

PIPER FLYER



June 2021 / Volume 18 / Issue 6

piperflyer.org

Updating
Pitot and
Static System
Plumbing
p. 50

PIPER LANCE

p. 38

An Owner's
Guide to Service
Bulletins
p. 24

DCT Aviation
and Electroair
p. 30

Return of the
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p. 52

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CONTENTS



20

- 8** **The View from Here**
by Jennifer Dellenbusch
- 8** **Letters**
- 10** **Events**
- 12** **The High and the Writey**
by Kevin Garrison
- 14** **Questions & Answers**
by Steve Ells
- 18** **The Speed of Flight**
by Tom Machum
- 20** **ATC: Unraveling the Mystery, Part 1**
by Robert Marks
- 24** **An Owner's Guide to Service Bulletins**
by Dale Smith
- 30** **DCT Aviation and Electroair Electronic Ignition Systems**
by Grant Boyd
- 38** **Piper Lance**
by Kristin Winter
- 50** **Updating Pitot and Static System Plumbing**
by Steve Ells
- 52** **Return of the Fly-in**
by Jennifer Dellenbusch
- 60** **Press Releases**
- 64** **Aircraft Safety Alerts**
- 72** **Advertiser Index**
- 74** **Back When: Vintage Piper Advertising and Marketing**



30



38



52

Cover: 1975 PA-32R-300 Cherokee Lance. Photo Jim Lawrence.

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The View from Here Jennifer Dellenbusch

The Dream

"The most beautiful dream that has haunted the heart of man since Icarus is today reality."

—Louis Blériot

I wrote the following a few years ago. As I was putting this issue together, I thought about how resilient General Aviation is—has had to be. I know it has had its share of setbacks and its future is not entirely certain, but still, the will to continue in the face of challenge has marked the history of aviation. That will, and the dream that underpins it, endures.

The story of manned flight is the story of an impossible dream made real by the sweat and toil of humankind. It's the story of broken bones and determination, of genius and wild experiments. It is a story of lives risked and lost, of heartbreak and of stunning achievement.

You would think that something so long sought-after and so dearly bought would be forever revered...and yet today if the general public hears about or speaks about flying at all, it's usually in reference to the airlines and their terrible customer service or a plane crash.

There's certainly nothing dreamy about being stuffed cheek by jowl in an airliner with 100 or so other anxious, frustrated souls on their way to business meetings or in a hurry to get a location checked off their Instagram-fueled bucket list. If you've ever looked around an airliner as it's about to take off and seen rows of heads buried in their electronic devices with shades drawn to block the view, you'll feel that humankind achieved the goal but lost the dream.

But the dream lives on, and you are the ones who keep it alive.

It lives on in that late-afternoon flight around the pattern that you squeeze in at the end of a stressful day. As you watch the ground slip by beneath, your troubles slip away as well and you realize you're living the dream.

It's there as you cruise along on that cross-country flight, actually enjoying the miles slipping by rather than wishing them away.

The dream lives on wherever people gather to celebrate aviation. It's there at EAA AirVenture Oshkosh; it's there at our Gathering at Waupaca, and it's there at your local airport hangout where you share your stories.

The dream lives in the hearts and minds of the young people who seek out the adventure of flying when it would be easier for them to pursue other ventures.

It may sometimes be elusive, and it may get obscured beneath a mound of regulations, but just like those sturdy old airframes that defy life limits, that beautiful dream still flies.

Blue skies,

Letters to the Editor

Send your letters to
editor@piperflyer.org

The Speed of Flight: Where's My Genie?

By Tom Machum
May 2021

Just finished reading Tom Machum's article about his favorite Pipers and have to give my two cents worth. If I can only pick three, I'm going with:

1. My PA-28-180 Cherokee 180. It's been reliable, and it gets me where I need to go.

2. A Piper Cub, who doesn't want to go low and slow sometimes?

3. An Aztec. What a classic.

I guess I'm a little bit old-school!

Charlie M.

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FLYER EVENTS

June 2021

PFA EVENTS

July 24–25, 2021

Waupaca Municipal (KPCZ). The 17th annual Gathering at Waupaca.

PFA's annual pre-OSH event with fun, food, and friendship. Saturday receptions, seminars, and banquet on Sunday, motor coach to AirVenture (July 26–July 28). To register for the Gathering, visit thegatheringat-waupaca.simplertix.com. Book your room at Comfort Suites at Par 4 Resort by phoning 715-942-0500. Group name: Aviation Group. (\$129/night when booked by June 1, 2021). Visit PiperFlyer.org for more information.



FEATURED EVENTS

July 26–Aug. 1, 2021

Oshkosh, WI. Wittman Field (KOSH). EAA AirVenture Oshkosh.

Experience the largest annual gathering of aviation enthusiasts. From unique, historic aircraft to world-class daily air shows, you don't want to miss the World's Greatest Aviation Celebration. For more information, visit eaa.org/en/airventure.

September 18, 2021

Oconto, WI. Oconto Lake Municipal Airport (KOCQ). Oconto Elks Fly-in 2021.

Come celebrate 75 years for the Oconto J. Douglas Bake Municipal Airport from 9 a.m. to 4 p.m. Includes flyovers, the Car and Tractor Show, and a military encampment display. The Northern Aces RC group will have their planes on display and flying throughout the day.

There will be something for everyone in the family. Kids 12 and under are admitted free. \$5 fee to exhibit vehicles. Free parking. Visit ocontocounty.org or call (920) 373-6948 for more information.

November 13, 2021

Shafter, CA. Shafter Airport-Minter Field (KMIT), Minter Field Air Museum. Fourth Annual Wings 'N' Wheels.

Come spend the day at fabulous Wings 'N' Wheels event on November 13. Hundreds of airplanes will be on display, ranging from WWI to modern jets. Attendees can enjoy live big-band music, food, drink, and souvenirs. Open from 9 a.m. to 4 p.m., the event is located at 201 Aviation Street. Please visit minterfieldairmuseum.com for more information.



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I have dreams about flying, and I bet you do too. Most of my nighttime aviation adventures thrust me back on the flight deck of various airliners I used to fly. In these dreams, I am late to report for a trip, or I have forgotten my flight bag.

General Aviation dreams, at least the ones I can remember, are exciting and have nothing to do with being late or unprepared.

Flying dreams fade and disappear unremembered when I wake. I want to go back to sleep and catch up with them, but they fly away to wherever these things go when they are finished with us.

There it is—my dream FBO

Snuggled down in my comfy bed wearing my nighttime Ray-Ban sunglasses and my softest David Clark sleepy-time headset, I drift off to sleep and enter the world of dreams where every landing is smooth, and all the airport dogs are friendly.

I am walking into the lobby of a dreamy new full-service FBO that I designed, financed, and built. It is right there on the ramp where my aged and rusty T-hangar used to be.

I built this FBO with the idea that no matter how much it cost—and it would cost a lot—the money would be well-spent and would result in high profits and satisfaction. I may not have mentioned earlier that I am always filthy rich in my dreams—no need to be destitute in my imagination.

I mentally built this business with the idea that it ought to be friendly and welcoming to all people; pilots and non-pilots alike. I want my customers to feel like they belong there. I want them to always be eager to return, spend money, and expand their aviation lives there.

I walk through the automatic sliding glass doors and look around the huge lobby. It is more of a great room than a lobby. Think of a vast, roundish room with various departments of my FBO within an easy walk.

I am walking into the lobby of a dreamy new full-service FBO that I designed, financed, and built.

Serving tomorrow's ramp-rats today

If I turn right as I entered, I will be at the door of our day care center. Yes, we have a day care center for my employees' kids and the children of our students and other customers.

This day care center is fully staffed, and customers can reserve regular time slots for their kids and pay no more than a standard babysitting fee when their crumb-crunchers are on campus.

None of our customers should ever have to choose between flying and their kids. We can combine both, and because we do this, our revenue goes up, and our last-minute student cancellations go down.

Across the great room lobby from the day care center is our on-site

airport restaurant. I hired two retired restaurant owners who are avid pilots to run our diner.

Open from early until late; this is the place to get some eggs and grits while awaiting the fog to lift in the morning or to have a lovely gourmet dinner with your significant other in the evening after a romantic sunset flight.

Our restaurant has a liquor license. Our staff can provide catering to our business and charter customers. It can whip up a great box lunch for your cross-country flight or an excellent preflight or post-flight snack.

Our flight school makes use of the restaurant every day. The debriefing rooms for our school are accessible to our restaurant staff. Isn't it nice to drink real coffee in a real cup and enjoy a sandwich or freshly baked pastry while you and your instructor discuss today's lesson?

The restaurant also provides nutritious snacks for the day care kids and food for our frequent cookouts and social gatherings. These are held on the outside deck that faces the flight line and the active runways.

The flight school

I mentally built our flight training department with proficiency (not test-passing) in mind. The costs are slightly higher than an average flight school, but our aircraft are new, clean, and very well maintained.

Customers who enroll in our private pilot program begin by building and flying model gliders. They fly fabric-covered taildraggers, and then graduate to larger trainers with all the technology used in today's world.

They are unafraid of spins because they have been trained and done them. They know about the weather because we safely expose them gradually to marginal conditions. They know how their aircraft works because they have spent a two-week term in our maintenance shops working and learning from our staff.

There are no mysteries or dark areas for our students to fear. All our students are confident and proficient when they graduate from our course.

Maintenance department

Our technical operations staff is first-rate and well-paid. We take pride in doing excellent, on-time, and on-budget work, and we can handle anything from a Piper Cub to line maintenance on a Boeing 787. A lot of my money went into this shop to make it state-of-the-art and one-of-a-kind.

Our flight operations department will come to your location, get your plane, and fly it back to our shop for your annual or other maintenance needs. If you want to drop it off yourself, we will provide you with a "loaner" aircraft until yours is ready.

This loaner plane idea sounds expensive, but is an excellent way to ensure our maintenance department does not drag their feet on getting your work done. It is also a perfect way to upsell you on getting a bigger or newer aircraft.

Fuel sales

The biggest profit center of any FBO is fuel sales. We only provide personal fuel service here—no self-serve, although we charge you the going self-serve price for your go-juice.

Our FBO is a service business, and nothing says, "we don't want to be of service" like making you pump your own fuel.

Our professional line crew will fuel your aircraft, clean the windshield, check the oil, and make sure your aircraft is tied down or hangared properly. If you plan to spend the night, let us know your go-time in the morning so we can have your plane out front, ready to go when you arrive.

If you need fuel after we close at night, just call our service number. We have line crew staff and a mechanic on call 24/7.

After you get your fuel and assuming that you are not staying tonight to watch

Continued on Page 70

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AD 2020-24-05 vs. AD 2020-26-16, Arrow III loose steering, interior shop recommendation

Q Thanks for the article on AD 2020-26-16. I have a 1966 PA-28-140 Cherokee 140 which is well below the 5,000 factored service hours (FSH) limit. AD 2020-26-16 does not list the PA-28-140, but AD 2020-24-05 does. 24-05 seems to require that an inspection hole be placed under the wing near the fuselage, regardless of the FSH hours. Can you clarify whether 26-16 applies to my aircraft, and whether 24-05 requires the installation of the inspection holes in all cases? How are 26-16 and 24-05 related to each other?

Thanks,
Sam

A There has been some confusion about the difference between these two Airworthiness Directives. Here is the FAA wording from the official documents:

AD 2020-24-05: This AD requires inspecting the left and right main wing spars for corrosion, and, if corrosion is found, taking all necessary corrective actions. It applies to PA-28-140, PA-28-150, PA-28-160, PA-28-180, PA-28-235, PA-32-260, and PA-32-300 airplanes.

AD 2020-26-16: This AD requires calculating the factored service hours for each main wing spar to determine when an inspection is required, inspecting the lower main wing spar bolt holes for cracks, and replacing any cracked main wing spar. It applies to PA-28-151, PA-28-161, PA-28-181, PA-28-235, PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28RT-201T, PA-32-260, PA-32-300, PA-32R-300, PA-32RT-300, and PA-32RT-300T airplanes.

As you can see, AD 2020-24-05 does apply to your PA-28-140. You are required by AD 2020-24-05 to inspect the front and rear side of the left and right wing spars from the fuselage junction outward approximately 25 inches for corrosion.

According to the AD, any one of more of these methods may be utilized:

(i) Remove existing wing inspection access panels and fairings. (ii) Install Inspection Access Hole Kit part number 765-106V, and then remove the wing inspection access panels and fairings. (iii) Access the inspection area during concurrent maintenance such as a wing tank removal, wing removal, or wing skin repair. (iv) Use a lighted borescope capable of 10X or higher power magnification display through existing access points (e.g., wing root fairing, landing gear panels, internal lightening holes, or other access points depending on model).

Since few mechanics have a 10-power borescope, that method

is rarely used. Installing the inspection panel in Piper Kit 765-106V in accordance with Piper Service Bulletin 1304 is a good way to go.

I have also heard of successful inspections being done after removing the fuel tanks. However, I'm having my doubts about this, since that method only provides access to the front side of the spar.

Reports from vendors are that the 765-106V Wing Inspection Panel Kits are in short supply as I write this, but more are expected in the pipeline soon. Remember that you have 12 months (or 100 hours time in service) from Dec. 28, 2020. (*PFA supporter Airward sells the kits. —Ed.*)

AD 2020-26-16 does not apply to your airplane. It consists of removing two bolts in each wing root/attachment fitting and conducting an eddy current non-destructive testing process to check for cracks in the bolt holes.

Based on all the Piper Service Bulletins that have been issued over the years, the FAA has been gathering data on corrosion issues on the PA-28 series wings for a couple of decades. This is evidenced by the following Piper ADs and SBs.

A Piper SB similar to AD 2020-24-05 was issued in 1985; it's SB 789A. This bulletin is titled "Aft Inboard Wing Access Panel Retrofit and Aft Wing Spar Modification." It's the first time we see mention of the installation of inspection panel Service Kit 765-106. The kit was the -106V at the time.

The reason for the SB? "Reports have been received from the field of inaccessibility of the aft wing spars at the attach fittings for corrosion inspection. This Service Bulletin announces the availability of a kit to provide access to that area of the wing."

On April 28, 1987, following a wing separation, the FAA issued Airworthiness Directive (AD) 87-08-08. This AD required the removal of both wings of certain PA-28 and PA-32 aircraft, followed by a visual inspection of the lower spar cap of both wings with a 10-power magnifying glass and a dye penetrant inspection for cracks.

On May 22, 1989, in a nine-page publication, the FAA rescinded the AD. This is a very rare occurrence in the General Aviation fleet. The decision process, which is one of the first instances of the FAA publishing comments from the field about a published AD, can be found on the FAA website (linked below in Resources), or by typing 87-08-08R3 "Lower Spar Cap" into the FAA's AD listing for Piper PA-28 airplanes.

On June 8, 1988, Piper issued SB 886, following the canceling of the AD. This was the first bulletin to propose factored service hours and attempt to define normal usage, severe usage, extreme usage,

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GROUP



and unknown usage.

Here are a few paragraphs in SB 886 that were used to support the decision to rescind the AD:

F.A.A. issued Airworthiness Directive 87-08-08 requiring wing removal and inspection on many PA-28 and PA-32 series airplanes with more than 5,000 hours total time in service. To date, over five-hundred (500) inspections have been accomplished. Only two (2) negative findings were reported on a pair of PA-32s operating in a severe environment and with considerable damage histories.

Based on these 500+ inspections, and extensive wing fatigue and fracture analyses begun by Piper, F.A.A. suspended AD 87-08-08 on September 28, 1987; and published additional information in the General Aviation Airworthiness Alerts (Special Issue Advisory Circular AC 43.16). The Piper fatigue/fracture analysis program is complete, resulting in the inspection requirements contained in this Service Bulletin.

Although it wasn't followed by an AD, SB 886 is remarkably similar to 2020-26-16.

On Dec. 12, 1994, Piper issued SB 977 which is titled "Inspection of Wing Rear Attach Fitting and Addition of Inspection Access Panels." This bulletin applies to a wide range of Piper singles and twins. It calls for an inspection of the aft spar attach fitting. Inspection holes must be cut in the baggage compartment floor of PA-28 and PA-44 airplanes to comply. Compliance time was within the next 100 hours.

Piper SB 1006 (August 1977) calls for the removal of the fuel tanks to inspect for corrosion of the main wing spars. While the tanks are out, comply with SB 646, which calls for the replacement of the flexible fuel lines. Prior to replacing the tanks, apply corrosion-preventive treatments. It's due on your airplane every seven years.

Piper SB 1244 and Piper SB 977 (December 1994) both focus on the need for the inspection of the aft wing spar attachment fitting for corrosion and rust. The aft wing fitting is steel, and it's bolted to an aluminum structure.

The inspection is due at 2,000 hours time-in-service (TIS) or seven years, and becomes a recurring inspection every 2,000 hours/seven years. I've seen some very rusty parts. I highly recommend doing this inspection.

As you can see by this listing of service information from Piper, there have been concerns about corrosion in all PA-28 models, and wing spar bolt hole problems in some PA-28 models, for decades.

Happy flying,
Steve

Q The steering on my Piper PA-28R-201 Arrow III seems loose. I have had this particular Piper for seven years, and it seems like it's getting more difficult than it used to be to keep it tracking on the centerline, especially on paved runways right after I apply power for takeoff. As soon as I get going, it seems like the problem goes away.

I don't think it's a big deal, but I don't really know for sure. Can you shine a light on this? Is there a solution that doesn't cost an arm and a leg?

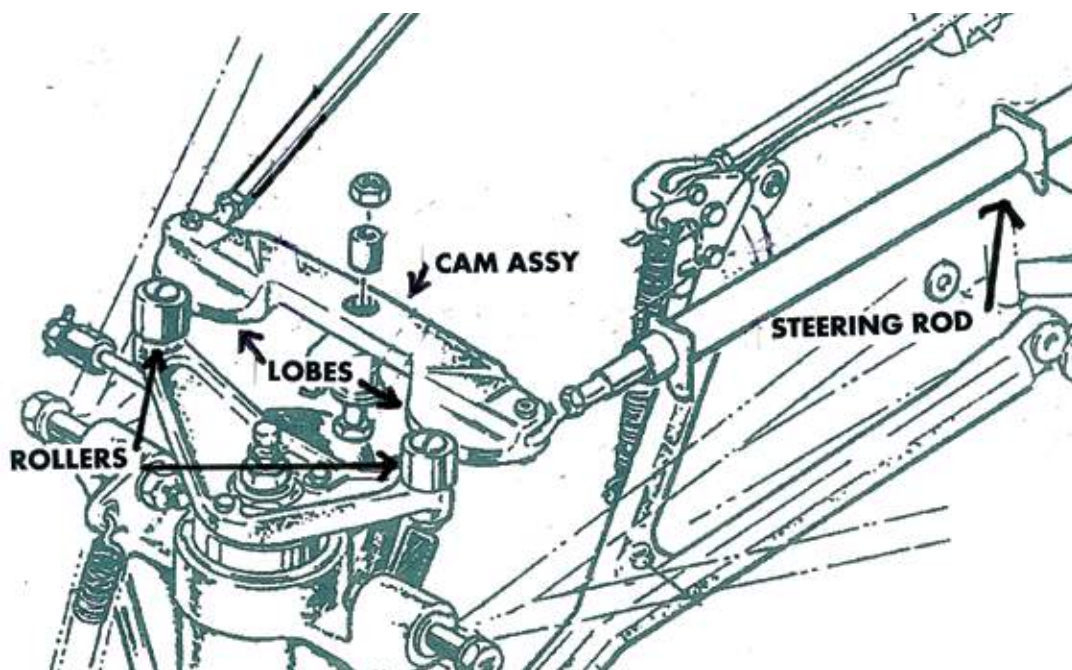
Wobbly Beginning

A As you can see from the parts drawing that accompanies this answer, Piper nosewheel steering systems consist of a pivoting beam that's connected to the rudder pedals through one or two (depending on the airplane model) steering rods. There are two lobes on the forward face of the beam (Part No. 76409-00 and called "cam assembly, steering" in the Arrow III parts book) that are situated in close proximity to two round rollers, one on each end of a bell crank that is connected to the nose landing gear. Any movement of the rudder pedals causes one of the lobes of the pivoting beam to contact one of the rollers, transmitting motion to the steering bell crank at the top of the nosegear.

When your Arrow was new, there was very little clearance between the two roller and the two lobes—they couldn't touch because that would put a load on the pivoting beam center bushing when the nosegear moved into the down position. In time, due to wear on the aluminum lobes caused by dirt and grit or a seized bearing in one or both rollers, the gap between the lobes and the rollers widens, allowing the nosegear (and tire) to wander back and forth in the spaces between contact.

Normal maintenance requires that the two rollers be checked

Continued on Page 68



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Crosswind Challenges

What works in airliners doesn't always carry over to General Aviation flying.

In my quest to perfect my landings in the mighty Piper PA-28-236 Dakota, I have spent a fair bit of time in the pattern, or circuit; six of one, half a dozen of the other. It has proven to be an exercise where I've been "ticking boxes," in that I seem to find something new to mess up every single landing. I hope that I'll eventually tick all the boxes and achieve some consistency in my landings.

You may recall I've written about landings in the past, focusing on speed control, descent angle, touchdown zone, and eye-to-wheel height; well, let's add crosswinds to the list.

I'd bet the airport designers in my part of the world had a real sense of humor. It certainly seems that way as the wind is rarely "right down the pipe," and yes, that is a bit of an exaggeration, but is it? At any rate, learning to land in a crosswind during your initial training certainly bodes well for a fledgling aviator or aviatrix.

We from this area often joke and comment with feigned panic when there is no crosswind present or the winds are "one, gusting two." What will we do in such foreign circumstances?

Well, we land, and hopefully with a bit of finesse; or akin to figure skating, with high points in both artistic impression and technical merit. How does that happen?

Crosswind techniques

From my perspective, there are three basic techniques to landing with a crosswind. Certainly, in the big birds, there are three techniques: crab, kicking it out, and cross-control. Let's examine...

Crabbing is used primarily by large jets, especially those with engines below the wing, as you carry the crab right through touchdown and land wings level, therefore reducing the chance of "dragging a pod." In these scenarios, the airplane initially broadcasts its disgust with this handling technique as it skids sideways for a bit and then corrects itself to point in the same direction you're headed.

It doesn't do much for avoiding tire wear, and there's no shortage of videos on YouTube displaying the "smoke show" effect. It is, however, an exercise of physics where a couple hundred thousand pounds of inertia overrule, and our smoky skid eventually yaws into alignment with the centerline.

Along with that, on a big bird like a Boeing 787, in an excessive crosswind with a crab, you need to remember to have the main wheels straddle the centerline when employing this technique. This often creates the illusion that you're landing offset as the distance from the pilot's eyeballs to the main wheels can be considerable.

The listed distance from the nosewheel to the mains is 84 feet,

9 inches on the 787-9, *and* the cockpit is maybe 10 feet ahead of the nosewheel! In excessive crosswinds, the pilots are well-displaced to the side of the runway. It is a disconcerting sensation!

Technique two is a crab with a rudder application to align the fuselage with the runway in the flare. The risk is that in the kick-out maneuver, you might get overzealous and yaw past straight ahead, causing you to now point at the downwind side of the runway (I certainly never did that).

Another risk is that if just the right amount of roll input is not applied in the kick-out to counter the rising tendency of the upwind wing, it can cause a clumsy touchdown where the downwind main touches first, followed by the upwind main (hopefully), and then the nose. I've never done that either, honest! Right?

This side effect is further exaggerated by swept wings, as the upwind wing picks up speed while the downwind wing is comparably slowed, and to make matters more fun, the fuselage blocking effect is further aggravated by the wing sweep, all causing the upwind wing to rise, leading to a drop in technical merit and artistic impression from the Russian judge. It can be sweet, though, when it works. I guess this is why it's called "demonstrated crosswind"! Sometimes, it really can be a demonstration.

Finally, let's examine the cross-control. In a big bird, this can be a bit disconcerting, especially for those sitting aft of the pivot point. I've no idea why that is, however, I can attest that it is a weird sensation, even in an airplane like a PA-31 Navajo, for example.

Nevertheless, the physics at work do bode well for its effectiveness, so for that reason, it makes the list. On top of that, when well-executed, a cross-control landing is a thing of beauty worthy of bringing a tear to one's eye, as one wheelset after another kisses terra firma in a pleasing fashion, and in the right order.

All these techniques have been tested thoroughly by yours truly. Given that I am still somewhat of a fledgling in the 787, I have opted for now to stick with the crab into touchdown technique. I do plan to ease into the kick-out, and have experimented a little with it, but I am still slowly sneaking up to perfection. I had it down pretty good in the 767 and even better in the 737, but I have over 12,000 hours in the baby Boeing.

Trial and error

The day finally came to put these techniques into practice in the Dakota. It was a clear and calm late-winter day at home, but that was a deception as the large trees and forest behind our house blocked out the brisk north wind, which proved to

Continued on Page 71

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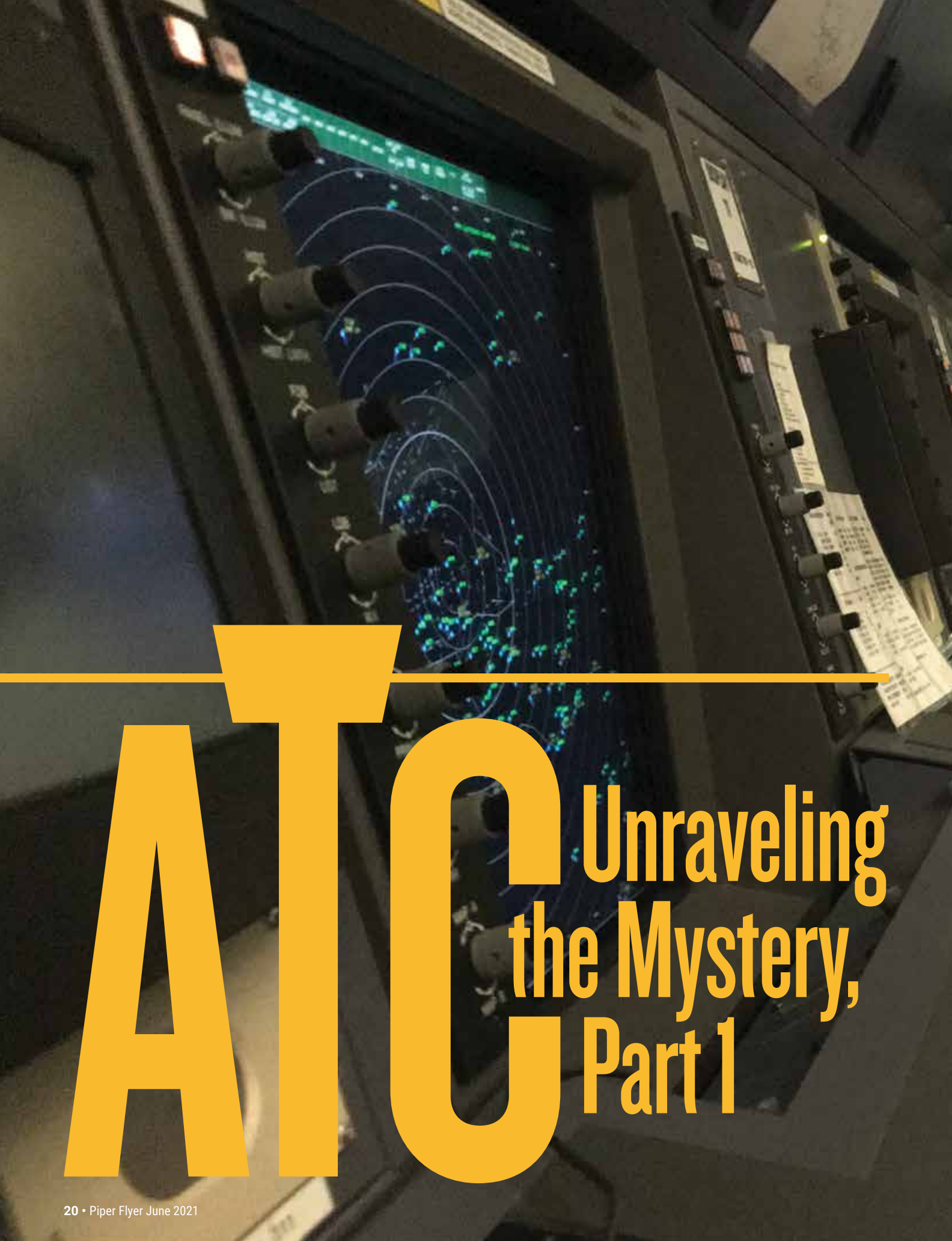
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ATO Unraveling the Mystery, Part 1



Retired controller **ROBERT MARKS** walks through the enigmatic world of the folks in the high tower.

Few things in aviation bring the kind of blind and mute terror to a new pilot (and sometimes experienced ones) like the transmit button. Because on the other end of that button, there be dragons whose foul tempers and strange tongues speaking ancient spells lie in wait on all those who challenge their skies.

Yes, these creatures live in lofty aeries, and in darkened caverns. They awake at strange hours, being neither of the day nor night.

Yet without these beings, aviation as we know it cannot exist. Stuck in a morbid symbiosis, each needs the other. Both hold ultimate power. One says “Unable” as their incantation, the other, “I have a phone number.”

I’m talking about pilots and Air Traffic Control.

Come with me, as your guide and storyteller, to visit this magical land of ATC. On our journey, I will point out the wonders of this mysterious world. You will hear stories unheard outside the Kingdom of Orders and Procedures. You will glean knowledge the common birdperson can only dream of having.

Let’s get going!

We’ll start at my favorite point: me. I’ve been a pilot since 1978. My passion for aviation led me from the U.S. Postal Service (I tell people I couldn’t stand the stress) and into a 27-year career as an air traffic controller at L.A. Center and Southern California TRACON.

Forced into retirement in 2014 by an outdated age restriction law that turned me into an ATC pumpkin, I now find myself able to fly over 200 hours a year while writing and producing online content for King Schools. I love it.

The basics

The U.S. Air Traffic Control system is divided into three types of facilities.

Air Route Traffic Control Centers: These facilities control all the U.S. airspace. All of it. From the ground up. The U.S. has 22 Centers, including one each in Alaska and Hawaii.

Terminal Radar: These facilities are delegated airspace by the Centers via very boring documents with illegible signatures. Generally speaking, their airspace is



around 40 miles from the primary airport, with top altitudes varying all over the place, but usually 15,000 feet msl to Flight Level 230.

Towers: The most recognizable of ATC facilities, these iconic glass-enclosed cabs are known the world over. They are sealed to keep the controllers from running away, while permitting the curious to see the silhouettes high above as they mosey about in their natural environment.

How it works (in theory)

Air Traffic Control is an incredibly complex and fine-tuned machine. Here in the U.S., we have the most efficient and safest air transportation in the world, by far. So, how does it all work?

The system is set up like a relay race. The trick is to get rid of the baton you have as fast as you can because that’s the only thing the runner (controller) behind you is thinking to do to you.

Let’s start with a simple VFR call-up to the first relay runner in the race, Clearance Delivery (CD). Many times, CD is combined with Ground Control, so your mileage may vary here.

CD takes your information and inputs it into a keyboard that is probably laid out A-Z. How come it’s not a QWERTY keyboard?

Fun Fact No 1: In the ancient days, when the Automated Radar Terminal System (ARTS) came into being, its 1960s computers were slow and prone to crashing. Some gifted controllers were able to transition from stone tablets directly to typewriters. The ARTS would get overloaded if someone knew how to type, so the A-Z keyboard slowed them down enough to help prevent overloads.

OK, back to the present. CD enters your

callsign, destination, type of aircraft, and sometimes altitude. The computer spits a code back, CD gives you the code, and tells you to call Ground. Baton passed.

Ground Control has the baton and is entering the first turn. You call them with your location, request, and the ATIS code.

Fun Fact No. 2: Rumor has it that tower controllers never learned the alphabet and that’s the reason for the A-Z keyboard. They can look down at ATIS time and know which letter is up next. Har de har har!

Ground taxis you out, maybe issues you an initial flight clearance, and tells you to contact Tower. Baton passed.

Tower gets you onto the runway, and off you go. Now, that squawk code you got is crucial. It is used by the ATC equipment on the ground to associate the information you gave CD with your radar target. Tower, or “Local,” will make sure that the correct data block tags up with your airplane.

Why? Because they can physically see you and the radar screen, and correlate the two. If the tower doesn’t have radar, Departure Control will have you ident to confirm it really is you.

Fun Fact No. 3: The ATC automated radar systems only know squawk codes. If you come up on the wrong code, you may suddenly find your Cherokee 140 tagged up as an Air France Super. That is easily remedied for you, but it starts the flight plan processing for Air France and controllers have to manually suspend it. They will be mad at you and question your patriotism.

Tower sends you on your way and switches you over to Departure Control. This is the in-between facility that will work your flight to about 40 miles away from the airport. Baton passed.

Some approach/departure facilities are standalone, where they work traffic to a primary airport and some surrounding ones. Others, like SoCal Terminal Radar Approach Control (TRACON), are “consolidated,” made up of previously individual facilities, and now serve multiple large airports and numerous surrounding ones.

If your flight is going to take you into the airspace of another ATC facility, then a “handoff” becomes necessary. Every baton pass I’ve mentioned is a form of handoff. Most facilities have automation to handle this task, with your data block flashing in one form or another to the receiving controller.

When that controller accepts you, (the baton), the data block from your current controller changes. When you hear, “so-and-so isn’t taking the handoff...” now you know what that means. If VFR, usually the baton is dropped. If IFR, it means we spin you like a top.

A controller has to have positive permission to enter another controller’s airspace. And you get “spun.” We can’t cancel your IFR flight plan, so the baton gets danced around all over the sky until the next controller accepts the handoff.

The next facility you may go to is an Air Route Traffic Control Center (ARTCC). They have the largest swaths of airspace, designed to handle high-altitude and high-speed traffic. Some sectors are so large they have multiple communication sites.

Fun Fact No. 4: Centers can give you VFR flight following below 18,000 feet, and above 60,000 feet. Keep that in mind if you get in a really strong updraft.

This entire process is reversed as you get closer to your destination.

Next time, we’ll discuss Air Traffic Control and the student pilot.

Robert Marks has been a pilot for over 40 years and holds a commercial multi-engine certificate and instrument rating. He is a retired air traffic controller and currently works as a writer, producer, and director for King Schools. His home airport is Montgomery-Gibbs Executive Airport (KMYF), in San Diego, California. Send questions or comment to editor@piperflyer.org.

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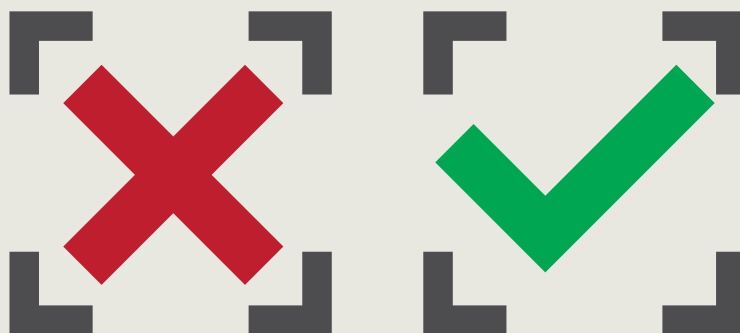
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「AN OWNER'S GUIDE TO SERVICE BULLETINS」





Contrary to popular belief, manufacturer-issued Service Bulletins are not something that aircraft owners can or should just ignore. They're often the keys to getting improved performance, reliability, safety, and value out of your aircraft and its systems. **By Dale Smith**

When we're learning to fly, we get lessons in pretty much every conceivable situation a pilot can find themselves in.

The depth and breadth of those scenarios get wider and deeper as we progress up the ratings ladder.

It's a real shame that there isn't the same type of scenario-based training available to aircraft purchasers. The typical buyer goes into it with their foggles on. Unfortunately, they're left with learning ownership insights from all kinds of well-meaning (but often misguided) sources.

Take preventive maintenance for example: Like the Loch Ness monster, owners either believe in it, or they don't. It's the same with manufacturers' Service Bulletins (SBs). You either read them and try to understand what they mean to your situation, or you're in the camp that says, "If it's not an AD (Airworthiness Directive), don't bother me."

I think a lot of that kind of thinking comes from the simple fact that many

aircraft owners don't fully understand what SBs are, and where they fit into the scheme of things. Let's rectify that right now.

SBs are not ADs

As Anton Koprivnik, Chief Inspector for Constant Aviation, explained, an AD is issued by the FAA and is required to maintain an aircraft in a safe operating condition while complying with regulations. Service Bulletins are more broad.

Koprivnik elaborated: "The manufacturer issues a Service Bulletin to address corrections and/or improvements to an aircraft or a particular component," he stated. "For example, replacing a brake cylinder from an original design to a new, improved component design."

"ADs provide detailed incident information and references for corrective compliance, aircraft affected, timelines for compliance, and follow-up," Koprivnik said. "The SB will typically provide technical information to correct the issue. ADs and emergency ADs have the authority to ground an aircraft, while an SB does not."

While that may all seem simple, the confusion—at least for many aircraft owners—comes from those instances where an SB is tied directly to an AD.

"As they're written by the FAA, ADs are hard to decipher. Most of the information is background material along with a lot of FAA legalese chatter," stated Bill Ross, FAA A&P I/A and Vice President, Product Support for Superior Air Parts. "They (ADs) rarely contain any real instructions or information pertaining to AD compliance. All of that is contained in the manufacturer's Mandatory Service Bulletin."

You can't tell an SB without a scorecard...

Wait, you say, "aren't all Service Bulletins the same?" Oh no, my friend, that would be just too easy. In fact, there are around five levels of Service Bulletins. I say "around" because, to be honest, since there's no regulatory guidance for SBs, it's really up to the manufacturer to decide what they call each varying level of importance.

For the sake of this story, we'll use the five titles provided by Ross, which are, in ascending levels of criticalness: Service Letter, Service Information Directive, Service Bulletin, Critical Service Bulletin, and Mandatory Service Bulletin.

Service Letters are basic information about a change to a component or how to perform a particular task. For example, how to obtain a replacement data plate for an engine or airframe.

Service Information Directives are usually something that's a bit more important, but again, they are usually regarding how to perform a particular task. For example, amendments to instructions for calibrating an engine's fuel-injection system.

Service Bulletins are instructions on how and when to perform a given task. But, it's not a requirement for 100% rigid compliance. While you don't have to do the action outlined, it's a very good idea to understand exactly what it's about.

Critical Service Bulletins can be connected to an AD or a pending AD. They are something the manufacturer wants you to comply with by a specific date or time. Say, an examination of a particular part within 100 hours or at annual. It's critical, but not yet mandatory.

Mandatory Service Bulletins are routinely tied to a specific AD. They provide the affected component's manufacturer's detailed, step-by-step instructions on how to comply with that AD.

Again, since each manufacturer is free to title them what they want, it's important to read and understand any SB that you receive pertaining to your aircraft.

"Service Bulletins, especially Mandatory SBs, should be reviewed by Part 91 aircraft owners for continued airworthiness improvement, even if an accompanying AD doesn't mandate them," stated Shawn Ehrhart, Director of Operations for NDT, Constant Aviation.

"The SBs result from field usage and trends reported to the manufacturer on how the aircraft is operating. They address chronic problems found during flight operations and maintenance events."

While SB compliance is optional for Part 91 operations, if you are operating

your aircraft under Part 121 or Part 135, which pertain to air carrier and operator certification, SB compliance may be considered mandatory. Always check with your A&P.

SBs are not BS

While compliance with Service Bulletins may not always be mandatory, knowing and understanding the information they contain is always a good idea.

"Most SBs, and service kits, address corrections and improvements to make the aircraft fly safer and reduce maintenance costs," Koprivnik said. "Mandatory SBs should be seriously considered and accomplished at the owner's discretion, knowing that there is a good chance that an AD may be issued."

While compliance with Service Bulletins may not always be mandatory, knowing and understanding the information they contain is always a good idea.

"The resale value, and even the successful sale of that aircraft, can be at risk if key SBs are not accomplished, especially when it's a Mandatory Service Bulletin that is effective, but may not have reached the compliance threshold," he added.

Resale value aside, as Ehrhart explained, an SB, especially a Mandatory version, can directly relate to the airworthiness of the aircraft itself. "Piper issued SB 1345 on March 27, 2020, due to a fatal accident. The FAA's AD 2020-26-16 [Piper PA-28 wing-spar box inspection] was issued and became effective Feb. 16, 2021," he said. "Initially, there did not seem to

be a great rush on getting the original SB complied with until the AD was issued. Now there is a backlog for NDT companies qualified to accomplish this inspection."

Ehrhart said he traveled over 7,500 miles from Constant Aviation's home base in Cleveland, Ohio, to Star Marianas Air in Tinian, Northern Mariana Islands, to do the inspection on the operator's nine Piper PA-28s.

"Spars are being found with cracks and parts are becoming scarce. Shops are getting backed up scheduling the replacement of these cracked wing spars," Ehrhart continued. "I know that if I owned a Piper within the affective range of the initial Service Bulletin, and knowing that there were three wing failures between 1987 and 2018, I would have gotten this bulletin done regardless of the FAA issuing an AD."

SBs are your responsibility

If you're waiting for your friendly mechanic to tap you on the shoulder and tell you about an SB that needs your attention, don't. Keeping up with all the various SBs and how they affect a particular aircraft isn't their responsibility; it's yours.

"Remember, you as the aircraft owner are ultimately responsible for the continued airworthiness of that aircraft," Ross stated. "It's not up to the mechanic. Most owners don't know or understand their responsibility."

It just makes sense. With the various aircraft your mechanic deals with on a daily basis, it's just too much to ask to expect them to invest their valuable time and effort into keeping track of every bit of information put out by the aircraft, engine, or avionics manufacturer.

"As an aircraft owner, one of the things that make Service Bulletins so important is that they help me keep my aircraft in compliance with the manufacturer's ICAs (Instructions for Continued Airworthiness)," Ross continued.

"Take my airplane, for example; I have three manuals for that aircraft's airframe and engine: an operations manual, a maintenance manual, and an overhaul manual. If the manufacturer wants to make a change to any page of that manual, they'd

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have to reprint the entire thing. That's a lot of work and cost.

"Service Bulletins are the way for the various manufacturers to share changes or alterations to the instructions found in these manuals," he added. "The manufacturer can not only easily identify what the information or process change is, but it's also an easy way to bring it to the attention of the aircraft owner."

"My dad is always giving me Service Bulletins on my airplane. And he always asks the same question, 'What are you going to do about this?'" Ross said. "Those questions need to be asked by the owner to his mechanic. We need to shift our thinking from avoiding maintenance and saving money to doing proactive maintenance that adds value, reliability, and safety to that airplane."

Avionics need love, too

Until now, we've only talked about how Service Bulletins impact airframes and engines, but keeping current with the latest updates is probably even more important when talking about your instruments and avionics.

"Very rarely are radios and instruments covered by Service Bulletins, and owners

and technicians have paid little attention to an SB if it were issued," Koprivnik said. "Older 'steam gauge' instruments and 'coffee grinder' radios have been covered by some ADs, and those need to be addressed per that AD or at the next annual."

Koprivnik is right; an SB or an AD on instruments is indeed rare. But with today's all-glass, digital avionics suites, SBs are becoming increasingly more frequent in their issuance by the system's OEM.

"The avionics Service Bulletins can harbor great surprises should you not fully understand what's going on with them," explained Rick Ochs, CEO, Spirit Aeronautics.

"There have been times when we've needed to send a component back to the manufacturer for an upgrade—even a seemingly simple one—and what comes to light is the fact that to complete that upgrade, the manufacturer actually has to go back and complete a number of outstanding SBs that had not been complied with.

"They have to take the time—and added cost—of bringing that unit up to current configuration before it can be upgraded," he added. "For example, as part of the recent ADS-B Out mandate, to

upgrade the owner's transponder, we had to first comply with some outstanding SBs for those units. The problem was, in order to quote the update, we had to first take the unit out and see which updates had already been completed.

"The final cost could be X, Y, or Z depending on that unit's status," Ochs continued. "Some of those units had not been touched in 10 years or so and needed a lot of upgrades done before we could begin making it ADS-B compliant. That was tough for owners to understand."

Ochs stressed that while owners may think that these periodic SB upgrades are reasons for the OEM to try and sell them something, its reality is exactly the opposite.

"The biggest goal is to ensure that you have the latest and greatest firmware in your particular unit," he said. "As these systems evolve, the manufacturers are always developing new upgrades that improve reliability or features. Anything that has electrons running through it is in a constant state of upgrade until it is obsolete."

The cost of component currency

Yes, sometimes these upgrades do carry a cost, but you have to be (or should

If you're waiting for your friendly mechanic to tap you on the shoulder and tell you about an SB that needs your attention, don't. Keeping up with all the various SBs and how they affect a particular aircraft isn't their responsibility; it's yours.



be) asking yourself, what is the safety of my aircraft and its passengers worth? That puts the whole thing in perspective.

"You may toss out a 10-year-old TV, but you're not going to get rid of 10-year-old avionics equipment. You want to upgrade them to perform the best that they can," Ochs said. "As much as I'd love to sell you new avionics every time there's a Service Bulletin, pilots can't afford to do that. They need to know why and how to upgrade what they have.

"That's why I strongly recommend every owner of current avionics be on their manufacturer's list to receive every SB and notification," he added. "You really want to register your equipment when you install it—yes, fill out those cards. Or go online and do it. You never know what information they'll want to send you, but you really do want to receive the notices and then take time to understand what they're about."

And like with the SBs and notifications that pertain to your aircraft's engine and airframe, Ochs stressed that gathering all that information and making it available to the mechanic or avionics technician at annual time is the aircraft owner's responsibility.

"Don't expect your avionics shop to do it for you unless you're willing to pay for their time and effort," he said. "They have no idea what kinds of avionics are in your airplane today. Having all the SBs and their status needs to be part of the information you give your mechanic when you drop the airplane off. If you don't tell them, they won't know."

One last thing...

So, just how important are Service Bulletins to an aircraft owner?

Koprivnik summed it up best when he said, "Service Bulletins have always been a kind of a second thought by the owner.

They are things that may enhance their aircraft but are not really needed. Until they become an Airworthiness Directive, owners do not pay much attention.

"As the aircraft fleet ages and aircraft are upgraded, it becomes more critical to get these SBs accomplished, especially avionics, where all essential instrumentation is compacted in one unit," he continued. "Do not get caught waiting to get an AD complied with when you could have accomplished the SB a year before."

Dale Smith has been an aviation journalist for 30 years. When he's not writing aviation articles, Smith does commission aircraft illustrations specializing in seaplanes and flying boats. Smith has been a certificated pilot since 1974 and has flown 35 different types of General Aviation, business, and World War II vintage aircraft. Send questions or comments to editor@piperflyer.org.

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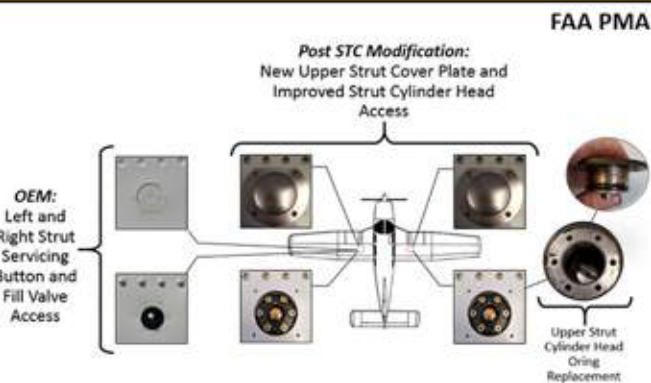
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PA-28-161 Warrior II: S/N 28-7716001 thru 28-8216300 and **Cadet** S/N 2841001 thru 2841365.

PA28-140 All Models: S/N 28-20001 through 28-26946, and 28-7125001 through 28-7725290.

Aircraft coming soon: PA-28-150, 151, 160 and 180!



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DCT Aviation and Electroair Electronic Ignition Systems

A busy flight school puts Electroair's electronic ignition systems (EIS) to an intensive real-world test. **GRANT BOYD**





DCT Aviation, located at Oakland County International Airport (KPTK), in the Detroit suburb of Waterford, was founded in 2008. The flight school, which is one of the largest in Michigan, has been run by Ilya Khakham since its inception. When it first got off the ground, the organization operated a lone Piper and had one instructor on staff.

Today, DCT boasts 10 trainers in its fleet, of which nine are Pipers, composed of four PA-28 Warriors and five PA-28-181 Archers. It also operates a Beechcraft Duchess for multiengine students, and there are 16 instructors on staff.

Khakham, a CFI and engineer by trade, noted that choosing Piper aircraft as the backbone for the fleet was a conscious decision. "Although Cessnas are nice training aircraft, I feel that Pipers are better designed," he said. "[They are] easier to handle, take less manpower to get them airworthy, and as an engineer of 35 years, I prefer quality equipment that's easily maintainable."

The company's planes fly extensively each day of the week, noted Gus Warren, DCT's director of maintenance, who has over 30 years of experience on Piper products. These planes tach around 1,500 hours a month, mostly being operated within 50 nm of home base, at or around 3,000 feet agl.

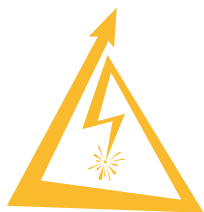
Why electronic ignition?

Having seen some troubles relating to fouled spark plugs, the company decided to search for a solution that would allow it to lessen the likelihood of a plane not being dispatchable at the time of a student's training flight. Ultimately, the search led them to test a product designed and built by a local company, Electroair.

Electroair specializes in designing and manufacturing electronic ignition systems (EIS) for a variety of Lycoming, Continental, and other engines. Several of the company's product claims piqued DCT's interest, and led the flight training organization to install an electronic ignition on one of its PA-28 Warriors on a trial basis.

Warren provided a brief overview of what makes an electronic ignition system unique. "One magneto is replaced by a housing (called the MTH, Magneto Timing Housing) that has a toothed wheel and a Hall effect sensor," he said.

"The MTH supplies the EIS controller with information to determine engine RPM and crankshaft position. A line from the intake manifold to a MAP sensor provides manifold pressure information to the EIS controller. With the inputs of RPM, crank position, and manifold pressure, the EIS adjusts spark timing (advance or retard) for more complete combustion





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throughout the engine's operating range. Spark is provided by a high-energy coil pack and delivers a hot spark of greater duration regardless of engine RPM. Power for the EIS is provided by the aircraft's electrical system.

"This differs from the magneto in that the magneto is self-energizing, has fixed timing [some have the ability to retard timing for starting], and single-discharge [low-duration] spark, with spark voltage dependent on engine RPM."

The DCT Aviation team noted that the initial electronic ignition system installation went smoothly. The maintenance team took some extra time on the trial unit to ensure team members fully understood the product and how it is properly installed. They were assisted by Electroair's owner, Mike Kobyluk, who provided installation and other technical guidance; which is standard support for first-time customers to receive.

Soon thereafter, the team began switching the rest of the training fleet over from the old ignition system to the all-electronic one. This decision was supported by DCT's positive experience installing the first unit, as well as the improvements it had seen while using the EIS. Overall, the team averaged about a six-hour installation for each electronic ignition system and installed them all in the same place on the aircraft.

"The MTH replaces one magneto on the engine.

The coil pack is mounted to the engine mount aft of the No. 4 cylinder. The MAP sensor and EIS controller are mounted aft of the firewall to the pilot-side sidewall below the instrument panel," said Warren.

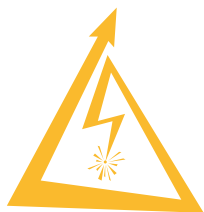
Real-world benefits

Across the aircraft on which the Electroair products are installed, Khakham noted that the flight school has seen marginal fuel efficiency gains for those aircraft used most often for primary training.

He explained that the type of low and maneuver-heavy flying that occurs in the training aircraft makes it hard to judge fuel consumption reduction; although the company has seen noticeable improvements at other altitudes and power settings.

The flight school has seen maintenance cost reductions overall, which owner Khakham is particularly pleased by. These savings have been directly related to the number of labor man-hours no longer going toward diagnosing and correcting problems related to spark plug fouling and other issues. Ultimately, Khakham said this has led to "a tremendous improvement in revenue with less drops in flights due to maintenance issues."

He also noted some other nonfinancial benefits the flight school has seen with the Electroair





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electronic ignition systems. One of these is related to aircraft operation, to which he noted, “[They] run smoothly all the time, and there is a big difference in how the aircraft operates in all aspects of flight and especially during taxi (no shaking, etc.)”

The installation of the EIS product has led DCT to discover another one of Electroair’s solutions, which brought about more business efficiency improvements. DCT has also installed keyless starters in its aircraft, which forgo the need for keeping track of the plethora of keys students use on the aircraft.

This reduces the problem of a student forgetting to return a key after their flight or, worse, losing it, which would bar the next student from being able to dispatch the aircraft.

All in all, for DCT Aviation, the Electroair products have proven to be a valuable addition to the school’s fleet of Piper aircraft.

Grant Boyd soloed at 16. In the seven years since, he has been involved in aviation through a variety of avenues, from marketing to customer service. He has written more than 85 articles for a number of aviation magazines and loves learning about aircraft/pilots with unique missions. Send questions or comments to editor@piperflyer.org.

RESOURCES

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OTHER

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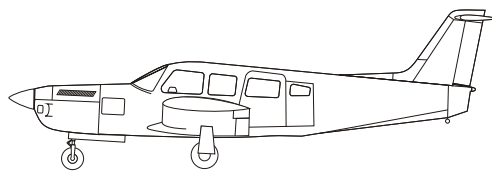
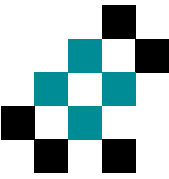






PIPER LANCE

An evolution of the Cherokee Six, the Lance was equipped with retractable gear and, in some models, a controversial T-tail. — By Kristin Winter



Given the progression of the Piper PA-28 Cherokee line, one might have expected the Piper PA-32R Lance series to have come out in the 1960s. From its origins as a four-place, fixed-gear aircraft, the Cherokee got stretched in 1966 to the PA-32 Cherokee Six, and then got retractable gear with the PA-28R Arrow in 1967.

Marrying the Cherokee Six with retractable gear would have been a natural progression, and Piper was apparently thinking along those lines. However, the project obviously got sidelined. Piper may not have been in a hurry to create a competitor to the PA-24 Comanche, which was its top-of-the-line single at that time, and had been expanded to have six seats.

Lance variants

The PA-32R Lance comes in three

flavors. The original was basically a Cherokee Six with retractable gear and a few improvements. It was christened the PA-32R-300 Cherokee Lance. It was, and is, very popular. It is the most sought-after of the breed today. It was produced for about two and a half years, from 1976 into 1978. 1,138 were produced.

In mid-1978, it was displaced by the PA-32RT-300 Lance II, and then the PA-32RT-300T Turbo Lance II. There were 801 Lance II models produced.

The Lance II had the T-tail design, which was less than a success (more on that in a moment).

After a couple of years producing the Lance II, Piper came out with the Saratoga line, which put the tail back down where it belonged (in my opinion) and added the tapered "Warrior" wing.

The Saratoga line will be the subject of another article. Here we will examine the history and characteristics of the Lance.

Design

The Lance design was, of course, based primarily on the Cherokee Six, but borrowed the retraction system from the Arrow, and the landing gear itself from the PA-34 Seneca. The interior was pretty much the same as the Six.

The Lance II and Turbo Lance II were a puzzling development. Many pilots feel that Piper ruined the Lance for no good reason. I have heard that this was attributed to Piper's CEO at the time, J. Lynn Helms, who was said to have a liking for the looks of the T-tail.

In rapid succession, the Lance and the Arrow got a T-tail, and the PA-44 Seminole and PA-38 Tomahawk were introduced with the T-tail. The first year of T-tail Lance sales was about what the Cherokee Lance had been, but by the second year, sales dropped off dramatically after the aircraft got a bad reputation.

The PA-32 series are certified for seven



Jim Lawrence





The Lances really are a station wagon with wings, for those who remember what a 1970s station wagon was like.

seats, save for the last few models of Saratogas and the 6XT aircraft. The seven-seat configuration was all forward-facing, with three seats in the middle row. After the first year, starting with the 1977 model year, club seating became an option; it was popular.

The Cherokee Lance got a boost in gross weight from 3,400 pounds for the Six to 3,600 pounds. This made up for the additional weight of the landing gear retraction system and the additional fuel.

The useful load usually runs in the 1,450 to 1,500-pound range for the original Cherokee Lance, depending on how much weight has been added in STCs and fancy interiors. The high useful load makes it an excellent hauler. The Lance II is about 75 to 100 pounds heavier, due to the additional structure necessary to hold the T-tail. The Turbo Lance II is even heavier, due to the turbo and related systems.

Piper introduced the Turbo Lance II model in 1978. The Turbo Lance II used a manual wastegate connected to the throttle. This means the pilot has to be very careful when setting the power. One cannot go to full throttle on takeoff, or the engine will overboost.

Flying characteristics

The Lance is a pleasant-flying aircraft, though a bit more ponderous than the Arrows or Comanches. The Lances really are a station wagon with wings, for those who remember what a 1970s station wagon was like.

They are an excellent instrument platform, and can generally haul six standard people and still fly for 2-3 hours. With full fuel, the plane will carry around 900 pounds of people and baggage and fly for four hours with a reserve.

With a cruise speed of about 155 kts, the airplane offers good range. The Turbo Lance can reach speeds above 175 kts at altitude. The normally aspirated versions will burn 17-18 gph at full 75% cruise. The Turbo versions perhaps need a bit more fuel flow for cooling, particularly in the climb.

One caveat when flying the PA-32 series is one that is common to most six-place aircraft. Longer airplanes usually handle differently depending on where the CG is located.

More than one pilot has been surprised when the first time they load the plane up, it rotates too early and too quickly, and the

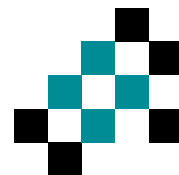
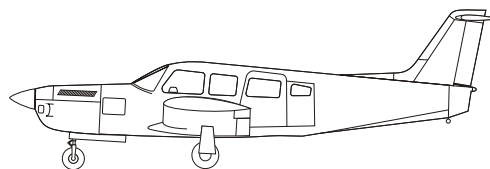
pilot is fighting the aircraft as it wallows in ground effect. This situation is one that can (and has) turned tragic.

Anyone checking out for the first time in this category of aircraft is well advised to fly the aircraft heavily loaded with an aft center of gravity as part of the checkout. Where the pitch trim is set for takeoff is important to help prevent a premature rotation.

The Lance II has significantly poorer handling qualities than did the straight-tail Lance. For some reason, Piper went with a smaller stabilator with the T-tail. So, not only is the tail not in a position to be in the propwash, it is smaller to boot. The pitch forces on the T-tail are heavier and the tail is entirely ineffective in lightening the nose initially on takeoff.

The other characteristic of the T-tail is that once it does start to rotate, the tail now gets down into the propwash and the speed of the rotation accelerates. This has frequently resulted in hitting the tail tiedown ring on the runway; which often damages the aft bulkhead, requiring structural repair.

The best technique is to just use extra runway and rotate at a higher speed



when the tail is more effective, and a less pronounced pitch up is required to break ground.

The T-tail Lance II's have also had a number of accidents on short and soft fields. The T-tail works against the pilot on a short field, as the stabilator doesn't become effective as early as a conventional stabilator, which benefits from the propwash. This is particularly true with a forward CG. Veteran T-tail pilots put some weight in the back to keep the CG in the middle of the envelope.

Soft fields are a particular challenge for the T-tail, as you can't lighten the nosewheel as is standard practice for a soft field. While not all unpaved strips are soft, extreme caution should be exercised when considering operating off an unpaved runway.

Fortunately, the Lance series provides both a forward baggage compartment and a rear one. Both are limited to 100 pounds. The forward baggage compartment

gives the pilot more flexibility to load the aircraft to keep the CG safely inside the envelope and where the pilot is comfortable flying the plane.

Systems

The systems of the Lance are generally quite reliable. The Lycoming IO-540 series engine is well-proven, though most came from the factory with a dual magneto which can be problematic as they are no longer supported by TCM.

This can be especially problematic in the Turbo Lance, as the back of the engine gets very hot. 500-hour inspections of the magnetos in the Turbo Lance are not to be missed.

There is an STC to install the same engine with single magnetos on the Lance and Lance II, though it does not apply to the Turbo Lance II. The STC to change the original IO-540-K1G5D or K1A5D engine with an IO-540-K1G5 is held by Aeronautix LLC and the STC number is SA01820WI.

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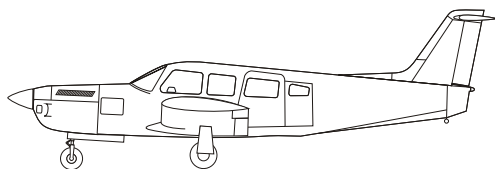


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Lycoming has been working to swap out engines with the dual mags for two single mags by making the change on exchange engines. Overhaul is the logical time to make the change, as an engine shop can make that change as part of the overhaul by making changes to the accessory section.

The Turbo Lance II is a bit of an odd duck with its engine installation. The engine chosen appears to be a derivative of the engines put in the Piper PA-31 Navajo series, and is an updraft engine. This means that the cooling air enters the

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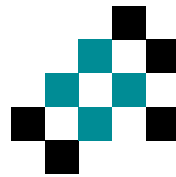
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lower part of the engine and then goes up through the cylinders to the top of the engine. Then, the hot air mostly goes down the back of the engine and out.

This, along with a hot turbocharger, adds a lot of heat to the back of the engine and reportedly significantly warms up everything stored in the nose baggage compartment. The moral of that story is don't put your frozen fish up front for the flight home.

Maintenance concerns

The maintenance of the normally aspirated Lances is very straightforward. It is really just a longer Cherokee with a big cargo door in back.

Like most all the Cherokees, they are subject to the new wing spar Airworthiness Directive, AD 2020-26-16. The factored service hours formula will catch a fair number of the straight-tail Lances, as many have been used for cargo and passenger operations. For privately owned and

operated aircraft, the required inspections are likely still far in the future.

On the positive side, the new AD for wing spar corrosion (2020-24-05) does not apply to the Lance series, though inspections for corrosion should be part of any annual inspection. These inspections should be done with more diligence than on Piper models that got routine corrosion-proofing with zinc chromate during assembly.

The turbo system is an area of concern for maintenance in all turbocharged aircraft, but there have been some nasty inflight fires in the PA-32 turbos. AD 91-21-01 R1 applies to the turbo and requires modifications and 100-hour inspections.

The Lance series are destined to remain popular for a long time. They are one of the go-to family planes; an SUV with wings. The Lance is roomier inside than the competition, and generally will haul a bigger load. Well-cared-for examples with

a low-time engine and updated avionics can command prices above \$150,000.

Kristin Winter has been an airport rat for over four decades. She holds an ATP-SE/ME rating and is a CFIAIM, AGI, IGI. In addition, Winter is an A&P/IA and reformed aviation defense attorney. She has over 9,000 hours in various GA aircraft. She owns and flies her Twin Comanche, "Maggie." She flies professionally, instructs, and provides purchasing and operations consulting. She is currently based in Minnesota, which is where it all started. Send questions or comments to editor@piperflyer.org.

RESOURCES

AD 91-21-01 R1
tinyurl.com/AD91-21-01R1

AD 2020-26-16
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105-125hp	U12355-004	\$1,249.22
105-125hp	U12355-000	\$1,623.52

Engine Mounts

C-90 Continental	U12209-000	\$1,140.16
105hp, 135hp Lycoming	12351-012	\$519.57
125hp Lycoming	U12351-011	\$978.97
150hp Lycoming	U12351-015	\$810.90

Cowling

FAA-PMA

Top Cowl

105hp	U12356-000	\$307.61
125hp, 135hp, 150hp	U12356-003	\$266.06

Lower Cowl

135hp, SN 3014 to 4617	U13769-003	\$1,050.12
150hp, SN 3771 to 6963	U13769-005	\$1,305.09
150hp, SN 6964 and up	U15012-000	\$1,305.09

Stabilizer Yoke & Adjust Screw

FAA-PMA



Yoke	U42692-000	\$242.68
Adjust Screw	U42961-102	\$94.37

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Short Spinner Assembly

- Applicability: Piper PA-18, PA-20, PA-22 (serial numbers 8 to 553) with O-235 or O-290 engines and AM series Sensenich propellers



Spinner Dome	U13661-000	\$333.67
Front Plate	U13664-000	\$142.92
Back Plate	U13663-000	\$154.07
Complete Assembly	U13661-A	\$568.32

Spinner Assembly

- Applicability: Piper PA-18/18A, 150hp
- For DM series propellers



Spinner Dome	U14422-000	\$433.50
Front Plate	U14426-000	\$159.07
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Sunday, July 25, 2021: Seminars and prize drawings will be held at the Waupaca Conference Center at Par 4 Resort.

Monday, July 26 to Wednesday, July 28, 2021: AirVenture via luxury motorcoach.

Saturday July 24

17:30—Registration (late arrivals can complete registration at any time during the event.)

17:30—? Welcome Reception. Includes food and beverage.

Sunday July 25

All seminars and prize drawings will be held at the Waupaca Conference Center at Par 4 Resort, 201 Foxfire Drive, Waupaca, Wisconsin.

We invite industry experts to bring their knowledge directly to you. You won't want to miss this year's presentations!

07:45 – 08:00

Opening Remarks

08:00 – 09:00

TBA

09:15 – 10:15

TEMPEST AERO GROUP

Vince Bechtel

Dry Air Pump, Now You Know

10:30 – 11:30

SUPERIOR AIR PARTS

Bill Ross

The Real Cost of Deferring Maintenance

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Sunday July 25 (continued)

- | | |
|---------------|---|
| 11:30 – 13:00 | Lunch Break |
| 13:15 – 14:15 | ELECTROAIR
Dual Electronic Ignition Systems:
The Future is Now |
| 14:15 – 15:15 | BLUE ON TOP
Aeronautical Engineer, Ron Blum
Loss of Control |
| 15:15 – 16:15 | Wrap up and door prize drawing |
| 18:00 – ? | Banquet at the Waupaca Ale House |

Mon / Tues / Wed – July 26 / 27 / 28

Bus to AirVenture

Monday, Tuesday, and Wednesday morning the bus to AirVenture will be at the Comfort Suites at 07:00 and will leave for Oshkosh at 07:30. The bus will leave the AirVenture grounds at 18:00 to return to the Comfort Suites.

Thank You to Our Sponsors:

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(bus transportation on Monday and Tuesday)

UNIVAIR
(bus transportation on Wednesday)

REGISTERING IS EASY

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- Email Kent@aviationgrouppltd.com
- Call (626) 844-0125

REGISTRATION FEES & DETAILS

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- **Free for kids** ages 8 and under; half-price for ages 9 to 16.
- **Special Dietary Needs** can be accommodated for an additional cost.
- **Hotel and AirVenture admission fees are not included.** (To book a room, see "Hotel Information.")

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Updating Pitot and Static System Plumbing

When I got *Papa*, my 1960 PA-24-180 Comanche 180, the behind-panel plumbing was a mismatched mess of old rubber vacuum system tubing and plastic barbed fittings from the local auto supply store.

And it worked. I was able to get good biennial static system leak checks per FAR 91.411 and altimeter/transponder accuracy checks per 91.413 for years.

Piper used 3/16-inch outside diameter (OD) semi-rigid plastic tubing between the two static ports located in the tail of my airplane and the instrument panel, and between the pitot mast on the left wing and the instrument panel.

My existing pitot-static plumbing was, to put it bluntly, crapola. I wanted to get it right. I wanted a system that used aviation-style fittings and plumbing.

Recently, I've added a Trig Avionics ADS-B transponder and two UAvionix AV-30 instruments in place of my vacuum-driven attitude indicator (AI) and directional gyro (DG).

I needed to plumb each into the static system.

The problem was transitioning from the original 3/16-inch OD plastic lines to the Nylo-Seal tubing and fittings, which are the most commonly used pitot and static system tubing today.

The auto parts store solution

I chuckled when one of the most knowledgeable aero repair people I know called my 1960 vintage Comanche one of Piper's "auto parts store" airplanes.

Another Comanche expert told me that "Door handles, trim handles, armrests, ashtrays, steering rod boots, solenoids, switches, and many other minor piece parts such as bearings in the flight control circuit and tail are off-the-shelf industrial or automotive parts."

So, when it was time to find the parts needed for the transition from swaged fittings, I found the fittings that I needed are still available at my local well-

equipped Ace Hardware store.

The parts to convert from the original small-tube swaged fitting configuration to the Nylo-Seal parts include a small ferrule, a special nut, and a Nylo-Seal 266-N 04 x 02 female connector that has a pipe fitting on one end and a Nylo-Seal female fitting on the other. (*Aircraft Spruce and other aviation supply houses sell the Nylo-Seal fittings. —Ed.*)

Cut and tighten

I cut both the original pitot and static lines carefully to present a flat-end surface perpendicular to the centerline of the tube length.

Then, I screwed a 3/16-inch by 1/8-inch brass pipe fitting (Part No. 4503298 at my local Ace Hardware store) into the Nylo-Seal 266-N fitting after wrapping it with 1.5 turns of Teflon tape.

After sliding the 3/16-inch compression nut (Ace Part No. 41221) followed by the 3/16-inch compression sleeve (Ace Part No. 41214) onto the tube, I tightened the nut down on the fitting.

Then, I was ready to start plumbing the static and pitot system with Nylo-Seal fittings.

Let's add some color

Martin, my local expert in all things aeronautical, handed me two reels of colored 1/4-inch inside diameter (ID) Poly-Flo tubing that he got from EDMO, a well-known supplier of a wide range of aviation products. One reel, Part No. 44PB, was colored blue. The other, Part No. 44PO, was orange. Blue for static and orange for pitot.

From there on, the only thing left in the task of upgrading my pitot and static system plumbing was picking the correct fitting, and then installing a Nylo-Seal nut and sleeve assembly (Part No. 261-N) and insert (Part No. 259-N) and tightening the nut.

Test and certify

Every time the pitot or static system

is opened (unless the opening is done by opening an alternate static port valve or system [moisture] drain valve), the system must be tested and must comply with the tests required in FAR Part 43, Appendix E, by a shop that is approved and has the equipment to certify the system.

I got the leak test for the static system to legally operate IFR in controlled airspace (FAR 91.411) and the test for transponder accuracy at different altitudes (FAR 91.413) done at my local aero maintenance shop. The costs for these tests in shops at my West Coast location range from \$350 to \$450.

IMPORTANT: This article describes work that may need to be performed/supervised by a certificated aviation maintenance technician. Know your FAR/AIM and check with your mechanic before starting any work.

Steve Ells has been an A&P/IA for 45 years and is a commercial pilot with instrument and multi-engine ratings. Ells also loves utility and bush-style airplanes and operations. He served as associate editor for *AOPA Pilot* until 2008. Ells is the owner of Ells Aviation (EllsAviation.com) and the proud owner of a 1960 Piper Comanche. He lives in Templeton, California. Send questions and comments to editor@piperflyer.org.

RESOURCES

PFA SUPPORTER

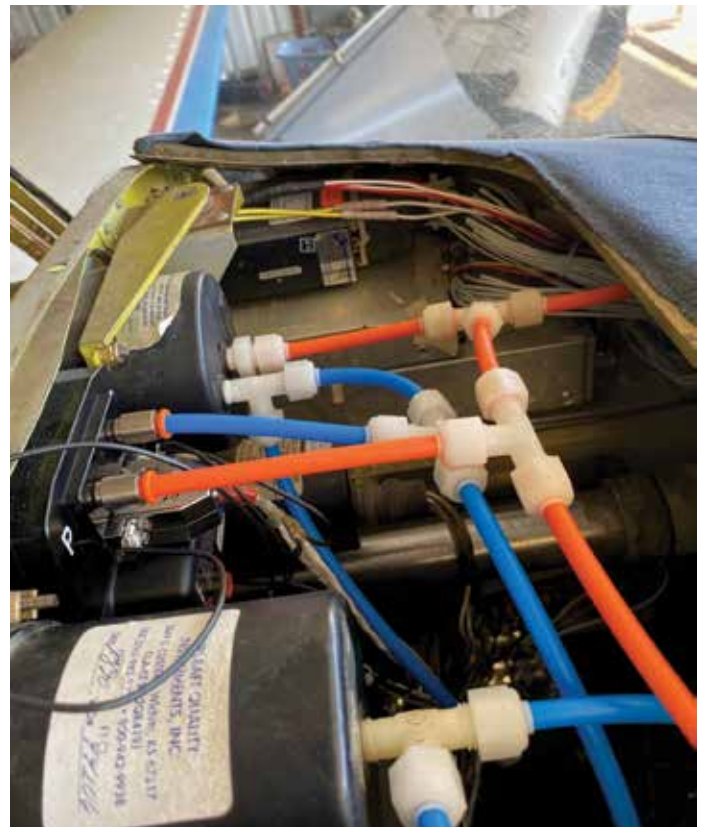
Aircraft Spruce and Specialty
aircraftspruce.com/search/search.php?s=nylo-seal%20fitting

OTHER

Ace Hardware
acehardware.com

EDMO
edmo.com

With several hours of work and a trip to the local hardware store, **STEVE ELLS** modernized the pitot-static system in his 1960 PA-24-180 Comanche 180.







「RETURN OF THE FLY-IN」

The Piper Flyer Gathering at Waupaca
and EAA AirVenture Oshkosh are back
for 2021. We hope to see you there!

By Jennifer Dellenbusch





It's early May as I write this, and we are gearing up for the Piper Flyer and Cessna Flyer 17th Annual Gathering at Waupaca and EAA AirVenture Oshkosh 2021. After a year without either, I'm really looking forward to them.

The Gathering at Waupaca

Here's what you need to know if you are planning to attend this year.

The Gathering festivities begin on Saturday night, July 24, with our Welcome Reception at the Waupaca Convention Center at Par 4 Resort. There will be plenty of food, drink, and opportunities to mingle and socialize.

Sunday, July 25, begins with a great slate of seminars. After a break for lunch, we'll pick up with more seminars, followed by a door prize drawing. The Sunday night banquet begins at 6:00 p.m.

Gathering attendees will be off to AirVenture early Monday morning, July 26, via luxury motorcoach.

Attire is casual throughout the Gathering.

Arrivals by air

First off, please be safe. Don't succumb to "get-there-it is." We will always do our best to accommodate you, should you be delayed by weather or mechanical difficulties. We offer a full refund of Gathering fees up to July 16, 2021.

The following is provided as a "heads up" about what's going on at the Waupaca Municipal Airport (KPCZ). You should, of course, follow your normal flight planning and check Notams, etc., and not rely on this information exclusively.

Tiedowns

Bring tiedowns and use them. The weather can be very unpredictable in Wisconsin. In 2019, we had tornadoes near Waupaca that created high winds on the airport. A couple of people had to scramble to get their Pipers tied down in pouring rain and high winds.

Aerobatic box

Although KPCZ is often the site of an aerobatic box above the field, as of May 5, 2021, there is no scheduled box during the weekend of the Gathering. As always, please check Notams for the most up-to-date information.

Other activity on the airport

The Cherokees to Oshkosh group will not be at Waupaca this year. They have moved their base of operations to Central Wisconsin Airport (KCWA) in Wausau, Wisconsin.

Shuttle to and from airport/hotels

We will have a free shuttle running between the airport and Waupaca hotels on Saturday from 8:00 a.m. to 8:00 p.m. If you arrive outside those times, we suggest the Waupaca Taxi: (715) 258-2880. Their prices are very reasonable.

Rental cars

Unfortunately, car rental companies at Stevens Point and Appleton continue to increase fees for dropping off cars at KPCZ. However, we have contacted R&R Transport, who will drive to Stevens Point for \$75 for the first person and \$5 for additional riders. Folks arriving within a short time of each other may want to consider teaming up for the ride to retrieve rental cars.

Gathering schedule

Saturday, July 24, 2021

5:30 p.m.-6:00 p.m. Registration (late arrivals can complete registration at any time during the event)

5:30 p.m.-8:00 p.m. Welcome Reception

Sunday, July 25, 2021

All events will be held at the Waupaca Convention Center at Par 4 Resort.

07:45-08:00	Opening remarks
08:00-09:00	TBA
09:15-10:15	Dry Air Pumps, Now You Know <i>Vince Bechtel, Tempest Aero Group</i>
10:30-11:30	The Real Cost of Deferring Maintenance <i>Bill Ross, Superior Air Parts</i>
11:30-13:00	Lunch break
13:15-14:15	Dual Electronic Ignition Systems, The Future is Now <i>Michael Kobylak, Electroair</i>
14:15-15:15	Loss of Control <i>Ron Blum</i>
15:15-16:15	Wrap-up and door prize drawing*
18:00-?	Banquet at the Waupaca Ale House





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Monday/Tuesday/Wednesday; July 26-28, 2021

Bus to AirVenture: Monday-Wednesday morning, the bus to AirVenture will be at the Comfort Suites at 7:00 a.m. and will leave for Oshkosh at 7:30 a.m. The bus will leave the AirVenture grounds at 6:00 p.m. to return to the Comfort Suites. *Bus Sponsors: Tempest Plus, Electronics International, Univair.*

Night bus Wednesday: The bus will arrive on the grounds at about 10:00 p.m. and will be ready to depart at 10:45 p.m. You must pre-register and pay for the night bus. The fee for the night bus is non-refundable.

**All registered/qualified attendees (child registrations do not qualify) will be automatically entered in the drawing. You must be present to win. Note: prizes cannot be redeemed for cash. Also please note that prizes may be specific to certain airframes and may not be suitable for installation on your aircraft. Installation costs are not included. If you receive a prize that will not work for your aircraft, please see one of the staff, often someone else at the Gathering can use the item and a deal can be arranged.*

Important phone numbers

Waupaca Airport	(920) 867-3070
Comfort Suites Foxfire	(715) 942-0500
Waupaca Taxi	(715) 258-2880
R&R Transport (taxi)	(715) 281-4169

Sponsors

Platinum/Bus Sponsors: Tempest Plus, Univair.

EAA AirVenture Oshkosh 2021

Each year we walk into the AirVenture grounds early Monday morning, opening day, as the place is coming alive. There are (weather-permitting) ultralights buzzing around to the south, planes flying overhead, planes landing, vendors readying their displays, and golf carts carrying the EAA staff here and there. It's an electrifying experience seeing it all come together for another year. We weren't anywhere near Oshkosh last year in July, but it must have been a sad experience to see the grounds empty instead of animated.

Well, EAA has assured us AirVenture will be back for 2021, and Piper Flyer will be there at our regular Booth 3126, in Hangar C.

I checked in with the EAA staff to see what's going to be different this year. Here are recent updates to protocols and changes in schedules (last updated April 19, 2021; check the AirVenture website or mobile app for updates).

EAA members now have the option to receive admissions credentials including wristbands in advance through EAA's Express Arrival program. This is offered at no extra charge when you purchase your tickets online and eliminates the need to go to an admissions building.

International visitation is dependent on current international travel regulations and mandates in the U.S. and individual countries of residence.

Children under 18 get free admission to AirVenture. This initiative, funded by Boeing, was planned for 2020 and has been carried over to 2021.

Safety protocols

Masks will be strongly recommended if you are unable to social distance (roughly 6 feet or 2 meters).

Increased physical distancing will be encouraged in all areas.

EAA is adding significant numbers of sanitizing facilities and working with industry-leading companies for continual disinfection throughout the grounds.

There will be fewer exhibitors in each indoor exhibit building, creating more walkways and separation between exhibitors. Additional venues on the grounds are being repurposed to accommodate indoor exhibitors that are moved this year.

Wherever possible, ventilation will be increased in tents and indoor facilities.

Canceled/modified events

Several annual events where physical distancing is not possible will not be held this year, including the Monday night concert; the Young Eagles, EAA Lifetime Member, and International Visitors dinners; the Runway 5K run/walk; the WomenVenture social; the Seaplane Base's Watermelon social, and large corporate events and receptions.

High-demand forums and presentations will be scheduled more than once to accommodate demand while allowing for distancing.

Theater in the Woods, forums pa-



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vilions, and other outdoor venues will operate with reduced seating capacity, with social distancing opportunities on the open grounds at that location.

Additional information

Proof of COVID-19 vaccination will *not* be required to attend.

Site upgrades at AirVenture 2021

For 2021, several significant upgrades have been made to the traffic, parking, and tram operations. These changes are based on visitor feedback and from the 2019 Northwestern University Transportation Center study that included input from thousands of AirVenture visitors. The changes include:

Easier access and departure from the AirVenture grounds.

Reducing areas of vehicle/pedestrian conflict within the grounds.

Improved shuttle service from public lots to the main gate.

Check the AirVenture website or AirVenture mobile app for more information.

What to expect at AirVenture

If you have not previously attended AirVenture, you will be surprised by the



scale of it. Be sure to wear comfortable clothing and shoes. The grounds are massive, and you'll be doing a lot of walking. It can be extremely hot and humid, with the occasional thunderstorm, so it's a good idea to pack a small rain poncho and umbrella. Be sure to wear sunscreen and stay well-hydrated.

We sure hope to see you at the Gathering and at AirVenture this year!

Jennifer Dellenbusch is president of the Piper Flyer Association. Send questions or comments to editor@piperflyer.org.

RESOURCES

The Gathering at Waupaca
thegatheringatwaupaca.simpлетix.com
kent@aviationgroup1td.com

EAA AirVenture Oshkosh 2021
eaa.org/airventure
tinyurl.com/AirVentureCOVID

Piper Flyer Booth: Hangar C, 3126

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PRESS RELEASES

June 2021

*Compiled from press releases



SUPERIOR AIR PARTS ANNOUNCES THAT IT IS BRINGING BACK ITS POPULAR FORUM SERIES FOR OSHKOSH/AIRVENTURE 2021

Popular forum series will be held at 10 a.m. Monday through Saturday at Superior's outdoor exhibit (#257/#258) across from Hangar B

COPPELL, TEXAS, May 3, 2021—Scott Hayes, vice president, sales and marketing for Superior Air Parts, Inc., recently announced that the company is again hosting its series of 45-minute educational forums during Oshkosh AirVenture 2021.

"The Superior Air Parts forums have become an important part of Oshkosh/AirVenture to so many of our customers. So, we are extremely happy to be able to again host our popular forums during Oshkosh/AirVenture 2021," Hayes said. "I know that we are all so excited and grateful to be able to attend the annual 'gathering of everything aviation' that is Oshkosh."

Superior Air Parts 2021 Oshkosh Forum Series schedule:

Monday, July 26th

10 a.m.: The Real Cost of Deferring Maintenance

Tuesday, July 27th

10 a.m.: Using Your Oil Change as a Diagnostic Tool

Wednesday, July 28th

10 a.m.: Engine Leaning Made Simple

Thursday, July 29th

10 a.m.: Compression Testing Aircraft Engines

Continued on Page 62

AEROX AVIATION OXYGEN SYSTEMS CELEBRATES 40TH ANNIVERSARY AND ONE YEAR OF NEW OWNERSHIP



BONITA SPRINGS, Fla., April 12, 2021—Aerox Aviation Oxygen Systems recently celebrated its 40-year anniversary, along with its one-year anniversary of ownership by pilot and entrepreneur Scott Ashton.

Oxygen made easy

In addition to the anniversary milestones, Aerox has announced several new easy-to-use, high-performance oxygen systems. From Ashton's deep connection with Aerox customers as a pilot and CFI, the PrO2 Plus Flight Bag portable oxygen system was created because of Ashton's belief that hypoxia is impairing pilots at altitudes much lower than the 12,500 feet oxygen requirements of 14 CFR 91.211.

The PrO2 Plus is small enough to fit in your flight bag and very easy to use with a simple toggle on-off switch, a flow indicator for safe use, and a single Oxsaver Conserving Cannula. With a fixed-flow for simplicity, the PrO2 Plus is pre-set to provide enough oxygen at altitudes all the way up to the VFR ceiling of 18,000 feet. "We believe that pilots might be intimidated by the complexity and expense of some oxygen systems," said Ashton. "We wanted to create a low-cost, easy-to-use system to encourage all pilots to have supplemental oxygen with them, and to provide the quality, safety, and features of Aerox high-performance portable systems."

Lighter than Air walk-around portable

The Lighter than Air walk-around portable oxygen system is a convenient system that incorporates a Kevlar oxygen cylinder/regulator assembly and Aerox's TSO-Approved Diluter Demand mask packaged to provide a personal oxygen supply for high altitude applications. The Lighter than Air has proven popular with cargo airlines, flight test operations, and special operations applications.

"When the opportunity to purchase the company came along last year, we knew it was the right fit for us," said Ash-

Continued on Page 63



PIPER AIRCRAFT CERTIFIES THE ONE-THOUSANDTH SEMINOLE

LAKELAND, Fla., April 16, 2021—Piper Aircraft announced the recent certification of the 1,000th Piper PA-44-181 Seminole. The PA-44, named the Piper Seminole, was first granted FAA type approval on March 10, 1978, with the first delivery taking place in July 1978. Today the Piper Seminole is known around the world as the leading twin-engine trainer and features fuel injected engines and advanced Garmin G1000 NXi avionics.

“The Seminole provides the ideal student learning environment, reliability, and ultimate flight school profitability. Cross-

ing the 1,000th aircraft threshold is a testament to the aircraft’s robust design and popularity in meeting the best flight school’s demands of low life cycle costs and high dispatch rates. The Seminole is part of Piper’s complete line up of training products, which offers a wide range of capabilities, allowing flight schools to find the perfect fit for their training business needs,” said Ron Gunnarson, vice president of sales, marketing, and customer support.

Visit piper.com for more information.

GENERAL AVIATION GROUPS TELL FAA OF THREAT TO FLIGHT TRAINING IN LIMITED CATEGORY AIRCRAFT

EAA, AOPA, GAMA seek clarification in regulation and policy

OSHKOSH, April 20, 2021—The fallout from a recent court decision regarding compensated flight training in Limited Category aircraft threatens the ability to train and maintain proficiency in a broad spectrum of aircraft, according to a letter sent by several General Aviation groups to the FAA.

The April 20 letter (signed jointly by EAA, AOPA, and GAMA) was sent to Ali Bahrami, FAA Associate Administrator for Aviation Safety. The letter noted that the April 3 judgment issued by the D.C. Court of Appeals in the Warbird Adventures, Inc., et al vs. Federal Aviation Administration case “has created significant confusion and concern in the aviation community regarding the impact of the decision on compensat-

ed flight training.”

In its ruling, the court declined to lift a cease-and-desist order issued by the FAA against Warbird Adventures of Kissimmee, Florida. The judgment concluded that Warbird Adventures was operating a limited category aircraft for compensated flight training without a required exemption. Unfortunately, the court went further and stated that a flight instructor who receives compensation for flight instruction is carrying persons for compensation or hire. This occurred in the form of an unpublished opinion, meaning the court did not see precedential value in the ruling, but the FAA could cite the decision as precedent in future cases. The court ruling suggests that any compensated

training in Limited Category aircraft, whether or not the use of the aircraft is compensated by the student, requires an exemption. This could potentially prevent aircraft owners from training in their own aircraft.

Without offering an opinion on the specifics in this particular case, EAA, AOPA, and GAMA were part of a group that had filed an amicus brief in the case, noting that a court decision favoring the FAA could greatly hinder flight training in historic aircraft. The Limited Category was created after World War II to allow civil operation of aircraft that had proven records as military aircraft. That includes approximately 350 aircraft in the FAA registry,

Continued on Page 63



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PRESS RELEASES

Superior Air Parts Forums Continued from Page 60

Friday, July 30th
10 a.m.: Aircraft Engine Cylinder Anatomy and Physiology.

Saturday, July 31st
10 a.m.: 50 Hours From TBO. What are your choices?

The series of free, 45-minute 2021 Oshkosh/AirVenture Forum sessions will be held daily, Monday through Saturday, at 10 a.m. and 12 p.m. at the Superior Air Parts tent (#257/#258), which is just north of Hangar B.

“Whether it is for aircraft owners or A&P’s sharing this kind of valuable information is exactly why we created the forum series,” Hayes said. “Each session will give attendees a host of proven procedures and insights that will help them reduce the cost of flying while extending their engine’s operational life and lowering maintenance costs.”

Superior’s TechTuesday returns for 2021

Hayes also announced that Superior is also bringing back its popular Tech Tuesday for Oshkosh/AirVenture 2021.

Tech Tuesday is a special 90-minute forum created for FAA-licensed A&P technicians. This special 90-minute forum has been created to refresh A&Ps on piston engine maintenance and operation topics. The forum is at 8 a.m. on Tuesday, July 27th.

“As an A&P I/A, I am very excited about Tech Tuesday and what it will offer A&P technicians,” Ross said. “This forum will give technicians a lot of really valuable information not only about piston engine operations but also tips and tricks that will help streamline their next engine overhaul project.”

*Note: Forum subjects and schedules are subject to change.

For more information and complete forum schedule, visit: superiorairparts.com/about-us/event/oshkoshforums2021

Aerox Anniversary
Continued from Page 60

ton. "Not only was Aerox a leading brand in aviation oxygen, the company had all of the key elements we felt were essential for future growth—an AS9100-registered Quality System, TSO-approved oxygen masks, PMA-approved oxygen cylinders, and an exclusive focus on oxygen systems and products through its deep engineering expertise." Aerox was purchased by Ashton and his wife Sarah (a CPA who serves as CFO) in April 2020.

Since the acquisition, they have been focused on making the company independent of its former parent and returning the company to its roots as an owner-operated business. The company has integrated a new Enterprise Resource Planning System, brought in a new Customer Service team, and implemented new systems and processes. They formally moved into a new larger facility on May 1, the one-year anniversary of the acquisition, which is nearly double the shop space to facilitate growth.

For more information, please visit aerox.com.

GA Threat to Flight Training
Continued from Page 61

with about two dozen exemptions that allow compensated flight training. In addition, the FAA has historically not prohibited owners of limited category aircraft from paying instructors for flight training in the owners' aircraft.

"We are seeking FAA clarification in three areas: how the agency characterizes flight training, flight instruction in Limited Category aircraft, and flight instruction in other categories of aircraft," said Jack J. Pelton, EAA's CEO and chairman of the board. "This court decision has led FAA to consider a broad-brush application of the rule that could restrict access to flight training and therefore, negatively affect aviation safety. This is why immediate clarification is so important, to determine how flight training can be provided in Limited Category aircraft as well as the essential flight training in many other categories of aircraft that takes place on a daily basis."

For more information, visit eaa.org.

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2021-09-02 Piper Aircraft, Inc.:
Amendment 39-21515; Docket No. FAA-
2021-0310; Project Identifier AD-2021-
00269-A.

(a) Effective Date

This airworthiness directive (AD) is effective April 16, 2021.

(b) Affected ADs

This AD replaces AD 2021-04-07, Amendment 39-21428 (86 FR 10770, February 23, 2021).

(c) Applicability

This AD applies to the following Piper Aircraft, Inc., airplanes, certificated in any category:

- (1) Model PA-46-350P (Malibu Mirage) airplanes, serial numbers (S/Ns) 4622041, 4636041, 4636142, 4636143, 4636313, 4636341, and 4636379;
- (2) Model PA-46-500TP (Malibu Meridian) airplanes, S/Ns 4697141, 4697161, 4697086, and 4697020; and
- (3) Models PA-46-350P (Malibu Mirage), PA-46R-350T (Malibu Matrix), and PA-46-500TP (Malibu Meridian) airplanes, all serial numbers, if the left wing has been replaced with a serviceable (more than zero hours time-in-service) wing.

(d) Subject

Joint Aircraft System Component (JASC)
 Code 3700, VACUUM SYSTEM.

(e) Unsafe Condition

This AD was prompted by nonconforming stall warning heat control systems, utilizing a left wing assembly without the proper stall warning modification design. Without the proper stall warning heat control modification kit during flights into icing conditions with the landing gear down, ice can form on the stall vane, which may result in failure of the stall warning system. The FAA is issuing this

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AD to identify and correct nonconforming stall warning heat control systems. The unsafe condition, if not addressed, could result in the pilot being unaware of an approaching stall situation.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Actions

(1) Within 100 hours time-in-service (TIS) after the effective date of this AD or within 12 months after the effective date of this AD, whichever occurs first, inspect the configuration of the stall warning heat control system and, if required, install stall warning heat control modification kit part number (P/N) 88452-002 before further flight in accordance with steps 2 and 3 of the Instructions in Piper Aircraft, Inc., Service Letter No. 1261, dated July 19, 2019.

(2) As of the effective date of this AD, do not install a wing on any Model PA-46-350P (Malibu Mirage), PA-46R-350T (Malibu Matrix), or PA-46-500TP (Malibu Meridian) airplane unless you have determined that the wing has the correct stall warning heat control system as required by paragraph (g) (1) of this AD.

(h) Special Flight Permit

A special flight permit may be issued to operate the airplane to a location where the requirements of this AD can be accomplished provided flight into known icing conditions is prohibited.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Atlanta ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in Related Information.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards



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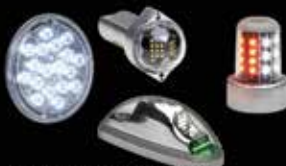
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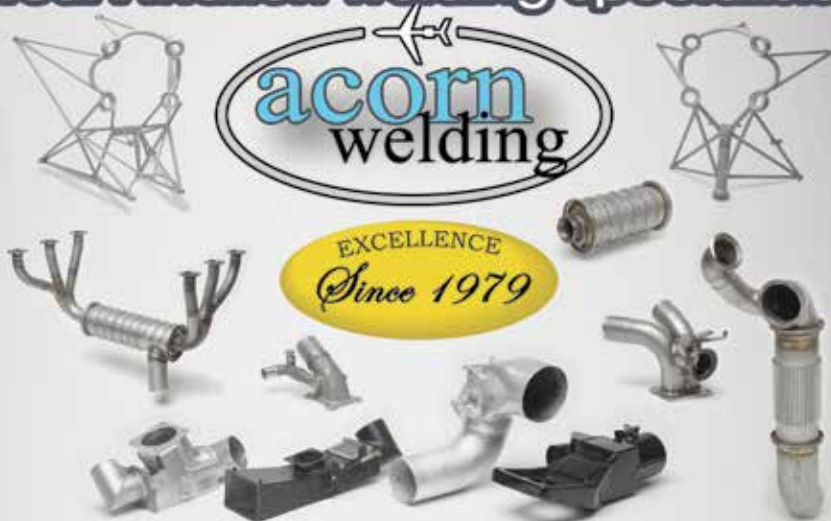
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(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by Piper Aircraft, Inc. Organization Designation Authorization (ODA) that has been authorized by the Manager, Atlanta ACO Branch to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved for AD 2021-04-07 (86 FR 10770, February 23, 2021) are approved as AMOCs for the corresponding provisions of this AD.

(5) For service information that contains steps that are labeled as Required for Compliance (RC), the following provisions apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(j) Related Information

For more information about this AD, contact John Lee, Aviation Safety Engineer, Atlanta ACO Branch, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: (404) 474-5568; email: john.lee@faa.gov.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on March 30, 2021 (86 FR

10770, February 23, 2021).

(i) Piper Service Letter No. 1261, dated July 19, 2019.

(ii) [Reserved]

(4) For Piper Aircraft, Inc. service information identified in this AD, contact Piper Aircraft Inc., 2926 Piper Drive, Vero Beach, FL 32960; phone: (772) 299-2686; email: customerservice@piper.com; website: <https://www.piper.com/>.

(5) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

(6) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fedreg.legal@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on April 13, 2021.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2021-07897 Filed 4-15-21; 8:45 am]

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QUESTIONS & ANSWERS

Continued from Page 16

to make sure they are both free to rotate and that they are not worn unevenly.

I found a used cam assembly on eBay that might be in better shape than yours; make sure you buy from a vendor that offers a money-back, no problem return policy. You could also check with the Piper Flyer Association's parts locating service.

In time, due to wear on the aluminum lobes caused by dirt and grit or a seized bearing in one or both rollers, the gap between the lobes and the rollers widens, allowing the nosegear (and tire) to wander back and forth...

You might be able to get a weld repair made to your cam assembly under the owner-produced parts rules. Kristin Winter wrote an article about these rules, titled "Researching the Regs: Owner Produced Parts," which is available on the *Piper Flyer* website. I've provided a link in Resources.

Happy flying,
Steve

Q I am looking for recommendations for an interior refurbishment company for my PA-32 Cherokee Six. I would prefer a Midwest-based facility.

Todd

A One of the best shops in the country is located a little east of Cincinnati, Ohio, at Clermont County Airport (I69).

Air Mod is the name of the shop. They have done many AOPA sweepstakes airplanes, and their experience and innovation are second to none.

Their services are expensive, but owners who have gotten the Air Mod treatment are still happy with the quality of the work years after an Air Mod interior.

Unfortunately, I do not have a catalog of other shops.

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You can ask around your local airport for some guidance, or ask at your local maintenance and/or avionics shop for information and opinions about other shops in the Midwest.

*Happy flying,
Steve*

Know your FAR/AIM and check with your mechanic before starting any work.

Steve Ells has been an A&P/IA for 45 years and is a commercial pilot with instrument and multi-engine ratings. Ells also loves utility and bush-style airplanes and operations. He served as associate editor for AOPA Pilot until 2008. Ells is the owner of Ells Aviation (EllsAviation.com) and the proud owner of a 1960 Piper Comanche. He lives in Templeton, California. Send questions and comments to editor@piperflyer.org.

RESOURCES

Piper Flyer Association Parts Locating
piperflyer.org/members/parts-locating.html
(requires member login)

PFA SUPPORTERS

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airmod.com

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FURTHER READING

AD 2020-24-05
tinyurl.com/AD2020-04-05

AD 2020-26-16
tinyurl.com/AD2020-26-16

AD 87-08-08 Recission
tinyurl.com/AD87-08-08

"Researching the Regs: Owner Produced Parts" by Kristin Winter
piperflyer.org/maintenance-technical/item/1163-researching-the-regs-owner-produced-parts.html



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the movie in our hangar theater while your kids enjoy an evening of fun in our day care center, don't forget to pick up your box lunch and soft drinks from our restaurant. We always give you free ice for your cooler.

Captain Garrison, this is your wake-up call...

I tossed and turned and was beginning to wake up. I frantically tried to get back to sleep because there was so much more to dream up for my perfect FBO.

"Wait," I told myself. "I still haven't dreamed about the weekly cookouts on the deck. I haven't imagined the swimming pool or the seminars and guest speakers our flight school will host."

After waking, I went out to the airport and entered the real (not dreamed of) FBO at my airport to see if I could get some fuel for my plane.

I have been a paying customer there for 20 years and got the same "who are you and what are you doing here?" look from the staff in their minimal lobby that did not have a day care center, restaurant, or a positive attitude.

The smell of their burnt lobby coffee and constant ennui followed me out the door.

My dream was just a dream, but what if we could make it come true? Imagine your local airport teeming with new and excited customers. Imagine flying to be a family affair. Think of your airport and its FBO becoming a social and activity center for your community.

I think we can go from our aviation lives being an occasional pancake breakfast to becoming a daily, vital, and exhilarating adventure for the thousands of potential customers out there that just need some encouragement and a service-oriented place to fly.

Then again, maybe I am just dreaming.

Kevin Garrison's aviation career began at age 15 as a lineboy in Lakeland, Florida. He came up through General Aviation, retired as a 767 captain in 2006, and retired from instructing airline pilots in 2017. Garrison's professional writing career has spanned three decades. Send questions or comments to editor@piperflyer.org.



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be bitter and chilly at the airport, as our hangar bay faces north to the runway and a field beyond.

For a moment I decided to scrub the mission, but in the end, I chose to give it a go, and prepped for some time in the pattern. The Dakota manual doesn't offer much advice on crosswind landings, other than to consider the use of less than full or no flaps at all and make an appropriate speed additive.

The first few landings were experiments with the crab, which when you're only working with maybe 2,500 pounds, a dry runway, and good rubber, causes a fair bit of grab and an unpleasant jolt as the airplane reluctantly aligns with the flight path down the centerline after touchdown.

In the end, the best plan seemed to be crab leading into the cross-control on close final, just prior to initiating the flare maneuver. I also observed it required a slight speed additive as the stall horn certainly seemed chirpy when I was on speed and a bump was encountered.

This makes sense; the slipping maneuver is utilized in flapless airplanes and gliders to shed altitude more quickly, as it creates a fair bit of drag when fully employed.

The trick is to apply just enough rudder to align the airplane's longitudinal axis and flight direction with the centerline and the runway, and then use only enough aileron into wind to bring it all together. If done correctly and no crazy gusts are encountered, you can be rewarded with applause from onlookers. It only took four hours of trying for me to get a clap-worthy landing! Just kidding. Right?

Tom Machum is a Boeing 787 captain with just over 20,000 hours in his logbook. He lives with his wife, Jennifer, and his two daughters, Emily and Bridget, in Moncton, New Brunswick, Canada, where he is also a partner in a Piper Dakota. When Machum isn't flying or writing about flying, he reads, tinkers in the workshop, rides his bicycle, volunteers with local organizations, and teaches a business class at a nearby university. Send questions or comments to editor@piperflyer.org.



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This early press release for the Piper Lance touts the "new tail-high ground attitude" and "straight-line air induction system."

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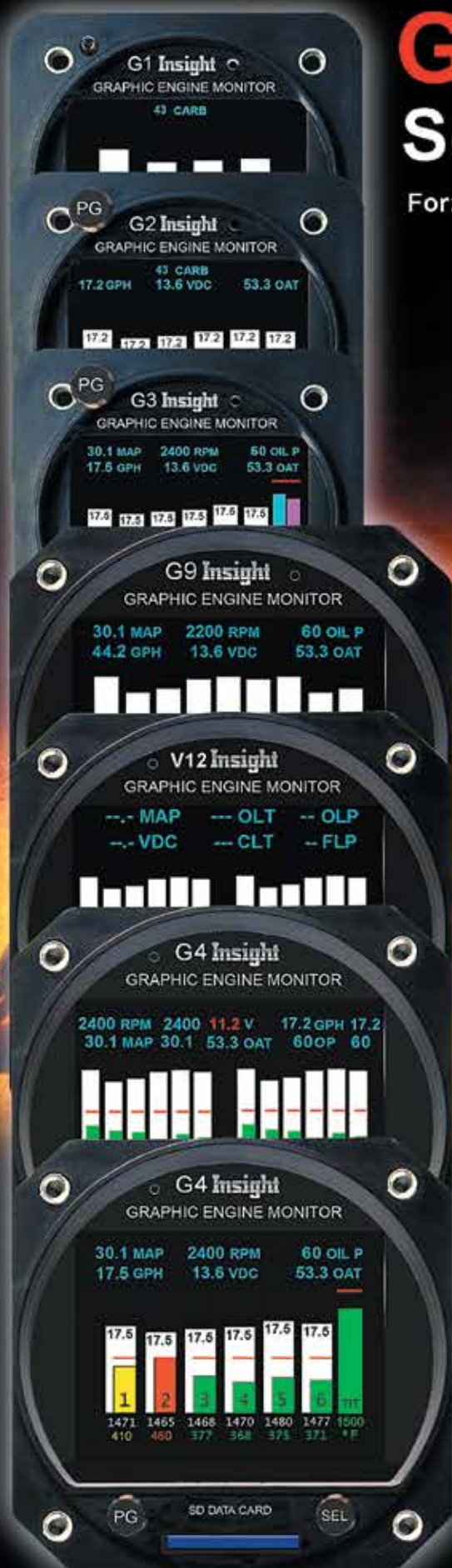
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