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FLY-IN - Those of us who were fortunate enough to attend the Rockford Fly-In had a chance to see two very fine T-18's, the second and third models to be completed. Dick Hansen's 180 hp ship (N299V built by Earl Love) has had a new paint job since the June cover picture for Sport Aviation was taken. This really is a beautiful aircraft in every respect. It was flown to Rockford by Jim Roberts.

Ralph Thenhaus wasn't able to attend but his T-18 was flown there by Jack Park and Lee Hamlin. Many of us were fortunate enough to get a free ride in this ship. We passed a hat among the guys who had rides to help pay for gas. If you had a ride and missed the hat, you might want to send a little donation to Ralph Thenhaus, 6536 Colbath, Van Nuys, Calif. This was my first ride in a 125 hp model and I was very much impressed. The canopy was quite tight and the noise level below many good factory aircraft.

The Fly-In gave everyone an opportunity to talk to other T-18ers from all over the country. If you picked up any helpful ideas, send them in and we'll print them. I hated to leave before the forum but I was flying my SkyCoupe and the weatherman said I'd have a tough time getting home if I didn't leave before the bad weather moved in.

Here are some things I picked up:

1. John Thorp no longer recommends the use of aluminum type pop rivets. Their shear strength is fine but tension is poor. He is using monel pops exclusively.
2. Sometime ago I told you to not make the counterbalance weights (626) for the anti-servo tabs. John says they are not needed at all and should be eliminated..
3. Jack Park had a beautiful model of the T-18 on display. It was the same model he used for wind tunnel tests which he will be describing in a forthcoming article in Sport Aviation. The tests verified that the T-18 has very low drag ($C_D = 0.025$ at Reynolds number of 500,000).
4. If full right rudder and simultaneous full right brake capability is desired, do not cut a clearance notch in the tank cradle as I mentioned previously. Instead, slice off the side of the right rudder pedal for clearance. Pilots confirm John's contention that full brake and rudder are not needed under any circumstances in the T-18, however.
5. We would appreciate hearing about successes or failures in forming your own canopies. The two-place Mustang displayed by Mr. Bashby had a bubble which had cracked completely across while cooling in the mold. Forming plexiglass is a touchy business and even the experts say they plan on scrapping several before they get a good one. Even so, some of us true do-it-yourselfers will do our own, so how about some help?
6. Materials List - A.D. Ishoy, 215 Shephard St., Hartford, Mich., 49057, has made up a very complete materials list. He will send you a copy if you send him 25¢ for handling.

Was glad to see Mrs. Cavin at the Fly-In. She is feeling much better after her serious illness. Dick tells me he is getting back to normal after a hectic summer. While Lyndell was in the hospital, he was sent to 707 transition school which took considerable study. Now he's flying 707's for Braniff and trying to get caught up on back correspondence.

T-18 Club - We have now passed the 300 point in plans sold. I have said all along that when we reach 300 I would bow out and let someone else take over the Newsletter since it really gets to be a big job. We have been sending copies to everyone holding plans regardless of whether they have joined the club. So I thought we might cut down the work load by reducing the mailing list to only those who are interested in receiving the Newsletter. At the same time we might take a survey to see how everyone is doing on their projects. If you want to continue receiving the T-18 Newsletter, please fill out and return the enclosed form. If you have questions which need answered, if possible, phrase them in such a way that we can answer them in the Newsletter and thus avoid 300 separate letters. The publishing costs have been covered by donations. Most people have sent in \$2. We still have \$74.47 in the "kitty" so if you have already contributed, we don't need more yet.

Landing Gear - During my first week of vacation before the Fly-In, I made my main gear and the engine mount. So, the part I feared most is completed. I made the gear in two pieces, as described in the May 17, 1965 Newsletter, to facilitate heat treating. To give you an idea of the magnitude of this problem, the local heat treat shop says that there isn't a shop anywhere in this part of the country which could handle the complete gear. Merrill Miller found a shop in Detroit which heat treated his for \$86, including shipping. I'm getting mine done free since the two piece gear fits the local oven. The tubing for the gear cost \$51, from Machinecraft and I used one set of welding tanks costing \$3.52. The gear was really fun to build.

Here's how I went about it: First I cut up the "tubing" into the proper lengths with a hacksaw. (This is a simple task, but undoubtedly a stiff test of your endurance.) Then, because I was fortunate enough to find a fellow chapter member having a 36" bed lathe with a steady rest, I decided to taper the gear. John recommends a taper if you have the equipment. I made aluminum plugs for the ends of the 1.5" doubler tubes and tapered them both in one evening. I tapered the lower end with a straight taper down to 0.025" wall and tapered the upper end down to 0.080". I was afraid to go to a thinner wall at the upper end since I planned to use acetylene for welding instead of heliarc and it would be tough welding anything too thin to the 0.313" tube. Then I spent one whole day cutting the taper on the lower end of the 0.313" tubes. This was more of a problem than for the outer tube. Because of the extra long length a tail stock couldn't be used. I just used the steady rest for support and clamped the other end in the chuck. Since I couldn't offset the steady rest with the tube clamped in the chuck, I had to cut the taper by hand. This doesn't sound like a very good idea but it worked out quite well. The 0.313" tube was tapered down to 1. OD..

Welding was accomplished with a regular acetylene aircraft torch with a No. 5 tip. For a fixture I took a 4' x 4' piece of plywood and sketched on it the various parts of the gear. Then I nailed a piece of wood in place to simulate the 526 attachment point. Several blocks were nailed on each side of the gear legs to hold them in place. I tacked all of the members in place and then removed the assembly for final welding. Welding was accomplished by first heating the area to be welded to a red color. I used 1/16" No. 7 mild steel rod.

Merrill Miller reports that his gear warped during heat treating so the axle attachments were not properly aligned. Rather than having them ground -- an expensive job for the average guy -- he just turned out wedge-shaped shims on a lathe and adjusted them to true-up the axles.

This sounds like a great idea for I had no idea where I was going to get mine ground.

Tips - Several people have sent in this one. For a cheap dimpling tool, take the mandrel (stem) out of a countersunk type pop rivet and re insert it backwards. This rivet can then be pulled into a countersunk block of 3/8" aluminum to form dimples. I personally wouldn't recommend this for outside surfaces except in emergencies because it doesn't produce a nice smooth job. The area round the dimple becomes deformed - concaved. You will make a serious mistake if you don't try the very simple tool we described in the May 17 Newsletter.

Kent Hugus, (Sport Aero) sent in some handy tips.

"Tip 1: If holes are not very cleanly deburred before dimpling, cracks may develop during the dimpling operation, or later as the craft is subjected to normal flex. Paul Knepper, Spring Valley Road, Macungie RDL, Pa., recently sent me a deburring tool for \$2.50 which operates like a push screwdriver. One could simply duplicate this by attaching a wood or metal countersink to a push screwdriver. The idea during deburring is to get the cutting edge away from the hole smoothly and not leaving a small slash from which fatigue cracking would develop.

- Tip 2: Converting the Whitney No. 5 Junior Punch to a squeeze riveter -
- a. File or grind the 1/4 (or F if you bought the wire gauge set) punch tip absolutely flat, break the edge cleanly. Smooth with emory and rouge or whatever and bring to a bright finish.
 - b. Do the same to the tip of any AN7 undrilled shank bolt.
 - c. Install the ex-punch in normal fashion and substitute the bolt for the die -- viola!
 - d. Max capacity is Ad 3 and 4 flush rivets. Dash length is limited to -4 (1/4) by the width of the tools jaws. It will handle those trailing edges if you are flush riveting.

I have written Whitney about special ordering the necessary inserts to also use this tool for 100 and 120 degree dimpling and also driving AN470 AD3 and 4 rivets. If the sets can be purchased at a reasonable price, Sport Aero will stock them.

Tip 3: If the builder can plan far enough ahead, crease the leading edge radius on wing skins using the spar channel as a base and the spar angle with a two by four to put the pressure on from the top. Protect all with butcher paper. Hang creased skins from the rafters to keep them out of the way."

This last tip must work alright since they use this on the HP-11 glider wings. I have personally never had any success with it and found that a 2x4 and C clamps works nicely on short sections and gives precise control over the shape and alignment of the radius.

Fiberglas - I have spent the last month doing nothing but making a fiberglas wing tip mold. John Shinn made the other one. I don't plan to sell any wing tips (Lee Hamlin sells them for \$35.) but if anyone nearby wants to borrow the molds, contact me. Next month I'll have an article on the trials, tribulations, plaster dust, sweat, and successes of making fiberglas parts.

Instructions - We now have a good set of masters for the Building Instruction. If you want a set, send me \$2.00 for printing and mailing.