

T-18 NEWSLETTER

ISSUE NUMBER 74



N22JH James Hockenbrock's beautiful ship

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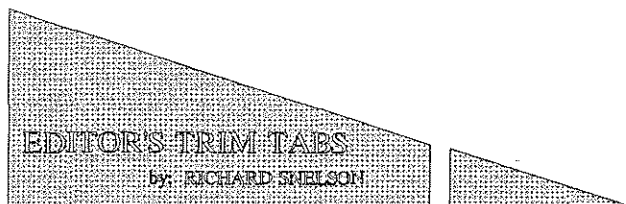
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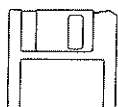
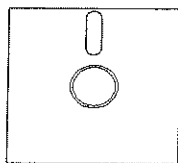
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NOTICE: (STANDARD DISCLAIMER) As always, in the past, present, and future newsletters, we would like to make you aware that this newsletter is only presented as a clearing house for ideas and opinions, or personal experiences and that anyone using 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.





My thanks to you. Your response to my request for support and 1990 dues was great. For you that took the mighty pen in hand and included a note of appreciation "your welcome", It's a good feeling to know that you like the direction were headed. An even bigger "THANK YOU" to you that took the time to write and submit an article. As you will see, the article contributions in this letter provide some excellent safety and building tips. I notice that several of the articles were prepared and typed on computer word processors. It would be a great help in the future to have a floppy disk, along with the printed copy. This would allow a direct read-in to my publishing software without retyping. I can read any IBM compatible disk, let me know which



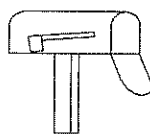
wordprocessor you are using. The newsletter sections that I would like to have as standard fare will be, Letters to the Editor, Safety and Flight Operations, For Sale Items, Announcement of Events, Reports on Events and a Building Section. Your suggestions are welcome for any changes you would like to see to this general format.

No one ever said that doing this newsletter would be easy. I can tell you, however that it certainly is rewarding, in the many people you meet and have an opportunity to learn from. We have an association of individuals with varied backgrounds, to name a few; a 59

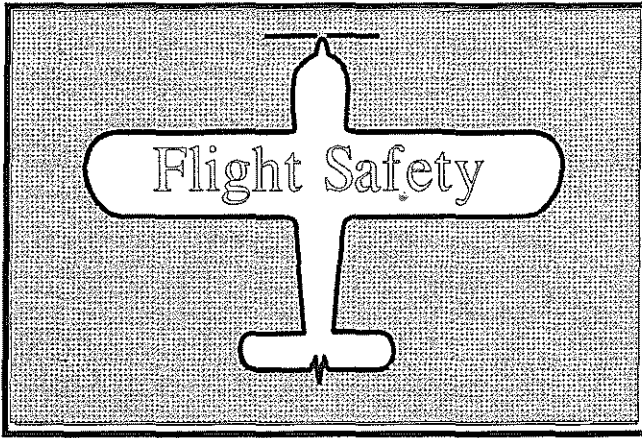
year old going back to college for an engineering degree, truck drivers, doctors, engineers, and military pilots, etc. etc. all having a common goal and interest, by sharing this background and building experience we add momentum to each project and as a result more T-18s will be in the air. One thing is clear we are an old bunch, (I am qualified to say that at 54) and should be working to get some younger people into the building stages. A ride in a T-18 is the best sales pitch you can give. For a new builder nothing helps more than to have a mentor, to provide help and answer questions when those hard problems arise. I've had several over the years including Howard Henderson, and now Paul Kirik. I don't think this is an easy plane to build, It might be possible to rush and assemble a fuselage in several days. However I can tell you that Paul Kirik's Wright Brothers Award didn't come from that sort of work. In my case I spent more time than that just deburring and dimpling holes after taking it apart after initial assembly. Maybe the hardest part is sticking to one project for such a long time. If you've backed off get back to it, start again on some small item and finish it. This will provide a rewarding experience that will carry you on to the next item, and someday a flying "Tiger".

On a sad note, Sylvan Keebler, Bentonia, Mississippi passed away, as mentioned in Letter #73 he had been ill for some time.

In closing, The Paines sent me an announcement of another "Kentucky T-18 Get Together, its on May 11 & 12, so hope to see you there. Last years turnout was 20 T-18 and over 50 people everyone had a great time!



Please fill it!



More Gear Problems!

Dear Rich, In regards to cracked welds in the landing gears. I have a crack on both gear legs on front side (don't know about back side yet) at cross member. The legs are not bent. Suspect fatigue after 500 hours flying and a landing on sod at Beaver Island, Lake Michigan in October 89. I don't know what they used for grass, but it just shook the whole airplane. Some kind of knobby FAA approved weeds!

This gear cracked on R.H. leg and bent aft 1 1/2" in 1983 when my partner at that time was trying to learn to fly. It is 2 1/2" longer, purchased from Jenkins.

We bought another gear from Brock and that didn't crack, but R.H. leg bent aft 1 1/4". My partner quit.

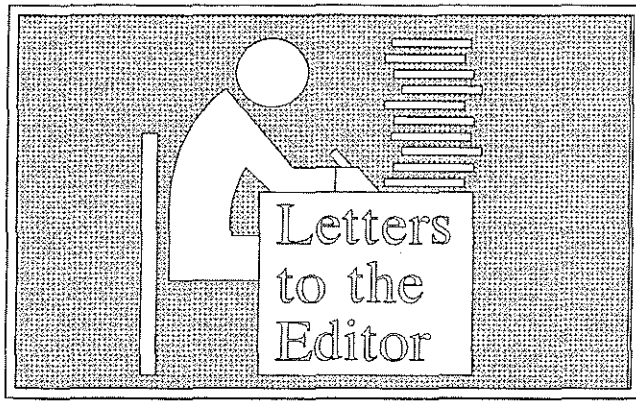
Purchased a 4130 tube to slip over the leg and slotted to clear the cross member, but didn't use it. Instead, I had the Jenkins cracked gear welded and completely reannealed and heat treated by a high class heat treat shop in Detroit. This is the gear that has a crack on each leg now.

It is a weak spot on the airplane. In 1983 Bob Dial had a cracked gear in his hangar from some other guy's T-18. Cracked on aft L.H. side.

I am glad to see someone like Jim Paine is looking into this who can get somebody to run some numbers on a fix. Sincerely Dick Amsden S/N 1268, N32AH, 150 HP Lyc 0320G, 926 lbs. empty wt. TT 570 Hours. 20704 Birch Meadow Dr. Mt. Clemens, Mi 48042

Another letter: This one from John F. Kenton, *** Do any of the fellows experience landing gear bending at the axle stubs? I have already shimmed my axle stubs twice to put them back into tracking alignment.** John Kenton 16611 126th Pl.SE, Renton, Wa 98058

Paul Kirik will be writing this column in the future, he didn't make it this time due to taking his Multi-engine, plus installing a constant speed propellor in his T-18, he's a busy man.



We've recently moved to rural Oregon from too busy Orange County, Calif. Flying here is great, and no crowded skies although a bit more IFR Weather: which brings me to A REQUEST-- Would like to know if anybody successfully installed a two axis autopilot in a Thorp ?? Would be glad to accept a collect call from any of the members who could shed some light on it, or a note with some of the details. Good luck with the newsletter. Don Skeele, 16933 Old Mehama Rd., Stayton OR 97383, Phone # 503-769-2563

Editor: How about it folks? Some one give him a shout!

Dear Richard:
Here's my 1990 dues looking forward to your new newsletter. T-18 s/n 1087 N394AC has been flying since about 1977. I purchased it in 1979 and have approx. 800 hrs on it. Harry Wheeler, One Dana DR., Groveland, MA 01834

Dear Richard: Good luck with your new job as editor. I look forward to receiving the upcoming issues. I own T-18 N262PE, currently disassembled for rebuilding. The newsletter have been an excellent source of information & encouragement. Keep up the good work. Thanks, Randall L. Porter, 1565 Glenwood Way, Upland, Calif 91786, Phone 714-985-8655

Editor: I remember hearing a great story about that airplane and a controller, something about I'm too sick to P-- also. (N262PE) What was that all about?

Dear Richard: Enclosed is \$25 for 1990 Newsletters. I am just in the process of completing my first T-18 and will base it at Whiteman Airpark. S/N 682, Gordon MacDonald, Glendale, Calif

Dear Richard, I would like to personally thank you for carrying on this task and I will support your efforts to the best that I can, My T-18 has the 0-290 "G" engine, standard wings/fuselage. I'm on the horizontal tail now. S/N 1075. Thank you Nicholas Shewalter, 4250 New Lothrop Rd. Corunna, MI 48817

Richard, Welcome. I like what I see. Your computer will clearly add a sense of class and professional look. I fly T-18 (N794PT) and have attended Oshkosh, Arlington et. al. If I can help by contributing please let me know. Thanks for what your doing! Ron Johnson, Sparks, Nevada.

Editor: Ron, how about sending a sketch of your firewall, showing the location of items in the engine compartment? Thanks!

Dear Richard, Thank you for taking on the T-18 Newsletter. I really appreciate the time Dick has put into it and what time you will be contributing. I'm building an S version that is probably about 30% there. The projects for sale are of special interest to me. I hope to streamline my costs & time a bit that way. Thanks again, Terry McCartney, 22 134th St. SE, Everett, WA 98204

Editor: We all owe a large debt to Dick

Cavin and don't forget his wife, both have spent hours upon hours getting the newsletter out. The Tuesday Night T-18 banquet at Oshkosh this year will be held in Dick and Mrs Cavins honor. So let's all be there to thank them personally.

Dear Dick, I am building T-18 #166 with an O-290 G engine. The fuselage and wings are complete. I bought the project from Dave Simpkins nearly three years ago. I have nearly completed the engine installation. Only the cowl installation and cockpit remain to do, prior to assembly & rigging. I have received several responses to my letter published in a prior newsletter, These were forwarded to me since I have moved since writing the letter. I would appreciate a note explaining the address change, in the newsletter. I am planning on sending a regular contribution of information to you. I would like to see information from others on accessories and etc. There are Mags/ignitions which improve the performance of the Lyc. engine. Digital tacks and many other things. New address: Brad Chapman, 4512 SW 99th Ave., Beaverton OR 97005. Thanks for your commitment to publish the newsletter. Brad

Editor: Thank you Brad, I'll be looking forward to your articles and tips.

Dear Richard, Thanks for taking over the Newsletter. Sure have gotten a lot of good info from it. I have upholstery, engine baffling and cowling to go. Will send info after it flies. Good luck with the letter. Sincerely, Bob Koepp, 1380 Sunny Heights Rd, Fallbrook, Cal 92028, Phone # 619-723-8755

Dear Richard, Enclosed is a check for \$25.00 as dues for the 1990 Newsletters. I built my T-18 in 7.5 years, finishing in 1982. I have a standard body with a standard wing.

Power is a O-320 with a wood prop Sen 66-74. In 8 years of flying I have just over 400 hours flying time. I am based at Oakland Pontiac Airport in Michigan. Tail No. N8AL. I look forward to the news letters. Al Bosonetto, 32625 Benson Dr. Westland, Michigan Phone # 313-261-6852.

Richard, Thanks for taking over. Sincerely John Evens S/N 1171 P.S. N71JE should Fly this coming season.

Richard, I hasten to write this because I just sent in \$15.00 for the dues two days ago to Dick Cavin, not knowing the correct amount. Also, I sent in a sketch of my fuel system on my T-18C which I thought might be used in Dicks' publication. Dick has done a superb job on the newsletter and it is good to see that he can now relax from it with you taking it on. I am the newsletter editor for EAA Chapter 26 -Seattle, and know that help is needed. If there are any areas that you are interested in for the T-18 newsletter that I might contribute drop me a line. In the meantime, when you next make changes in the roster please correct the spelling of my name. There is no "C" in it.

I am getting close to finishing my airplane and to start of testing and first flight. It has been over fourteen years since I started but this year hopefully we can get it to Oshkosh. There are four or five T-18s from Seattle that are planning to make the trip as a group and I want to be part of that. See you there. Sincerely, Frank Snedeker, 5528 231 Ave. SE Issaquah, Wa 98027 Phone # 206-392-0124 P.S. I really like the logo of the T-18 on the letterhead of your letter and would like to use it on my own if you would give me permission.

Editor: Frank, everything is straight on your dues, thanks, I still don't have the article on fuel system so will include it next time. The

T-18 logo is from Phil Tucker's Sport Aviation New Catalog. I called him this week to see if it would be ok for others to use the picture, he said sure. I will be running a better picture of it later with a credit to Phil.

Dear Richard, I have my dues paid for 1990, but I know that to start publishing the T-18 Newsletter from a new base will entail extra expenses to get things moving along in an orderly manner. So here is my check for \$25.00. Having lived in Dallas some years ago, I have known Dick Cavin for about 30 years. I think that he has done an outstanding job in publishing the T-18 Newsletter, and Dick has done very much for the entire phase of Homebilts. Its time for him to take it easy- I am the owner of Thorp T-18 S/N 22, N22DD. I have been flying it for 13 years and enjoy every minute that I get it off the ground, and into the "blue yonder". Wishing you all the success in the world as our new T-18 Newsletter Editor, with best regards M.D. Dan Dudash, North Hollywood, California.

Editor: You really don't think Dick Cavin going to take it easy, do you?? How about it Dick?

Richard, Enclosed please find 1990 dues of \$25.00 for newsletter. I'm sorry I'm not yet building so therefore will probably have no input until such time as I do. I certainly wish you the very best of everything in this venture. As you have already indicated you are keenly aware of its magnitude. I don't know if it was passed on to you or not but if anyone wants a tape of last years T-18 meet at Paduacha, Ky. tell them to send me a tape and I'll run one off and return it COD. I don't expect to make "OSH" next August as we will possibly be traveling through that period in Southern and Western USA. Take care, Jim Strickenberger 4344 Gem Ct, Erie Pa. 16504.

Richard, Thanks for the notice, I am sending the \$25.00. I am rebuilding a T-18 built in Michigan years ago. Having some problems as it wasn't built very well originally. I think it will be finished this summer. I hope I can get to Oshkosh this year if only for the weekend which I have been able to do for the past several years. I can't seem to get a vacation that time of year. I am a city truck driver for Churchill Truck Lines and this is my third homebuilt project. KR-11, Dragonfly, were both started from scratch. This is the first and last rebuilt project for me. Sincerely Kenny Rantz 9805 P Cir Omaha, Neb 68127 Phone # 402-593-9492.

Editor: We could use an article on what to look for, "watch out for" in buying a project or a finished plane. After my last purchase I'm no longer qualified to write that story. The song is called "blinded by the light". There aren't very many short cuts to having a good T-18.

Richard, Enclosed Check \$25.00 for the 1990 Edition of the T-18 Newsletter. I am confident that the Newsletter for 1990 and on, in future years will be in good hands... Our friend Dick Cavin has done his share in providing the newsletter in the past and indeed deserves a big thanks from all the T-18 builders... Respectfully Yours, Ernest J Estefan, 1414 W. Jackman, Lancaster, Ca.

Editor: Ernie's letter just about says it all, Thanks

Dear Dick, I compliment you on the content and quality of the last T-18 Newsletter. I'm glad to see someone with your ability and initiative take over and continue this important clearing house for T-18 news. I have recently installed a different electric motor for mystab trim. *** *Editors note: see Gary's article on electric trim in other section of this newsletter* ****

Marty Sidener has purchased Karl & Mazie

Lipscomb's S-18 so there are now 2 T-18s on the airstrip here at Pecan Plantation. We'd welcome any transient T-18ers and can house and hangar overnights. Maxine and I are looking forward to the Spring T-18 round-up at Kentucky Lake. Hope the attendance and weather is as good as last Falls.

P.S. Pecan Plantation is on your Dallas sectional, 30 miles SW of FT. Worth. Five miles south of the Acton VOR. 3600', paved. Transient T-18s welcome. Gary & Maxine Green, 2530 Bellechase, Granbury, Tx. 76048 phone 817-579-1995

Editor: Good article on the electric trim Gary. I plan to use it in my bird if I can find one of those switches. Help!

Dear Richard, I'm glad that I gave you a call and that we had a chance to talk. I'm excited about the possibility of finding a Thorp with the help of your newsletter and hopefully flying this spring. Here's a list of what I'm looking for: low time (age not a factor), completed or very nearly completed project, 0-320 or better, Not a folding wing, \$15,000 - \$20,000 cash deal. If you run into something that I might be interested in, and you could give me a call collect or drop me a note, I would really appreciate it. Thanks for your help. Sincerely Jimmy Cash, 5602 Texoma, Enid, Ok 73703, Phone 405-237-1234.

Rich, received your note today. Briefly, Phil Tucker, from Lancaster California bought Ken Knowles' "Sport Aircraft" a number of years ago & supplies practically anything for the T-18 except the canopy & a few (?) other items. Even though I've never met Phil, I believe we know each other fairly well through many phone calls. As a matter of fact, at times I called him so often, I raised my stock in AT&T. Phil is very typical. anxious to answer my question, very generous to help with problems, quick to get

orders out & seems to be just a heck of a swell guy.

Beth, my wife & I will certainly be at Sun-N-Fun again camped in our usual spot. That's the Port-O-Let side across the road from the showers. We'll be in a white chevy conversion van with metallic gray trim. If you have a chance please find me or I'll search for you (all T-18ers).

While I've never had a ride in a T-18 maybe this'll be the year!? Big steak dinner to the driver who gives me a ride. I'll bribe anyone. Take care, Dave Goff, 3442 Putham Rd. St. Aug. Fl 32086
Phil's address is Phil Tucker Sport Aircraft, 104 E. Ave K-4 Unit G Lancaster, Ca. 93535
Phone number 805-949-2312 or 945-2366

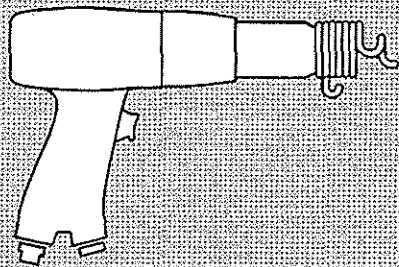
Editor: T-18ers going to Sun-N-Fun look for Dave's camp site, this would be a good place to rally. I may not make it down since I want to go to Kentucky in May and Osh. in August. I checked out the cost of using our clubs 180 to fly from Ill Wow!, the advantages of owning your own T-18 really become clear when your talkin \$50 per hour for the club plane. Thanks for your letter Dave, by the way my current T-18 came UPS from Phil's business. He's been good to work with when problems came up.

"SORRY THIS WAS TOO LATE"

New Address for Phill Tucker!

Sport Aircraft Inc.
44211 Yucca, Unit A
Lancaster, Ca 93535

Builders Corner



In this Corner :

Electric trim -- *Gary Green*
Taming the Tiger's Tail -- *Dave Eby*
Engine Changeout -- *Harry Paine*
Canopy Installation -- *Terry Adams*

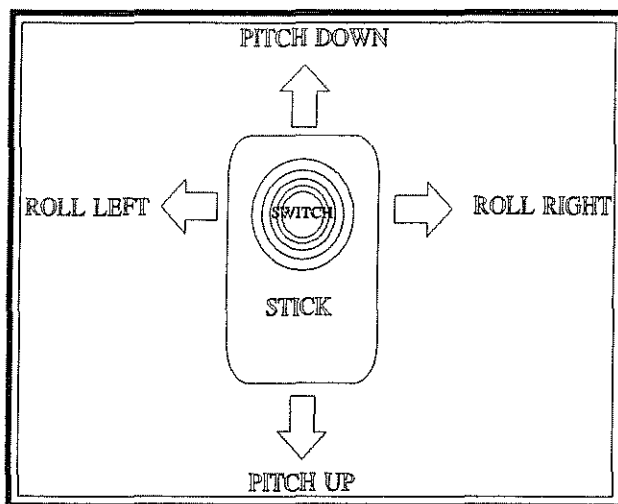
Electric Trim by *Gary Green*

I have recently installed a different electric motor for my stabilator trim. For over 9 years I have used a power window motor from a mid-70's Chrysler. It has always been too fast and powerful (and heavy) even when reduced via a rheostat/resistor to run on about 5 or 6 volts. John Mihalia and Dave Eby from Wichita Falls put me on to a better motor. It is readily available from a Grainger Store or Catalog. Enclosed is a copy of the catalog page showing the motor.

I installed the 12 RPM Model (#4Z837) and Gary Cotner from Tulsa installed the 17 RPM Model (#4Z838). If I had it to do over, I'd use the 17 RPM Model also. My 12 RPM is just a little too slow and Cotner's 17 RPM seems just about right.

We both have 4 position military "coolie hat" switches mounted on the stick grip to operate electric aileron and stabilator trim. They are single pole-double throw switches, thus require relays to operate. Cotner built our relay boxes out of Radio Shack components and they are encased in small plastic boxes about the size of a cigarette pack.

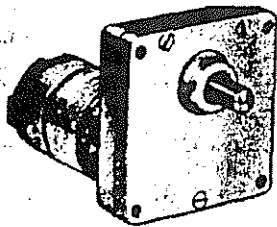
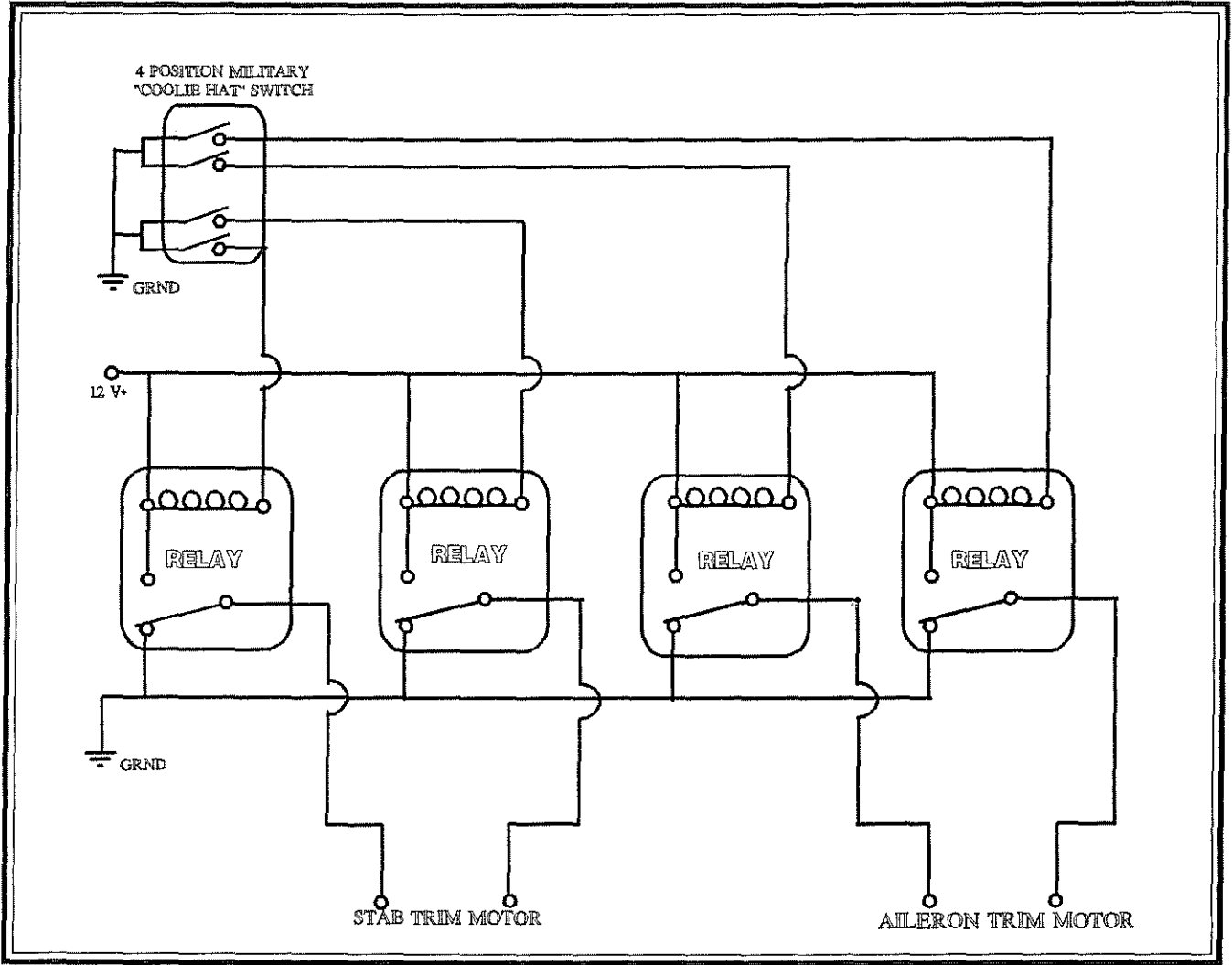
I mounted the motor on the bulkhead aft of the rear baggage compartment bulkhead. It couples up to the original aluminum tube that drives the trim jackscrew as per T-18 plans.



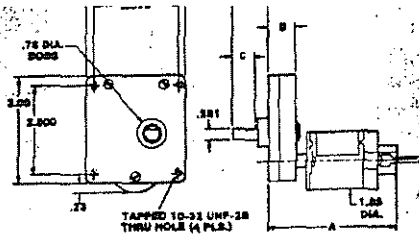
Control Stick

Gary Green
2530 Bellechase
Granbury, TX 76048
817-579-1995

Electric Trim Continued



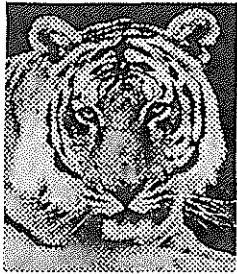
Dayton



GEARCASE CONSTRUCTION
BEARINGS: Fully enclosed, self aligning, porous bronze
GEARS: Heavy duty steel spur for long life and reliability in reversing applications.
MOUNTING: All position

MOTOR CONSTRUCTION
TYPE: 12VDC, permanent magnet
HP: 1/1200 to 1/90
DUTY: Continuous
ROTATION: Reversible
BRUSHES: Externally replaceable
LEADS: 6"

Full-Load RPM	No Load RPM	Full-Load Torque (in/lbs)	HP	Full-Load Amps	Gear Ratio	Dimensions			Stock No.	List	Each	Shpg. Wt.
						A	B	C				
0.45	0.58	50.0	1/1200	0.30	2420:1	3.60"	0.80"	0.641"	4Z832	\$54.00	\$38.14	1.5
1.5	1.95	25.0	1/1000	0.33	871.5:1	3.60	0.80	0.641	4Z833	53.00	35.41	1.5
3.4	4.31	31.5	1/400	0.60	580:1	3.85	0.80	0.641	4Z834	55.00	36.41	1.5
4.5	5.61	38.0	1/200	0.90	580:1	3.85	0.80	0.641	4Z835	54.00	36.05	1.5
8.75	11.14	35.0	1/120	1.10	267.5:1	4.22	0.80	0.641	4Z836	56.00	37.64	1.5
12.0	17.00	40.0	1/90	1.70	191.8:1	4.60	0.80	0.641	4Z837	58.00	38.50	1.5
17.0	22.00	16.0	1/160	1.10	135:1	3.95	0.54	0.718	4Z838	50.00	33.11	1.5
				1.02	057:1	4.22	0.54	0.718	4Z839	54.00	36.14	1.5



GROUND HANDLING

by
Dave Eby

“TAMING THE TIGER’S TAIL”

In 1979 Dr. Shinn wrote an article in newsletter #48 on main gear alignment. He explained the forces on the wheels and reaction to misalignment. “The Sportplane Builder” also has a chapter on landing gear alignment. To both of these, I want to add some techniques learned in the process of rigging T-18’s to have docile steering characteristics on takeoff and landing – Experts at this- forgive me for telling you what you already know.

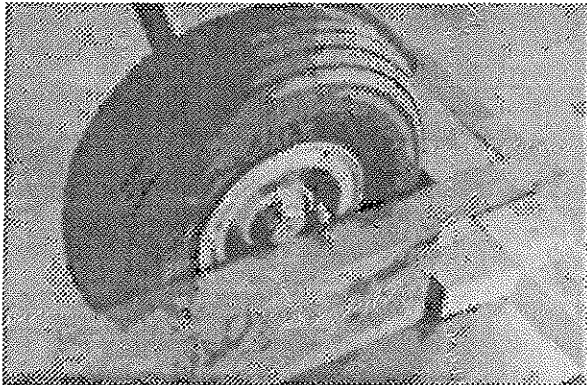


Photo #1 Checking Toe In/Out

MAIN GEAR ALIGNMENT. This procedure is borrowed from a Cessna service manual; it is easy and cheap. Make two sandwiches. Instead of bread, use sheet metal about 18" square. In place of peanut butter, use grease. Center the sandwiches in front of the wheels on the floor. With the tail wheel trailing straight back, roll the aircraft forward on to the sandwiches. Roll it back and forth a few times without the wheels leaving the sandwiches. This puts the wheels in a set unaffected by the floor.

Now measure the “toe-in-toe out” of the wheels. Place a straight edge against the rear edge of both tires half way up the tire. See photo #1. With a large “T” square, measure the angle between the straight line behind the tire and the outside edge of the tire. With the square against the straight edge, slide it in against the tire. It should touch the front and rear side walls simultaneously. If it doesn’t install shims between the axle and gear leg to eliminate any toe-in or toe-out. You can get shims from Aircraft Spruce or make your own. I have checked 3 T-18 gears - all from the same manufacture. All had about one degree of toe out built into them. This shows up in use by wear on the inside of the tire if not corrected. Now check the vertical tilt of the wheel - camber. Place the square on the floor and against the tire. See photo #2. Camber will change slightly with load, so the consensus of the “experts” is to have a small amount of inward tilt at the bottom of the tire. As you slide the square against the tire, it should touch the top of the tire with a gap of about 1/8" at the bottom.

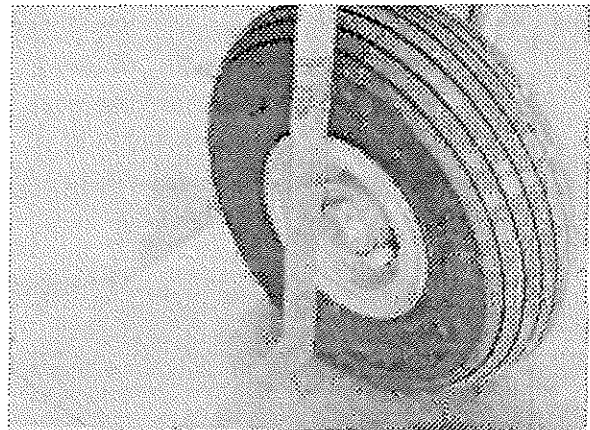


Photo # 2 Checking Camber

TAILWHEEL ALIGNMENT. These tips were in previous Cavin Grams and are repeated for those who don’t have them. The length of the main spring makes a difference. The longer the spring - placing the wheel farther aft - the easier it is to hold the

airplane straight on the ground. Another factor is the tilt of the tailwheel vertical axle. The top of the axle shaft should tilt forward. To achieve this tilt, remove the main spring and use a press to put a tiny bend in the spring just forward of the casting attach point.

RUDDER PEDALS. It would be idea to be able to hold the rudder pedal full forward, then apply brake when you run out of rudder effectiveness. If your rudder pedal rigging won't permit this, here are a few fixes. Hook the pedal to the master cylinder so the top of the pedal tilts toward the pilot. This allows you to press on the brake before the pedal hits the tank support. However, with the top of the pedal tilted toward you, you will place your foot on the bottom of the pedal for take off and landing to prevent inadvertent braking. Now because of the curved lip on top of the pedal, you can't slide your foot up to get positive braking without lifting your foot off the pedal. This can be cured by attaching tapered wood blocks to the pedals. See photo #3. There are several ways of altering the airplane to allow the top of the rudder pedal to go farther forward. One is to cut away part of the pedal to allow it to pass the tank support. See photo #3. Or cut away part of the tank support and reinforce the remaining structure. See photo #4.

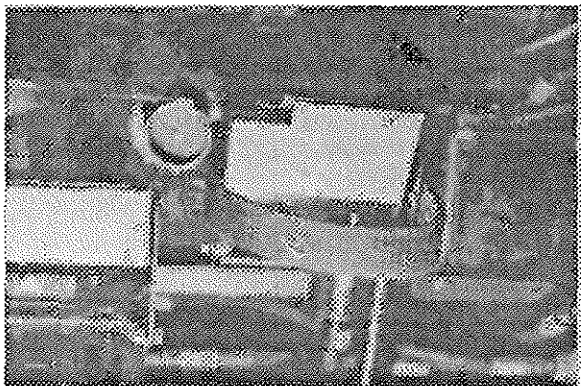


Photo # 3 Pedal Mods: Cut Away, Wood Block, Foot Restrainer.

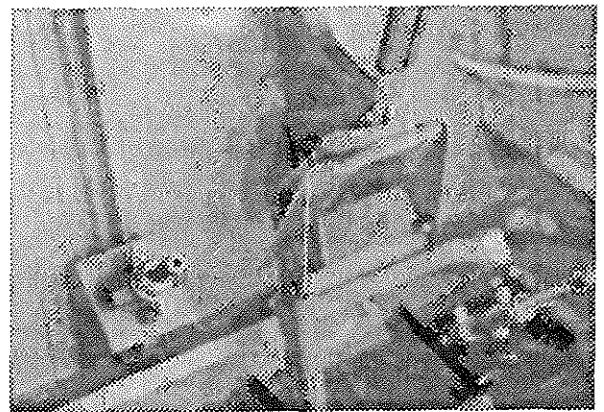


Photo # 4 Tank Support Mod

LOCKING TAILWHEEL. John Mihaila, SN 1148, 23HA, Wichita Falls Tx, made a locking tailwheel for his T-18. It is held unlocked for taxing turns by a small handle in the cockpit. Take off and landing steering is much easier than with a steerable tailwheel.

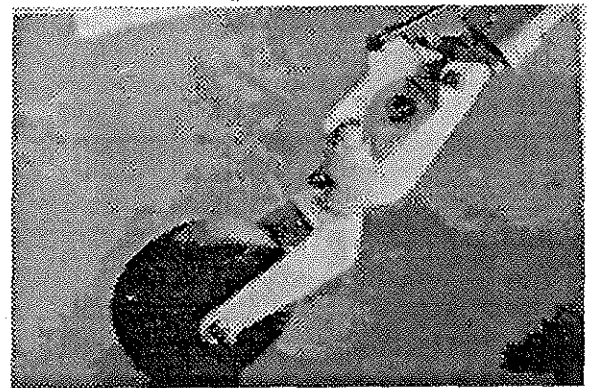
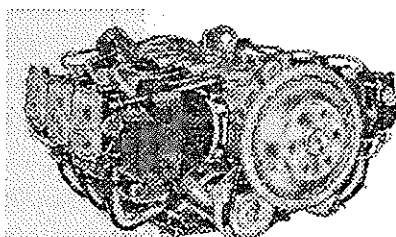


Photo # 5 John Mihaila's Locking Tail Wheel

HORROR STORY SECTION. If your airplane doesn't have a forward tunnel, pay attention to this: one of the reasons for the tunnel was to keep your feet on the inboard rudder pedals. Follow this scenario - an "instructor" is teaching a "student" to land a T-18 that doesn't have a forward tunnel. The instructor keeps his feet back away from the pedals so the student can get the feel of the rudder and tailwheel steering response. When the instructor takes over to correct a swerve or assist the student, it is possible for the instructor to not place his

shoe squarely on the inboard pedal, and have it slip off into the space where the tunnel would have been. To prevent this from happening, attach a loop of industrial belt to the pedal so it crosses an inch or two above the shoes laces of the foot on the pedal. See photo #3.

Dave Eby
3206 Martin Blvd.
Wichita Falls, Tx. 76308
817-766-2523



Engine Changeout

by Harry Paine

It has taken about one year for me to have something to write about. Last March I finally completed replacing my 0290 for and 0-320 E2D. It was more than just removing the old and putting in the new like a lot of people said! If someone is thinking of doing it, count on changing the engine mount, adding or subtracting engine mount washers to make the new motor align properly, making new baffling, new intake system, new wiring for starter and alternator. All new engine controls, new fuel system, and maybe that's all!!! Some of the major problems were as follows:

1. New location of carburetor did not allow use of old intake/filter system, (which worked really well using and air filter from

a 327 Chevy motor) After looking around, I finally ended up using a modified shape Vans RV-3 intake with the optional filtered air for carb. heat. It works great! At cruise, I get an additional 125 RPM from direct ram air. The only disadvantage so far is that it gets a lot of water accumulated if it sits in the rain.

2. Bigger motor that's nice and tight does not let direct drive starter work good at all. I put in brand new #4 cable hoping to help and it did, but on a cold Wisconsin winter day, I'd need a jump start. As far as any engines 0320 and bigger, they need to have a geared starter. I just sent away for one of those new Skytech geared starters. Will report on this later!

3. New motor runs lean at full power!! I've read about this problem before so I changed the carb. first to a MSA-4P-5009 which according to the man (who wasn't any help) at Facet Aerospace, is one of the richer running carbs of the 0320 series. This helped a little bit. So then I drilled out the main jet to .040; this helped a little bit more but not enough. So I drilled it out again to #37 drill. This still didn't get the job done. Talking to a bunch of experts, I finally ended up flying (yes it would fly fine at full power with carb. heat on, and over 5,000 feet I could take the carb. heat off) to the Bakersfield RV airforce.

They have about 18 or 19 RV-3's, RV-4's, and one RV-6. After talking to John Harmon of Harmon Special fame he suggested I put in a fuel pump, even though I have a proven gravity flow system. He even gave me a good running fuel pump that one of the guys had left over when they went to a fuel injection system. I went back home and put it in, and the engine works just fine.

Thanks John!!!!

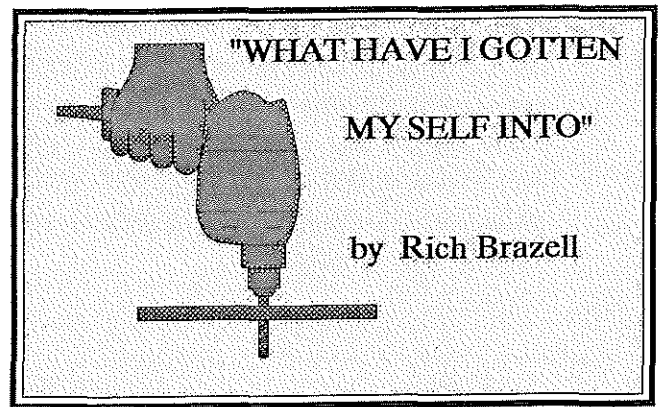
4. Put on a new motor with old 68x66 prop runup gives 2100 static and 2600 max full power!! Changed prop to 68x64 and get 2250 static and 2800 max full power and 5 mph slower than old engine! Whoa! I was going in reverse! I then borrowed Great American Props Tach Checker and found Tach was reading 125-200 RPM Slow!! Put on a brand-new style 68x70 GAP prop and now get 2200 RPM static and 2850 Max RPM. I could probably go to a 68x72 and get the max RPM down to 2700. P.S. Great American's new props are measured totally different for pitch than their old props. Another words an old 68x66 is about a new 68x71. (Sad note: GAP has closed their doors until further notice)

Those were the major problems. That carb. problem about drove me nuts. If I was to do it all over again I think I would have put and Ellison Throttle Body on it and a fuel pump to begin with. Some of the other things I did was to put fresh air systems with the intake right adjacent to the carb. intake and run a 2 1/2" SCat to the cockpit that Y's into the copilot's and pilot's Big six eyeball type nozzle. It works great. I got rid of the old corvair oil cooler and put in a regular Harrison A/C Type. Never have seen the oil temperature over 210 and that was on a 95 degree day max power climb.

Enclosed is a copy of T-18 Performance Data.

Sincerely

Harry Paine
477 Printz Rd.
Arroyo Grande, California

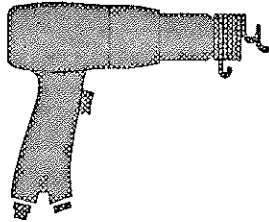


Dick: Your last N.L. really turned on the guilt factor, so here's my attempt at an article. Let me start this off by saying that my metal working experience was zero, so this article will be aimed at those individuals like myself who upon receiving the drawings said, "What have I gotten myself into!!" Having never worked with sheet metal, let alone blueprints, it first appeared I had bitten off more than I could chew, IE: Bend allowance, Butt line, dimple, etc., etc....so as a result, the partial project I bought (Ken Hamilton's) has been little more than a place for the cat to sleep in....Until recently! So for you folks out there staring at your prints or trying to decide where part #611 goes, hopefully I can lend some words of encouragement to get you started.

1. Obtain all copies of the past newsletters and the EAA article about building the T-18. Read each article, Yes I know some are very technical, but press on. They will begin to make sense later down the road.
2. Separate the blueprints into sub-assemblies, IE: fin, rudder, etc. An accordion file folder works great to store the prints in.
3. Order enough parts for a complete assembly, IE: fin, rudder, flaps, (less those you plan to make). When the parts arrive, lay them out with the prints and see how the

parts correlate. Once you do this, blueprint reading is really easy to understand.

4. Practice bending scrap aluminum utilizing radius blocks. (See book by Tony Bingeles, Sport Plane builder) for some excellent tips on making radius blocks. Drill as many practice holes as you can stand and then RIVET RIVET, RIVET....until you

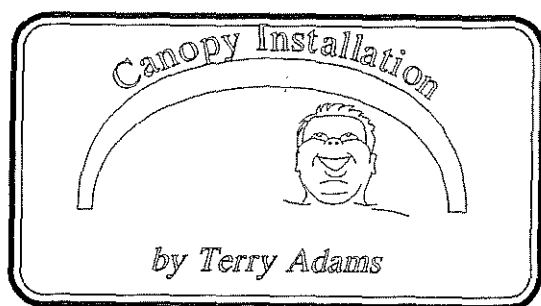


feel comfortable with the gun and bucking bars. (N.L. and F.A.A. pubs are a good source for riveting techniques.

5. Perhaps my biggest fear (after learning to read the prints) was taking an expensive part from Ken Knowles (Phil Tucker) and bending the flange wrong of drilling holes in the wrong place...well, you know what, that's exactly what happened the first time out! After numerous parts lay on the garage floor with severe battle damage, it was time to seek some experienced advice. At Gillespie field in San Diego, I found several T-18 projects in various states of completion. After talking with these gents and explaining my VERY LIMITED metal experience, all suggested that the only way I was going to build this airplane was through persistence, practice and some luck. At this point in the discussion I was shown in the corner of each hangar I visited, a pile of expensive parts with holes drilled in the wrong places and others with goofed up flanges! Could I be on the right track?



6. Now pumped up, I was determined to succeed! All the N.L.s said if you can build the fin, you can build any component on the T-18. So after studying the prints and laying out the ribs to visualize the final assembly I began to drill #30 holes at the prepunched locations. Then the ribs were clecoed together. (starting to look an airplane!) Now the fin skin. To cut out the skin (Ken Knowles punched and scribed) I used a black and decker Two-speed rotary cutter (works great on carpet, tile etc.) to cut within 1/4 of an inch of the scribe line. The skin was clamped to my work table (4x8 in N.L. #13) and shaved to the scribe line (N.L. # 13). At this point the results were more that I could have hoped for. Ribs clecoed and skin ready to be formed. I formed the skin as outlined in the EAA article and fit it like a glove! Several pilot #30 holes were drilled in the prepunched locations on the skin to check for alignment with those on the ribs. These matched so holes in the ribs were drilled at these point. DO NOT, I repeat, DO NOT drill all the holes at once. If you do, sure as that pile of scrap on my garage floor, several of the holes will be too far out of alignment to salvage with the #40 drill. Once your first couple of pilot holes are clecoed together then go ahead and drill the rest through the skin/ribs, Wow! A complete fin, less rivets! Showed my pride and joy to the gents at Gillespie field and they said it looked great! Can't stop me now! This is too easy! And too much fun! The rudder and flaps came next and the finished assemblies (less rivets) are beautiful! Once you start and resign yourself that mistakes are part of the process in building the T-18, then you've won half the battle. Dick, I promise not as long to submit another article. Well not so fast, as I finish this article, we have just moved into a new house, and you know what that means! More Honey do projects! Nuff Said for now. Rich Brazell, 3126 Calle De Oro Jamul, Ca 619-669-0583



Canopy installation:

I found it preferable to temporarily install my windshield first to allow the canopy to flow from the windshield in a smooth transition.

Install the upper front and upper rear canopy rollers. Ensure that the frame rolls freely, and install stainless steel strips on the roller tangs if they abrade against the tracks. If necessary, rework the bends in the frame to establish a perfect mating to the roll bar and fuselage sides. The top front of the frame should be slightly higher than the roll bar thus matching the angle of the windshield. With this angle continuing into the canopy, as the canopy is closed it will provide a positive seal as the windshield and canopy trim strip mesh together. Install the canopy latch.

Lay the uncut canopy inverted on the new, clean, flannel cloth. If you wish extra protection, use Plexiglas masking material (available from Aircraft Spruce and others) which can later be peeled off. Put duct tape all around wherever it will make contact with the Plexiglas as a buffer. Position the frame into the Plexiglas to establish a rough trim line. Again remember to estimate the slope of the Plexiglas at the top front of the frame to match the windshield slope. Another point is to check the fit at the rear. Once you are satisfied, mark the rough trim line onto the plexi with your film marker, leaving a generous bit extra. Trim with a flex cut off wheel mounted in a drill motor, or on

a router table. Place the frame onto the airplane then carefully install the plexi. You can adjust the plexi to achieve to best fit. Begin the careful and slow task of trimming and fitting until you are satisfied. The plexi will extend beyond the point of contact with the tube frame, thus allowing plenty of edge clearance for the large holes at each screw location. Trim the front edge so that it nearly comes into contact with the edge of the windshield.

Now either polish the edges or drill holes. I used a belt sander to begin the polishing, then filled, then sanded by hand. I drilled the holes by laying out the hole pattern from the plans directly onto the plexi with the tubing to give me a straight line. Using a #40 drill bit I drilled and clecoed each hole through the plexi onto the frame.

Now to make trim strips. To make the trim strip at the front across the top, start with a 6-8 inch wide strip of poster board etc. long enough to go from side to side over and across. Tape it in place lying flat against the Plexiglas, then mark the underside of the posterboard at the front edge of the Plexiglas and a CL. This piece should lap over the side strips at the first side hole also. Remove the poster board and mark a parallel curved line rearward 1"-2" apart (at least wide enough to give screw hole edge clearance). Transfer to 6061 al.

Each side trim strip is easy; for they are each a straight 2+ inch wide strip. Cut them for approximate length, they will be fitted later.

The back dovetail piece takes a little work. Again use a piece of poster board to start a pattern. This piece must go from side to side lapping under the side strips at the last hole. Roughly trim to size, then transfer to 6061 al. Leave in the flat.

Place masking tape on the plexi above the screw holes to protect against abrasion of the trim strips when you fit them. Mark a line onto the tape above the screw line

providing edge clearance where you wish the edge of the al. to fall. Remove the plexi laying once again inverted on the flannel. Prepare the aluminum edges. Using spring clamps, clamp the al. strips onto the plexi aligning it with the reference line. Using a #40 drill bit and a backup block, drill from the back side of the plexi through the aluminum and cleco. On the dovetail, drill only the four holes across the back leaving the metal in the flat. Once finished, un-cleco, install the tube frame and re-cleco. Install the canopy onto the airframe. At this point you will need to remove some strips as you work on fitting others. The two side strips are slowly formed with a block of wood to conform to the slope of each turtle deck skin. The front over the top piece should already fit nicely and should be trimmed to fit over each side strip.

Fitting the rear dovetail begins by shimming under the tube frame to support the rear of the frame above the deck. Provide plenty of tape to protect the plexi. Cleco the al. in position and hand form the sides against the canopy. The most difficult job is keeping the al. in place as you work the fitting of each side to match the side trim strips. Once you have a fit that you are comfortable with, the hole on each side must be drilled with the plexi off the frame, reinstall and check the fit with both side strips. The canopy should now fit satisfactorily in clecos. If you aren't happy, make the changes now.

As with the instructions on installing the windshield, ream out the holes in the plexi with a bullet grinding stone, drill out and dimple the al. strips, and apply a chafe material. Use #6 or #8 recessed screws whichever size you choose, drill out the frame holes and install rivnuts. Use either a thin strip of chafe material or I believe I read somewhere that someone used a bead of silicone.

Items for Sale

For Sale: 0290G, zero time with certified shaft, cam, and reconditioned tappets. Will develop 135hp with D2 pistons. Includes crank flange reinforcement, lugs, chrome rings, 0320 sump. Ken C. Morgan, 922 Simpson Ter, Bedford, Tx 76021 (817) 498-8533

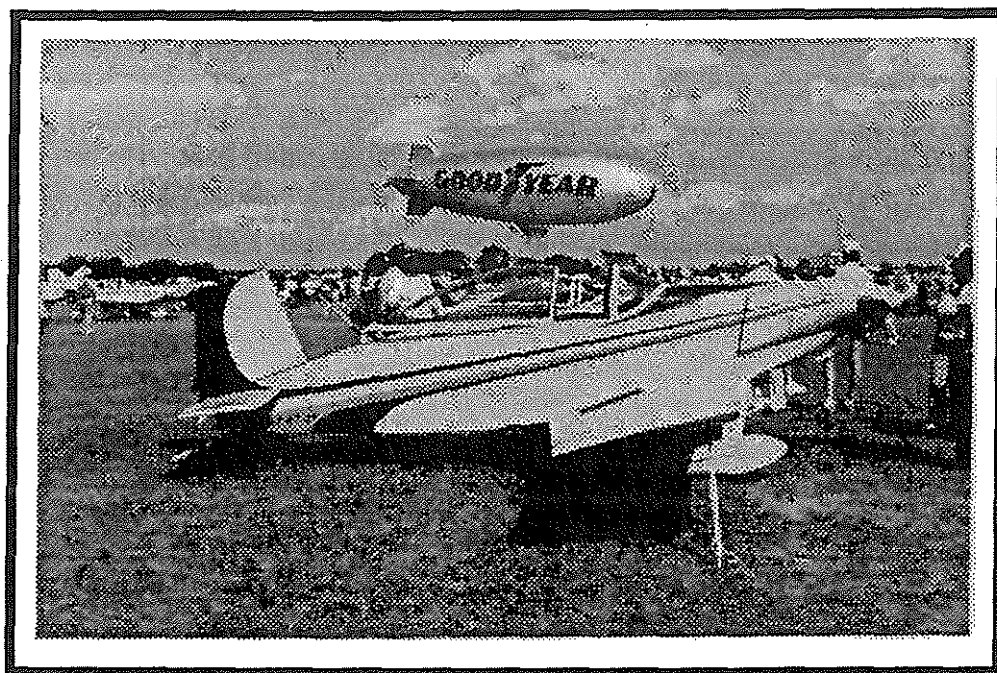
For Sale: Dynafocal Engine Mount, (Ken Knowles) \$200, Fuel Tank (Ken Knowles), \$200, Fiberglass Wing Tips (Ken Knowles), \$100 for the pair. Barrett M. Kemp 4018 Quiet Knoll Court, Houston, Tx 77059 (713) 280-8156

For Sale: T-18c Project, has 0290 power plant, fiberglass and metal cowl, basic instruments, flush riveting through-out. Bob Shuck 3401 E. 31st, Sioux Falls, SD 57103 Phone (605) 338-5769

For Sale: T-18 project. Fuselage, center wing assembled but not covered. Most parts finished. Low time 0-290-D1, instruments. Call for list. \$6000. also two Hartzell Constant Speed Propellers, HC-82XL-2C 69 inches long and HC-82XL-2C 72 inches long. Phone 1-804-420-5606 H. Karibian, 621 Woodstock Rd. Virginia Beach, Va. 23464

For Sale: T-18C, Folding wing, also trailer, has 2 Nav Comm, inter comm, incoding transponder, Loran C, artificial horizon, DG 4 EGT & CHT. 0-SMOH -0-360 A3A Lyc. Ellison Carb. \$36,000 Lyle Fleming, 20 St E. Lancaster California 93535 Phone (805) 942-2481.

For Sale: Plans for swing down instrument panel. Contact Robert Yeakey (214) 348-2947



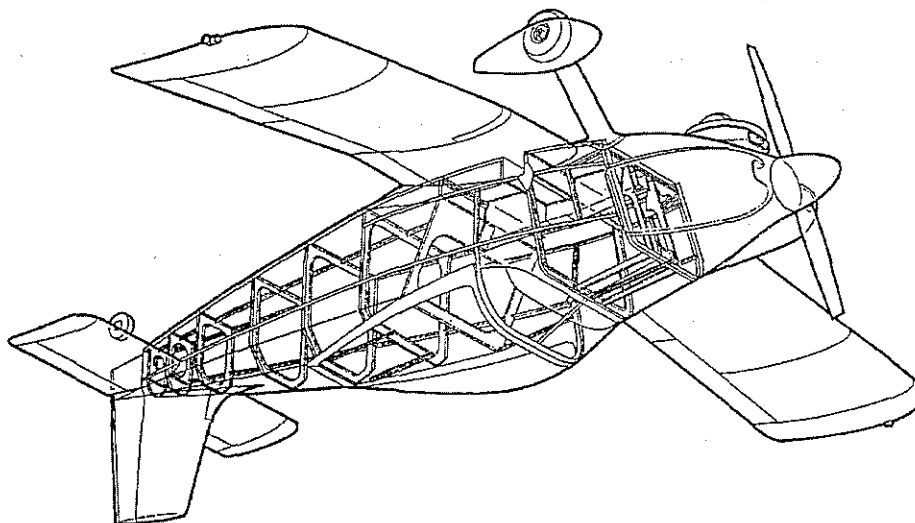
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