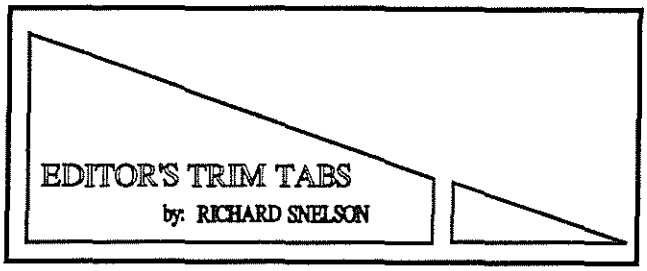
T-18 NEWSLETTER

ISSUE NUMBER 80

Brooks Hanna's T-18, from Spearfish, SD

In This Issue:



Summer 91'

One thing that always occurs right after Oshkosh, is the end of the summer. Have you noticed that? Oshkosh has become the signal at our house that soon the kids will be back in school and the teachers, which includes RoxAnne my wife, will be back in their classrooms. This year Oshkosh and the realization of another summer passing seemed to come very quickly. That's what happens when you have a lot of irons in the fire and you're happy with what you're doing! In spite of summer never being a very productive time for me with the T-18 project, I did accomplish quite a lot during this one. My new epoxy cowling has been drilled and fitted and it looks great. It's strong and lightweight with an average thickness of about .050 inches. It's an improvement over the first ones from Sport Aircraft. Good job on the cowling Phil. (Sport Aircraft, 104 E. K-4 Unit G. Lancaster, CA 93535)

My first T-18 builders workshop, here in Clinton, Illinois went well. We had people from four different states. I think we were able to jumpstart several builders and give them some good tips on just where and how to start a T-18 project. I want to thank Don Thompson, Kokomo, Ind. for coming over and giving me some help. Don was here for both days, in spite of quite a long drive to get here, and took on several parts of the training and demonstrations. Thanks Don! If we have enough interest we'll try and do it again next year.

We had a great time at the fly-in and you can get some of the details in the write up "Oshkosh 91". Also Pat & Dave Eby sent in a great bunch of pictures from Oshkosh! Thanks Guys!

During the past year I've received several T-18 Operators Manuals but never any as complete and detailed as the one Tom Kerns just sent me. He has put hours of work in it and has covered all aspects and flight conditions for the T-18. By starting with his manual, anyone could customize it for their specific T-18, with just a little work. Tom is making it available to us either in hardcopy or on computer disk for a small cost. See his letter in the "Letters to the Editor" section, this issue for details.

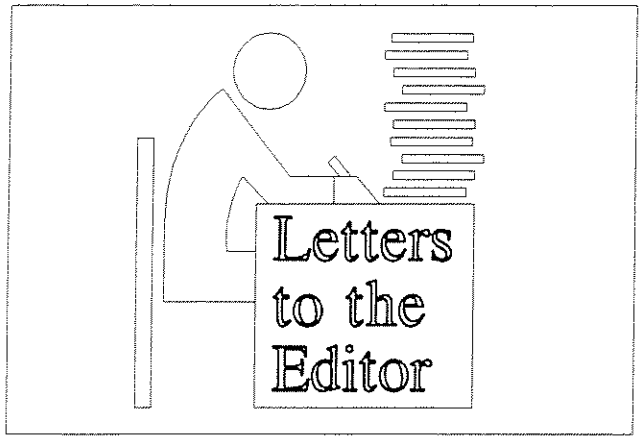
We have several letters from members, on the subject of the prop failures and the problem experienced by the T-18 with tail oscillations, described in Newsletter #79.

I'm looking forward to good weather and a chance to see a lot of you at the Fall Meeting at Kentucky Dam on October 11, 12. You should call for reservations at Ky. Dam as soon as you get this letter. Ask for the Paine Party and you may still get the lower room rate. The phone number is 1-800-325-0146

There are still over 100 people out there building T-18, so we still are in need of more articles on building for the newsletter. As you work out problems and find a better way to build an assembly, jot it down and share it with the other folks getting this newsletter. I have the newsletter index just about ready and it will be in the next newsletter. Sorry for the delay, but this one got too big to include all the index.

Regards, Rich

Richard O. Snelson
Route 3, Box 295
Clinton, IL 61727
Phone (217) 935-4215



Dear Richard;

I thought I would send you a note expressing my thanks for a very interesting builders clinic. I do wish I could have stayed for both days but family harmony is also important if one expects to embark on a building project in the near future. I was amazed at the knowledge required to do something as seemingly simple as drilling and dimpling aluminum. I am sure Sunday's class on forming aluminum and using a brake was just as informative. I do hope that my future project will show just a portion of the workmanship displayed in your T-18. Truly top notch! I'm sending along a couple pictures I took of the class hard at work. It's also interesting to note the attendance covered people from four or five states. NOT TOO BAD!!!

Again thanks for the invite. Rosie's potato salad Saturday night was delicious. I do believe a good time was had by all.

Sincerely yours, Dean Olson Hudson, IL

(Editors note: Response to Mr Taylor letter in Newsletter #79)

Dear Richard Taylor,

I read your letter in the T-18 Newsletter and immediately sat down to write this letter. DO NOT put a GAW-1 or 2 airfoil on a T-18!!! Whitcomb was a great aerodynamicist - he discovered the Area Rule for transonic flight, but he really screwed up on those airfoils. The Piper Tomahawk uses the GAW-2 and it is a dog because of it. The problem is that the airfoil has a very large pitching moment. You lose all the benefits of the laminar flow due to the induced drag caused by the large down lift required from the tail.

I am an aeronautical engineer (30 years with Lockheed) and I have access to NASA AMES library. I have the coordinates you want, but I hesitate to send them to you for the fear your will use them for your T-18. Instead, let me suggest you use a modern computer generated airfoil with a low pitching moment coefficient. The T-18 has a marginal horizontal stabulator - you probably have read of the bunt problem with high speed flap deployment, and should benefit from the low moment. One source for airfoils is: Harry Riblett 416 Riblett Lane, Wilmington, DE 19808 Phone (302) 994-0479

I am going to use his GA 35U-A312 airfoil on my T-18. He sells his catalog of airfoils for $12.95 and it is very informative reading. He has also written an article on airfoils for the T-18 which you should request.

Good luck on you project. Now I will go back to reading the rest of the newsletter.

Sincerely, Harvey Mickelson 1007 Persimmon Ave. Sunnyvale, CA 94087

Dear Richard, Please find my dues for the newsletter included herewith. I'm sure all us T-18 nuts look forward to the newsletter with great anticipation.

I won't make it to Oshkosh but have every intention of coming to the next meeting at Kentucky State Dam. It was good to meet you last May. I wish the weather could have

been better. We tried to get into the Kentucky Dam State Park Airport from noon on Friday but turned around two times and went back. We spent the night in Bolling Green. We tried once more on Saturday morning and had to land at a little airport about 70 miles SE of where you were. As you know, we finally made it at noon on Saturday. By this time we were getting concerned about getting home by Monday! When we saw what looked like clear weather to the west, away we went. Spent the night in Muskogee OK and started from there at 7 AM Sunday headed for Tuscon. Had to divert around some violent thunder storms across OK. Tucked under some clouds in western OK and kept getting lower and lower ceiling the futher west we went. When we only had about 150 feet left I decided it was time to quit! I landed on a dirt road somewhere about 50 miles NE of Amarillo and spent 2 and one half hours with a delightful cattleman and his family. Boy were they surprised when they looked out their window and saw a little sharp nosed airplane on their front lawn. The weather finally cleared and the rest of the trip home was uneventful except for the usual 40 mph headwind in that part of the country.

We now have 670 hours on N9008Z (Serial 810) and it runs better all the time. We use the T-18 mostly for cross country. We have a beautiful J3 Cub I restored several years ago. That is our "fun" airplane. Really, the T-18 is more fun to fly, it just costs about 5 times as much per hour.
Looking forward to next October (and better weather) Steve Hawley Tuson, Arizona.

Dear Richard: Just wanted to drop you a quick note reference on an item in issue #78. One way to solve any and all brake fluid problems is to use Dot "5" Silicone brake fluid. Silicone brake fluid is chemically inert, and does not absorb moisture. It is compatible with all types of brake components, and you never have to worry about internal corrosion. It is especially good for vehicles such as collectors cars and airplanes that sit for long periods of time in between use. I have been using it in my Supia for about two years with no problems. You must take care that all the old brake fluid is purged from the system if you are installing it in a system that is already in use. I did this by pouring laquer thinner through the brake lines, and then drying with compressed air. It is available in auto parts stores for about $15.00/qt. If unable to find it, try:

The Eastwood Company
580 Lancaster Ave
Box 296
Malvern, Pa 19355
1-800-345-1178

Another plus with silicone fluid is that it does not harm painted surfaces, so if you spill some, just wipe it up! Hope this helps. I plan to use silicone brake fluid in my T-18, MGB, and Cessna. It is the greatest idea since canned beer. Keep on Flying, Bob Hartmaier, 8 Holly Rd. Jamesburg, NJ 08831

Dear R. In the nine years I have been flying N10TK, I have had the opportunity to check out a number of pilots in the T-18. The lack of any written documentation for aircraft check out has been embarrassing. Verbal description and a quick demo will not stay with a pilot as long as the same training with a written description of technique which may be read preflight and kept for reference.

I have assembled a 50 page pilots flight manual for my T-18 covering operating limitations, emergency procedures, normal procedures and piloting techniques, cruise performance, weight and balance, aircraft systems description, servicing requirements, and a section of cautions regarding differences between my own T-18 and

other T-18's which a pilot may fly.

Preparing the manual took 9 months of off and on work, but I am happy with the result.

The manual should provide a good starting point for other T-18 builders who wish to produce a set of documentation for their own aircraft. The sections on piloting procedures and technique will be useful as a starting point for new T-18 pilots checking out in the aircraft.

I have enclosed a copy of the manual for inspection. I will print and mail copies to anyone who is interested for $13.00 (Editors note, also available on computer disk for $15.00) My address is 7033 Autumn Terrace, Eden Prairie, MN 55346 Sincerely, Tom Kerns T-18 N10TK, S/N 71

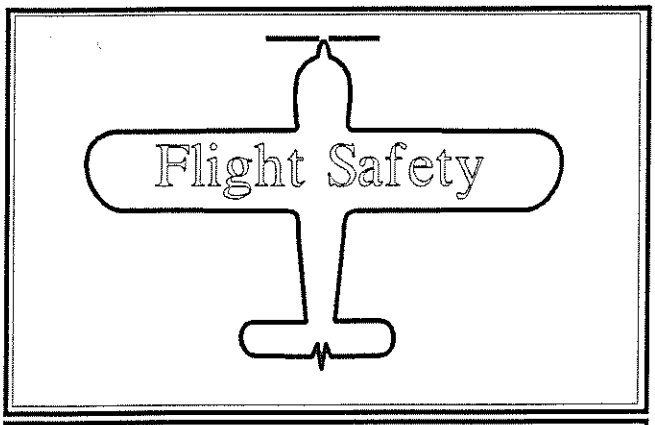
Dear R. ******** I really value the T-18 newsletter, especially as I'm putting the electrical & fuel systems in on my project.

As you might remember, my daughter and I made the sprint t-18 Kentucky Lake Fly-In this year. We had a wonderful time especially seeing the weather conditions that discouraged the hope of flying. We spent only (4) hours at the fly in but, in that time met you, your wife, & many pilots, owners & building enthusiasts. Unfortunately I was too big at 6' 6" & 240 lbs to fit for a ride, as my knees & the lower instrument panel both did not fit together. My instrument panel is smaller & mounted higher, plus the seat is lower & as far back as its possible, against the canted seat bulkhead. But, fortunately, an offer to give my 10 yr old daughter a ride was made. She was very pleased by the experience, as she was treated royally by Jim Paine flying Jim French's T-18. On her return to earth she expressed great pleasure at the sensations & sights on the first airplane ride of her life. As she disembarked, a T-18 enthusiast's wife presented her with a handmade teddy bear-music box momentoe! She wasn't ready for the ride to end & is ready to go again. She also said that now she understands what that thing in the garage is for & wants me to get moving on it! She is the oldest of (4) kids so 'moving' may still be some form of slowly. We had a great time at the fly in! Sincerly & thankfully Kim Nack 2940 Devonshire Dr. Florrissant, Mo. 63033

Tom and Betsy Kerns N10TK

Juanite and Bob Ryan N67RJ

Pat and Dave Eby N53PD



Metal Props Problems
Horizontal Tail Oscillations
Engine control cable mounting
by Lyle Trusty

More on Metal Props
by John Austin

Metal Prop Failure, Dec 89
sent in by J. Hockenbrock

14 July, 1991

Lyle Trusty
1665 West Newgrove Street
Lancaster, CA 93534
(805) 949-1131

Dear Richard:

I've been meaning to write you about a couple of things but have put it off to get ready, then go on vacation.

My wife and I just returned from a 17 day "Kid Trip" that took us from Southern California to Texas, Florida, Virginia, North Carolina, Arkansas, New Mexico and Home. We flew 36 hours and covered 5600 nautical miles, stayed from 1 to 3 days at each place and caught up on our rest as well.

Last year we covered the Northwestern US and Western Canada in a similar fashion, stopping in the San Juan Islands, Victoria, B.C. Lake Bowran, B.C., Fort Saint Johns, B.C., Peace River, B.C., Calgary, AB, Baanf, AB, Lake Louise, AB, Cody, WY, Yellowstone, MT, Albuquerque, NM and Home.

We also take "week-enders" occasionally, since it's possible to go 600 nautical miles comfortably in about 3:10. We can spend a week end in Tucson for a hundred dollars less than what it would cost to go there in a car! I cant imagine what it would have cost us to go on our kid trip on the airlines.

I'm getting carried away, so to speak. Better get to the more important stuff.

Newsletter Number 78 contained a copy of FAA AC 43-16 3/91, concerning failure of a Sensenich Model M74DM060 Propeller installed on a Thorp T-18. This accident could have been avoided since information about this problem was developed many years ago by the T-18 Mutual Aid Society that would have precluded it. Bob Dial contributed a great deal by using his airplane in a flight test program conducted by Hartzell Propeller Co. in 1972. They published a report following that test program: I will include a copy of it with this letter, which you may wish to publish in a future newsletter.
The title of the report is as follows:

ENGINEERING REPORT NO. 317
July 19, 1972
Vibratory Stress Levels of Sensenich Models M76EMMS-6-73 and M74DM-0-76 on Lycoming Model IO-320-B1A Powered Dial Thorp Model T-18 Using Thorp Thin Wall Extension, Thorp Thick Wall Extension, and Hartzell Extension

A summary of the results of that test program was as follows:
The best cut-down propeller for all large 4-cylinder Lycoming engines (O-290 through O-320) is a 76EM (old model, no K after the serial number) cut down to 70 inches' length. Pitch can vary from 65" for the O-290-G to 73" for the O-320 or, the thinner late model 76EM with a K after the serial number can be cut to 68" length.

At that time Sensenich did not recommend a fixed pitch propeller under standard 76" length for the O-360. The best experience then available showed a cut down constant speed propeller had the best service record with 1,000 hours on Doc Cottinghams 67" model.

Lou Sunderland wrote an article about this test program that was published in SPORT AVIATION's November 1972 edition. It was called "PROPELLER FATIGUE" and provided a good summary of the existing knowledge about the "propeller problem".

Since that time, Sandy Friezner, President of Specialized Testing Service in North Hollywood, CA has become the last word (virtually) on doing propeller vibration surveys. My propeller, Model Number 76EM8-8-85 SN 19706K (68 inch dia, 85 inch pitch) was tested by Sandy before I installed it on my O-360 in 1979. I have almost 1,000 hours on it now. The results of Sandys test were as follows:

Non rotating frequencies:
1st mode 4410 CPM
2nd mode 13968 CPM
3rd mode 26466 CPM

Rotating frequencies: Critical assume 4 cylinder engine

2789 RPM 2N of 1st mode
2774 RPM 10N of 3rd mode

This propeller should not be operated continuously between

2725 and 2840 RPM

A 6th order of the 2nd mode occurs at 2488 RPM but is not considered a problem order.

As an aside, I also learned that Tachourmeters can often be in error by 150 RPM. I have replaced three of them in 1845 hours because of gross RPM errors. I strongly suggest a tach check with an electronic tach checker or strobe whenever installing a new or reworked propeller or doing any performance testing.

On the subject of "Horizontal Tail Flutter" mentioned in newsletter number 79.

Upon completion of the instrumented flight test program John Thorp did on his own airplane, the horizontal stabilizer, by analysis, was cleared to more than 500 MPH. (530 as I recall) However, he limited the airplane to 210 MPH Vne, which is demonstrated Vmax minus approximately 10%. This was because he had not instrumented the rudder or ailerons and did not know at what speed they would flutter. Several changes were made to the Installation as testing progressed, with only small results until an .040" stainless steel stiffener was added to the anti servo tab inboard rib installation. As I recall, it goes from the aft edge of the rib forward to the nose of the rib then outboard for 3 inches or so. This stiffened the anti servo tab and made a very significant difference in its response to excitation. The newsletters had that modification in detail.

Second, the aircraft apparently experi-

enced what is known as a sustained oscillation, not flutter. Flutter, by definition, is a rapidly diverging oscillation resulting in catastrophic failure of the control surface. Flutter happens so fast that structural failure occurs before the pilot can take any corrective action. Sustained oscillation reaches some amplitude where the loads are less than ultimate and stabilizes until the cause of the oscillation is removed. (Usually power off and pull up is all you can do)

I have flown several first flights on T-18's and have learned to pay special attention to the horizontal stabilizer and anti servo tab rigging. Quite often the anti servo tab control arm is improperly bent with the consequence that the tab rigging is way off with respect to the stabilizer rigging. I check that the stick throw and the stabilizer throw are correct then check the anti servo tab throw and trim travel against the installation drawing. The symptoms of this improper rigging have shown up as inadequate forward trim as you accelerate past climb speed towards cruise speed. You find yourself pushing very hard on the stick to keep the nose down as you gain speed. The opposite of that is not having enough nose up elevator available to flare on landing. The only thing you can do there is to keep enough power and speed for control and fly it on.
There is one more thing I thought I would pass on before ending this epistle. The engine controls, carb heat, mixture and throttle must be anchored to a point common to the engine. Securing them to the engine mount is a definite NO-NO. The reason is easy to see if you realize the engine moves around inside the mount. Any movement as a result of the engine rotating around the point where the dynafocal mount angles converge in the center of the engine has a forward-aft component that will pump the throttle, mixture and carb heat levers if they are secured to the engine mount. The symptoms are the engine starts running rough, then rougher and rougher until you pull off power and reapply it. Then it runs okay until you hit some turbulence to start the whole process over. It also wears out the carburetor throttle shaft, etc., rather fast.

I fabricated an attach point for the engine control cables by using half inch thin wall steel tubing flattened on the ends so I could drill holes in them. I then bent the ends over so I could attach two to pan bolts and one to a carburetor mount bolt. The lower ends were then cluster welded to form an upside down tripod. I then welded a flat .060" plate to the bottom of the tripod at about the level of the mixture control lever. I made it big enough to serve as a base for securing all the cable housings in the proper position to line up with the control levers on the carburetor and caburetor air box.

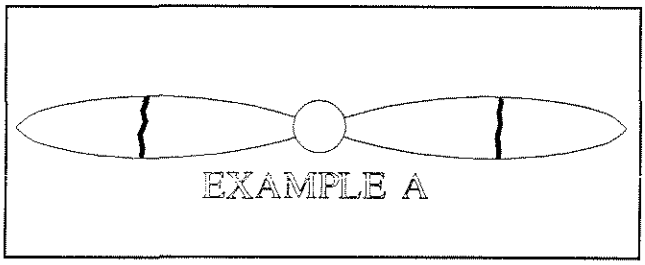
I'm glad to see you pick up the newsletter reins from Dick Cavin, you are doing a fabulous job of putting this all together for us and I appreciate it. I have been flying my airplane since August 1974 and have learned a great deal from the information in the newsletters. Much of it safety related. In addition, I have been able to upgrade my airplane as a result of the knowledge I've gained over the years until it is competitive to all but the most sophisticated equipment at many times the cost. It has made flying my own airplane practical and allows my wife to enjoy it with me in safety comparable to standard aircraft. I suggest that we ship a copy of our newsletter off to EAA Headquarters Chief Technical Counselor each time it's published so they can put out the "word" to all the Chapter Technical Counselors. I was a Designee and Technical Counselor for almost twenty years and know they are

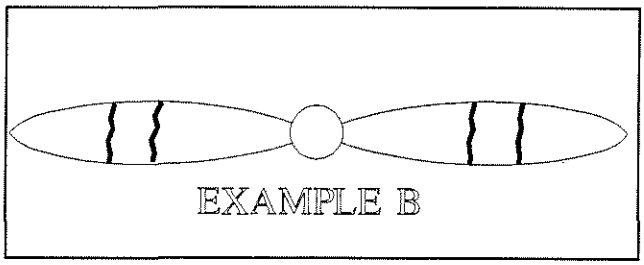
eager to get this kind of information.
Thanks again for all your efforts.
Sincerely
Lyle Trusty

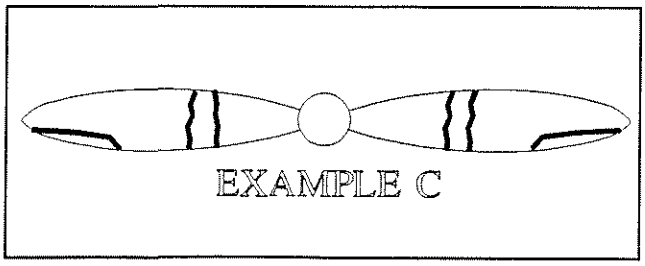
Dear R. I was sorry to hear about the accident reported in the last T-18 Newsletter concerning prop failure. I'm assuming you have the propeller test data from your response in the NL. If you don't I'm enclosing a copy of same.
I did some rudimentary prop tests when this was published along with some of Lu Sunderland's note and it was enough to discourage me from using any metal prop that has been modified. As I said my tests weren't very scientific, however they convinced me that without precise control we do not know what we are doing when we modify a prop. By cutting it down we change its physical dimensions and therefore the fundamental frequency. I would have written sooner, however I have been unable to find my previous work, so will let you know generally what I determined.

I had a prop _____(sold so don't have # anymore) that was modified by XXXXX in San Antiono. I put it on a bicycle tube bungee between two sawhorses. With only a 12 watt audio amplifier to drive an old outdoor speaker it was necessary to set the speaker on the prop hub in order to get enough energy to excite the prop. Now the total mass includes both the prop and speaker or some combination thereof. An audio oscillator driving the amp was wired to tune the system. It was possible to induce several standing waves into the prop by varing the frequency. Floor sweep was sprinkled into the blade and as it vibrated these standing waves were quite apparant. As I recall there was a fundamental node at mid blade as per Example A. Then as the excitation frequency was raised the node would move away from midpoint then later reappear as per Example B. With a final one that really convinced me to abandon metal props as Example C. As I recall using Lu's notes this calculated into a no-no rpm of about 2650. This Lateral running node near the tip was readily apparent and easily reproduced. I gave a program on this as a demo at Chapter 68 Meeting the Midland Odessa Chaper.

I'm sorry I no longer have the documentation, but I must have misplaced them after 15-18 years. Due to the low power and coupling problem this data could be way off base so far as the rpm number is concerned, however it convinced me that I did not want anything to do with a modified metal propellor. Sincerely John Austin.







Article submitted by Jim Hockenbrock:
THORP T-18, AUSTIN, NEV., DEC. 15,1989- A Thorp T-18 homebuilt crashed about 15 min. after taking off following an unscheduled landing during which the pilot expressed concern about a vibration the aircraft was experiencing. The pilot was killed when the aircraft crashed about 14 miles from the airport.

Examination of the wreckage or the Thorp (N111GC) revealed that one of the two propeller blades was broken. An outboard section of the broken blade was missing and was not recovered. Based on the length of the unbroken blade, the National Transportation Safety Board determined that the diameter of the propeller was 68 in.

The propeller was manufactured by Sensenich Corp. as a one-piece, fixed-pitch, two-blade Model M-74DM, with a 74-in. diameter. Originally purchased by Piper Aircraft Co. in 1965, the propeller was installed on N111GC in August 1979. At that time, the Thorp was equipped with a 135-hp Lycoming 0-290-G032K engine. That engine was later replaced with a 160-hp Lycoming 0-320-E2A. At the time of the accident the propeller had an estimated total flight time of 1,579 hr; less that 20 hr was on the higher horsepower engine.

According to NTSB, fracture of the broken blade occured near the middle of its length, about 17 in. from the tip. Examination of the fracture surface revealed characteristics typical of fatigue cracking throughout 85 to 90 percent of the blade's cross section. The fatigue crack originated on the cambered side of the blade at the point of maximum camber.

The propeller failure was consistent with previous occurrences. According to the Board there were at least "two other instances of propeller blade failure on the same basic model propeller installed on homebuilt airplanes." "In both cases," the board said, " the propellers were powered by 0-320 series Lycoming engines and their diameters had been reduced to 68 in. In both cases, failures occured by fatigue that originated 17 in. from the tip of the blade, on the cambered side, at the point of maximum camber."

The Board concluded that the failure of the propeller blade on N111GC was caused "by high cycle fatigue stresses induced by a resonant vibration of the propeller." As further evidence of its conclusion, NTSB cited in-flight testing performed with a Thorp T-18 powered by a Lycoming 0-320 engine on which the M-74 propeller had been cut to 68 in. in diameter. The experiments showed that when the propeller operated above 2,500 rpm, the actual vibratory stresses at a point located 17 in. from the tip of the blade exceeded the allowable level by more that 2,000 psi."

The Board pointed out that due to the complexity of a propeller design and the susceptibility of a propeller to failure when operated at speeds that excite resonance, propeller manufactures ordinarily determine the vibration characteristics for each of their propeller designs. " When the propeller diameter is changed, the propeller's vibration characteristics are also changed."

The type certificate issued for the original M-74DM Sensenich propeller, specifies a minimum propeller diameter of 72 in. for both the Lycoming 0-320 and 0-290-D, -D2, and -D2B series engines. "Further more." the Board continued, "the TC states that from a vibration standpoint, No reduction below the minimum diameter listed is permissible."'

Concerned that other homebuilt aircraft might be equipped with the same combination propeller and engine, the NTSB has recommended that FAA "notify owners of homebuilt aircraft.... about the potential danger of combining a Sensenich-manufactured M-74DM propeller with a Lycoming 0-320 or 0-290-D, -D2, and -D2B series engine when the diameter of the propeller has been reduced below 72 in." It went on to recommend that any airplanes having this combi - nation of propeller and engine, be removed from service.

And to conclude the subject of Metal Prop failures a warning from the past that some folk still fail to acknowledge and take action to get the M74's off T-18s.

THORP *Engineering Company*

P. O. Box T, Lockeford, California 95237

1 JULY 79

DEAR DICK

WE SHOULD GET A NOTE IN AN EARLY ISSUE OF THE NEWSLETTER, WARNING AGAINST THE USE OF THE SENSENICH M-74 PROP ON THE T-18

JOHN FOY'S T-18 WAS LOST UP NEAR YACKIMA, WASH. DUE TO A BLADE FAILURE OF AN M-74 PROP. BOB DIAL HAD A BLADE FAILURE. BOB COOPER WAS LOST DUE TO A BLADE FAILURE. THESE THREE WERE ON 160 HP. LYCOMINGS BUT I SUSPECT THAT IN TIME THE M-74 WOULD FAIL ON A G.P.U.

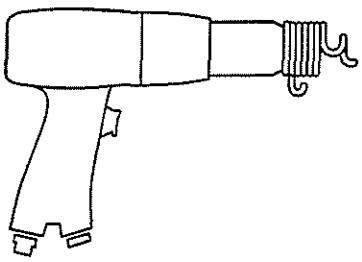
SO FAR THERE HAVE BEEN NO PROBLEMS WITH THE M-76.

I AM GLAD THAT YOU AND KEN WERE ABLE TO GET UP TO MY BIRTH-DAY PARTY.

BEST REGARDS,

John

Builders Corner



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SENSENICH FIXED PITCH METAL PROP: March 91

As reported in the Dec. '90 RVator, we had performed the initial flight testing of the latest variation (3rd) of the new Sensenich 0-320 fixed pitch metal prop. We were satisfied with the overall performance and Sensenich was about to do the in-flight vibration testing necessary before entering production. That's all that we can report at this time; we're still waiting for them. Until we have more information, we cannot accept orders.

SENSENICH FIXED PITCH METAL PROP: NOT QUITE YET, YET AGAIN.

Well, we thought we had the good news so many had been waiting for. We had the exuberant press release all written, and news of the new prop's availability had already appeared in at least one aviation publication. Now it appears that various factors in the testing program at Sensenich have taken longer than anticipated. We know this is frustrating, and want to assure you that just as soon as we know something definite, we'll let you know. Those in need dire need of making a prop purchase decision can give us a call anytime after July 7th. By then we will have good news from Sensenich. It says here.

T-18 Newsletter Editor Comment: I have talked to Sensenich and in fact sent them the old prop test data from the T-18 study, at their request. They think the RV Sensenich Prop can be pitched and used for the T-18. They may be looking for a T-18 on the east coast to use in their instrumentation test of that prop. I'll let you know as this develops. Rich

More RV Info:

Just as we were going to press we received a faxed report from Arnie Clarke about the inflight failure of his LectroProp. At 10,500 feet over the Cascade Range east of Seattle, both blades left the airplane. Arnie managed to get the airplane down through broken cloud deck, find an airstrip and land with no injuries and only minor damage. (nice flying!) We haven't seen any photos or spoken directly with Arnie so we don't know the exact nature of the installation (10 hours old) or failure.

T-18 Editor Comment: Those of you with shoulder harness connects to points other than the front of canopy rails, should read the following. from the RVator.

RV-6 SHOULDER HARNESS RE-DESIGN

The RV-6 shoulder harness design using a long length of nylon webbing attaching far aft in the fuselage was selected because of its load path alignment and simplicity. Data available at the time indicated that a 20 G impact would stretch the long webbing only 2 inches which we felt was an acceptable amount. More authoritative data now available indicates that the stretch would be be much more; somewhere around 10 inches. While the stretching would reduce the shock, it would also permit the occupant's head to

get just that much closer (or into) the instrument panel. As a result, we have re-designed the shoulder harness installation to one which uses a cable to connect a standard "Y" shoulder harness with the aft anchor point.

BALANCING WHEEL FAIRINGS: Charlie Haynes recently noticed an article in the American Yankee newsletter about balancing the main gear fairings on the little Grummans. A Yankee owner had upgraded to new fiberglass fairings. The new fairings did not have the lead weights in the nose that the original ones had, which pleased him, since he never could figure out what those weights were for and was tired of hauling them around. The reason became apparent on the first flight with the new fairings, as the airplane had a new "shudder" on the take off and landing rolls. Some research uncovered the cause - the new fairings were out of balance. Small bumps are always being transmitted up the gear leg to the fairing. The fairings are centered on the axle, so if one end is heavier , inertia will tend to keep the heavy part in place while the light end moves. It doesn't take long to set up a very noticeable oscillation. When the new fairings were balanced by adding weights inside the nose, the shudder disappeared.

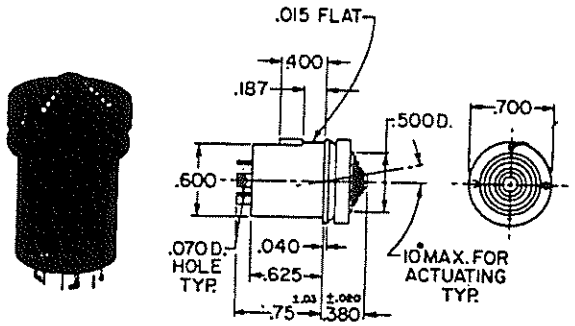
Charlie had been bothered with occasional wheel shimmy in his RV-4, so he decided to this new trick. He removed his fairings, and by balancing them on a horizontal rod, found they were tail-heavy. He taped a baggie to the nose and poured in lead shot until they balanced, then mixed the shot with epoxy resin and poured the resulting slurry into the nose of the fairing. A couple coats of fiberglass finished the job. Total weight gain was about 6 ounces per fairing. the results, says Charlie, were dramatic. Wheel shimmy was almost completely eliminated.

COLUMBIA AIRMOTIVE, PO Box 428 Troutdale OR 97060 has over a thousand sets of **bucking bars** for sale at $50/ set. There are nine bars of 4040 steel to a set. These are an overrun of an order made for Boeing. 503-665-4896 9-5:30 M-F, Sat 9-1

T-18 Editor. This was picked out of the RV Classifieds, I purchased the set of bars and they are really excellant, and represent a very good assortment and boy is the price right!

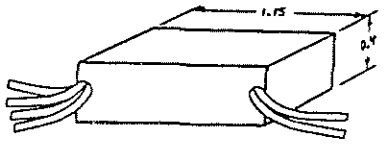
Electric Trim Systems. Here is some information I picked up at Oshkosh on Mac Trim Systems. Mac is supplying the thumb switch Gary Green used on his trim system. (described in an earlier issue of this newsletter.) Rich

Menzimer Aircraft Componeents, Inc.
1966 Vineyard Ave., Vista, CA 92083
Phone: (619) 598-0592



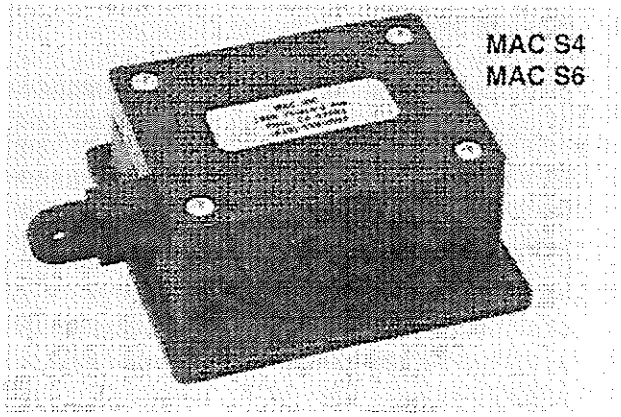
4-WAY SWITCH $35.00

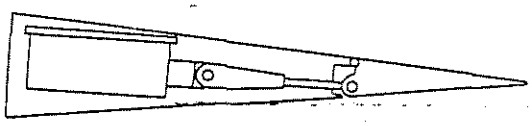
THIS COMPACT MULTI-ACTION SWITCH CAN BE INSTALLED INSIDE YOUR CONTROL STICK GRIP TO ACTIVATE BOTH ELEVATOR AND AILERON TRIMS. YOUR THUMB PRESSURE IN ANY DIRECTION IS ALL THAT IS NEEDED TO CHANGE THE TRIM SETTINGS. THIS SWITCH HAS A SPST ACTION SO IT MUST BE USED IN CONJUNCTION WITH A RELAY DECK, AS SHOWN BELOW, TO OPERATE MAC SERVOS.



SERVO RELAY DECK $25.00

THIS DEVICE CONVERTS THE SPST MOMENTARY CONTACT ACTION OF THE ABOVE 4-WAY SWITCH, OR ANY COMMON PUSHBUTTON SWITCH, INTO A DPDT ACTION THAT IS NECESSARY TO OPERATE MAC SERVOS. YOU WILL NEED ONE OF THESE FOR EACH SERVO IN THE INSTALLATION.





Use a MAC S4 SERVO for installations having a short (½" to 1 ¼") control horn.

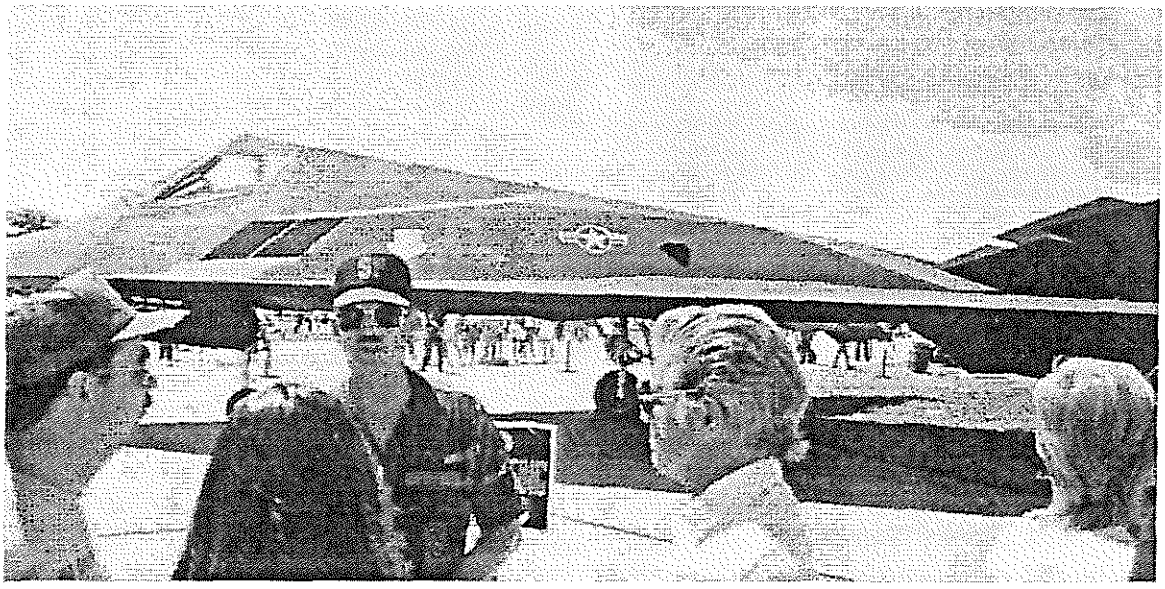
For Sale

Original Thorp Plans, never been used and Old Newsletters $150 for everything. David A. Johnson 2212 East Admiral DR. Virginia Beach, VA 23451 Phone (804) 481-6133

Project for sale due to health reasons for details contact Scott Covington 1550 River Bend Pl SE, Decator, AL 35601

T-18 Convertible Wing Parts, including skins, ribs and wing beams. Main beams are fully assembled (by Ken Knowles). Aileron parts including skins, ribs and control parts. Walking beam assembly. Flap parts including all parts and springs. The nose ribs are .032 for wet wings. LDS Airfoil. Price is $2,500 Contact Barrett Kemp 4018 Quiet Knoll Court, Houston, Texas 77059 (713) 280-8156

OSHKOSH 91



We made it to Oshkosh again this year with our "wooden boat" and enjoyed our tie up on Lake Winnebago at Pioneer Harbor. We had dinner the first evening with several of the EAA staff members, including Pat Patterson. Pat is the artist that has done all of the exhibits in the EAA Museum. His last day with the EAA was that Friday as he is retiring. His work is wonderful as anyone can see by visiting exhibits like the large mural in the Eagle Hanger. My wife and I were invited to the dinner by the past staff member and EAA lawyer C. R. Wellman of Rockford, Illinois. "Chet" Wellman is a T-18 builder and a member of our T-18 Group.

The Friday night T-18 banquet was well attended with over 125 people, a number of them commenting that they weren't able to attend before, because of having to return home for the work week. It was great to have Lee Skillman back in the group and I thank him for performing the master of ceremonies job. It was good to see a lot of friends there including Dick Cavin and his special guest Vern Peppard. Vern printed the newsletter for us for many years and we owe him a special thanks. Vern has one heck of a sense of humor and in just a few lines had everyone in stitches. Our guest speaker was Steve Kirik , a T-18 builder and a F-15 Desert Storm Pilot. His talk was excellent and really told us about what it was like during his tour in Saudi. The T-18 Mutual Aid Society was very proud to have Steve as our special guest and speaker. Thanks Steve.

Things went well in getting the T-18s into rows 10 and 11, my thanks to Dave Eby and crew for getting there early to set that up. My count of T-18s on the flight line was 18. With over 500 T-18s out there in the U.S. and Canada it surprises me that we don't

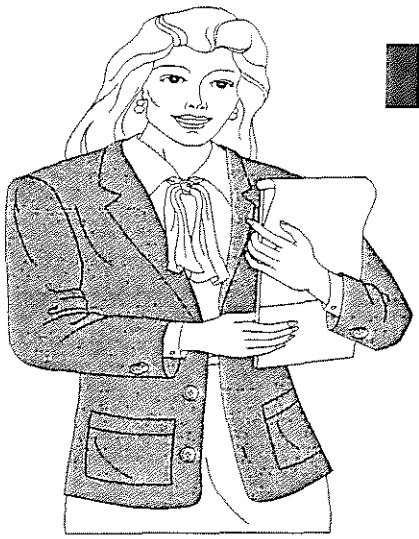
Dick Cavin, Steve Kirik and Vern Peppard at the Friday Night T-18 Banquet

get a larger representation of "The breed" at Oshkosh. Any comments folks? Can we do better than this?

I think that the fly-in volunteers and EAA Headquarters staff did a fine job with the whole operation. However I must state one disappointment: The homebuilt fly-by. Or should I call it the fly-around! Each homebuilt in the fly-by got to take off and fly around the pattern and land. Period.... No chance to see the planes in a direct low pass over the field. When I asked about this, the reason that I got from the flight line was that there just wasn't enough time! That's strange since there's always enough time for commercial products like Turbo DC-3 and STOL s to make fly-bys, fly-bys, fly-bys and fly-bys. I need to face the fact that our organization, the EAA, has become so diverse that its very difficult for the staff to balance the attention and interest for each segment of aviation.

Our representative in the fly-by was Tom Kern and his "Best of Oshkosh 91" is a beautiful airplane Tom! Congratulations! Tom received that award during the T-18 forum on Monday morning.

The T-18 forum focused on safety this year and the topics centered around "metal props failures" and the horizontal tail problem discussed in newsletter #79. I must thank one heck of a fine fellow for telling us his problems in that circumstance. Tom Waage of Chatham, MA held nothing back and we appreciate his frankness and straightforwardness about what happened. I think we had a general agreement that the airplane did not experience "flutter" but was subjected to oscillations brought on by possible previous tail damage or wear. See Lyle Trusty's letter in this issue for his explanation of the problem.



LADIES FIRST

by our
ROVING REPORTER
Anonymous

"We came, we saw, we conquered" expresses the feeling experienced after Oshkosh week. Leg cramp, dehydration and sunburn go along with survival. With miles to go to see it all Oshkosh is a test of endurance.

But it is a Mecca for those with an avid or remote interest in aviation. All those 800,000 people couldn't be wrong. There is an attraction for everyone.

This year the candy cane effect around the parachutists was appealing. The aerobatic trio of Christen Eagles is a favorite act, always refreshing even after 21 years with the same pilots, many of those early years in the Pitts biplanes. Missing this year was Jimmy Franklin's black Aerostar, a crowd pleaser with mood setting music accompaniment. Thankfully it was a safer year. Where were the women?

George Copland's daughter's wedding was the afternoon of July 24, a busy time for his wife, at the arboretum in Oshkosh. Of course, the bride has a Cessna 195. Maxine Green was away at market selling baskets wholesale with her sister. They work for a company in Bridgeport, Connecticut, have been to Dallas, Atlanta, Chicago, New York and Connecticut. Gloria McCullough spent her days at gate 13B N. 40 registration, has done this for years.

Many women never go to the flight line. Actually, the "flight line" for them is getting on the tour bus. Try making sandwiches at 7:00 am. every morning for Operation Thirst. The women there are "family" for Oshkosh week, all you need.

Tom Kern's daughter Betsy, age 10, found the craft tent to be an alternative to boredom, painted and gluded until she was pleased with her silver moon pin graced with a star. A three year old there was painting a wooden bear.

Juanita Ryan was happy with her T-shirt purchase. A first-timer at Oshkosh, she found it to be a shopper's haven.

Margie Conwell enjoys a variety of volunteer work, Beverly Giffin was busy helping to organize at the Women's Activity Tent.

The Visitor's Guide told of a free tour of Neenah, sponsored by the merchants there. The tour of 25 Victorian homes at nearby Berlin was tempting, and the free shuttle to Oshkosh B'Gosh.

But back to the reason for being there and the opportunity to find your favorites out of 15,000 airplanes. We won't mention the lure of the many excellent restaurants in Oshkosh.

Staying in the dorm is a convenience. Or find a pad like Claudio Tonnini did, with only 50 others in someone's garage....

Contentment for some was sitting beside their airplane, doing cross-stitch and visiting with the spectators. See you next year.

Tales and Tails

Lloyd Toll was there. He welded 16,000 pounds of steel to make 40 poles for loudspeakers, a better sound system this year. He finished his Thorp, N12LT, 19 years ago.

Bob Clayton of Salt Lake City has been building for 18 years, gets to Oshkosh every four years.

Tom Landham of Arlington, Texas, bought Bob Miller's T-18.

Tom Kerns has written a flight manual for the T-18.

Tom Scaggs of Lanchester, Ohio, has two rebuilts T-18s. One was John Walton's. The other is in pieces.

Brooks Hanna from Spearfish, SD bought Glenn Morris's Thorp. It was built by A.C. Vors.

Tom Waage was there with Lee Skillman's plane, M221DP. Tom is the new owner.

Paul Kirik had every right to be proud of son Steve landing his F-15 at Oshkosh Thursday, July 24. Steve told of his Desert Storm Experience at the banquet Friday evening.

Ed and Jeanette Ludtke, 1991 Wright Brothers Award recipients, were pleased with their stay at Dayton the week before, enjoyed seeing Hawthorn Hill and the AF Museum.

Stash and Gladys Simpson had N85FT at Oshkosh. It first flew June 27 of this year.

J.P. Ferko had 275 hours on his Thorp when he sold it to a fellow in Texas. It took him less than a year to build. He said with access to tooling the tail is better, a tube within a tube.

Nick Seraphino from the Detroit area has 1400 hours on N1101, distinguished by the logo of the "Tiger through the Ring of Fire," It is 20 years old.

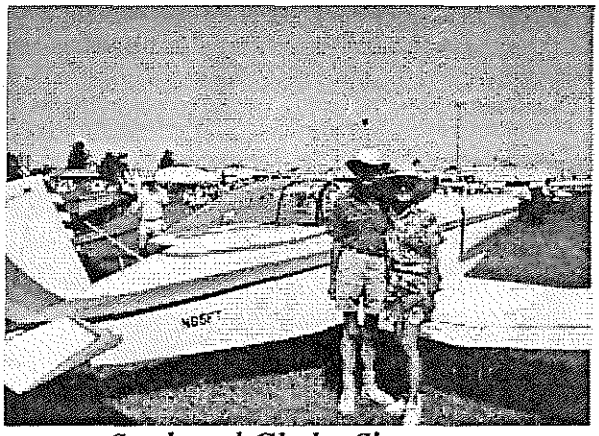
It was good to see Walt and Beverly Giffin again, also Ken and Mary Rhoads. Pat and Mac Booth left N1488 at home in Alabama.

With Dick Cavin and Lee Skillman at the banquet, the week was complete.

A picture of N88ET, Bill Hall's, was seen at Russellville, Arkansas. The plane is now in Pueblo Colorado.

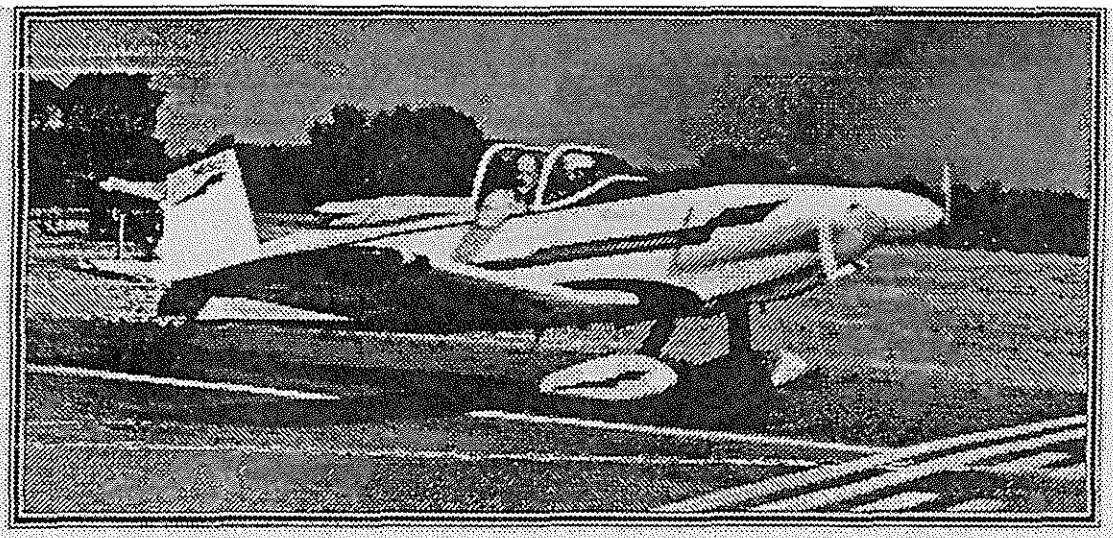
Your Roving Reporter

Steve Kirik and his Squadron Commander



Stash and Gladys Simpson

Lee and Elaine Skillman, Paul Shifflett



T-18 FALL MEETING
KENTUCKY DAM VILLAGE STATE RESORT PARK

We have been asked to arrange the Fall 1991 T-18 weekend at Kentucky Dam Village State Resort Park. Reservations are made for October 11 & 12. The private dining room has been reserved for Sat. October 12, at 7:00 P.M. We will again use the buffet.

MAKE YOUR RESERVATIONS WITH THE PARK DIRECTLY. YOU MUST **SPECIFY YOU WANT THE PAINE PARTY** IN ORDER TO GET THE QUOTED RATES AND A ROOM, AS THE LODGE MAY BE FULL OTHER THAN THE ROOMS THEY ARE HOLDING FOR OUR PARTY. RESERVATIONS WITH THE PARK MUST BE MADE BEFORE SEPTEMBER 11, 1991 AND THERE WILL BE A $10 SERVICE CHARGE FOR CANCELLATIONS MADE AFTER THAT DATE. RATES ARE: $43.19 (single), $52.38 (double)

KENTUCKY DAM STATE PARK
P. O. BOX 69
GILBERTSVILLE, KY
42044
1-800-325-0146

Camping is also available on a first come, first serve basis as well as cottages. Contact the resort for information.

Kentucky Dam State Park Airport is 30 miles east of the Cunningham VOR (Paducah) on the 90° radial, 8 miles south of V178. The runway is paved, 4,000 feet long. The Airport is approximately a mile from the resort, however transportation is available for those who do not wish to walk.

BRING YOUR OWN TIE-DOWNS.

T-18 NEWSLETTER
ROUTE 3, BOX 295
CLINTON, IL 61727
1-217-935-4215

Bulk Rate
U.S. Postage
Paid
Permit No. 137
Decatur, Ill.

TX

Please help other builders and flyers by telling them about your experiences with the T-18.

We need:

Lessons Learned the Hard Way
Builders Corner Items
Flying Info

T-18 Newsletter Index
in next issue

T18 NEWSLETTER
NO. 80 August 91