

Greetings Gents: 1984 is now almost history and of one thing I am certain: There were far fewer hours in the day this last year than in previous ones. That HAS to be the explanation for my lowered production level. Perhaps some of you have also noticed this phenomena? At any rate my intentions to get #61 in the mail by Thanksgiving didn't quite make it. To expedite this issue I'll do it mostly by "paste ups" of letters (typed) from you guys. (I simply trim the letter to fit our page and attach it with paste or transparent tape. We then shoot a photo of it to make the printing plate and if the original typed letter contrasts well it will come out OK. If it doesn't, we have to type it over...so thank all of you that sent in those typed letters. It makes my job easier). Here's the 1st letter:

Hello Dick,

Oct. 6, 1984

Just got my News Letter, great idea on the radio drawing, here is my \$10.00 dues.

Was good to see you at Kerrville. As I told you then, I would like to have another T-18 get-to-gether, especially since I was unable to attend the last one. The last weekend in Oct or first weekend in Nov would be fine with me so far as I know. The second or third weekend in Nov would not be any good for me (have to fly).

I had a fuel pump failure on my T-18 about two months ago. Was on a VFR local flight at 12,500 feet, level at the time it went. The engine became very rough and I thought at the time it was going to quit altogether, looked at the fuel pressure gage and it was on the peg at 0. I was able to make the engine (O-320E3D 150 HP Carb) run a lot better by pumping the hand operated primer (3 cylinders). I stayed at that altitude and went back to the field (35 miles) with the engine running quite rough, no primer, full rich mixture. When I came down to lower altitudes (4 or 5 tho) the engine became smoother (slightly rough). I have 500 hours on my airplane and have never had a problem of this sort. I always thought the gravity back up would work better than that. My fuel system is all standard, no aux tank, gravity flow by-pass with check valve, all fully tested on the ground, down to 3 gal in tank, vent faces forward. I went all through the system and found nothing except the bad engine driven pump. The pump did not pump fuel overboard via the dump line. I installed a new pump and everything is back to normal. I have since concluded that when using an engine driven pump and it goes out, the gravity flow will get you to the field, but not all that smooth.

Well enough of that, just thought someone might be interested in that little tid-bit. Hope to see you at Sherman.

Bryant Rowland
1007 Shell
Midland, TX, 79705

Best Regards,

Bryant
Bryant

Thanks, Bryan, for your very professional report.

Dear Dick,

I am writing this letter in response to your request for information on tailwheels and brakes. Since we have 15 T-18's based here at Torrance (CA) airport, there is much information available.

I have had nothing but bad experience with the Maule Tailwheel, both on my T-18 and my Pitts S-2. The tire does not wear evenly, chunks of rubber tend to come loose, shimmy is commonplace, but worst of all, we have had two T-18's (one of which was mine) break the caster arm on a landing when the tail wheel hit the reflectors in the center of the runway. I had a Scott Tailwheel on my bird for a short period of time, but found that it was very difficult to disengage. I became tired of pushing my airplane around the hangar with the tailwheel sliding sideways, so I took it off and got rid of it. Next, I purchased a Lang Tailwheel from Aircraft Spruce (they manufacture them). I have about 600 hours on this tailwheel with absolutely no problems. It has all the good points of the Scott with none of the bad, and is cheaper. Frank Christen chose the Lang Tailwheel for the Eagle and he has gone first class with everything on the Eagle. One of our T-18 owners recently installed a tailwheel made by Aviation Products, Santa Paula Airport, P.O. Box 857, Santa Paula, CA 93060, Phone: (805) 525-3663, on his T-18. He likes it so far, but has less than 50 hours on it, so the jury is still out. This tailwheel sells for \$84.95 versus \$220.00 for the Lang and \$258.00 for the Scott. Some of our fellows have replaced the wheel on the Maule unit with a Lang wheel. I understand that this necessitates turning a sleeve and shortening the axle, but the people seem happy with the results.

One other point, Dick. I would strongly recommend using compression springs rather than tension springs on the tailwheel. Our Pitts came with tension springs and one recently popped out of the steering arm on a landing. Fortunately, the pilot was on the brakes and recognized the problem.

I have the long Cleveland brake cylinders on my T-18 and am putting them on the one we are presently building. I compensated for their length by raising the location of the hole in the 491-2 mast. In over 1700 hours on my bird, there has been no problem because of the change in geometry. I would strongly urge builders to put brakes on both pilot and co-pilot side. One may say that he is not going to check anyone out, but if the occasion arises it is nice to sit in the right seat with brakes available if the necessity to use them arises. Incidentally, Aircraft Spruce has a diagram in their catalog showing how to install brakes on both sides.

I would strongly urge builders to invest in an Aircraft Spruce catalog. It has many helpful hints for builders, as well as almost anything that goes into a homebuilt. They are available for \$4.00 (refundable with a \$35.00 order) from Aircraft Spruce and Specialty, P.O. Box 424, Fullerton, CA 92632, Phone: (714) 870-7551.

Enclosed you will find a contribution to the newsletter. Keep up the good work, Dick.

EARL ODY
28903 Gunter rd
San Pedro, DA, 90732

Your Friend,

Earl

Earl Ody

(Thanks a million,
Earl Good info.)

Dick

The following 7 pages of most excellent reporting are from PAUL KIRIK, 2921 28th Ave A, Moline, IL, 61265. I want to give Paul the very highest commendation for his most professional report and would encourage all of you to use it as a model. Such info is invaluable to all. As maintenance Supervisor for the John Deere jet fleet, he is highly qualified on his comments on various airframe inspections. I know all of you join me in expressing our sincerest appreciation to Paul. Thank you, my friend!
15 October 1984

Mr. Dick Cavin
T-18 Builders & Owners Association
10529 Somerton
Dallas, Texas 75229

Hi Dick,

Sorry I took so long in writing you, but here's the information on my T-18 N11PK s/n 549.

Engine and Prop-Lycoming O-320-A2B 150 HP with Cassidy Pacesetter 200, 68-66 Prop. Aircraft has F.G.P., KX 175 with VOR, KX 145 with VOR & KT78TXP. Intercom & Brittian wing leveler.

Electric flaps and electric pitch trim per Bob Dial's drawings.

Weight & Balance

Empty Weight 892 lbs.
Gross Weight 1510 lbs.
Empty Weight C.G. 63.10 in.
Fwd C.G. (figured with full fuel & 150 lb pilot) 63.54 in.
Aft. C.G. (1 gal. fuel 180 lb. pilot & pass. 65 lbs. baggage) 70.90 in.

First flight was February 25, 1984 at MLI and except for a lean running engine, it was a perfect flight (I didn't even bounce the landing). I had installed a M-S MA4-SPA p/n 10-5062 carb. (Lycoming told me it was ok for an O-320-A2B), but it ran very lean on initial climb out with high cylinder head & exhaust gas temperatures. I pulled the power back and cruise climbed at about 125 MPH & temps came back into the green arcs. I had to change the carb. to a p/n 10-3678-32 & now have no problems. I have a George Leider carb. air box.

The aircraft flew hands off in cruise with a very slight left wing heavy condition. However, on a later flight with 170 lbs. of sand bags in right seat, it was slightly right wing heavy. A very sensitive machine on the roll axis.

Needless to say I was very elated with the first flight performance of N11PK. It was more exciting than my first solo!

I now have about 86 hours on it and have not had any other problems.

My first flight was video taped in its entirety, with sound, by Ken Rhoads of Peoria. I was talking to them on the ground. W've watched that tape at least 50 times.

Two areas of flight testing my aircraft were approached very cautiously,
(1) Flap extension speeds & (2) Stalls.

My flaps are limited to 30° travel, but after reading & hearing so much about the tendency to tuck under, I addressed this testing on my first flight. I have electric flaps, so I marked 10°, 20° & 30° increments on the outboard edge of the left flap so the readings can be seen at the trailing edge wing shin.

I slowed to 90 MPH & extended 10° of flap & found no roll or tuck tendency. I increased speed slowly to 110 MPH, then to 115 MPH. This was also repeated at the 20° & 30° flap settings. At 30° extension a pronounced nose down attitude would occur, but no tendency to tuck under or "stick shake", There was adequate trim to slow aircraft to 75 MPH & probably more.

The flaps were again extended at 110 MPH at each setting.

I realized that someone may extend the flaps inadvertently above 110 MPH, so I increased airspeed to 120 with full flaps, retracted & then re-extended the flaps. There was no tendency to tuck under. I am considering adding 10° more flap & repeating the same procedure.

The initial stall series was also of concern to me. I have flown about 7 different T-18s & found only 2 or 3 of them to have adequate stall warning. Some had very nasty "snap" tendencies without any warning.

I jigged my wings prior to riveting & knew they were free of any measurable twist, so I expected a straight forward stall. I also wanted to have the pre-stall buffet.

I taped a stall strip to each inboard wing per Lu Sunderland's "Tuft Testing" article in Sport Aviation. The strips were about 1/8" above chord line.

The first stall was power off, flaps up with the aircraft beginning to rumble at about 75 MPH. Controls got soft at about 70 MPH with airframe buffet & it stalled at about 65-67 indicated with just a bit left wing drop, with good aileron control.

I lowered the left stall strip about 1/32" & raised the right about the same. The next stall was just the reverse - right wing dropped slightly. Moving the right stall strip back to original position gives straight ahead stall.

I am very pleased with the pre-stall warning. Mr. Don Barrier from Peoria, Illinois, a long time airline pilot who flies aerobatics on weekends, flew with me & said you would have to be asleep or drunk to get into trouble with this aircraft. I highly recommend stall strips.

A stall with full flaps power off was the next step & what a step! I eased into the stall nose high & the aircraft broke straight ahead at 58 MPH but pitched straight down or even seemed to whip past vertical. I thought my seat belt was tight but my head hit the canopy. The aircraft built up speed rapidly but recovery was completed below max flap speed. I had full fuel & just me on board (170 lbs.). I lost over 200 ft. of altitude.

Subsequent testing with 170 lbs. of sand bags in the right seat & full to half fuel showed no such pitching tendency.

Does anyone else have this situation with a forward C.G.?

All of my C.G. excursion testing was done with sand bag ballast rather than human ballast, even though I had lots of volunteers.

My son, Steven, who helped me build this aircraft over a 6 yr. period, was really chomping at the bit over that program.

Steve is a private pilot with about 70 hrs. total time. He has about 15 hrs. left seat time in N11PK now, & his instructor said he will solo him shortly in it.

My airspeeds are as follows:

Stall-full flaps	58 MPH
Stall flaps up	66 MPH
Cruise - 2450 RPM 4,500 ft.	162 MPH - Indicated
Top Speed 2,500 ft.	190 MPH - Indicated

My cruise speed was about 10 MPH slower than that before gear leg fairings were installed. I could hardly believe the difference. Wheel pants were installed before the first flight. Get those leg fairings installed!

I have a Piper blade type pitot tube installed just forward of the front spar on the gap strip of the left wing.

My static system is per Howard Henderson on the fuselage sides. My air-speed indicator is a calibrated instrument & system checks to be very accurate.

The T-18 is by far the finest piston powered aircraft I have ever flown!

I experienced an odd occurrence after installation of leg fairings. I ran out of nose down trim with aft. C.G. loading & this had never occurred before.

I suspect that the gear legs were of such a drag component that they pitched the aircraft downward? Streamlining them reduced this drag to a point (10 MPH cruise increase) that more fwd. trim was needed? I guess I will have to bend the tab arms for more fwd. trim. Anyone have any other ideas?

The question of relocating the fuel shutoff valve keeps reappearing, so here are my comments.

I am only aware of one fuel tank cracking around the welded outlet boss. This was mentioned in a very early news letter. I have examined numerous T-18s for fuel line installation & have found many of them with an aluminum or copper line from the tank-mounted shutoff valve to the firewall. These aircraft had anywhere from 150-800 hrs. on them & none have shown any cracking around the bottom of the tanks.

In the event of an accident, it seems to me that the safest place for this valve is tank mounted & not remotely mounted where a rubber hose could be torn loose. I highly recommend that a flexible rubber supply hose be installed between the shutoff valve & firewall, to allow for flexing between these points.

I also noticed that many of these aircraft do not have a remote shutoff handle for the tank mounted valve. How do you shut that valve in an emergency wearing a shoulder harness? The handle should be removed. I installed my handle on the instrument panel just below the throttle using a 1/4" aluminum tube. It works great doesn't put a heavy load on the fuel tank & is very accessible.

I have annualized several local T-18s & have talked the owners of these aircraft into doing these mods.

Getting someone knowledgeable on T-18 structure to inspect your aircraft prior to first flight or before you buy a used T-18, is highly recommended. I have found the following doing this type of inspection:

1. No jam nuts on aileron stop bolts.
2. 3 out of 7 rivets missing on each inboard wing, inboard center rib that attaches it to the main spar.
3. 4 non structural screws used in right outboard wing attach fittings instead of structural bolts.
4. No rivets in bottom flange of aft. tunnel to attach it to belly skin, 16 required.
5. Ailerons travel only 20° up & 8° down.
6. 1/8" vertical play in rudder.
7. Aileron push rods cutting into wing ribs.
8. Seat belts attached to fuselage structure with 1/16" bent up aluminum clips.
9. Severe interference in aft. tunnel between rudder cables, trim drive tube, flap handle, flap cables & elevator push pull tube.

10. Unvented battery box.
11. All rivets missing from vertical stabilizer aft. spar doublers except where riveted to fin skin.
12. Rivets missing from inboard & outboard aileron ribs that attach stiffener for counterweight arm & control horn to rib.
13. Rib missing from fiberglass wing tips just outboard of aileron.
14. Aluminum fuel line from tank valve to firewall putting full valve in heavy bind. Enough Said?

I have taken pains to sound proof the cockpit & seal the canopy. People who have flown in my aircraft tell me it is the quietest single engine they have been in. I also have exhaust mufflers.

One of the problem areas in sealing the canopy was the forward track area. I found the solution to be installing a rubber seal from a Cessna Citation Jet main gear door. (see attached sketch). It works very well. It is attached to the bottom of the canopy frame by drilling the frame, inserting the rubber tips & pop riveting it to the frame at the front edge.

I have the Ken Knowles brake master cylinders on the left side of my aircraft & Gerdes cylinders on the right. They are connected with 3/16" Nyloflow high press. tubing & "Swage Lock" fittings to the firewall & 3/16" aluminum tubing from there to the Cleveland brakes. This system works great. I have over applied my brakes & brought the tail off the ground during taxi testing.

I strongly recommend that anyone building a T-18, without prior experience in this type of aircraft, install dual brakes. You will really need them before your instructor turns you loose.

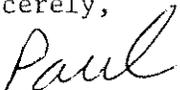
I have a Lang tail wheel, full-swivel type, on my T-18 & do not have any directional control problems. My son Steven did not fly a taildragger before getting into a T-18 & has not had any trouble with directional control. I use the 2 piece compression springs from Ken Knowles on the tail wheel, compressed about 1/3 travel when setting on the ground. I have set my main wheels to $\frac{1}{2}^{\circ}$ toe out & aircraft is very stable.

My electric trim motor is the Camaro headlight motor used on many T-18s. It seems to be a bit slow, 17-18 sec. I would like to see about 10-12 sec. Does anyone know if this can be done?

I have also enclosed a copy of my Weight & Balance numbers & loading schedule.

Many thanks again, Dick, for all the untiring effort you have put into the T-18 program & the support you have given me during the construction & test flying of N11PK.

Sincerely,

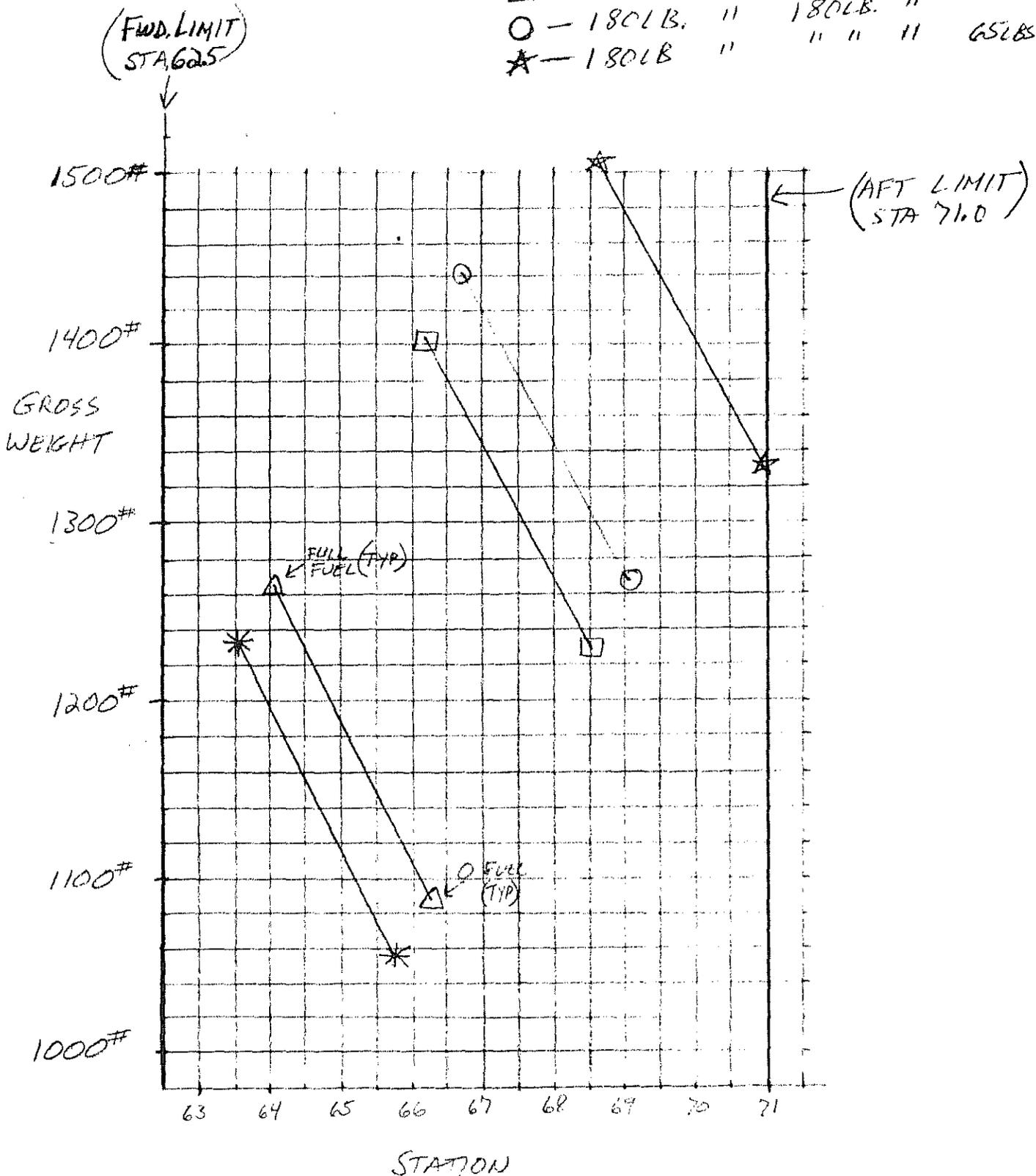


Paul J. Kirik

T-18 NIIPK S/N 549

C.G. RANGE.

- * - 150 LB. PILOT NO PASS. NO BAG.
- △ - 180 LB " " " " "
- - 180 LB. " 140 LB PASS.
- - 180 LB. " 180 LB. "
- ★ - 180 LB " " " " 65 LB. BAG.



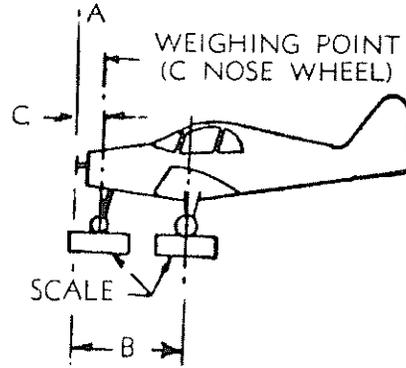
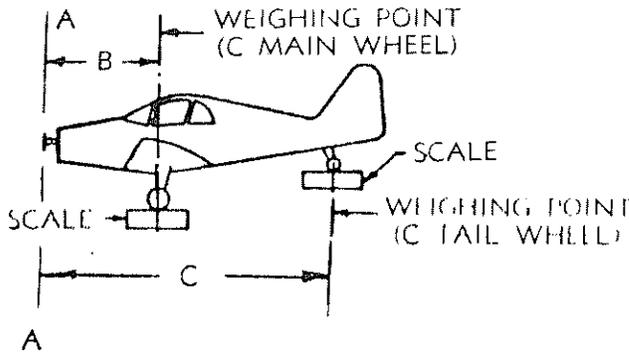
WEIGHT AND BALANCE FORM

Owner's Name

Aircraft N 11PK Date 9-27-83

Address

THORP T-18



- A—Datum for Horizontal Arm as defined by designer or builder
- B—Arm: Main Wheel Centerline in inches
- C—Arm: Auxiliary Wheel Centerline in inches

Item	Scale	Tare	Lbs. Net	Inches Arm	In. Lbs. Moment
Left Wheel	423	—	423	54.595	23,093.69
Right Wheel	418.5	—	418.5	54.595	22,840.00
Auxiliary Wheel	47.5	—	47.5	213.780	10,154.55
Less Oil					
Fixed Ballast					

Empty Weight Total Moment... 56,096.24 in. lbs.

Empty C.G. = $\frac{\text{Total Moment}}{\text{Empty Weight}} = \frac{56,096.24}{889} = 63.10$ inches

SEE OTHER SIDE FOR ADJUSTED EMPTY WEIGHT 892.0 LBS.
FORWARD AND REARWARD CG EXTREMES

Item	Weight	Arm	Moment	Weight	Arm	Moment
Aircraft EW	892.0	63.09	56,276.24	892.0	63.09	56,276.24
Oil	15.0	28.0	420.0	15.0	28.0	420.0
Pilot	150.0	85.5	12,825.0	180.0	85.5	15,390.0
Passenger	—	—	—	180.0	85.5	15,390.0
Fuel	174.0	50.0	8,700.0	6.0	50.0	300.0
Baggage	—	—	—	65.0	109.0	7,085.0
Totals	1231.0	63.54	78,221.24	1338.0	70.90	94,861.24

Forward CG 1 63.54 in. Rearward CG 1 70.90 in.

Maximum allowable weight is: 1510 lbs. CG limits are
62.5 in. Forward CG, and 71.0 in. Rearward CG

Equipment installed when weighed is as described in Aircraft Manual, Equipment List dated _____, except for the following items.

Item	Inches Arm	Lbs. Wt.	In. Lbs. Moment

WELDING ALUMINUM: I recently received the following letter from old friend, LLOYD TOLL, that many of you know personally or by reputation:

"Hello Dick-Enclosed is my dues for '84-85 MAS. Hope I can win that Narco. We T-18 builders who have contributed so little have rec'd so much. I will forever be grateful to you, Lu, and others, who have done so much.

Many skills and much knowledge is required of an individual to properly build an airplane such as the T-18. Very, very few of us are absolute professionals in ALL of the required technical skills needed.

Lu mentions in N.L.#60 that someone stated that aluminum was easy to weld and he said, "Don't believe it". Well, you know anything is easy if you know how. It can also be very hard if you are not experienced and are not completely knowledgeable about what you are doing.

After more than 50 years of experience in welding in 4 different aircraft factories (14 years at Douglas and Northrop) and having been certified in every method, on every metal that is used in the aircraft industry, I say that aluminum welding is the easiest of all.

Here are some of the things that I disagreed with Lu on in his article, "Welding canopy frames":

First, aluminum welding and aluminum brazing are two completely different things. Hydrogen is the best by far over acetylene...but not for the reason that it has a lower temperature. You can get a piece of steel plenty hot enough to braze with oxy-hyd, but there is no way that it will adhere to or flow on the steel. When using oxy-hyd on alum you get a beautiful controllable flow in the molten puddle...But with using oxy-acet the molten puddle is much less fluid and it has an oxide film over the top of the puddle that makes it very hard to control. This tells me that there is some sort of chemical reaction causing the difference. I cannot, and no one else can do high quality alum welding with oxy-acet that he can do with oxy-hyd.

To my knowledge there is no accepted method yet devised to fusion-weld alum alloy 2024, primarily because of crack sensitivity and loss of other mechanical properties. This is why John Thorp specified the T-18 gas tank be made of 6061-T4 (35,000 psi) instead of 2024-T3 (65,000 psi). Let's hope that no one ever builds himself a T-18 tank using 2024.

Dick, I cannot explain the chemical reaction that takes place, but I want to give you another example: In the factory we used a hydrogen burner we had to pre-heat certain weldments. It was also used to keep scale (which is oxidation) from forming on the opposite side of the piece you were welding. You could weld on the outside of a tube and with a small hyd flame inside absolutely no scale or oxidation would occur inside.

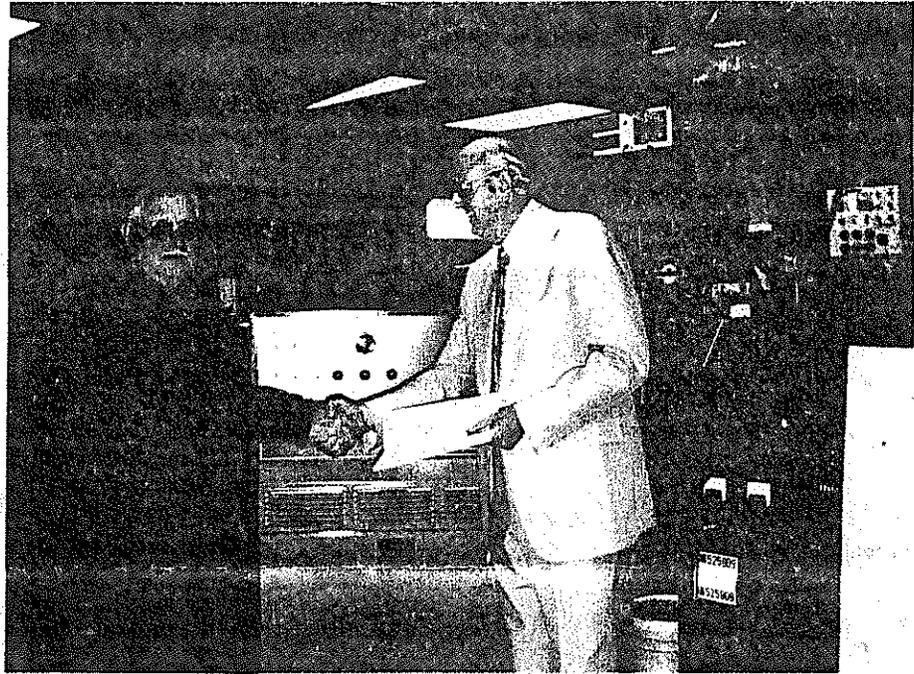
I had a bottle of butane here once and used it to keep the inside of a tube clean on which I was welding. After it had cooled properly I tried drilling the hole larger. It was as hard as glass. You could cut it with a diamond bit, but this was 4130 steel. Running out of paper, so Good luck and Good health, old buddy... LLOYD.

Well, LLOYD hit the nail on the head several times in his letter. I stand in awe of his expertise in welding. When watching him alum weld I always think back to when I was at Luscombe in '37 and just after being certified to weld alum I offered to weld a tiny leak in a radiator tube for a friend's OX-5 Waco. My face was deep red when I burned a big hole in the tube and had to get my instructor to repair my work. After a few more such experiences I decided to leave alum welding to the pros. (The following pages from a welder's journal were sent to me by another builder and I think you will agree are quite a tribute to LLOYD. We are most lucky to have experts like LLOYD in our midst). We truly appreciate your many contributions to EAA and to our newsletter, LLOYD.

Meredith TIG Torch donated to the Miller welding collection

The following report written by Jim Grist, Miller Vice President-Research, is the culmination of a chain-of-events beginning with Jim's enthusiasm for aircraft and his attendance at the EAA Convention. This event is an annual fly-in and air show sponsored by the Experimental Aircraft Association at Oshkosh, Wisconsin. There, Jim met Lloyd Toll, official weldor of the EAA, Mr. Toll, also an aircraft enthusiast, turns out to be a many faceted individual with an interesting background and colorful personality. He flies a plane which he personally built, operates a welding school in his hometown of Hazen, Arkansas and was a member of Mr. Russell Meredith's team at Northrup Aircraft Co., Downey, California. Mr. Meredith, as you will remember, originated the TIG (GTAW) welding process with the development of his Meredith TIG torch. The Meredith torch and a series of collets can be viewed at the Miller Customer Center in Appleton, where it is on permanent display. Here is Jim's account.

At the Experimental Aircraft Association Convention at Oshkosh, Wisconsin, some of the more popular stars were performing aerobatic gyrations in the sky, trailing plumes of smoke through wild loops, rolls and hammerhead stalls in home-built airplanes they had constructed in their basements. During the six-day aerial extravaganza, more than 500,000 visitors watched as tiny biplanes and giant warbirds cavorted against a backdrop of blue with scattered white cumulus. I watched a lumbering 450 horsepower Stearman, blatting its way down the runway at an 80 db noise level, gaining just enough



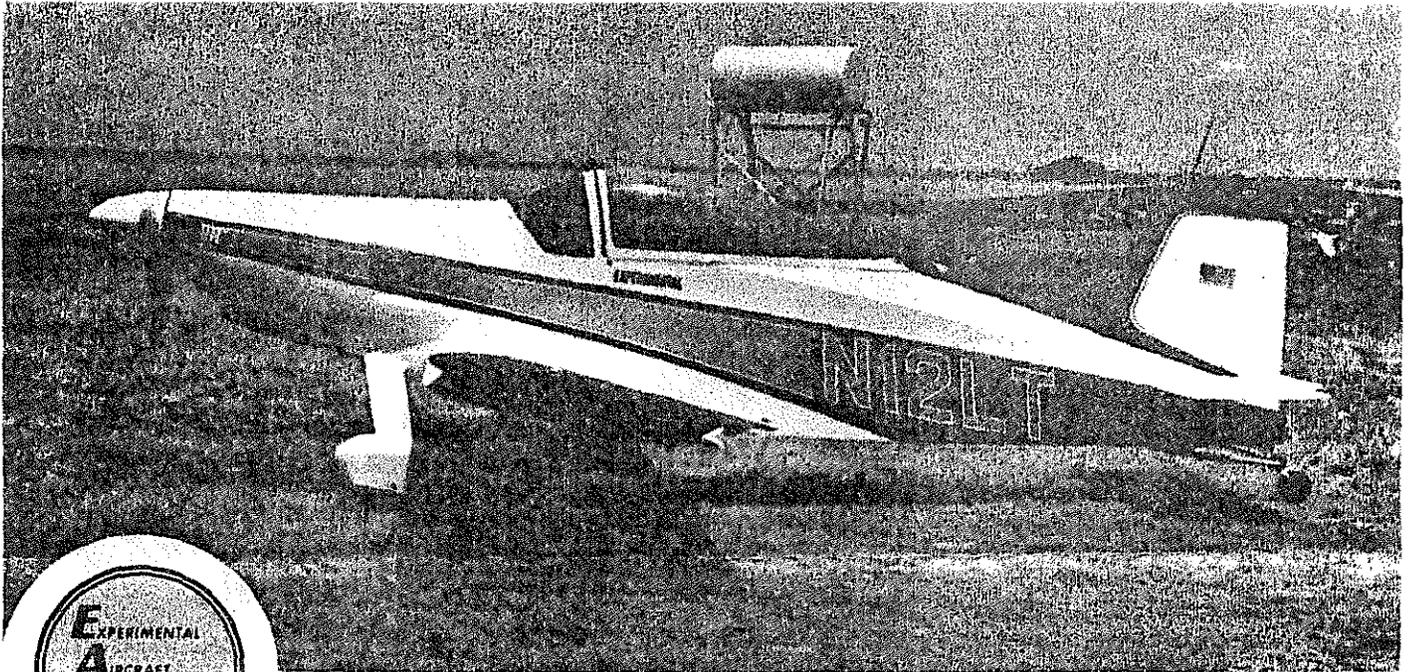
Lloyd Toll (left), pictured with Jim Grist. In the background is a Miller Syncrowave 300, the unit Mr. Toll uses for his present-day projects.

altitude to do an axial roll on takeoff. Smoke billowed from his exhaust and the crowd gasped as the pilot flirted with disaster in low level antics.

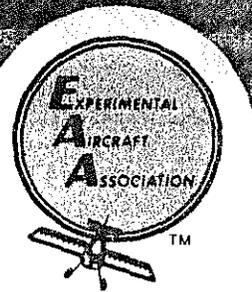
Meanwhile, back of the crowd, in a tent labeled "Welding," another star was performing. He caused only occasional whiffs of smoke, and rather than a crash helmet, he wore a welding helmet. Behind that helmet and inside that massive 200 pound plus frame, I found Lloyd C. Toll. He snuffed out the arc and lifted his helmet and you could tell immediately that he was an old timer in the business. I then watched and listened as he explained to the assembled group just how he manipulated the torch and the filler metal to come up with the beautiful welding beads which are characteristic of his work. Lloyd is considered one of the premium welding authorities in the EAA membership. Each summer he travels from his home in Hazen, Arkansas to Oshkosh for several weeks of preparation and demonstration at the EAA Convention. He'll do maintenance welding, repairs, etc. on the dozens of vehicles, implements and equipment which the EAA owns and operates in the business of putting on their annual convention. Then during the show he gives hands-on demonstrations for the assembled aircraft builders. A



Bill Butler, a Technical Sales Representative, doubles as curator of the Miller historical welding equipment collection. Here Bill displays the early Meredith TIG torch and five assorted collets.



Lloyd Toll's "experimental aircraft," a plane which he personally built and flies between his home in Hazen, Arkansas and the EAA Aviation Center at Oshkosh, Wisconsin.



master of both TIG (GTAW) and oxy-acetylene, Lloyd has been welding a long, long time.

Q: How long, I asked him... and where did he start?

A: "My dad was a rice farmer in Arkansas. In 1928, when I finished high school in Little Rock, I saw an ad in the Gazette about an electric course at the Commander Aircraft Company. They built about 700 airplanes beginning in 1928 before they went broke during the depression. They were advertising an electric course where you paid them \$ 15.00 and you went down each night and listened to a department head. Then you could decide what department you might want to work in. Well, this friend of mine and I said, 'Everyone wants to be an engine mechanic... or something like it... let's be different, let's be welders.' I said, 'Fine, we'll do it, and that's where it all started, right there. So I've been a welder for about 32 years now.'"

Q: What kind of welding was it in those days?

A: "In the early days it was a lot of gas welding with acetylene. Commander Aircraft had about 700 people working there, and do you know I can hardly believe it, but in the beginning there wasn't one electric arc welding machine in that factory. Isn't that amazing... the

advancement that has been made since then? A big factory like that with no arc welders. Now every farmer, well practically every farmer, has an electric welding machine. But right there was a factory with 700 people and they didn't have a single one. Well that didn't last long. We got them into electric welding alright.

"Anyway, that job got me interested in airplanes and I've been nuts about them ever since. I was about eight years old in 1919 during WW I and airplanes were really fascinating to me and I still like flying them. I've been flying for 51 years now."

"The first time I heard about EAA was in 1965 at Rockford, Illinois. Here were all these guys assembled who had built their own airplanes and were flying around. In fact, a Don Taylor of California had built what is known as a Thorp T-18 model and flown it around the world. It's a pretty sophisticated little aircraft. So I built one of these nine years ago and I flew it to Oshkosh for three years, 1972, '73 and '74. The first year I won "Best in Class" and the second year I won "Best All-Metal Workmanship." I still fly it... I love to fly."

I learned later from Lloyd that he had worked at Northrup Aviation in Downey, California as a welding tech-

nician. His group leader was Russ Meredith, the inventor of the TIG (GTAW) welding process -- often referred to as heliarc welding.

Q: Then you were there when TIG was invented?

A: "Yes, we had three technicians. John K. Northrup felt that magnesium was going to be the coming metal of the future for the aircraft industry. It was light and it was strong. We were told that magnesium was one of the most plentiful elements on earth and that there would be plenty of it. He wanted to develop a way to weld it. He couldn't do it with acetylene, it would catch on fire and burn. It burns real hot. So that's where they got the idea that they would do it with some kind of an inert gas in an arc.

"Well, Russ Meredith, he was the engineer there, got the project going and he developed the TIG torch and the process. As it turned out later, it isn't used nearly as much for magnesium as it is for aluminum, stainless steel, titanium and steel and a lot of other metals. Magnesium just never made it big in the aircraft business as they first expected it would."

Q: So you were the first person then to actually weld with a TIG torch?

A: "Well, there were two other fellows there with me, we kind of alternated,

but I was one of the first."

Later I learned that that first model torch built in their lab had been given to Lloyd as a keepsake when he left Northrup. Furthermore, I found that he still had it tucked away in his shop, preserved for prosperity. He doesn't use it of course, he has a Syncrowave 300 now, and a modern torch. We prevailed upon him to consider donating it to the Miller collection of welding artifacts so that it could be put on permanent display at the Miller plant. He eventually agreed and it has been refurbished to its original condition and placed on display.

"It was a little crude of course, but it worked. We used a hospital regulator for the gas... and DC current, straight DC. We'd weld magnesium with DC and helium, there was no argon at the time. We didn't have high frequency start either, you just had to scratch it a little and it would start. For awhile we used carbon electrodes, about 3/16" diameter black carbon rod. You had to sharpen it a little like sharpening a pencil. You had to sharpen it often because it wore down so fast. It wasn't very practical. Then tungsten electrodes became available.

"Well, from there it just took off and TIG welding was used to build lots and lots of parts for aircraft during that War.

"I remember us building a thing they called the Ram jet, not referring to the

engine on it, but to the type of aircraft. It had four wheels, it was made almost completely out of magnesium, two wings made in halves and all welded and bolted together and they were the fuel tanks too. The pilot laid down in it because there was so little room between these two jets. It had three inches of solid steel on the leading edge of the wing and no armament. It was supposed to fly into enemy aircraft and just chop their tail off.

"The test pilot was Ray Crosby and I knew him well. We used to kid him about the time they made the plaster mold for him to lay in to fit his body, his chin and all. It was like a custom fit coffin. Well, sure enough, on his third flight he tried to eject and didn't make it. His chute didn't open.

"They also built the P-61 Black Widow night fighter there. It went into production and a lot of them were made. One thing they were used for was against the buzz bombs going over England. They'd fly up along side one of those things and hit it with their wing and just tilt it a little and throw it off course. They really stopped a lot of them like that.

"Today they don't use nearly as much magnesium. They had numerous crack problems, structural failures and things like that."

Q: So that was your introduction into the airplane business, and

you've been building and flying ever since?

A: "Oh yes, I fly all over. One Sunday, years ago, I was flying with my young son (he's 42 now) in southern California. I noticed a lot of aircraft down around the harbor. I thought to myself, I wonder what's going on down there. So we flew over to the harbor and just as we arrived at about 2,000 feet of altitude, I saw that big "Spruce Goose" making its first flight with Howard Hughes at the controls. There I was, right overhead and no camera. At the time I didn't grasp the significance of the event, but I do now."

Well, Lloyd looks back now on a full, rich life of welding and flying.

The EAA is building a new aviation center at the Oshkosh, Wisconsin convention site which will be filled with aircraft of all vintages. Lloyd is being called upon to execute his "miracle" welds on various restoration projects for this and other EAA endeavors. He also teaches, — runs a school for welders in the Arkansas area. A busy guy, a skilled craftsman, and always ready, willing and able to talk about welding up a fuselage, or an engine mount, or a set of tail-feathers, a busted landing gear, bellcrank, wing strut, rudder horn, tailwheel and on and on and on.

A small section of parked "fly-ins" during the EAA convention.



"
FUEL INJECTION INSTALLATION ON A T-18:

N110AT
by... O. A. TOKLE
Reno, NV.

Dear Dick (Mr. T-18):

Hopefully the following information about my fuel injected 180 Lycoming will be of help to your readers who might be considering a similiar installation. In all the years since completing the installation, my engine has performed beautifully.

The first article and pictures, about my engine, "Thorp T-18, Fuel Injection System"; was written up in the December, 1975 issue of Sport Aviation.

Thanks not only to his one biting comment, "You don't want a 1929 carburetor system on that modern sophisticated aircraft!", but more importantly the continued encouragement from Joe Pass, of Redwood Aviation in Santa Rosa, California; I decided (as they say in the current vernacular), to "Go for it!" and convert to injection.

To begin with, I traded my new O-360 carb, oil pan, intakes and etc. for the Servo, pan, fuel lines and etc from a wrecked IO-360. These were sent out and returned as new.

The IO-360 pan was installed only to find some real problems. An unwanted modification to the dynafocal mount, required since the Servo would go right thru the X-member and after other mods the fine all-metal Roberts cowl would not have fit over the stainless X-over exhaust and intakes.

Needless to say the O-360 pan was re-installed. Disappointed, yet determined to have an injection system, I sat under the engine for a couple of days trying to figure how.

Knowing how successful Piper had been with their light twins, using tight cowls, bringing induction air over the top of the cylinders, down the back and into the Servo, it was simply a matter of how to look back from under the carb pan for the servo attachment.

Hours were spent looking for a tight (close) weldable el. Finally in an old plumbing shop, the 80 year old owner took me back thru piles of debris and went right to a box that contained exactly what I needed. He generously demanded a grand sum of \$2.00.

The 'el' has 1/4" walls with a 45 at both ends. Two ^{FLANGES} were cut from 1/4" 4130 steel. The four bolt holes were properly drilled in each. The flanges were put on my lathe and opened up with 45 chamfers to mate with the el. A few spots of epoxy held the three parts, properly aligned, until they were heliarc'd by the towns best. This Weldable El was the key to the conversion.

To have the servo clear the pan and also for control hookup, a spacer, available from Lycoming, was used to move it back the right amount. One end of the spacer was milled with a few degree offset for an additional clearance. To the back of the Servo an Induction Air Box was fabricated from .025 2024 to mate the 3" air hose from an air filter. The air induction box has a spring loaded-closed, flapper valve, designed into the bottom, for alternate air in the unlikely event that one would loose normal air. The filter is mounted behind and below the left cylinders. I cut the parts and had them welded for me. The filter takes a standard Fram.

The initial test hop was flown, somewhat reluctantly, with the Weldon electric on continuous, due to insufficient pressure from the mechanical pump. I immediately replaced this pump with a high pressure (22-26 psi) mechanical pump required by an injected engine. The Weldon is used as a backup for pressure loss and during takeoff and landing.

Enclosed are some pictures that should be of help. I wish I had the one that shows the el, spacer and air box when I converted my O-360 to fuel injection.

The stainless steel 601 fuel lines, shown in the pictures, were replaced with aerogquip 303. Don't use the pretty stainless as before long they can become a sieve. Noting the location of the gascolator and the Weldon pump in relation to the exhaust stacks--stainless heat shields were placed inboard on the stacks.

With a tight cowl and baffling system there is an abundance of air for: Induction air, Engine cooling, and cooling for the Oil, Fuel Pump and Mags. Cowl pressure can run into the 7 psi range.

Dick, I hope this is helpful. All present T-18 drivers and those to be, would do well to re-read a lot of the fine tips from your last book of knowledge. I really liked your tip on the simple task of proper engine runup before takeoff.

Oats

Oats Tokle
N110AT

Many, many thanks, OATS, for that most helpful solution to a knotty problem several builders have had to address. Thanks, too, for the kind words.

(see lower part of page 17 for further info from
OATS TOKLE)

112 Station Ave.
North Hills. Pa.
19038

October 15, 1984

Mr. Dick Cavin
T-18 Mutual Aid Society
10529 Somerton
Dallas, Texas
75229

Hi Dick.

Glad to hear that you're feeling better. You missed a great OSH.

In the last news letter you asked about wheels and brakes. Initially I had expanding tube type brakes. Bad news, the braking was nil and they had a habit of sticking on when the plane was parked out in the rain (no hander available). I never figured it out. When this happened it took a lot of pushing and pulling on the airframe to make the brakes release. They would release with a bang and would be ok until the next time. These were replaced with Clevelands for about the same price as a new set of segments (linings). The Clevelands were a great improvement, except for wear. I am based on a 2000' strip and a lot of braking is required on every landing. The discs would rust between use then grind away the linings. My solution was to grind .005" off each side of the discs then chrome plate .010" and grind to the original size. Before the chrome, the linings lasted 35 hours. The present linings have been on four years and show very little wear. The FAA was against chrome plating until just recently, their fear was that the plating would peel and jam. Cleveland started to sell chrome discs recently. I asked one of their salesman what type of chrome they use and he didn't know. I think hard tool chrome is a better choice than decorative chrome such as you find on your car bumper.

In a recent issue of the newsletter, automotive alternators were discussed. I use a 35 amp Ford alternator and regulator. After 430 hours everything works fine. The only change I think is necessary is to mill a keyway in the shaft and pully and install a key to prevent the reverse rotation from unscewing the pully nut. When troubleshooting an electrical problem (that turned out to be the battery) it was nice to buy a new voltage regulator at the local auto parts store for under \$10.

As a point of intrest. I have been using auto gas for over two

Page 2

years with great results. The gascolator and screens are cleaner than they were with avdas.

Enclosed is my check for the coming year. Keep up the good work with the newsletter.

Sincerely,



Don Thomsen

Those are two great tips, DON, and both are money savers, too. Almost everyone is using Clevelands and this certainly seems to have solved a problem we've all been plagued with. It's a safety item, too, as there may be times when we really NEED to clamp on the binders and get max available braking. Thank you kindly, DON. We appreciate.

MORE ON FUEL PUMPS (Letter from OATS TOKLE)

Dear Dick-Your last T-18 letter was much appreciated. What a lot of work to put together. How do you find the time? After reading EARL ODY's problem and a fine job of getting it down deadstick in Gary, IN, I was reminded of my first test flights. Taxi tests at low power worked fine. When moved into runup for takeoff with the Weldon electric pump OFF the engine would quit at approx'y 1800 rpm, so turned on the pump to complete the runup and elected to make the initial test hop this way (reluctantly). The engine ran fine during a 10 min. hop and the only problem was an inop airspeed indicator. The ENGINE pump was removed and replaced with another pump delivering 20/26 psi. Since my engine is a fuel injection type, this requires higher fuel pressure than carburetor types. The Weldon electric pump was also checked for free flow by-pass (so it would not starve the engine driven pump if it failed). I only use the Weldon elect. pump for T/O and LDG and occasionally even forget it even then, but have had no trouble since the first flite. Don't think an electric pump should be relied on for continuous use (as Earl found out).....Thanks again, OATS.

Again, OATS, our thanks for more info on the subject. OATS also sent me several very good pictures of a worm's eye view of his injection system and we will probably run them in the next NL when we have more time, etc.

FITTING THE CANOPY: Sage, sad words by FRANK SNEDEKER, an airline pilot, who lives some 2500 miles west of San Francisco on the island of Oahu, who will be retiring soon and probably moving to the mainland. His trials and tribulations with his canopy are on page 18, but he sent me another short note from Snohomish, WA, where he and his wife had traded houses and cars for a month to see whether they want to retire there. I got a real chuckle out of the following: "I'm having a real terrible time with that canopy and there are times when I feel like it would be good to invest in a chain saw and reduce the problem to non-existence!" Guess most of us have been tempted that way once in awhile, too. Take note how Frank came up with a "fix" for his problem and at least temporarily put off spending \$500 for a new canopy. This fitting of the plexi to the frame is an area that we could use some write ups from you guys that have the experience! OKAY? How about it?

Frank Snedeker
45-504 Ha'amaile Pl
Kaneohe, HI 96744

October 16, 1984

Dick Cavin

T-18 Mutual Aid Society
10529 Somerton
Dallas, TX 75229

Dear Dick,

I have put off writing long enough. I wanted to write when I first returned from Oshkosh this year. I missed you there more than you can know. You are my main contact with the T-18 family. A cohesive force...or is that a 'force vector' measuring my parralax application to the project.

Anyway, though I am not putting other projects aside I do have a renewed interest and am getting some progress. You asked me at one time to write about how to install the canopy. I cannot. I can only write on how not to do it. I can only hope to cover it with enough paint that it will not be noticed. Not knowing where to cut the bubble I tried matching it to the frame. (Mistake). Having to work amone the problem was keeping the left side in place whilst working on the right side. (Mistake). Get a second pair of hands. I drilled all the holes for rivnuts and in the plexiglass as though I was right. On closing the canopy the forward edge dipped 1½ inches inside the windshield frame. I cried inside. Over \$500 to obtain a new one and to start over. I shifted the canopy forward, drilled new holes and formed clamps to fasten the canopy to the frame. The outside trim pieces are wider than normal. I raised the forward end of the track ¾ inch. More head room which I like and the frame and windshield meet pretty fair but I am still not happy with it so have moved away from it...which is the j best advise I can give and am now working on the rudder pedals, forward tunnel and bottom skin for that one construction. I have drilled to install it with nut plates for removal. Fortunately your last newsletter shows details for making room for the travel of rudder pedals during full brake and right rudder. It will be incorporated.

Enclosed is my check for \$10.00 for dues. Let me know if more is needed. I very much appreciate it...and your efforts.

Mahalo Nui Loa

Frank
Frank Snedeker

I still wear a yellow feather.

November 15, 1984

T-18 MAS
10529 Somerton
Dallas, Texas 75229

Dear Dick,

Enclosed is a \$10 dollar check for the 1985 news letter. I did not receive N.L. #60. I borrowed a copy from Dick Pennman.

I am very fortunate to have Bob Dial, Bill Oliver, Dick Pennman, Dick Amsden and Gary Copeland a very active T-18 group in my area. We are based at Oakland Pontiac Airport in Michigan. As you can imagine there is always a lot of Hanger Flying on 1FR days.

N8AL is a standard T-18 on a standard gear. The engine is a 0-290 GPU with a Sensenich 66-76 wood prop with fiberglass tips. Cruise is 165 mph. on 6½ gallon automotive fuel. Stall is 65 mph. indicated. The A/C weighed in empty at 905 lbs. I have a basic instrument panel. FLT instruments include VAC. ART. HORZ. and D.G. ELECT. Turn and bank angle of attack indicator, air speed, rate of climb, and alt. engine inst. include standard and C.H.T. The radio is a Narco MK-24 NAV/Com. I also have a Ford Trip computer installed providing time of day, date, elapse time, fuel flow rate, total gal. fuel used, and total fuel to go. The fuel tank has explo-safe installed and, the fuel cap is from a helicopter and is double locking. Taming the Tiger has not been easy. I have had my share of problems starting with my engine. The oil sump was inadvertently sand blasted both inside and out. I thought I cleaned it thoroughly after, but apparently some sand was imbedded in the sump. Every so often a grain of sand would get caught between the oil pressure release ball and the seat causing my oil pressure to drop to about 25lb. A engine oil and filter change every 5 hours has eliminated the problem. I have not had any problem in the last 20 hrs. My other problems deal with the flying characteristics of the T-18.

When I first started flying my T-18 I aquired the services of a instructor with approx. 15,000 hours, most in a tail dragger. The plane had a violent wing drop at stall. And the stall would come with no warning. My instructor even thought I had a flutter problem in the tail. After talking the problem over with Bob Dial we decided to tuft the wings with yarn and find out just what the problem was. We had Bill Oliver flying chase in his T-18 and went through a whole series of stalls. The right inboard wing was stalling about 10 mph faster than the left panel. I changed the angle of incidence in the right wing by ½ degree. I haven't has a chance to tuft the wings' again but it stalls much better. The second major problem I had was the landing transition roll out. To say that I was all over Pontiac Airport when landing is an understatement. I just couldn't get the hang of it. Bob Dial could set the plane down and it would run straight as an arrow. When I landed there was a good chance

of me going backwards the last 500 feet.

About a year ago a Pitts owner told me to lock the tail wheel. I tried several different ways but settled on the way described in News Letter 59. I ran the cable through the fuselage to just below the throttle. I haven't made a bad landing since. It has made all the difference in the world. I now regularly go in and out of 2,000 foot strips with absolutely no problem.

Well I guess this is enough for now I will write again describing my angle of attack indicator. It works quite well.

I am enclosing a couple of pictures of my plane.

Keep up the good work.

Thanks,

AL

Al Bosonetto

Many thanks, AL, for your report. We'll be looking forward with great interest to your report (and simple sketch) of the angle of attack indicator as this is an item that any airplane with minimal stall warning can use to advantage.

HT-800 radio drawing: Your drawing serial number is displayed immediately after your name on the address label on this newsletter. The winner and winning number will be announced in the next NL. We'll notify the winner the day of the drawing.

Addenda to the Questionnaire: There wasn't sufficient space to add a question about whether you are now using or planning to use electric trim or electric flaps. If so, what make and model electric motor are you using? Also, a question about what make of tail wheel you will/are using and a service report on it if applicable. Please use the reverse side of the questionnaire sheet. All results will be tabulated and published in the NL. Please answer all questions that you can, as accurately as possible. The results may have a bearing on insurance rates, too.

PRIMARY AIRCRAFT PETITION TO FAA: URGENT!...URGENT!.... URGENT!.....
Note the following attached two pages at the end of this NL. These were just received from EAA HQ. OUR INDIVIDUAL WRITTEN SUPPORT OF THIS IS VITAL! Time is VERY short. ALL of us agree in principle with the petition, I'm sure, but the FAA DOESN'T KNOW THAT IF WE DON'T WRITE! Remember the results a couple of years back when the FAA (ATC) was attempting to control nearly all airspace everywhere???? The volume of letters from EAA people defeated it. Do YOUR part... Don't wait for GEORGE to write the letter. A simple letter in your own handwriting is adequate. They are really looking at the NUMBER of letters received. Again, this issue could have a really important bearing on both aircraft and life insurance rates. Everyone bitches about the cost of airplanes and aircraft parts. Here's your chance to DO something positive about it. If EVERY member of the T-18 B & O Ass'n will write FAA it will have much greater impact than you can imagine. Let's do it, gents. It's to OUR advantage.

10-10-84

T-18 Mutual Aid Society
 Dick Cavin
 10529 Somerton
 Dallas, Texas 75229

Dear Dick:

A multipurpose Letter-

- 1 Find enclosed my \$10 dues for your great news letter.
- 2 I am sorry that I shall be in California during the last week of October and the first week of November. In my T-18 of course. *
3. I am using Ken Knowles brake master cylinders. I have used them two and a half years and 200 hours. No Trouble.
4. I am also using a Maule Tail Wheel. No shimmy, but I replaced the wheel at about 150 hours since it was worn so badly worn on one side.
- 5 I am using an ARNAV 20 which I purchased at Oshkosh. We hooked it up to power, grounded it and placed the included Antennae on the deck. We held it in our laps and it worked perfectly to Omaha where we stopped over night and could not get the response the next day. I have since installed it in the dash and it works in Kimball (Right in the heart of the Mid Continent gap) where it consistantly shows errors of less than a half mile on the ground or in the air. It does flash an ~~warning~~ "Accuracy" in this area that it may not be right. I can pick up the West Coast grid here but not well enough to make it work well. I will try it ~~when~~ when I go to the west coast this month. I am really excited about the results. Much better than I expected. I used it both ways going to Columbus Ohio for the Hump Pilots Convention. Worked well on both the Great Lakes and Northeast US grid.
 (Incidentally-one of the Humpsters flew in his Bonanza and they told me that he has a FBO and instructs. He was very upset because they would not rent him a car-too old. Only 83. I didn't get his name, wish I had.) Sure was a lot of "Old Guys" at that Convention!

* A late Spring T-18 get together would be great also. Let me know when you have it. Maybe I can make it. My wife is supposed to retire after the first of the year.

I am glad to hear that you are doing better health-wise. Keep up the good work.

Sincerely



From Nate Eastman, Kimball, Neb.

Our thanks, Nate, for that report on the brake cyls, tail wheel, and the Loran. Such info by actual users of various pieces of equip't are very valuable to new builders contemplating purchase of such items, and in addition are also valuable to other actual users who might be having some problems with an item, but who don't know if they got a lemon or not.

SHORTLINES

From Walt Giffin, 4277 Kenmont Pl., Columbus, OH, 43220: "Dear Dick, Count me in for the Narco Drawing. My dues check encl. You asked about brake cyls. I have Scott master cyls. on the pilot's side and modified Clevelands on the pass'ger side (from a Cherokee). I milled the base of the Clevelands to fit the floorboard brackets. It seems to me that same technique (using an external master reservoir would work on the left, too). Keep up the good work and get healthy. Walt" (SEE SKETCH BELOW)

From Dick Amsden: "Hi, Dick: I'm the guy with TWO bent landing gears. (Both are the long gears). My partner was trying to solo it, but never had enough time back to back. He had 18 hrs. dual over 1½ years. I'm just not convinced the gear (long) is strong enough. Anyhow, after talking to Lu Sunderland, Bob Dial, you, and Ken Brock, I finally had the old Jenkins gear straightened and re-heat treated. Instead of Rockwell 39 (180,000#) like the old one, we took this one to Rc 42 (190,000 psi). It is flying again and sure is fun to fly with a 150 LYC. Hope you are doing well, Dick" Thanks, Dick. We'll be interested to hear how it does at the new Rc. I wonder if any of you have heard of anyone bending the long gear in landing (hard)? From what Dick told me on the phone there were a number of hard landings... probably dropped in full stall from a good height. There's a limit as to what any landing gear on any airplane will take when dropped in. I personally believe that the T-18 gear (long and std) is an exceptionally strong gear, as well as being the #1 protective device for the pilot and airplane. I've seen gears bent from going thru ditches, etc., but have never heard of them bending as above.

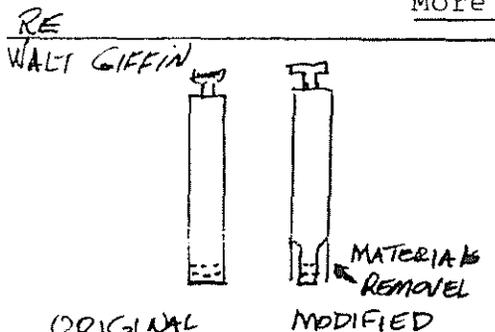
We might review a previous NL writeup on landing the T-18, which cautioned about flaring too high and/or raising the nose above the 3 point position on the ground. The airplane will pitch sharply nose down if fully stalled, so a very high flare could allow the airplane to be in a 45° nose down attitude, in which case there would be a much more rearward force that was applied to the gear. All this is pure supposition, of course.

For Sale: PETE BASHFORD, RT. 1, Box 152E, Morrisville, NC, 27560 919/467-0725 had a little hard luck on a sandy field where his T-18 stumped its toe in a soft spot and very gently went over on its back. Fuselage is sprung. Has an IO-360 and Hartzell C/S prop, both ok. Gear ok. Tank, cowling ok, wing and stabilator ok, fin and rudder damaged, canopy frame ok, but canopy cracked. roll bar slightly bent, inst. panel all ok, controls ok, std wing all ok, seats, upholstery, custom shoulder harness ok, radios, antennae ok. Has 300 hrs. A/F & Eng. Tot. Very nice panel, lighted, nearly IFR, radio is KX-145, upholstery is tan Naugahyde, very nice seats. Electric trim. Pete will sell the entire airplane for about \$11,500, or may consider parting it out later. He has no time available to rebuild, is his reason for selling. Sounds like a good buy for someone.

Another FOR SALE: 1965 Thorp T-18, 685 TT, 582 SMOH on Lyc. 0-320, 150 hp, Sensenich wood prop, Full gyro panel, EGT, Genave Alpha 200B Nav/Com, \$12,500. For details contact Catlin Aviation, P.O. Box 59906, Oklahoma City, OK, 73144 (405/ 681-2331) Att: Gene Nailon, Sales dept. I understand the airplane was originally built by Otto Zauner, of Vineland, NJ and was one of the 1st ten built. At present it is unpainted. ~~It has no flaps, I think.~~ It is an estate sale of an ag pilot, who lived in Duncan or Lawton, OK.

More FOR SALE: LYLE FLEMING, 46035 20th St E, Lancaster, CA ⁹³⁵³⁴

is building his 2nd T-18 and he still has a LOT of T-18 parts left over from #1 (that he's parting out) and the price is right. Call him at 805/942-2481 for details. Estate sale: Ken Hamilton, local builder passed away in Nov. His WB-CW project partially riveted will be for sale as soon as it clears probate. Contact me if you are interested. I'll handle sale for his mother. Will probably go for inventory.



Amigos, I have a little news for you that some of you already know about:

On a recent weekend Paul and Audrey Poberezny were in Dallas to visit their daughter, Bonnie, and son-in-law, Bud Judy, and also their new granddaughter. To make a long story short, Paul and I got together for quite a long discussion and as a result we came to an agreement in which I would soon begin serving as an Associate Editor for the new magazine, The Lightplane World, in addition to Sport Aviation. I will continue to live in Dallas, but will do a significant amount of traveling to cover various events and projects. In the coming months you can look for quite a few changes in the format of both magazines and I do believe you will enjoy the publications even more (if that's possible). While the immaculate show planes will still be covered in detail, you'll see a lot more how-to-do-it articles and columns, lots more about the people that make up EAA, lots more about the little guy and his projects, more info that instructs and educates...in short, much more emphasis on the area of homebuilding than has been possible in the past. Actually, there will be two magazines with much the same content of subject material. Sport and recreational aviation encompasses such an ever-swelling volume of people and subjects that a magazine that of necessity has to limit itself to 92 pages per month (i.e. Sport Aviation) simply cannot cover but a small per cent of the available news. Like most news gathering organizations EAA publications must focus on "fresh" stories in the main. Stale or re-hashed story coverage would soon cool the enthusiasm of many readers.

My wife and a number of friends have raised their eyebrows at my taking on this job at my age, but I look on it as a challenge that I look forward to with relish. All my life I've been totally fascinated by anything that flies...particularly any new development in aviation, so this will provide the opportunity to indulge my addiction of hangar snooping to the fullest.

Will it affect the T-18 Newsletter or the soon upcoming Safety and Operations Manual? Not if you gents will continue to communicate your experiences in building and operating the T-18 in sufficient volume without too much arm twisting on my part. If I, as editor, can simply put your letters and pictures together to make master plates, I can get some local help on the printing, collating, addressing, and mailing. It will make life easier for me if you will type your letters, but if you can't do this easily go right ahead and hand write your letters. I have a fellow EAAer here that has offered me some help in this area. He also has a computer and has agreed to help me get a lot of the day to day record keeping better organized (which now takes up 90% of the time I spend on the T-18 Newsletter). He'll be a very capable assistant, as he once put out the PL-4 NL until a health problem arose and he had to back off.

Anyway, you will soon read the announcement in the Hot Line section of the magazine, so I won't beat it to death now.

Because of a considerable number of high priority things interfering with my intention of getting this NL in the mail by around Thanksgiving time the current time frame is close to Christmas, so now I hope to have this in the mail by JAN. 5th when the Xmas mail rush subsides. Incidentally to all of you that sent holiday greetings I truly thank you for your consideration and I'd like to take this opportunity to extend our best wishes for your good health, happiness, and prosperity in the days ahead.

Inasmuch as we are late in getting this NL out, we have decided to extend the deadline for subscription/membership renewal to Jan. 30th, 1985. This extra time will allow time for all members to return the questionnaire sheet that is attached to this NL.

Please remember: YOU MUST FILL OUT THE QUESTIONNAIRE SHEET AND RETURN IT TO ME IN ORDER TO QUALIFY FOR THE DRAWING ON THE NARCO HT-800 RADIO. The winner will be announced in February.

CARB NOZZLES/ JETS: JOHN WALTON's experience...."Refer to JOHN KENTON's write-up in recent NL...John went from a 10-3678-32 carb to a 10-5135 (don't find this one in my Aircraft Spruce Marvel-Schebler table), then to a 10-5009 carb. Skipping the 10-5135..it didn't seem to work too well any way, but it seems the 10-5009 does.....If you compare these carbs in the Aircraft Spruce table you can see the principal (only) difference between the two (A10-3678-32 & A10-5009) is the Nozzle itself. (A47-773 & A47-813, respectively).My friend, Del Hainley, recently finished a Glasair & had similar carb problems (but he did a little more of his test work on the ground)(not at 50-100')!!! In a completely independent effort, Del ALSO ended up with the above A47-813 nozzle in his original A10-3678-32 carb & has had good results since the change. Nozzle costs \$45.Regards, John.. John sent a copy of that letter to John Kenton, who replied, "He cured his problem in a more economical way...replacing jets instead of carbs. Please print this in the NL, as I believe there might be many T-18ers running their engines with mixture control pulled half out, and this sort of info is invaluable and might save a forced landing.Sincerely, John".

I had a note I saved that said that Glenn Young (0-290-G) said on his airplane the MA-4 carb (3678-32) was bad and the 10-3323 or 10-2827 was good. (The quotes above were for O-320, 150 hp)....Also, when I installed my present O-320 B2b 160 hp engine, which had come out of a Super Cub, I couldn't get it to run above 2000 rpm without breaking down, etc.The only real difference between airplane installations had to be the air box (the induction system). It was much too rich in my T-18. A Mustang II owner, that I had done the orig'l test hop for told me he had the same problem with his engine before it was ready to test. A FBO told him about an old AD on the engine that called out a nozzle change.I replaced nozzle (jet) #47-77-3 with #47-82-8 and it has run fine ever since. Without leaning at low altitude @ 75% power it burns 8.0 gal/hr....Have some of you had similar experiences? How about a report?

MORE FOR SALE AIRPLANES: MIKE DEANER, P.O. Box 2472, Capistrano Beach, CA, 92624 has N711RF for sale, \$16,500. 200 TT, IO-320 300TTSN, KX-155,KT-76, strobe, Imron,intercom,cover, plans. Would trade for C-182. 714/851-2348, day, or 714/ 661-8170 evenings.

EAA Museum has the display T-18 for sale. It is the partially finished airplane built a little each year in the metal workshops. It is not painted and will still require some work to complete. It is pop riveted as I remember and because it is not a completed cream puff type, it has been declared surplus. I didn't get any details from Paul when he told me about it, so if you are interested you might drop them a letter. If you are really interested, take a flat-bed with you to OSH '85 and bring it home, eh?

Another first flight:DONALD F. DERBY, 300 E. Tropicana Ave., #10, Las Vegas, NV, 89109, 702/736-3726, plan s/n 1423, N444DD (CW), flew the 1st time on 8/14/83, and has a Lyc. O-320 D2A 160 engine in it, with a Hartzell c/s 72" prop, King Silver Crown radios, and it took him 3 yrs. and 8 months to build. Cost was over \$30k. Has gear cuffs, and wheel pants and is exactly to plans, except for seats.It is flush riveted.

Congratulations, Don, and we'll be looking forward to seeing it at OSH or other fly-in.

The attached Annual Inspection Procedures are to be retained for your Operation/Safety manual. We have still another one for next NL.

Please don't forget to fill out the questionnaire, even if you did not enter the drawing for the HT-800..Best wishes to all of you for the coming year.

Nick

T-18 QUESTIONNAIRE *Pls 1*

(MUST be filled out and returned in order to qualify for HT-800 drawing)

JAN. 31, 1985 is the last day for receiving questionnaires to qualify!

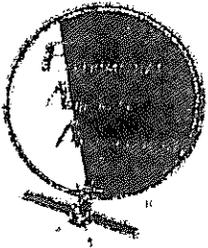
Please fill out BOTH sheets on all items that are applicable to your project (whether flying or not).

1. YOUR NAME, ADDRESS, ZIP, PHONE.....
- 2. TYPE (st'd, CW, WB).....
3. DATE STARTED..... BY YOU?..... or OTHER(who?).....
4. IS PROJECT NOW FLYING?..... 1st FLITE DATE..... TEST HOP BY YOU?.....
5. PILOTING EXPERIENCE: WHEN & WHERE DID YOU LEARN TO FLY?.....
 License and ratings..... TOTAL HOURS.....
 Hours, yearly average..... Qualified aerobatic?..... Taildragger?.....
 Military experience, type of flying jobs held, etc. Any info about you that would be of interest. (Held confidential if desired).....
-
6. AIRCRAFT MECH'L EXPERIENCE (SAME TYPE INFO AS ABOVE) A & P LICENSES HELD, Type of maintenance or aircraft building experience, how long, any special skills, etc.....
7. Have you used Matched Hole Tooling on your project?..... To what extent?.....
 Your opinion of MHT..... What parts did you jig build?.....
8. Were plans difficult to understand?..... or easy?..... Same questions on the WB and CW plans if applicable?.....
9. HAVE MATERIALS or PARTS BEEN DIFFICULT TO LOCATE?..... Your opinion of cost of purchased parts?..... Your opinion of quality of purchased parts.....
 Promptness of parts delivery.....
10. What parts have you found the most difficult to make?.....
 WHY?.....
11. CAN YOU MAKE AN ESTIMATE OF THE NUMBER OF MAN/HOURS IN VARIOUS ASSEMBLIES (i.e. fitting canopy, fitting cowling, building and rigging flaps, etc)?.....
-
12. HOW LONG did you take to complete your T-18 (or think it will take)?.....
-
13. Why did you select the T-18 for your airplane project (or why did you buy a T-18)?.....
-
14. Appr. what size is your workshop?..... separately heated or cooled.....
-
15. What do you have in the way of power tools?.....
 Hand Tools.....
-
16. Please check the items you have completed: All... fuselage shell.....
 rudder..... fin..... stabilator..... ailerons..... flaps..... outer wing panels..... center wing..... canopy..... seats..... control systems.....
 brake system..... electrical systems..... engine control systems.....
 induction system..... exhaust system..... oil cooler inst'n.....
 baffling..... spinner inst'n..... cowling..... wheel pants inst'd.....
 gear fairings..... wing tips..... nav lites or strobe..... upholstery.....
 painting..... radios and antennae..... (specify makes & models installed or planned.....
 instruments installed or planned. (A/S)..... (R.of.C).....
 A.Hor'z'n..... Alt..... Dir. Ind'r (specify type)..... T & B (or turn ind'r.....
 compass..... VOR/OBS..... accelerometer..... fuel quan ind'r.....
 fuel press..... tach..... M.P..... oil press..... oil temp.....
 head temp..... EGT..... fuel flow meter..... amp/volt meter.....
 Other (plz list)..... What do you estimate your entire inst. installation will cost \$..... Cost of avionics? \$.....
17. Please use rest of page to explain what areas of NLs you found to be most helpful. Also plz itemize what areas you would like to see more fully covered in NL. Be as specific as possible. (plus any other comments you might have..gripes included. Use reverse side if needed on any items. Thank you!

- (1) AIRCRAFT N _____ PLAN SERIAL # (IF KNOWN) _____
 ENGINE (MAKE & MODEL #) _____ HORSEPOWER _____
 EMPTY WT. _____ # L. MAIN _____ # R. MAIN _____ # T. WHEEL _____ #
 EMPTY CG _____ MAX C.G. _____ FWD C.G. _____ AFT C.G. _____
- (2) PROPELLOR: MAKE _____ MODEL _____ LENGTH _____ PITCH _____
 FIXED PITCH (WOOD OR METAL) _____ CONSTANT SPEED _____
 STATIC RUN UP RPM _____ MAX IN FLITE RPM (OBSERVED) _____
- (3) PERFORMANCE: NORMAL CRUISE @ 75% POWER _____ IAS _____ ALT. _____ ft _____
 RPM @ NORMAL CRUISE _____ M.P. _____"
 (75% power on fixed pitch=max rpm less 10%)*
 Full power IAS @ LOW ALTITUDE _____ @ 7500FT. _____ (RPM @ 7500') _____
 RATE OF CLIMB SOLO _____ FT/" AT OR NEAR GROSS _____
 IAS @ STALL, SOLO _____ MPH (CLEAN) IAS FLAPPED _____ MPH
 @ MAX WT. _____ CLEAN @ MAX WT. FLAPPED _____ MPH
- (4) AVERAGE TAKE OFF ROLL IN FT. OR SECONDS: SOLO _____ @GROSS _____
 (SPECIFY WHICH)
 AVERAGE LANDING ROLL (FT.) _____ AIRSPEED CARRIED ON FINAL _____ MPH
 IAS IN PATTERN: DOWNWIND _____ ON BASE _____ IN TURNS _____
 AMOUNT OF FLAPS USED _____ COMMENTS _____
 YOUR ESTIMATE OF SAFE CROSSWIND LIMIT FOR T/O _____ MPH LANDING _____ MPH
- (5) FUEL CAPACITY: FUSELAGE (FWD) _____ G. (AFT) _____ G. (C. SEC) _____ (O. BD) _____
- (6) TYPE COWL: THORP _____ RATTRAY _____ OTHER _____
 TYPE EXHAUST: _____ (IF OTHER THAN CROSS-OVER, DESCRIBE)
 OIL COOLER _____ WHERE MOUNTED _____
 AVERAGE HEAD TEMP: CRUISE _____ °F/C CLIMB _____ °F/C
 PLEASE LIST ALL INSTRUMENTS INSTALLED AND ALL RADIOS, AUTOPILOT, ETC.
- LOCATION AND TYPE OF PITOT AND STATIC (DESCRIBE)

- COMMENTS ON ANY OF ABOVE: (USE BACK OF SHEET IF NEEDED)

YOUR OPINION OF HOW AIRCRAFT FLIES (CONTROL PRESSURE BALANCE, CONTROLLABILITY, STABILITY, IFR CAPABILITY, STALL CHARACTERISTICS, ETC)



EXPERIMENTAL AIRCRAFT ASSOCIATION

WITTMAN AIRFIELD, OSHKOSH, WI 54903-2591
PHONE: 414.426-4800

December 17, 1984

Mr. Dick Cavin
T-18 BUILDERS AND OWNERS ASSN.
10529 Somerton
Dallas, TX 75229

Dear Dick:

You are probably aware that EAA and AOPA worked with a committee of concerned aviation leaders to prepare and submit to FAA a petition to amend FARs to permit the certification of a new aircraft category, to be called "Primary Aircraft".

The proposed amendments would permit the Administrator to accept airworthiness standards and establish certification procedures appropriate for primary aircraft, including engines and propellers, based upon the degree of complexity of the design contemplated and issue type certificates for these aircraft, engines and propellers.

This category is defined to be aircraft with a single engine of not more than 200 hp, seating not more than four people. They could be used for flight training but could not be used to carry passengers or property for hire. Owners of primary aircraft could perform some special maintenance and inspections on their aircraft; primary aircraft could be factory produced or owner built from prefabricated parts; and certain standard aircraft in the normal, utility, or aerobatic category could be operated in the primary category, if the owner so desires.

If you would like a copy of the complete petition, just call me or Bill Fraser.

The petition has been assigned to FAA docket #23345 and is still open for public comment for a limited time. Because approval and implementation of this proposal is so vitaly important to the future of recreational and sport aviation, we ask for the support of you and your membership in helping us provide the FAA with a great abundance of thoughtful, favorable comments. Here are some things to consider when writing:

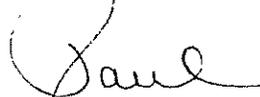
1. Comments that contain your own reasons for support of the petition carry more weight than those that merely say, in effect, "I support the petition." Your thoughts and concerns are what FAA is looking for.
2. Individual letters are regarded more highly than petition lists with multiple signatures, or signed form letters.

3. The homebuilt movement has proved that safe, simple and economical aircraft can be constructed and flown with reasonable certification and compliance standards.
4. Owner assembly of kits for aircraft certificated in the Primary Category will make flying even more affordable for those who are willing to add their own labor - but who are unwilling or unable to produce homebuilts under the 51% rule.
5. General aviation desperately needs help. Primary aircraft (really a return to the basics) may provide the needed stimulus by making factory and kit planes, flight training and aircraft operation more affordable and accessible to more and more people. It can be done without any sacrifice of safety. More new people will become involved in aviation and previously trained pilots will become reinvolved. Underused airports will become more active and job opportunities will increase. Despite the limited owner/maintenance provision, A&Ps will have more work, rather than less, and CFIs may even be able to support themselves full time.
6. Even though the cut-off date is January 3, 1985, comments will be accepted for a reasonable length of time (perhaps 2-4 weeks) after that date. But please don't procrastinate. It is imperative that your comments be on record ASAP!

Your support is vital. Aviation must move forward and grow. Young people must be attracted. New manufacturers need to be encouraged. Please act now before it's too late! Your help is appreciated. Thanks very much.

Sincerely,

EXPERIMENTAL AIRCRAFT ASSOCIATION



Paul H. Poberezny
President

Send your comments re: Primary Aircraft to:

Federal Aviation Administration
Office of the Chief Counsel
Attn: Rules Docket (AGC-204)
Petition Docket No. 23345
800 Independence Avenue, S.W.
Washington, D.C. 20591

← SEND TO

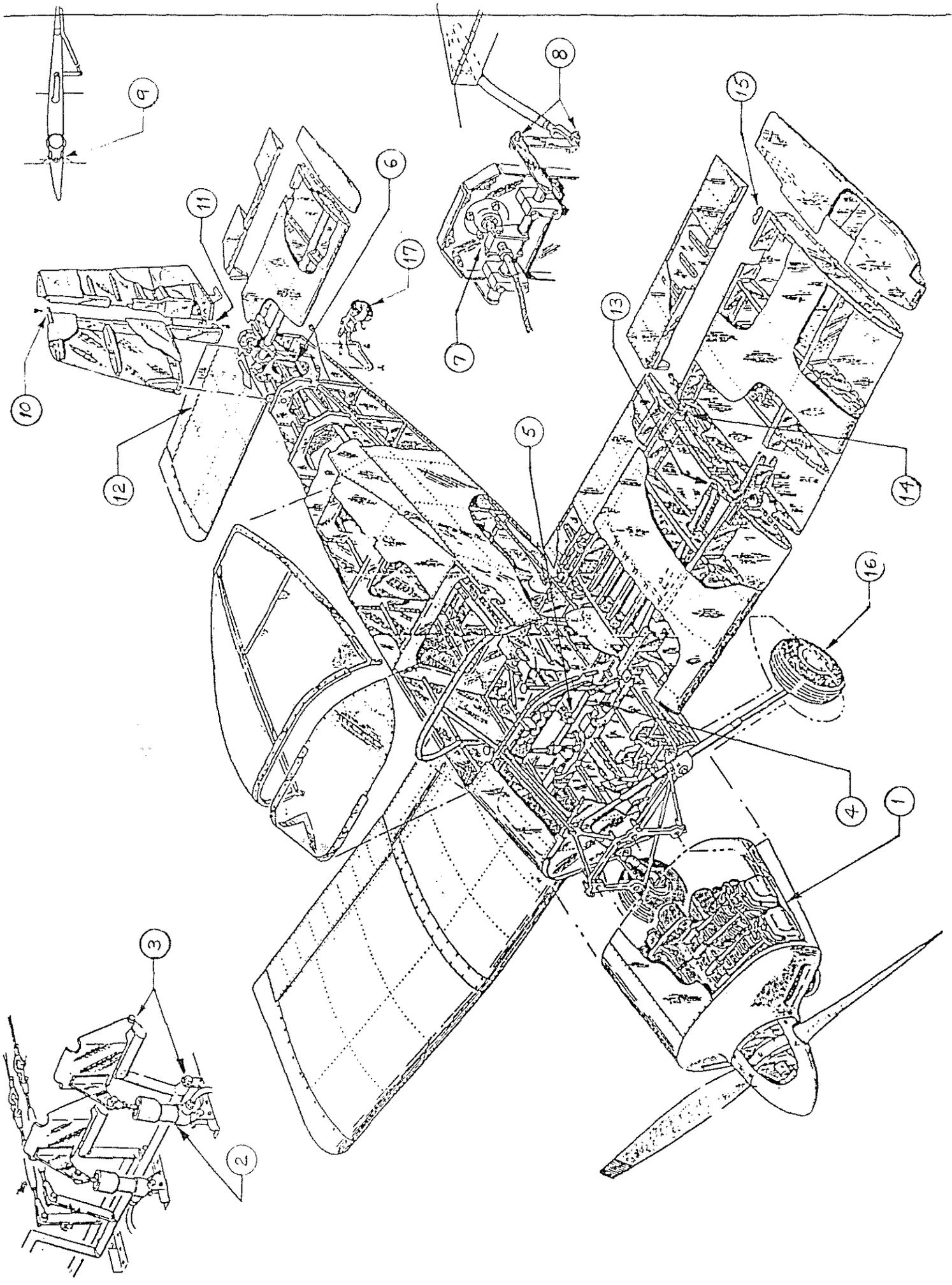
NOW!

*Click -
We are sending
this letter to a group
of type clubs.*

ANNUAL INSPECTION PROCEDURE

	INSP
D. <u>WINGS</u>	
1. Skin	
2. Structure (outer wing attach fittings & bolts)	
3. Access panels	
4. Push-pull tubes & bellcranks	
5. Ailerons	
6. Flaps	
7. Navigation lights	
8. Strobe lights	
9. Electrical wiring	
10. Pitot probe	
E. <u>LANDING GEAR & BRAKES</u>	
1. Wheels & tires	
2. Brake linings & disc	
3. Landing gear struts & axles	
4. Gear attach bolts	
5. Tail wheel & steering linkage	
F. <u>REAR FUSELAGE & EMPENNAGE</u>	
1. Skin	
2. Structure	
3. Elevator push-pull tube	
4. Rudder cables	
5. Trim system	
6. Empennage structure	
7. Empennage attach fittings	
8. Control surfaces	
9. Anti-servo tab system	
10. Electrical wiring	
11. Static ports	
12. Battery	
<u>GENERAL</u>	
1. Aircraft cleaned & serviced	
2. Aircraft lubricated IAW manual lubrication chart.	

MAKE APPROPRIATE ENTRIES IN THE AIRCRAFT AND ENGINE LOG BOOKS.



LUBRICATION CHART

<u>* LOCATION</u>	<u>LUBRICANT</u>	<u>RECOMMENDED INTERVAL</u>
1. Engine sump	Ashless dispersant SAE 40	Every 50 hours
2. Brake cylinders	Brake fluid - MIL SPEC 5606 or equivalent	As required
3. Rudder pedal pivots	Lubriplate or equivalent	
4. Walking beam	Lubriplate or equivalent	
5. Stabilator push-pull tube (front)	Lubriplate or equivalent	
6. Stabilator push-pull tube (rear)	Lubriplate or equivalent	
7. Elevator trim jack-screw	Dry graphite or equivalent	annually
8. Elevator trim linkage	Lubriplate or equivalent	
9. Stabilator pivot fittings	Lubriplate or equivalent	
10. Rudder top hinge	Lubriplate or equivalent	
11. Rudder bottom hinge	Lubriplate or equivalent	
12. Servo-tab hinge	WD-40, LPS-1 or equivalent	
13. Aileron bellcranks	Lubriplate or equivalent	
14. Flap hinges	Lubriplate or equivalent	
15. Aileron hinges	WD-40, LPS-1 or equivalent	
16. Main wheel bearings		Annually
17. Tail wheel bearings		Annually

*See attached diagram for locations

