taxi 50 mph! The empty weight is 953 pounds.

Even with the heavy ailerons the plane is a never ending joy to fly. It is comfortable to sit in on long trips. I installed temper foam cushions in the seats when new upholstery was installed.

IVOPROP FAILURE

by
Harvey Mickelsen

Here are a couple of items for the newsletter. Hope you saw Fat Cat in the October Sport Aviation. The photo people at OSH were great. They even sent me an album with 8 pictures mounted and the negatives.

IVOPROP FAILURE

While testing my new cockpit adjustable 3 bladed 72" dia. Ivoprop, I experienced an in-flight failure. The cam that controls the pitch of one of the blades failed due to a poor weld. The weld had good penetration of the torque tube, but very little penetration of the cam. The failure resulted in two blades being controllable and one "doing it's own thing" pitch wise. The resulting shift of the center of thrust from the center of rotation resulted in an attention getting vibration. I didn't know what had happened, of course, but throttled back and returned to Half Moon Bay airport. On disassembly of the prop the cam fell out!

Ivo was called and he sent a new set of blades with a note saying they had good welds. Testing has been completed and the results are good. Compared to my 68" wooden Prince prop I have gained 500 fpm climb and 10 mph at the top end. The added speed was a surprise, but is due to a thinner airfoil (graphite vs. wood), larger diameter, and the fact that I could not use full throttle with the wood prop without over reving.

SIDE BY SIDE FLIGHT TEST COMPARISON

You all know that I made quite a few changes to Fat Cat from the standard design. When Steve

Chial, a fellow Half Moon Bay airport resident bought a T- 1 8 that is very close to John's original design we had a chance to compare them in the air. This standard Thorp is a beautiful example in polished out aluminum and an award winner. The following table highlights the differences:

	Item	N118HM, Fat Cat	N18CH
Builder, date		Harvey Mckelsen, 1996	Carl Hoots, 1974
Engine		Lyc IO 360, 180 hp	Lyc O 360, 180 hp
Body		Wide	Standard
Gear		2" longer	Standard
Cowl		Graphite/aluminum original	All aluminum Thorp
Prop		72" 3 blade Ivoprop	72" 2 blade Hartzel electric cockpit control hydraulic constant speed
Wing Airfoil		Riblett 35U-A412	NACA 63-412 Standard
Flap Airfoil		Clark Y	Standard blunt nose
Empty weight		1103 lbs.	1041 lbs.
Top Speed, true		200 mph	200 mph
Rate of Climb		1,800 fpm	2000 fpm
Stall Speed $\alpha=10$ deg		68 mph	65 mph

The major difference was the character of the stall. Steve does not have stall strips (yet). My stall is sharp with a left wing drop off. My stall is gentle and straight ahead with a good pre-stall buffet (no stall strips). I have aileron control through the stall. It reminds me of a J-3 Cub stall.

I would highly recommend the Riblett airfoil for new builders. It involves a change to the nose rib only, and no structural changes. I have the permanent tooling for these ribs, and would be willing to supply the ribs. The Clark Y flap airfoil is an optional change and requires a .032 flap spar. I have the tooling for those ribs also. Fly Safe, Harvey Mickelsen 657 Terrace Ave. Half Moon Bay, CA 94019 650 712 1438 harvey@m@best.com

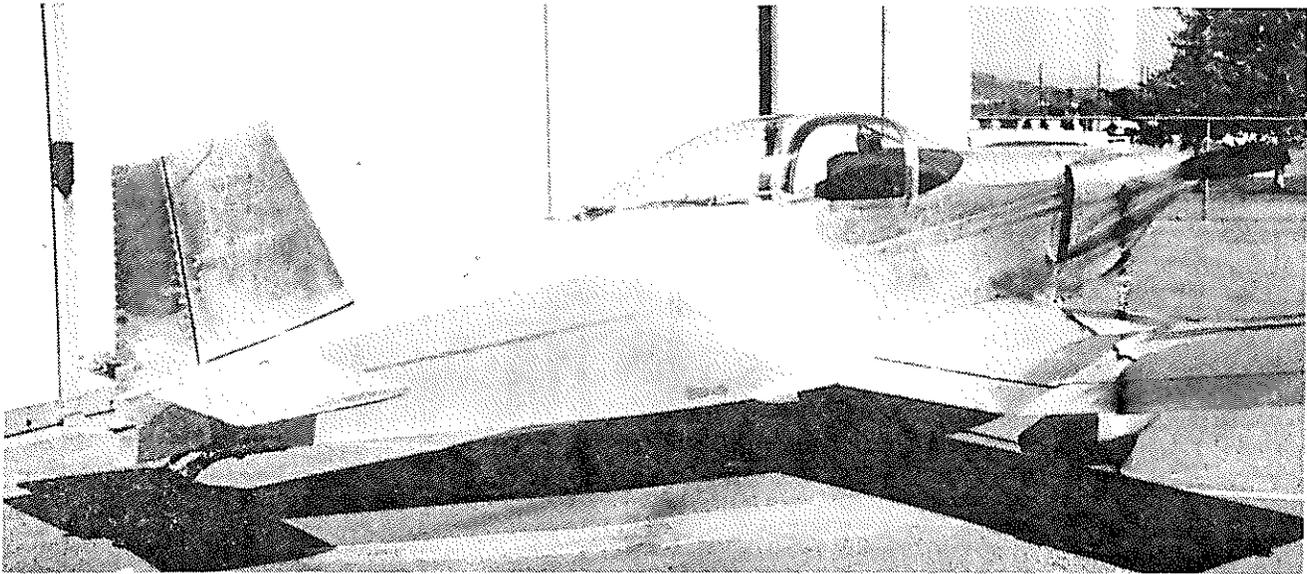
Hi Rich, Wanted to send you my new e-mail address enigma@itexas.net, also have new mailing address, P O Box 5066, Granbury, Texas 76049. We have finally parked the motor coach and started building our home across from the runway at Pecan Plantation, Granbury. I sold my T-18, N118KM last summer. Guess I had not given it much attention during the two years of travel. The good news is I have another T-18 in my future, its a basket case but I enjoy the renovation projects, probably better than building a full blown. I will have more news on this project after I get this house built (late May completion). Most of the southwest T-18 gang will remember Pecan Plantation and the great fly-in we had at Gary and Maxine Green's.

My new home will be just across the street from Gary and Maxine. I cannot legally build a hanger on my property as I am on the golf course, however, I can build a large garage (with 22 ft garage doors) and lawn tractor my Thorp across the street where I have access to the 3600 ft runway. We also have two other well know Thorp Drivers at Pecan, Rick and Louann Jones, and Jim Cash. Couldn't ask for better neighbors than that. I would like to hear from some of the old gang, give me an e-mail post. Was good to hear that Steve Hawley finished his T-18 renovation and is back in the air. Regards and keep up the good work. Ken Morgan

- A HEART FELT MESSAGE -

DEAR DAN,

YOUR INPUT IN N. L. # 103 BROUGHT TO MIND, SOME OF MY MOST CHERISHED MEMORIES OF THE MANY HOURS SPENT IN JOHN'S SHOP ALONG WITH YOU AND OTHER FELLOW T- 1 8 BUILDERS. I AGREE WITH YOU 100% ON JOHN'S ENGINEERING ABILITY AND FAR REACHING KNOWLEDGE OF AERODYNAMICS. AS A FRIEND THERE WAS NO EQUAL. WHAT A TRAGIC LOSS. TO FURTHER STATE HIS ABILITY; AS YOU WILL RECALL USING HIS *FLAT LAY - OUT TEMPLATES & MATCH-HOLE TOOLING TECHNIQUE*, I WAS ABLE TO ASSEMBLE S/N 879 WITH 3/32" CLECOES AND NO ELONGATED OR OVERSIZED HOLES. THE MORE THAN 25,000 MILES DRIVEN BETWEEN EL CAJON, BURBANK AND LOCKEFORD, WAS WORTH MORE TO ME THAN ALL THE GOLD IN FORT KNOX. THANKS MY FRIEND, AND MAY YOU HAVE THE BEST. GEORGE TRUVER 727 BLACKTHORNE AVE. EL CAJON, CA 92020



George Truver's beautiful all aluminum T-18

ELECTRIC FLAP ACTUATOR DRAWING

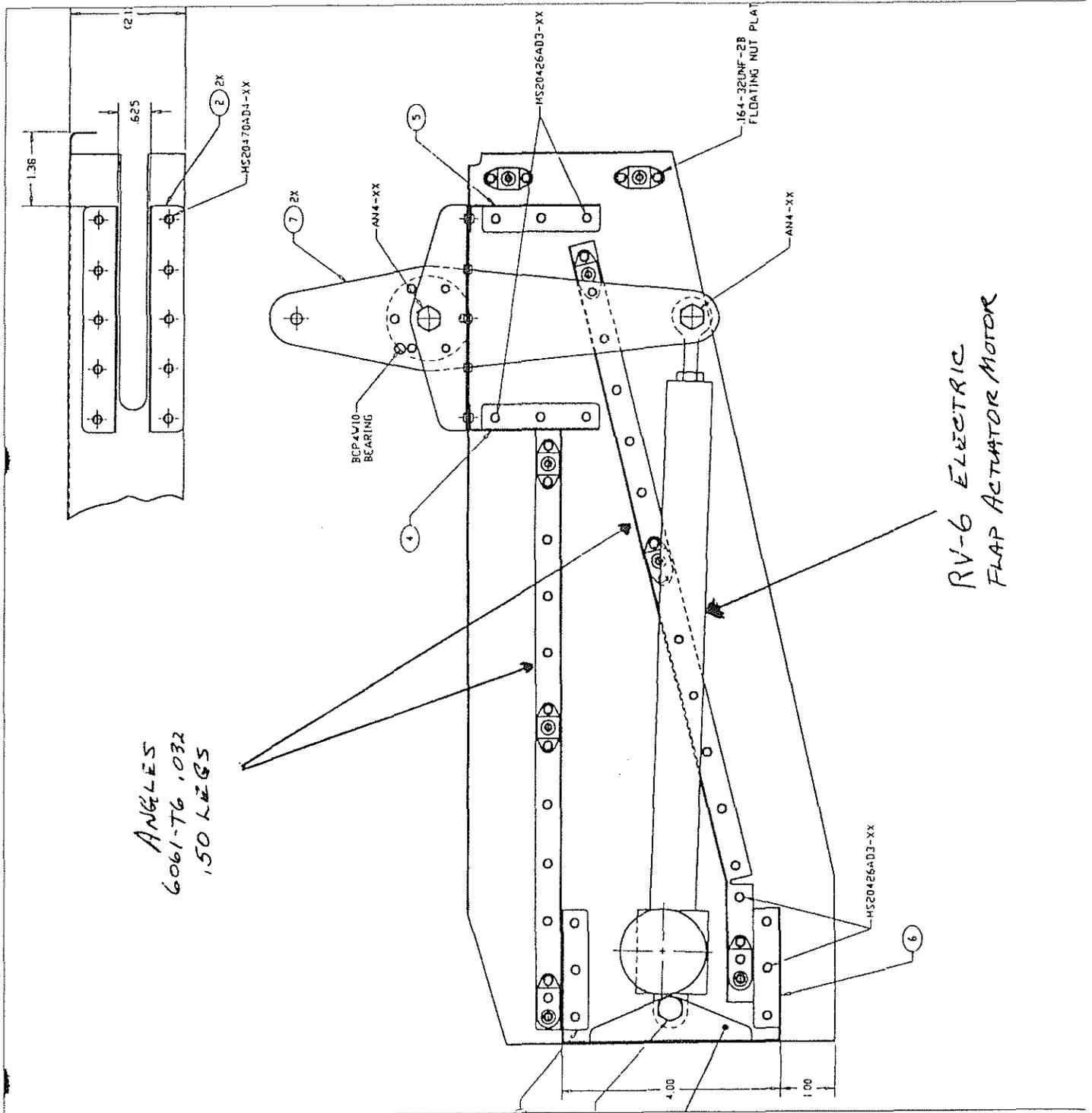
Submitted by Gary Cotner

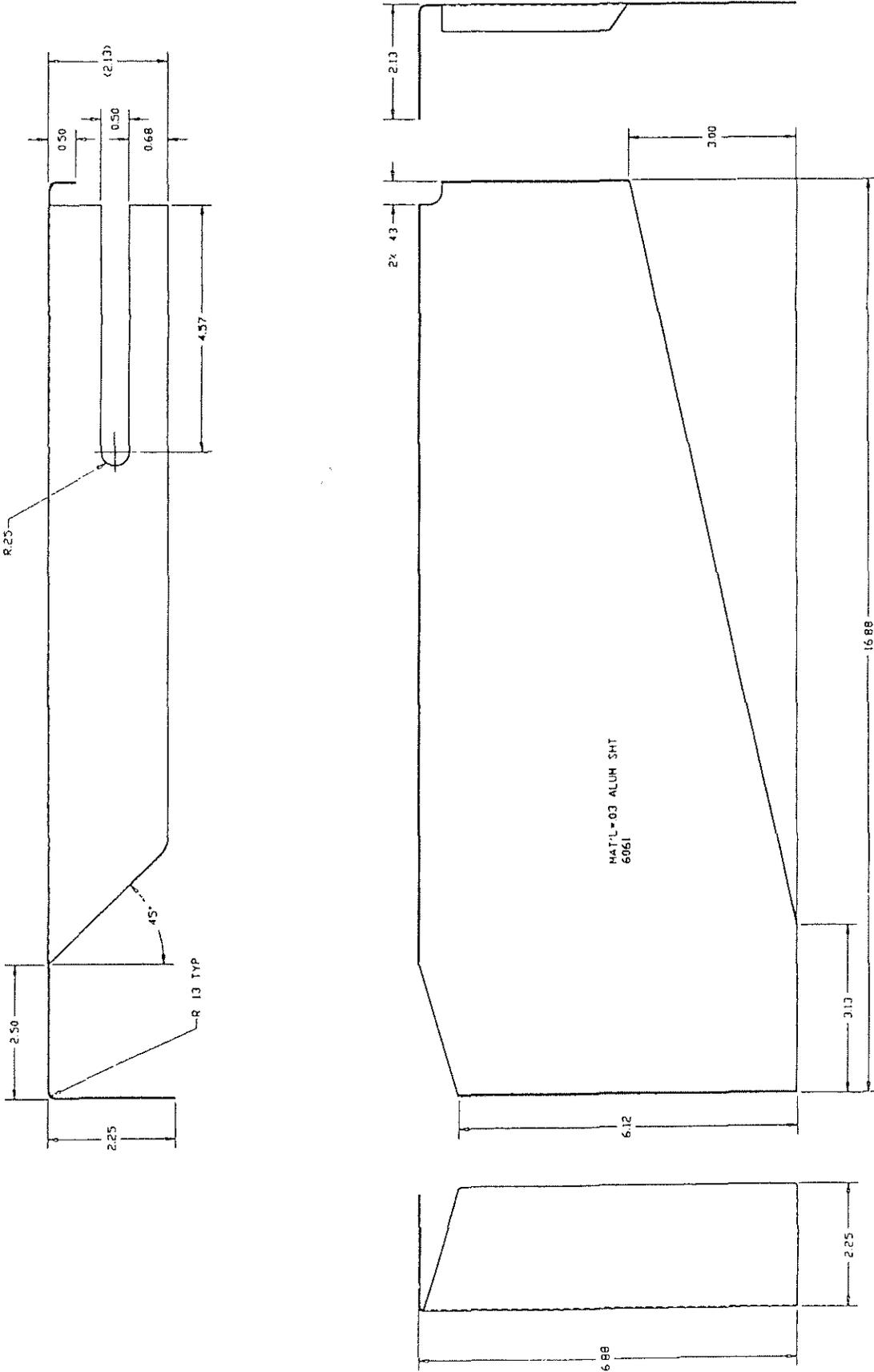
I have made some notes on the drawing that the drafter did not include, that I feel are needed. The actuator motor is the same as used on the RV-6. Anybody who is interested in building the unit for their Thorp can get the prints from me for a \$5.00 printing and mailing fee. I will supply mounting location for the unit and the modification for the pulley bracket on Thorp print A-740.

I can be contacted at the following.

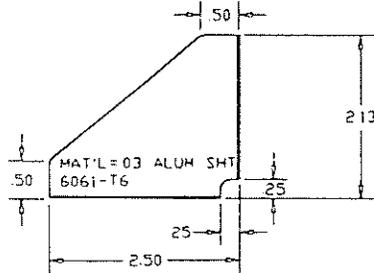
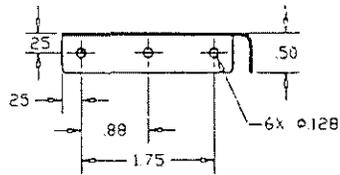
Gary Cotner
13715 N. 150th E. Ave.
Collinsville, OK 74021
(918) 371-4739
T18cotner@AOL.com

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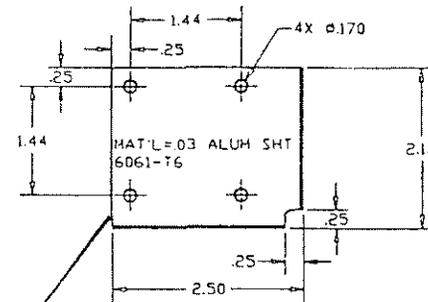
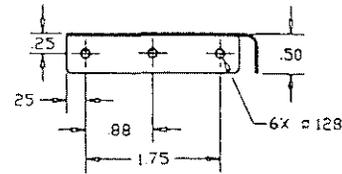
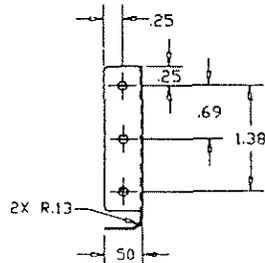




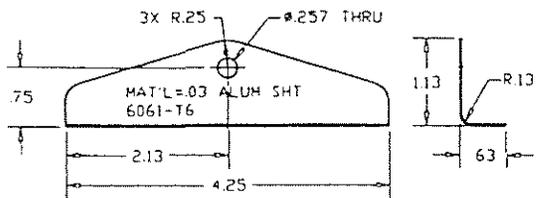
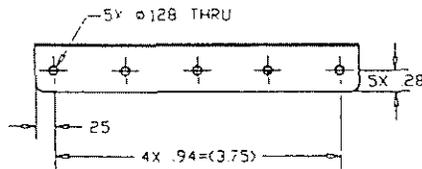
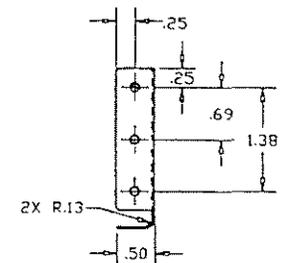
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DETAIL -004 SHOWN
DETAIL -005 OPPOSITE

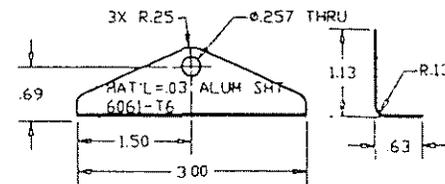
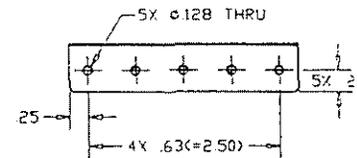


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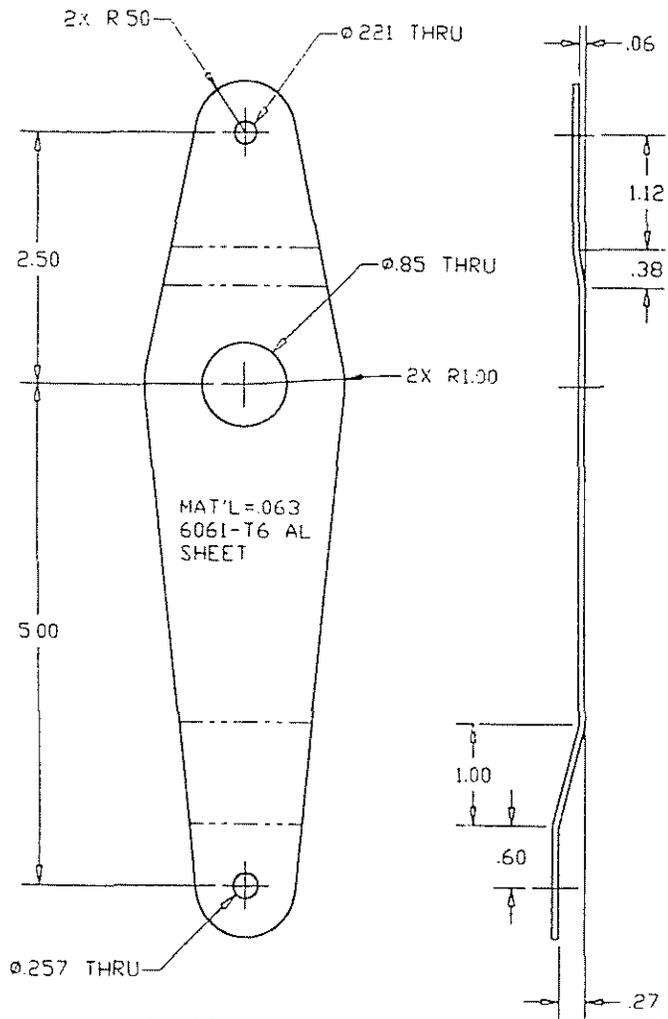


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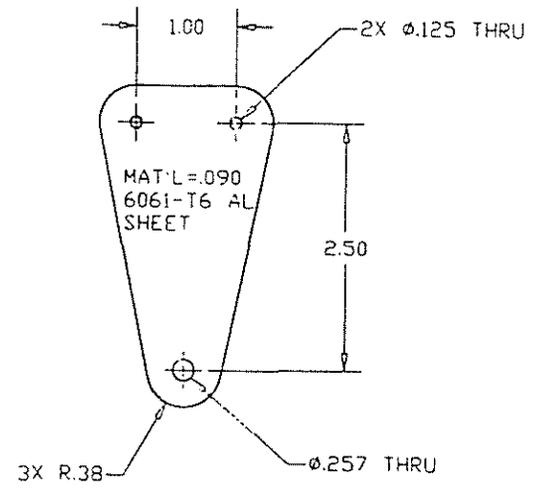
RELAY BOARD
MOUNTS ON THIS
PART



DETAIL -003



DETAIL -007



DETAIL -008



SUN 'N FUN

TO

by Susan Highley

PLACERVILLE

Our T-18 has taken us many delightful places over the years. In September, it took us from Lakeland, FL, to Placerville (Hangtown), California, for a west coast T-18 fly-in. We left home early one morning just after Labor Day and flew to Branson, Missouri, arriving in the early afternoon. The flight was a good one, but the reception at Branson was even better. The FBO there is run by the University of the Ozarks, Hard Work U., a private Presbyterian school nearby. The kids run the whole operation from pumping gas to renting cars ... you name it, they do it. They also keep the terminal building clean. Many students at the school are able to earn their way through 4 years of education, without paying a cent. There's lots of outside labor involved, but it's possible. There is a supervisor on the scene, but he's support staff only. It's been a long time since we've had someone sprint out to the plane to help us with our luggage. We rented a car and toured the area ... very pretty with lots of things to see and do. We chose to spend only one afternoon there, as we had other places to go.

The second day we flew across the plains, arriving in Cheyenne, Wyoming, early in the afternoon. Our son, daughter-in-law, and grand-

son are stationed at F.E. Warren AFB there.

After a pleasant evening with them, we were off again, this time heading for California.

The scenery changed dramatically as we headed west, with airports becoming fewer and farther between, we were forced to make more stops so that we'd have fuel at the right time. Fueling possibilities were fewer too, because sometime the attendant just wasn't there...maybe home eating lunch or whatever. We headed to Rock Springs, Wyoming, first, it having been recommended to us. We were advised to go to the terminal building for fuel, because the facilities there were better. Unfortunately, our informant forgot to tell us that the fuel truck had to come to the terminal from another area and couldn't do so when there was an airliner taxiing to the gate. We went into the terminal building to be sure the fuel truck was indeed coming over and became "trapped" inside, also due to the arrival of the airliner. Nevertheless, we got our fuel and slipped out before we were once again stuck.

Our second stop of the day was at Ogden, Utah, where the CAF B-29, "Fifi", was on display. She was on her way to the Reno Air Races with the scheduled stop-over in Ogden. The approach to

Ogden was most interesting, with a choice of either the North Ogden Canyon or the Weber Canyon. Since we had lived in the area at one time, we were familiar with the choices. The trip through North Ogden Canyon gave us a breathtaking view. (When we moved to the Ogden area in 1976, our house-hunting experience was a little tougher, as Bob was a few years into the T-18 building process and we now had to incorporate an airplane workshop into our house requirements. Gone were the days when we only had to consider number of bedrooms and baths. To complicate things even more, we had cold weather to deal with, so the garage workshop wasn't necessarily a viable opportunity. We finally found a house with a basement workshop that had a wide entry from the outside directly into the basement. Many times the fuselage was clecoed together for a dry run up the outdoor stairs. If it would go up the steps with the clecoes sticking out, it would surely fit when it was riveted. As luck would have it, the project didn't get to that point in Utah, but we were prepared.) It was a beautiful day in Ogden and we enjoyed watching the folks coming to see Fifi while we ate lunch.

From Ogden, we flew across the Great Salt Lake and then over the Salt Flats. This is an amazing sight, unlike any we'd experienced on other trips. The weather was clear, so we could see for miles.

After one more stop in Elko, Nevada, we headed for Reno and Lake Tahoe and on to Placerville. Coming from the east in the afternoon, Reno looked very different, hiding in the shadows of the mountains. Lake Tahoe is beautiful and huge. It seems to go on for miles.

We arrived at the Placerville Airport mid-afternoon in time to help a bit with the preparations. We were delivered to our motel and then Bob went off to locate a rental car and investigate the area a little more and meet some more of the folks. Dinner that night was at the local Elk's Club and was fun. It was a very informal setting with a lot of opportunity to talk and get to know one another. Lots of stories were being shared and appreciated. It was a great time.

The next morning, Saturday, we took a brief tour of the town. It's quite quaint with an interesting old hardware store with wooden

floors and lots of nuts, bolts, and gadgets. We had breakfast at an outdoor cafe that was great.

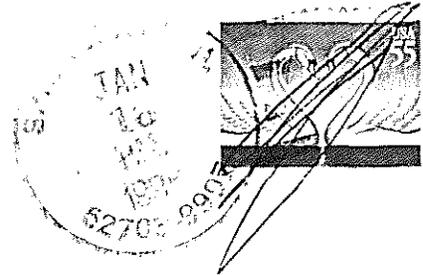
It was another beautiful day at the airport with Thorps coming and going almost constantly. Unlike our east coast group, these folks were likely to come for an hour or so and then go back home. I guess that many of them live relatively close and could do that. There were over 30 planes there, with everybody having a good time. The setting there is perfect for such events, as there is a small parklike area next to the hangar with trees and picnic tables...great for sitting and visiting and sharing stories. Lunch was at a Mexican restaurant "in town" followed by an afternoon of flying and forums. A group got together and flew out to a nearby airport that was hosting a Cessna 120/140 group. Dinner was a steak affair in the "park". We met lots of very nice people, some that travel to Oshkosh and Sun 'n Fun yearly, so we'll see them again. Bob received the award for the most rides given... something that he loves to do.

Our trip back to Cheyenne on Sunday was a reverse of the trip out, encountering people on their way to Reno for the races. Again, the visibility was great and the trip a good one.

After spending five days in Wyoming, we headed for home, once again stopping in Branson, but this time only for fuel. Wanting to get a little farther, we got down into Alabama by late afternoon, not knowing exactly where we wanted to stay for the night. We stopped in the far north-western corner of Alabama at a small airport that professed to have fuel. And they did, but, unfortunately, they didn't have power to the pump. After about 30 minutes of trying, Bob gave our apologies and we looked for another airport. I called the FBO at Jasper, Alabama, to inquire about their hours of operation and the owner said they would stay open until we arrived. When we got there, they offered a car to get something to eat, but ultimately let us take the car for the night and even suggested a nice motel and a restaurant for dinner. They were most helpful and these tired travelers surely appreciated the extra courtesy.

After a good night's rest, we flew back home to Lakeland, weary but satisfied. Our Thorp had taken us to yet another part of our country and brought us home safely.

T-18/S-18 Newsletter
Route 3, Box 295
Clinton, IL 61727
Phone: (217) 935-4214



25

1998 DUES

Please send them now while you are thinking about it. Need to have them in this month.

THORP T-18/S-18 MUTUAL AID SOCIETY 1998 DUES

Please continue your support of this valuable exchange of ideas, building tips and safety information covering John Thorp's great design. Make checks payable to Richard Snelson, Route 3 Box 295, Clinton, IL 61727 \$25.00 US, \$30.00 other.

Name: _____
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 Phone: _____
 Aircraft: _____ Hours on Aircraft: _____
 Email address: _____
 Notes: (Building?, Flying?, Thinking about it?etc.) _____