Experimental Aircraft Association

CHAPTER 393

P.O. BOX 2269, Walnut Creek, CA 94595
Concord, California

CHAPTER MEETING - WEDNESDAY EVENING, 7:30 P.M.
FEBRUARY 25, 1987

The program this month is a talk by Buchanan Airport Manager, Hal Wight. He will bring us up to date on all the goings on at the airport, and, if it is anything like his fine presentation to us last year at about this time, he will provide us with some insight as to what some of the future plans are for the airport and its usage. Also, as with last year's session, this will be an opportunity for you to meet with Hal and discuss any questions or concerns you may have. Please plan to attend. Bring a friend or two, and an equal number of chairs. We'll look forward to seeing you.

Speaking of things airportish, the Ordinance has gone to the Board of Supervisors in "final" form. It will probably go through in March.

Also, it looks like those of us who wish to bring our own fuel to the airport will be allowed to do so. It must be in 5 gallon cans, and we will have to fuel the planes at designated grounding spots by each of the two wash racks. The system you use can be as simple as the hand squeeze type available at the auto stores; but whatever you use, it must have immediate shutoff capability. This will probably start this coming summer.

The "Glasair Builder's Group" is now well organized, and is meeting at Keith Martz' house -- 22 Shady Lane, Walnut Creek (phone 933-1424), every month on the first Tuesday from 7 to 10 P.M.

Okay folks, it is dues time again. All those whose names begin with the letters A through K are it this time. They were actually due in January, but we gave you a little respite. Just sit back and think a minute just what you get for only $15.00, and then send it right in to Treasurer Lou, or better yet, bring it with you to the meeting.

We had three new members join in the last month or so:
Edward Fernandez, Walnut Creek, KR-2
Eric Schuldt, Concord, Volksplane
Michael Welch, Clayton, Cozy

Welcome to you all!!

Incidentally, for those of you who do plan to refuel on your own, there are some funnels out that are supposed to be very good on water and solid removal. One is $25 from M&K Aviation, 5412 Highway 62, Jefferson, Ind. 47130. The other is Wick's Aircraft - $9.95 for the 5 1/2" and $29.95 for the 8". Write them for info.

EAA

CHAPTER 393 MINI-MART

For Sale: Glasair kit. $10,750. Norm Alumbaugh, P.O. Box 200, Pope Valley, CA 94567. 707+965-2709. 3

For Sale: Glasair RG. Much work done. Price negotiable. Tom Pinckard, 415+933-0280. 3

For Sale: Rob Cook's VE. O-235L2C. 500 hours new. Minimum time to finish. Full panel/stereo, 1,000 mile range, 36 gal., electric starter. LE gear, landing light & trim. Day: 800+772-2590, Eve: 415+372-8125. 3

Service Offer: Precision welding (TIG), aluminum, stainless, 4130. Eric Schuldt, 18 Baldwin Dr., Concord CA 94519, 415+827-0259 1

Wanted: Hangar needed at Buchanan for at least a year. Call Ron Robinson, 415+283-7365, or 283-1971. 1

EXPERIMENTAL AIRCRAFT ASSOCIATION

CHAPTER 393

1987 CALENDAR

CHAPTER MEETINGS - The 4th Wednesday of every month - 7:30 P.M. at Buchanan Field Terminal Building EVERYONE IS WELCOME! Bring Chairs!

BOARD MEETINGS - On the dates listed below (usually the 2nd Tuesday each month) - 7:30 P.M. at Navajo Aviation. Chapter members are welcome.

FEBRUARY
Board - February 10th.
Chapter - February 25th - Hal Wight will talk on the airport.

MARCH
Board - March 10th.
Chapter - March 25th - Chapter Show and Tell continued.

May 1-3 - Gold Cup Regional Aerobatic Contest, Taft, CA.
September 4-7 - Delano Aerobatic Contest, Delano Airport.

CHAP. SEC.,

Dr. Bill Baker, has started a move to unite all the EAA chapters in Northern California and Southern Oregon into a fly-for-fun group called "Jefferson State Air Force." A meeting was held Jan.17 at Mott Airport. Representatives from Redding, Klamath Falls and Medford attended. The concept was enthustically received by those present, and they will present it to their chapter members. The idea is to get all the people who are interested in getting together for fun flying involved together. Back in 1941 there was a movement to seperate southern Oregon and northern California into a new state of Jefferson. This seems like a good start for a bunch of folks to have a lot of fun; so here we go. There will be a meeting in Redding during Feb; on a good-weather week-end. Everyone who is interested is invited to attend, and we'll go forward with the "Jefferson State Air Force".

CHAP. 654, SISKIYOU
EDITOR BOB ALDS, 916+926-5330

3.

EAA NATIONAL NEWS LETTER

PIPER BLASTS AUTO FUEL

In a contradictory and misleading service bulletin issued on January 14, 1987, the Piper Aircraft Corporation states that, "The use of automotive fuels is prohibited in Piper airplanes." Paul Poberezny has challenged the validity of the service bulletin in a letter to Piper President Frank G. Manning. In his letter, Paul describes the lengthly, detailed and highly successful auto fuel test program conducted by the EAA Aviation Foundation. He notes that current "aviation" gasoline (100 LL) has never been tested to the extent to which EAA tested mogas and that, to our knowledge, FAA has never defined any fuel specifications for 100 LL. The Federal Aviation Administration has approved the use of mogas as an aviation grade gasoline for over 350 different airframe and engine combinations.

When mogas is used in conjunction with an FAA approved STC, it <u>is</u> for all intents and purposes, aviation grade gasoline. Any other conclusion is illogical! You will certainly be reading more about this issue in SPORT AVIATION in the future. Several of your Headquarters staff members suspect that the lawyers for Piper's parent company, Lear Sigler, may be preparing themselves a future "product liability defense" by issuing the service bulletin. However, as Paul said in his letter to Mr. Manning, "In spite of careful record-keeping and EAA's own independent investigations, we have absolutely no records of <u>any</u> incident or accident in which mogas, of ASTM D-439 specifications, when used in conjunction with an FAA approved STC, has been shown to be a causal factor."

WHEELS & BRAKES

Parker Hannifin Aircraft Wheel & Brake Division introduces a heavy-duty 5-inch wheel and brake. Designed for the kit-built aircraft, the 40-230/30-181 wheel and brake provides increased braking capacity for your heavier and faster aircraft.

In addition, an upgrade kit, part number 199-93, will be available to increase performance of the current 40-78/30-8, a 5-inch wheel and brake series now used on the majority of experimental aircraft. The kit will consist of heavier brake discs, heavy-duty brake linings and hardware.

For more information contact your Cleveland Wheels & Brakes distributor, dealer or customer service at Aircraft Wheel & Brake Division, 1160 Center Road, Avon, Ohio 44011, (800) BRAKING (272-5464).

AIR FILTER INSTALLATION

From the Glasair News

Shown here is a schematic of a carbureted engine air filter system used by one of our builders. The round, automotive filter element is installed in a fiberglass housing mounted to the firewall. Inlet air is taken from the aft engine baffle. An extra flapper valve that can select between ram and filtered air is installed in the carb box directly under the carburetor.

With this arrangement, the filter must be shut off to select carb heat. The builder who suggested this filter system reports that the rpm drops about a needle width when the filtered air is selected.

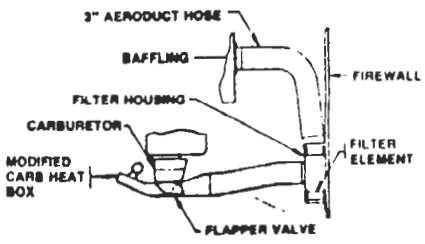
The filter housing was laid up in the bottom of a 3 gallon resin bucket, released, trimmed, and then turned over onto a sheet of waxed glass for application of the flange all around.

The 3 inch tubes were laminated by wrapping mylar tape over cardboard shipping tubes and the flange on the rear of the baffle was laid up over a foam mold.

Stoddard-Hamilton wants to caution builders about the installation of air filter systems. The filter housing and tubes must be properly designed to avoid air separation, which could cause the improper fuel mixture.

Stoddard-Hamilton is working on an air filter option which will be thoroughly tested before being made available.

For builders who design their own filter system, the filter housing should be sufficiently large and the flapper plate sufficiently thick to avoid problems. The installation detailed above cannot be recommended because Stoddard Hamilton has not tested it, however.



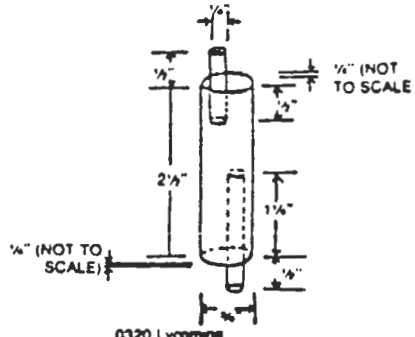
ENGINE DRIVEN FUEL PUMPS

From the Osprey 2 Newsletter, P.O. Box 150, Strawberry Plains, TN 37871, by Ernie Hummel of Vacaville, California.

The engine driven fuel pump on the Avco-Lycoming engines is a diaphragm type actuated by a reciprocating arm extending thru the engine case to the center of the pump case. Failures of this pump are not uncommon, and usually begin initially with a pin sized hole in the rubber diaphragm. Eventually, the pin hole progresses into a full span failure of the diaphragm and the total loss of function of the pump. While in the pin hole stage, the pump will continue to function, but at a decreased output, and with some fuel being ejected through the overboard line fitting. If this condition can be detected, a total failure may be averted.

My friend George has come up with a devilishly ingenious device for determining the existence of a pin hole condition in the diaphragm of the pump. (See drawing.) The barrel is clear Acrylic tubing, available at a local plastics store. Likewise for the smaller tube fittings. Acrylic cement or Krazy Glue will seal the smaller tubes into the discs at the end of the barrel. The discs were made by cutting one quarter inch thick pieces from an acrylic rod on a small lathe. In the event of a pin hole leak, the trap will fill up to the top of the discharge tube before overboarding the remainder of the fuel thru the discharge line. A check of the trap after flying or on a pre-flight check will reveal the presence of fuel where there should be none in the case of a good pump.

I am installing one of the traps in the cockpit just above and behind the main spar. The overboard flexible tubing will be routed along the rear side of the main spar to the wheel well. The upper flexible line will extend from the pump down to the top tube on the trap.



0320 Lycoming
Engine driven fuel pump overboard fuel trap

FOR SALE: "VARIEZE" PROJECT, GLASS WORK 80% COMPLETE, $4500.
J. PRYOR 916-791-1590

1
LYCOMING, O-235-C2C, with ACESSORIES, 0 HRS SINCE MAJOR, RICH LELANGE, GRASS VALLEY, $5500, 272-5560.

CHAP. 526, ROSEVILLE

916+

CHAP. 663 LIVERMORE

How to Set Idle Mixture

The idle mixture check is an important procedure not only for setting up a new or freshly overhauled carb, but for monitoring the performance of an older one as well. Every carburetor should be checked for idle mixture at least once every calendar year and adjustments made as needed. (Lycoming even suggests resetting idle mixture on a seasonal basis, if you live in an area with wide swings in density altitude, such as the desert southwest.)

The procedure is simple. First (very important), be sure your engine is at operating temperature. Also, any defects in mag timing, harness or plug condition, etc. should be corrected before attempting the test. (You wouldn't think of making final adjustments to your car's carburetor *before* a tune-up, would you?) Basically, the engine has to be warm and smooth-running at idle.

All right. With carb heat off, air filter in place, and all systems "go," face the plane 90 degrees to the wind and adjust the throttle to give minimum rpm. (This should be about 700 rpm.) Secure the throttle to keep it from creeping. Now *begin moving the mixture control toward idle cutoff, and monitor the tachometer.* As you come to the last inch or two of mixture travel, you should notice a 25 to 50 rpm rise in engine speed before the engine falters from lean misfire. (Keep it running.) Jot down the actual rpm rise, whatever it is.

If your leanout gave more than a 50 rpm rise, your carburetor (or fuel injector—the same test applies) is set *too rich* and needs to be compensated in the lean direction. Conversely, if you saw little or no rpm rise, your idle mixture is set *too lean*.

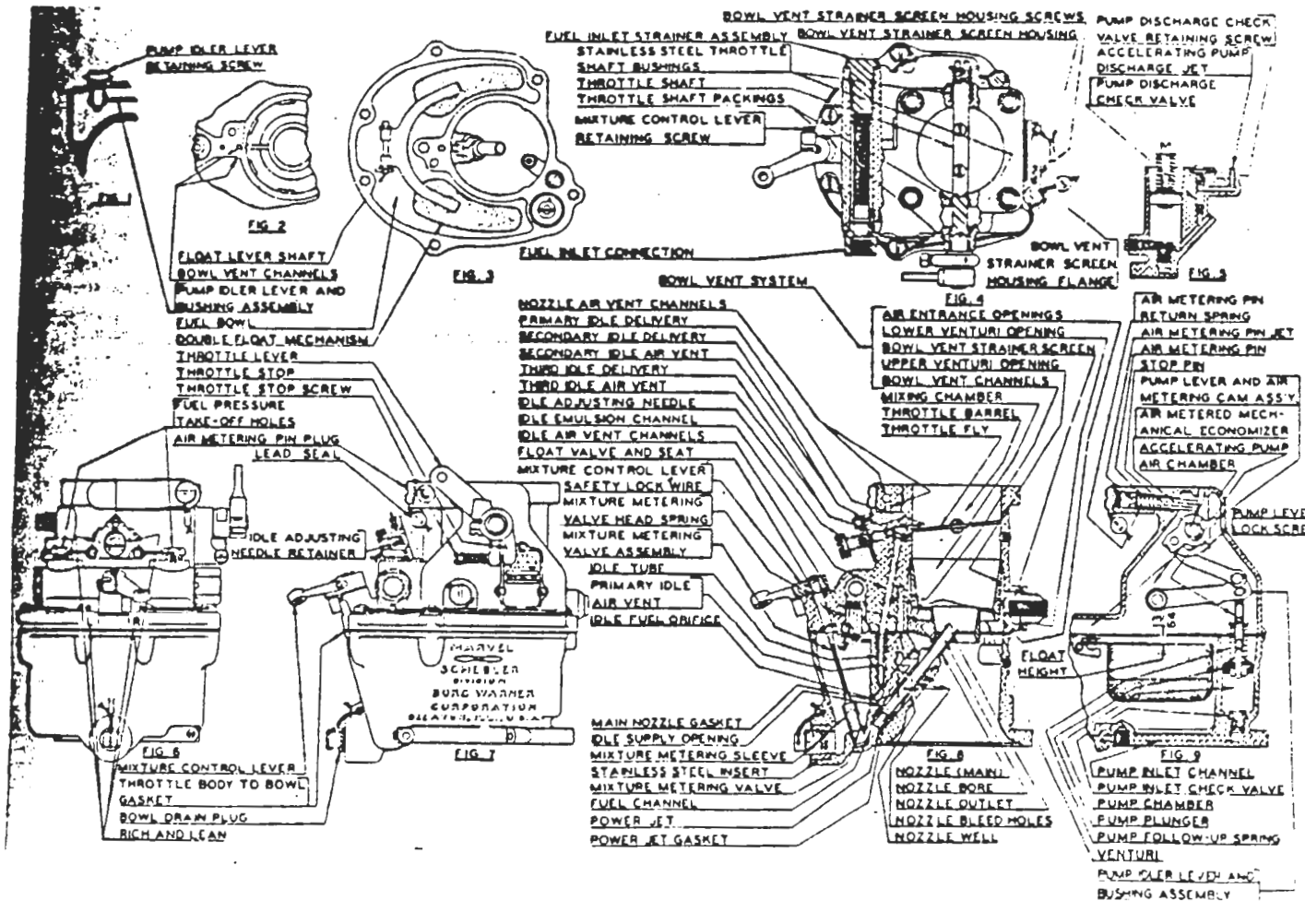
The idle mixture adjustment on a Marvel-Schebler carburetor is in the form of a large knurled screw (or small slotted knob) on the throttle casting, high on the carb. On MA-3 and MA-4 series carbs, find the bowl drain plug; then run your finger (or eyes) straight up the side of the carb until you come to a slotted knob with arrows on it pointing to 'R' (rich) and 'L' (lean). That's the idle mixture adjustment. Give this screw a turn in the desired direction, then repeat the leanout procedure described above.

Of course, alterations in idle mixture have an effect on idle *speed* as well. If your engine was set too rich—e.g., 150 rpm rise on shutdown—and you corrected this by turning the idle mixture screw as needed to give the desired 50 rpm rise, your engine will now idle about 100 rpm faster than before. Accordingly, you'll want to adjust the *idle speed* to put it back in the 650-750 rpm range.

On a Marvel-Schebler carb, as on any automotive carb, the idle speed adjustment comes in the form of a setscrew on the low-rpm stop at the throttle arm on the carburetor. Adjusting the setscrew (with a Swiss Army knife, say) just increases or decreases throttle travel at the low-rpm stop. Make adjustments as needed to bring your idle rpm back to 650-750. Then repeat the idle mixture leanout check. You want no more than a 50 rpm rise on leanout.

Obviously, several iterations of the basic procedure may well be necessary to get the carb set up correctly for both idle mixture and idle speed, since one affects the other. Try not to idle so long on the ground, however, that CHT reaches inflight indications. Also, be aware that with prolonged ground operation at full-rich mixture and low rpm, plug fouling is encouraged.

Once you've got the basic procedure down (and everything adjusted the way you want), start noting the rpm rise on every shutdown, as a routine procedure. That way, if float saturation or internal leakage (or carb heat maladjustment, which effectively causes an overrich idle mixture) should start to become a problem, you'll know it—long before most pilots (or mechanics) would be aware of it. —*KT*



CHAP. 663, LIVERMORE

RULES FOR HOMEBUILDERS

with the compliments of
FREE FLIGHT
(see letter to the editor)

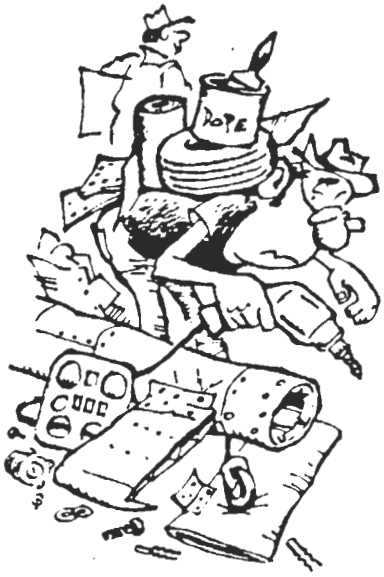
compiled by Tony Burton
illustrated by Gil Parcell

. . . and bad luck has nothing to do with it, there is a natural order to the act of construction, in part delineated below.

You always find a tool in the last place you look.	Boob's Law
If you take something apart and put it back together enough times, you will eventually have two of them.	Rap's Inanimate Reproduction Law
A carelessly planned homebuilding project takes three times longer to complete than expected; a carefully planned project takes only twice as long.	Golub's 2nd Law of Homebuilding
Experience varies directly with material ruined.	Horner's Five Thumb Postulate
If all you have is a hammer, everything looks like a nail.	Baruch's Observation
When the need arises, any tool or object closest to you becomes a hammer	Bromberg's Law of Tool Use
The one who says it can't be done should never interrupt the one who is doing it.	The Roman Rule
The first 90% of a project takes 10% of the time, and the last 10% takes the other 90%.	The "90-90" Rule
The easier it is to do, the harder it is to change	Eng's Principle
If you fiddle with a thing long enough, it will break	Schmidt's Law
The nut won't go on until you utter the magic word	Bungey's 1st Law
When you're about to use the magic word, children will be present	Bungey's 2nd Law
The first place to look for a dropped washer is the the last place you expect to find it	Law of the Search
Any horizontal surface is soon piled up	Ringwald's Law of Workbench Geometry
You can make it foolproof, but you can't make it damn foolproof.	Naeser's Law
Assumption is the mother of all screw-ups	Wethern's Law of Suspended Judgement
If you drop something, it will never reach the ground	Femo's Law of Homebuilding
When you do not know what you are doing, do it neatly	Prissy's Rule
There are two kinds of tape: the one that won't stay on, and the one that won't come off	Teleco's 2nd Law
There are some things that are impossible to do, but it is impossible to know which they are	Jaffe's Precept
No two identical parts are alike	Beach's Law
Save all the parts	First Rule of Intelligent Tinkering

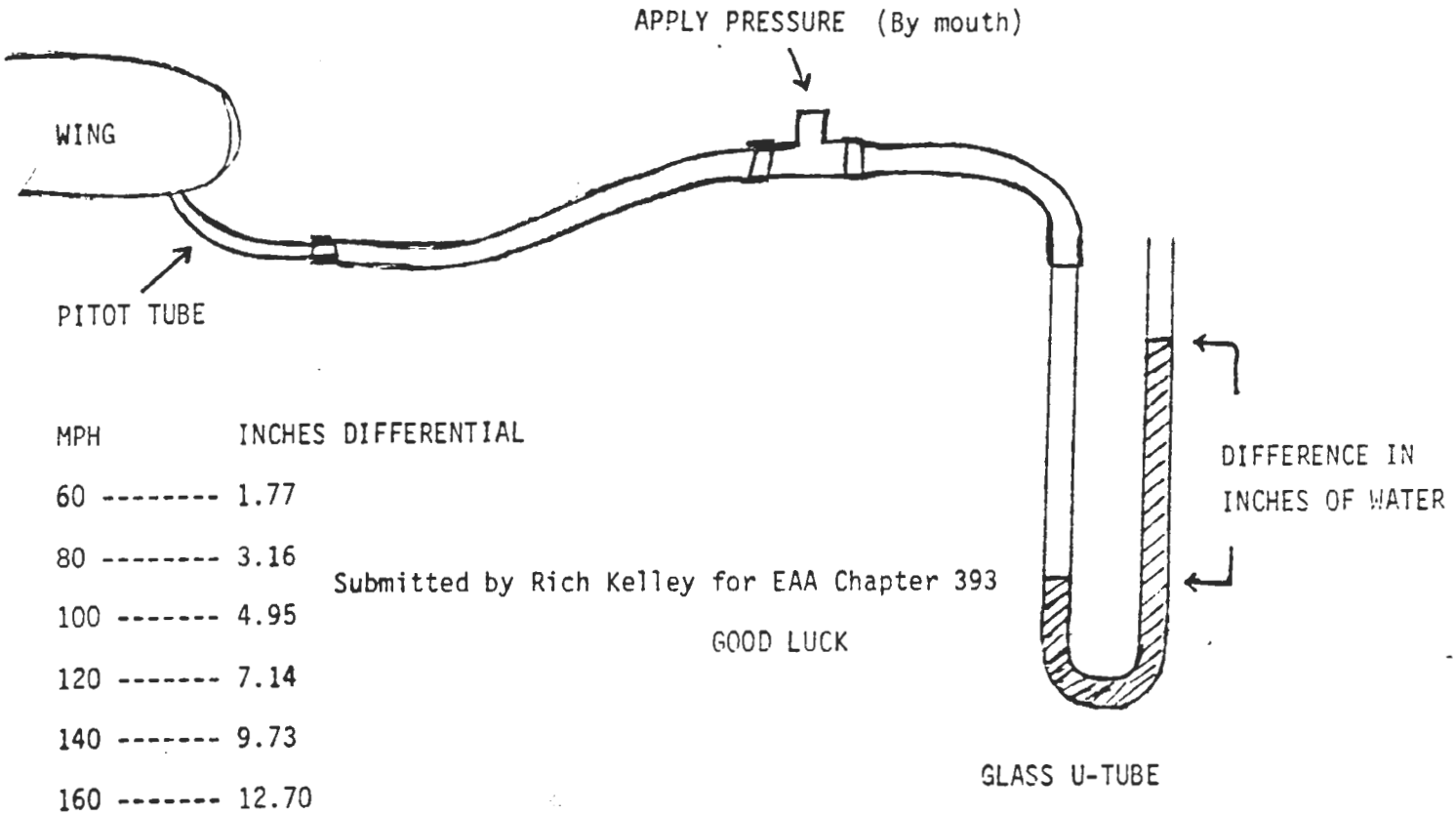
Femo's Law

Boob's Law



Ringwald's Law

AIRSPEED INDICATOR CHECK (for slow airplanes)



MPH	INCHES DIFFERENTIAL
60	1.77
80	3.16
100	4.95
120	7.14
140	9.73
160	12.70

Submitted by Rich Kelley for EAA Chapter 393

GOOD LUCK

WHEELIN' N DEALIN' CHAP. 167 NAPA-SOLANO

For Sale: Cassutt, yellow with blue trim; A65 engine, all cylinders in 70's uses 1 qt of oil each 7 hours; 880 hrs TTAE; 130 mph cruise, 155 mph top, 4 gph, 1300 fpm climb; Cleveland toebrakes. Asking $4500. Call Kit Sondergren, 1632 Santa Ynez, Sacramento, CA 95816. (916)452-5487

For Sale: Sonerai II, fuselage mostly completed; gear completed, drilled and polished; includes complete hardware kit, miscellaneous fittings, spar caps and wing ribs; excellent workmanship throughout; $2000 or will consider trade for RV-4. Jim Peck, 6265 Arlington Blvd., Richmond, CA 94805. (415)237-0948.

For Rent: Several "T" and 50x40 hangars available at Nutree Airport. "T" hangars rent for $150 per month and 50x40 rent for $300. Please call Bob Aspegren (707)422-3473.

Wanted: 1834 or 2100 VW for KR-2 and engine instruments. Call or write with prices. Jerry Pryce, 330 Elsinore Dr., Vacaville, CA 95688-5508. (707)447-4349.

Free: The following issues of SPORT AVIATION are available for anyone wanting to complete their collection: 1984 - Aug, Sep, Oct, Nov, Dec; 1985 - Jan, feb, Mar, Apr, May, Jun, Nov. Call Jerry Pryce (707)447-4349.

CHAP 62, SANTA CLARA VALLEY

STARDUSTER TOO PROJECT 4-SALE DAN COLLIER (408) 725-1957

FUSELAGE ON LANDING GEAR, INCLUDES: Attached tail feathers with streamline stainless steel wire bracing. Cabane struts with upper wing center section installed with gas tank. 8" pneumatic Scott tailwheel, new Cleveland mainwheels and brakes. Gerdes master brake cylinders, new McReary tires and tubes. Motor mount for 180 Lycoming, 0360 AIA. Stainless steel firewall, main gas tank with mechanical float gauge. Front and rear rudder pedals, connected to rudders with stainless steel cables. Front and rear seat frames, instrument panels, (no instruments). Front and rear control sticks in torque tube, attached to elevator. Vernier cable to elevator trim tab. All stand offs and belly bows and side bows with aluminum stringers. Aluminum baggage compartment, fiberglass turtle deck, aluminum cockpit cowlings, marine plywood floor-boards, two 3-piece glass wind screens, two throttle quandrants (3 levers).
Project also includes wing kit - two lower wings built. All ribs routed by Starduster, all metal plate fittings gang drilled and machined to size and shape.
Running lights and plans included. PRICED TO SELL $5,500.00.

CAVALIER PROJECT BILL DUCKWORTH (408) 727-9036 (work)
(408) 926-5358 (home)

IO-360 LYC. 0 SMOH, C.S. Prop 0 SMOH, all components finished, setting on gear, engine hung, insturments in. MAKE ME AN OFFER.

LONG EZ PROJECT DAVID MELE (415) 796-9123

All hot wiring done, all major structures are done, prefab fuel strakes and tanks. Needs assembly. $5,000 or best offer.

CHAP 526, AUBURN

GROUND CHECK OK

• The purpose of the flight was to be the initial phase of a checkout for an experienced pilot who had bought a share in a small airplane. On the previous Saturday morning I had met with the pilot at the airport but we had not flown the airplane because, during run-up, the throttle would stick in the open position at about 1900 RPM. On this Thursday evening, after the airplane had undergone a couple hours of maintenance on the throttle (including replacement of the cable), we again met for the initial checkout. After no apparent problems during run-up we took off and made a normal departure and climb out. Although the reduction from full throttle to climb power went as expected, the throttle could not be reduced below 25" when we levelled off at 3500 feet. We flew to the nearest civilian airport with long runways and, after discussing the situation with the Control Tower, circled at 3500 feet until cleared. Then we pulled the mixture and made the landing with the engine dead (the first landing for that pilot in his airplane). The newly installed cable had slipped out of the bracket near the butterfly valve. A full power run-up prior to takeoff MIGHT have uncovered this.

GOOD GRIEF — #26

•. . . I had just started the engine, received my IFR clearance, and was ready to taxi when I looked forward and slightly to the right of the aircraft because I saw an object moving very rapidly across the ramp toward me. It was a small object. As a matter of fact it was going like @#&¢. It was a small gasoline-powered, radio-controlled hobby model car! It barely missed the nosewheel of my aircraft as it passed from right to left. The next thing I saw really scared the @#&¢ out of me! It was two young boys about nine and eleven running after it and directly toward my spinning prop! I did have time to shut the engine off before the boys reached what would have been a very hazardous position relative to my prop! The little model car continued across the ramp, under several other planes, before it struck the chain link fence. Looking further around the ramp, I saw a chartered small transport loading what appeared to be two families aboard for a trip to some vacation spot for their holidays. The laxity of the boys' parents, two mischievous boys, and the temptation to "try it out", on this wide open area nearly led to disaster . . .

EXPERIMENTAL AIRCRAFT ASSOCIATION
CHAPTER #393
P.O. BOX 2269
WALNUT CREEK, CA 94595

FRED W. EGLI
1700 MEADOW RD.
WALNUT CREEK, CA 94595