

# WINTERMAIL

EAA CHAPTER 25

MINNEAPOLIS / ST PAUL, MN

AUGUST 2015

## *Severe In-Flight Icing Created A Dangerous Situation*

by Lt Col Lou Martin



*C-45 Expeditor*

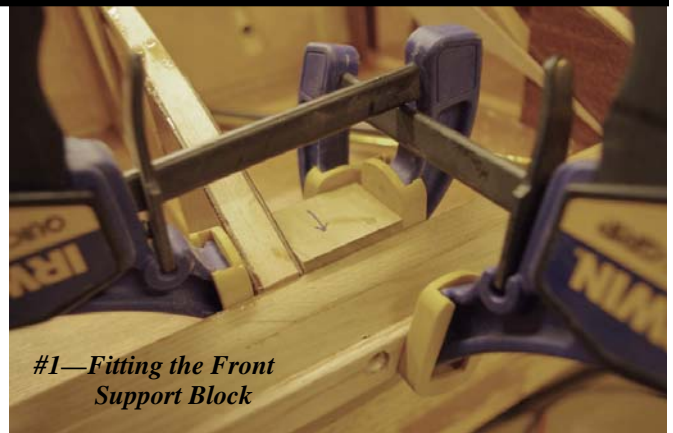
In 1957, I was an Air Force captain flight instructor based in Niagara Falls, NY. My mission was to qualify former Air Reserve F-84 jet fighter pilots in the Fairchild C-119G Boxcar. It was a fun job and to support the weekend warriors work schedule my duty days were Wednesday through Sunday with Mondays and Tuesdays off. This provided ample free time to enjoy personal activities. At the time, there were thousands of Beechcraft C-45 Expeditors left over from WW II and most Air Force installations (Continued on page 4)

## *Making the Pitot Tube*

By Patrick Hoyt

The Pitot Tube on my project is a simple piece of brass tubing which slides into a steel tube which is mounted inside the wing, and then protrudes through the leading edge.

Raw materials needed to fabricate the internal structure include about a foot of 1/4" ID thin (Continued on page 5)



#1—Fitting the Front Support Block

Craig's "Flight Lines"  
August Meeting, July Minutes

P2  
P3

Final Approach Trivia Quiz

P3

# Flight Lines

—from Craig Nelson,  
EAA Chapter 25 President



I flew a former work acquaintance's son on a Young Eagle flight yesterday. It was a beautiful day with light winds, clear skies, and plenty of sunshine. Aaron, my Young Eagle, benefitted from the fine weather in that I just kept on flying well past the normal length of a YE flight. We departed from Flying Cloud Airport and flew along Lake Minnetonka admiring its

many bays and the convoluted shoreline. Then it's out past Lake Waconia with a turn to the south to pick up and follow the Minnesota River. Along the way we flew directly over the grass strip at Belle Plaine. I just had to pop on down for a quick landing on the grass. As we followed the river back to FCM, I once again realized how blessed we are to have the freedom we have in this country to build our own airplanes and fly them. Let's never take that freedom for granted.

Another AirVenture is now behind us. Family matters kept me home this year but it sounds like it was a great show with good weather. You hopefully had a chance to stop by the Chapter 25 gathering space set up by Peter Denny and socialize with other chapter members. Thanks Peter for staking out the extra space next to your campsite.

I recently sent an email to the membership asking for volunteers to assist with serving breakfast and beverages at the AOPA Fly In on August 22 at Anoka/Blaine Airport. Chapter 25 is partnering with Anoka Chapter 237 on this fundraising activity. Our chapters will receive \$1 for each breakfast served (usually 700-900) and \$0.50 for each beverage purchased. There is no setup or cleanup involved. We just show up and serve. This is an easy and fun way to earn a little cash for the chapter. Breakfast runs from 7-10 AM and is split into two shifts (7-8:30 and 8:30 -10). Beverage service runs from 9 AM-4 PM and is split into numerous shifts. I would really appreciate your help with this effort. Please volunteer by sending me an email ([nelsoncraig55@gmail.com](mailto:nelsoncraig55@gmail.com)) which indicates your service (breakfast or beverage) and shift preference.

Our August meeting will be at the BSAEC. Ryan Mohr will join us to talk about the "Ins & Outs of Shooting Aviation Video". Ryan will review what equipment that is available and present information on how to safely shoot video from cameras mounted on aircraft. For September, we will have the rescheduled presentation by retired ATC Controller Mark Schreier. Mark's talk is titled "*Mark's Believe It or Not: Truly Unbelievable Tales from the Tower*". Mark has a great sense of humor so I suspect this will be a very entertaining presentation.

It's hard to believe but our annual banquet is just around the corner. It will be held at the Eagan Community Center on October 4<sup>th</sup>. The program will feature a presentation titled "Doolittle Raider Doc: Thirty Seconds Over Tokyo, the Rest of the Story" by Dr. David Schall. Dr. Schall is the FAA Great Lakes Regional Flight Surgeon and is writing a book about the flight surgeon (Continued on page 8)

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# ON FINAL



Minneapolis/St. Paul

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# This Month: Wed Evening Aug 19th—BSAEC at Airlake

Grill on at 6:00 pm, Meeting at 7:00 pm

Please bring something to share (meat and buns provided): deli salads, chips, cookies, utensils, soft drinks and water.

**Program:** Ryan Mohr will join us to talk about the “Ins & Outs of Shooting Aviation Video”. Ryan will review what equipment that is available and present information on how to safely shoot video from cameras mounted on aircraft.

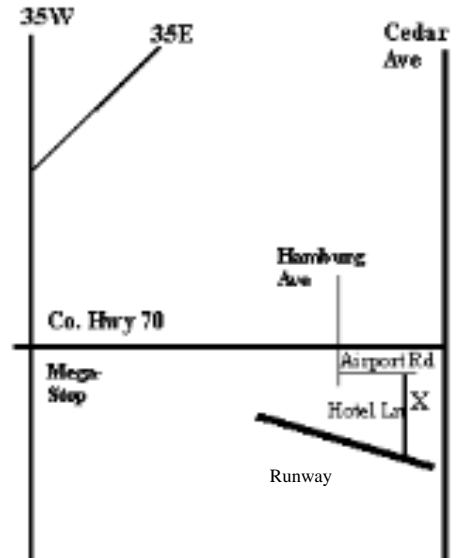
**Saturday Aug 15th: Young Eagles** Contact Kris Olson, pilots/ground crew needed: 651-675-6826, ksimpson2@yahoo.com

**Saturday, August 21-22: AOPA KANE Fly-In** Volunteers needed! See Craig’s Flight Lines on page 2 for volunteer information.

**Wednesday, September 16: EAA Chapter 25 Sept Meeting**

**Saturday, September 19th: Young Eagles**

**Sunday, October 4th: Annual Banquet, Eagan Comm. Ctr.**



## *EAA Ch. 25 Minutes of the July 15, 2015 Chapter Meeting*

The meeting was called to order by President Craig Nelson at 7:00 pm at the BSAEC. Lt. Col. Lou Martin led us in the Pledge of Allegiance and then told us that more than 102,000 U.S. soldiers have been killed in combat since WWII and more than 1,354 million since the revolutionary war. He then asked for a moment of silence in gratitude for all that have paid the ultimate sacrifice for our country.

**Pot Luck and BBQ:** Craig thanked Gary Stinar for coordinating food efforts and all those who brought side dishes.

**Guests:** None

**Scholarship:** Craig introduced Brett Fredricks, age 12, and his mom, Julie. Ch. 25 sponsored him at Air Academy this summer. Brett showed us a poster he made and told us about all the fun he had. A helicopter ride was his favorite.

**Young Eagles –** Kris Olson reported that 60 kids are scheduled for our Young Eagles event at BSAEC on 7/18. Contact Kris if you can serve as pilot or ground crew in either of these events. Ch. 25 earns credits to help send kids to EAA Aviation Camps for every 10 Young Eagles kids flown.

**Doug Ward Book – 2<sup>nd</sup> Edition:** Copies of Judy Ohm’s 2<sup>nd</sup>

Edition are available at the BSAEC if you bought Judy’s first book, Turret Tales, about Doug’s WWII experiences.

**Ch. 25 Rosters:** Kim Johnson distributed the 2015 Ch. 25 Roster to members present. You can pick up your copy at BSAEC.

**AOPA KANE Fly-in 8/21 - 22:** Craig announced that Chapter 25 is partnering with Anoka Chapter 237 to help with food and beverage service at the AOPA Fly In on August 22 at Anoka/Blaine Airport. This is a fundraising opportunity for our Chapters because we will receive \$1 for each breakfast served (usually between 700-900) and \$0.50 for each beverage served. This income will be split between the chapters based on the number of volunteers supplied by each chapter. There is no set up or clean up involved. We show up, cook/serve breakfast or sell beverages and that’s it. The rest of the day can be used to enjoy the activities/programs that are being offered by AOPA.

**We need 10 volunteers for the 7 – 8:30 am and 8:30 – 10 am shifts to cook/serve breakfast. Two volunteers are needed for 1½ hour shifts from 9 am to 4 pm to sell beverages.**

Your help is needed with this fundraising activity. Please sign up for a shift (or two). Send Craig an e-mail: [nelson-craig55@gmail.com](mailto:nelson-craig55@gmail.com) indicating which shift you can take. He will provide additional logistic information to those that sign up. Thanks in advance for your support.

**Mike Tompos Moving East:** Mike Tompos announced that he is taking the AOPA Fund Raiser position in Maryland so he will be leaving Ch. 25, but reminded us that we will likely be hearing from him.

*(Continued on page 5)*

## *Final Approach Trivia Quiz*

*By John Schmidt*

What’s a Lufbery Circle?

***Answer next month!***



# Severe In-Flight Icing

(From page 1)

had two or more sitting on their ramps. Their designed post-war mission was to support an administrative and light cargo task but sat idle most of the time. They were just begging to be flown otherwise they would have to be put in storage. Consequently, I would be able to fly one solo or with another pilot whenever time and desire were at hand. One fine summer day there was no C-45 instructor pilot available so I just read the pilot's flight manual and checked myself out. It was a fairly easy aircraft to fly, but due to the narrow gear and a tail-dragger, it could be very tricky on crosswind landings. We had two C45 H models, which were equipped with rubber deicing boots on the wings and empennage, glycol spray jets for deicing the propellers and windshield and configured for carrying about seven passengers. However, with the seats removed they could accommodate small amounts of cargo.

The C-45 was the military's version of the Beechcraft Model 18 commercial light transport. Between 1939 and 1945, about 4,526 were built for use in training multi-engine pilots, navigators, bombardiers, aerial gunners, photographers and as utility transports. It had a wingspan of 47 ft. 8 in., a length of 34 ft. 2 in., a height of 9 ft. 2 in., a maximum weight of 9,300 lbs., a cruising speed of 150 mph, a maximum speed of 225, powered by two Pratt & Whitney 450 hp R-985 engines, and cost \$57,838 (Equal to \$963,355 today). It had an internal heater for cabin comfort and on some models, inflatable deicing rubber boots on the wings and empennage, ethylene glycol spray for deicing the propellers and windshield, but all models employed hot engine exhaust for carburetor anti-icing. The cockpit was small but once seated it was comfortable.

Most of my flights in the Expeditor were for just boring holes in the sky but provided a diversion from flying and instructing frustrated jet fighter pilots in the C-119 Boxcar. I flew one to Northern Wisconsin to visit my parents, made several low-level flights to seek out favorable duck-hunting sites and, just for kicks, flew one to 21,000 feet without oxygen, but when I became "light-headed," I made a rapid descent.

My one Close Encounter with the Pilot's Grim Reaper in a C-45 was in January 1959. A fellow pilot, Captain Jim North, and I were flying our Inspector General, Colonel Wildes, to Griffis AFB, New York. We were flying at 9,000 feet in the clouds and picking up moderate "rime ice," but the rubber deicing boots, the ethylene Glycol spray system and carburetor heater were confronting the problem quite well with the exception of the windshield which was starting to glaze over. However, as the flight progressed the icing conditions became a severe "clear and rime mix". This was accompanied with a continuous staccato of ice chunks flying off the propellers and striking the sides of the fuselage. The front windshields were



C-45 Cockpit

now coated with ice, as the ethylene glycol spray and windshield wipers were ineffective in removing the ice. Peering out the side windows I noted that ice was starting to build up on the leading edge of the wings faster than the deicing boots could remove and was beginning to form on the wing surface behind the deicing boots. (I assumed the same conditions existed on the tail surfaces, which I could not see.) The carburetor heat gages were indicating a steady drop in intake temperature, even though I had both carburetor heat controls in the full hot position. Even with full engine power, we were losing airspeed so I requested a higher altitude from ATC, with the hope of climbing above the clouds, but were told to "standby," as there was other IFR traffic above us.

While waiting for a higher altitude both engines began backfiring, with small jolts at first, but soon became severe enough to cause the engine cowlings to vibrate. I realized that the engine carburetor air intakes were starting to ice-up and if something was not done quickly, both engines would most likely fail. I told Jim to declare an emergency with ATC and start a rapid descent while, I began actuating the engine fuel prime switches. (The fuel prime system is used when starting the engines by injecting raw fuel into the top cylinders. However, by using it in-flight, the engines continued to operate at reduced power, but at least the propellers kept turning!)

We broke out underneath the clouds at around 4,000 feet, and after I opened a side window and scrapped off a small portion of ice from the windshield, with a plastic scrapper, I spotted Griffins' AFB about three miles west of our position. This was accompanied with ATC clearing us for a straight-in approach. With Jim flying, I kept the engines running with the fuel prime switches, but when on short final, I took over the controls since he had not had time to open his side window and scrape off the ice from his windshield. I made a smooth, almost dead stick

(Continued on page 5)

# Severe In-Flight Icing

(from page 4)

landing, on a snow-covered runway and by using the engine prime system we had sufficient engine power for a slow taxi to the parking ramp.

My second exciting C-45 experience, although not a factual PGR Encounter, is nevertheless worthy of note. In the summer of 1960, I flew my boss, Major Carl Doughman, to Boston, Massachusetts to conduct a one-day staff visit. We left Mitchell Field, NY in the morning and planned to return that evening. While waiting for Carl to complete his task, I spent the time visiting historical sites in downtown Boston. We met back at the airport for dinner and departed for Mitchell Field as the sun was setting in a clear western sky. After takeoff, I climbed to 8,000 feet, engaged the autopilot and set a course that would take us over Providence, Rhode Island across Block Island Sound and along the South Coast of Long Island. Visibility was unlimited and the air was smooth as silk. It was a beautiful night to fly! Major Doughman was not a pilot, but since I flew this trip without a copilot, he settled down in the copilot's seat. During the hour and a half flight, we marveled at the intricacy of millions of sparkling city lights competing with a sky full of stars for prominence. The hum of the 450 hp engines added to the majestic setting and I sublimely gave thanks to the taxpayers for allowing me to indulge in such pleasure while receiving a decent salary.

Approaching Mitchell Field, I canceled our IFR flight plan and made a few circles around the area known as Levittown, where Major Doughman lived, but we could not locate his house. He jokingly said, "I forgot to tell my wife to turn on the porch light." I turned onto a downwind leg for runway 04 and as I was turning base leg Carl asked, "Lou can you make a three-point landing in the C-45?"

My answer, "Sure, if you're a hot pilot. I'll show you how it's done." When I turned final, I noted a slight crosswind from the right, but did not think it was strong enough to ruin my guaranteed demonstration of superior airmanship. I executed a normal flare-out for landing, but kept the nose high, while holding a bit of left rudder and right aileron to correct for the crosswind.

The aircraft was very light and tended to float in a nose-high attitude, which resulted in the landing lights pointing skyward and not down the runway. This created a black hole beneath the aircraft that affected my depth perception, but I rejected it as a potential problem. Suddenly, the aircraft stalled, and we fell flat for maybe three or four feet. This sudden drop caused the aircraft to do a "Charleston-style-dance" down the runway, while trying to decide if it was going to ground loop, spin-off the runway, or come to rest all in one piece. During this brief,



*Fairchild C-119 Boxcar, the type I was flying when instructing the former F-84 fighter pilots.*

but uncomfortable excursion, I was just a passenger as the aircraft was doing its own gymnastic maneuver, without any assistance from me. I had no more control over it than my stunned non-pilot passenger did in the right seat! The bouncing was so erratic that, even though it was at night, the airport tower operator called to inquire if I needed assistance from the crash vehicles (How embarrassing!). When we stopped bouncing, Major Doughman turned to me and said, "Lou that was the worst landing I have ever been through. I thought you were going to show me a good three-pointer." My comment, "Carl, you're right. That was a bad landing and the worst one I ever made, but I think you must admit that since we are still in one piece, it was exciting!"

The above is an excerpt from Lou Martin's book "Close Encounters with the Pilot's Grim Reaper." Lou Can be contacted on [pilotlou@aol.com](mailto:pilotlou@aol.com)



## *July Minutes* (Continued from page 3)

Chapter 25 Fund Raising: Craig announced that the Board is considering a fund raising change in approach. We need to raise money every year to satisfy our \$2,750 in scholarship commitments and we would like to continue to grow this commitment as we have in the past. Most members are not fond of doing a raffle. Most of us bought our own allotment of 30 raffle tickets at \$2 each. The Board is recommending that members make a donation to the Ch. 25 Scholarship Fund instead of buying their raffle tickets. Donations to the Chapter are fully tax deductible. We will find other sources of income for Chapter operating expenses.

AirVenture 2015: Peter Denny and Bob Ueck will be there early with (Continued on page 7)



# Fitting the Pitot Tube

(From page 1)

walled 4130 steel tube, a short length of 2x2 poplar, a 90 degree brass fitting (left over from a previous airplane project), and some nylon tubing (also left over from a previous airplane project).

First, the location of the Pitot Tube is determined, and the hole for it is drilled in the leading edge of the wing.

Next, two rough blocks are cut off the 2x2 piece of poplar. These pieces will support the steel tube which in turn supports the removable brass Pitot Tube. One of these pieces will become the Front Support Block, and the other will become the Rear Support Block. The Front Support Block is clamped in place (Photo 1) and back-drilled through the hole in the leading edge. A great deal of this block can be trimmed away (Photo 2).

Similarly, the Rear Support Block is clamped in place (Photo 3), back-drilled with a long bit, marked, cut and trimmed.

About a foot-long piece of 1/4" ID 4130 is cut, and a 90 degree brass fitting is brazed to it. I used a TIG welder for this, with Silicon-Bronze rod. The brass will glow red hot, which is hard to see through the welding helmet I used, and care must be exercised if a wooden workbench is being used (Photo 4). After this cools it is tested underwater for integrity, and any air leaks are repaired, followed by re-testing until it's proven air-tight.

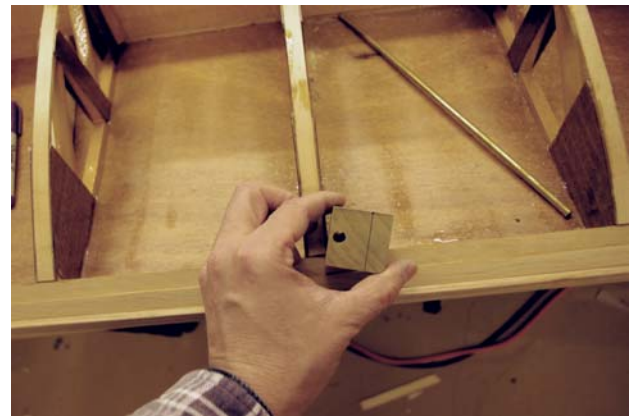
A small piece of 4130 scrap is TIG welded onto the 4130 tube to serve as a rigid back-stop against the Rear Support Block, so as to prevent the steel tube from being pushed in any further.

A 1/4" reamer is run up and down inside of the 4130 steel tube to take off any remaining internal burrs or deformations from welding, then it is primed and inserted into the trimmed Front and Rear Support blocks, which are then glued to an adjacent rib (and to the lower wing skin) with T-88 epoxy. After the epoxy cures, the nylon tubing is installed and clamped in place, and routed through the wing to the root, with the excess being coiled up for storage until final fitting of the wing takes place.

The wood pieces are all sealed with West System epoxy, as is the entire internal structure of the wing. The finished internal structure of the Pitot Tube is shown in Photo 5.

Finally, the 1/4" brass Pitot Tube is test fit (Photo 6). I built in approximately 10 degrees of down angle on the pitot tube assembly, which may lose me a slight amount of accuracy

(Continued on page 8)



#2—Hole Drilled and Excess to Trim



#3—Fitting Rear Support Block



#4—Brazing Brass to Steel



#5—Internal Structure Completed



*July Minutes (Continued from page 5)*

their campers and will attempt to rope off enough space to allow a small area for chapter members to gather and socialize. Frank Ahlman also offered to reserve camping space. Location information will be e-mailed if they are successful in capturing camping space.

Ch. 25 Banquet, Sunday, October 4, 2015: Pat Halligan announced that he arranged to have Dr. David Scholl speak on Doolittle's Raid. Put the date on your calendar.

Aviation Tools: A silent auction is being arranged for Ch. 25 members at Dick Navratil's hangar in Crystal. More information will be forthcoming.

AirVenture is just over a week away. Peter Denny and Bob Ueck will be there early with their campers and will attempt to rope off enough space to allow a small area for chapter members to gather and socialize. I will email location information if they are successful in capturing this gathering space.

In August, Ryan Mohr will join us to talk about the "Ins & Outs of Shooting Aviation Video". Shooting video from small cameras mounted on aircraft is becoming more common and several of our members are doing it. Ryan will hopefully give us some good tips for doing this safely.

The speaker at the August Chapter meeting, Ryan Moore will explain how to shoot aviation video.

Presentation: Mark Schrier, a retired Air Traffic Controller, had a last minute scheduling conflict and had to reschedule for September. The title of his presentation is, "Believe It or Not from the Tower". As a result, we watched EAA Chapter Videos on the subjects of Greases, the Rotax 912 Fuel Injected 100 HP Sport engine, validating propeller blade track, Sensenich prop manufacturing, improvements at AirVenture, the Rans S-20 Raven Light Sport, riveting techniques, insane low-flying highlights - Naval near touch and goes on the ocean, a bird strike, and Dean Martin and Foster Brooks' Airline Pilot skit.

Respectfully submitted,

Kim V. Johnson, Secretary and Membership Coordinator

Next Chapter Meeting: Wed, Sept 16th

Young Eagle Events: Sept 19th  
contact Kris Olson (see p2) if you can volunteer

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# Flight Lines

(from page 2)


who participated in the Doolittle raid over Japan. I'm looking forward to hearing this talk.

Last, thank you to all the chapter members who are assisting Joanie Navratil in selling off the aviation related possessions that Dick Navratil had. Your support of the family after Dick's passing is wonderful.

Keep the dirty side down!




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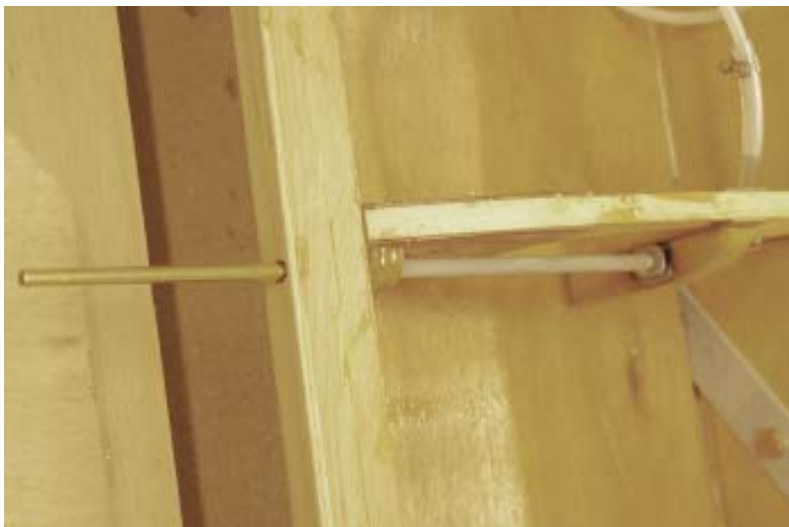
# Fitting the Pitot Tube

(from page 6)

on the high end of the cruise regime, but it will gain me some accuracy on the lower end, at higher angles of attack (which is where I'd be more concerned about knowing what my airspeed is). Nothing scientific here, it was just an eyeball & then some judgement as to "what looked about right".

Friction holds the Pitot Tube in place, and it is easily removable & replaceable. I intentionally did NOT thread it. Also, brass polishes up real nice (and I had a LOT of experience making brass shine when I was in the Marine Corps), so I polished this pitot tube. Not a whole lot that can be polished on a wood, tube & fabric airplane.

Patrick Hoyt



#6—Test Fit Brass Pitot Tube




Stein Bruch  
President

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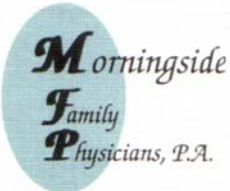
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