
EAA Chapter 32 News

The official publication of Experimental Aircraft Association Chapter 32 - St. Louis, MO (Jim Bower, Editor)

October, 2019



mr. bill gives the obligatory thumbs-up sign from the flight deck of one of AA's new birds.

About This Issue

Even I, your friendly editor, have to admit that this issue is pretty packed with goodies. mr. bill writes a little more about the bittersweet retirement of his dear MD80s, with some additional fallout from the great flood of '19. Rick May reports on our last YE rally of the year, and Pam Hanson shares her unique take on the event. A couple more project reports (keep 'em coming, folks!). Art Zemon has some more fun with his BD-4C, and Dave Dewese gifts us with a "non-pilot" report. Finally, an article I stole off the interwebtubes that may shake some fondly held beliefs about a legendary WW2 fighter. MANY thanks to all you contributors out there! You are what makes this newsletter great.

We'll see YOU at the ARC at 10:00 am on Saturday, October 19.



President's Corner

by Dave Doherty

This month, President Dave is taking a much-earned vacation with his better half. He did want to pass on to all of you that next month's meeting will feature chapter officer elections. As of now, there are a couple open offices. The slate is as follows:

- Vice President: Dave McGougan
- Treasurer: Don Doherty

The October meeting's guest speaker will be Randy Ottinger from the FAA.



Picture Credits

Thanks, as always, to Lisa Miano for her great photos of our latest Young Eagle rally, which are scattered around this newsletter as space permits.

mr. bill provides his own pictures...it is believed that he coerces passengers into taking the shots as his arms are not long enough for selfies.

Other photos are courtesy of the authors of the corresponding articles.

Learning as we Go

“After the Super 80 Is Gone”

mr. bill

It is amazing what you find out AFTER the EVENT occurs. Let me start off with this lovely post card that was supposed to be signed by the Flight Crews for our adoring fans during the last three months of flying the Super 80!



The #Suner 80 Sendoff card

I was surprised at how many people watched the evening news and saw the Channel FIVE story on the McDonnell Douglas MD-80 last AA flight out of St. Louis, MO. The next big question after that flight to Roswell was, “What is the Roswell Airport like?” Click below for a video clip of the return flight to Dallas/Fort Worth from Roswell, NM. I was sitting on the left side of the Envoy flight. The “special display” of six of the Super 80s were behind the Envoy jet on the ramp in front of the grandstands. (The only thing special was we pilots were all supposed to arrive within minutes of each other and step out and state WHY we loved the Super 80. The Chicago flight was two hours late so that did not happen.) As you will see in the video we taxi out past the other 20 (non) special Super 80s on the ramp that arrived the day before. After taxiing by the lowly 20 aircraft you can see the pallets full of parts and other spare aircraft (B 757) on the chopping pallets.

[Departure video from Roswell, NM](#)

The takeoff is on runway 21 and as we turn to the east and I looked back at the airport I was able to video the whole airport. On the takeoff roll you can see two Super 80s on the southeast ramp area just sitting there. Two years prior, as I left another Super 80 on the ramps of Roswell, there were some 30 plus Super 80 airframes waiting for the “chopping pallets” in that southeast area.



So what is next?

Well here is a sneak preview of the next flight deck but wait.....



Or



Boeing 737 Next Generation (Not a Max)

But wait, a phone call from the chief was received to send me to another “Special Assignment.....Your mission Bill, should you decide to accept it.....”

Q? How many MD-80 airframes were manufactured?

A: 1,191

Q? What was the cost of an MD-80?

A: Over the years the price was 41 to 48 million dollars.

September Meeting Minutes

Dave Deweese

September's meeting began with the Pledge, Dave Doherty presiding.

We approved last month's minutes as published in the newsletter.

Don is out today so Dave gave the Treasurer's report including checking, savings, and Ray Foundation account balances. Note that Kyle has successfully soloed and passed his FAA written (last weekend with an 85).

Kyle reports being a bit scared when he left the ground. Dave reports that Pam was even more scared and tried to convince Herman he needed 10 more hours. Herman was confident, however, and now Kyle is a member of the Pilots' Club.

Visitors include Zander Orfwood who's interested in the Air Force and becoming a pilot. Frank, who works with Chris, is interested in building and flying. Phil is a Boeing employee in attendance, as was Leo who has attended a few YE events. (Your secretary neglected to review the attendance sheet for accurate last names.)

Big thanks to Boeing, who has donated a 65" LCD screen and a projector. We'll have to work on mounting the beast of a tv and will need to make sure the high-powered projector doesn't burn holes in our screen.

On the 25th GoFundMe will transfer funds (around \$5,000) to our checking account.

Rick debriefed us on last week's Young Eagles rally. We flew 66 kids with 11 pilots. Most of the ground crew doubled up on pilots but we pulled it off and finished up around 1 pm. We flew a number of parents as well; let Rick know if you have ideas, or would like to participate in the Flying Start program. We've flown 130 kids this year in two events so we're doing very well all things considered. We discussed having an event the same weekend, but the day after the Pumpkin Drop. Next month's event will be the first weekend in October (10/5) here at the ARC.

The Explorer Scouts have met and started work on Chris's 750. He reports that they're very enthusiastic about the project and are even needling for another work day during the week. Next Scout work day will be Tuesday, and Chris believes that by the next meeting the fuselage will be recognizable. Dave mentions training and checkout for power tools.

Dave has found a vendor, Fast Signs, that can make our new feather flags and other promotional materials.

Bill Wehmeier, Dave, and Burt have cleared away the shrubbery and straightened up the sign out front. There's still some work to do, though Dennis warned Dave not to get too elaborate or we'll need a permit.

The airport has issued a request for proposal to get the fuel tanks refreshed post-flood, and are still working on the RFP for outstanding hangar work. There will be work done this week on some of the airport lighting; keep an eye out for NOTAMs.

We're holding off on food cards for the moment: Don needs to make sure we've got enough for the initial buy.

Bill Doherty is responsible for door codes, contact him if you need help on those.

In flood cleanup there's a work table in progress, two tables worth of tools to clean up and restore, vinyl base material to replace in the kitchen, counter tops are in progress.

The SportWing project needs a decision. The west wall needs bracing, Dave and Don will take care of the welding. In the unlikely event of another flood this will help avoid the damage we suffered this year.

New Business:

We're looking into a 32" LCD for the flight simulator the scouts will be working on.

The big thing for this meeting is to pick a new vice president for this year's election. Don has agreed to serve another term. Bill's stepping down. (Dave will step down next year.) We need a nominee. Dave McGougan stepped up.

Movie will be "633 Squadron", a squadron of Mosquito bombers who have to attack a submarine pen.

The Flying Club's RV-12 is ready for its third annual inspection. They'll take off the carbs and inspect them, the gearbox will be due at 1000 hours which is coming up.

The RV-6 project was put on hold due to the flood but is about to resume.



Burt has also slowed down but is still making progress. Dave requested a chapter presentation as he's doing some innovative stuff.

Dave McGougan got his left wing primed and ready for paint. Herman suggested he could paint indoors if he finishes before the walls are redone; this may take a while so there should be plenty of time.

Art redid the baffles on his BD-4C and is redoing the windows after doing research on installing plexiglass. He learned that this material expands and contracts a good deal so it's recommended to oversize holes by an eighth of an inch.

Ron reports that John Frisbee's Tailwind is close to completion. He had to resolve a tire vibration issue at gross weight.

Next month we'll have a guest speaker from the FAA.

Art spoke about A to Z Aircraft, a dealer arrangement with Aircraft Spruce. He's made a website to test orders: he gets a discount and will split this in half, giving half to the chapter and passing the other half onto whomever orders. *(See the article elsewhere in this newsletter.)*

Tim Dempsey, ?Wind Warehouse? 501c3's can get office supplies and furniture at a much reduced rate. Dave's going to join and get some office chairs and cabinets.

Bob Murray reports that the RV-10 is doing great, the next big subproject will be a full panel replacement, after that they'll deal with the interior. They've got 270 hours on it, 200 of which are post-purchase. It's made a couple of nonstop flights to Austin, Texas.

Today's Washington MO Young Eagles event has been rescheduled for next week, Alton will hold their event Sunday.

The last weekend in October will be the airport open house and Pumpkin Drop, we'll need volunteers for parking and food service. The Explorer Scouts may help us out on this. We usually clear around \$1,000 for this event.

Rick Galati is moving to Branson, he has a rotisserie he built his RV-6 on for \$100, and an engine stand for \$50, and a C-stand for \$125. See Ron Burnett.

It's about time to start thinking about the holiday banquet. Bob will talk to his wife about planning the event. We voted in favor: his wife's done a fine job in prior years. We'll need a venue: Creve Coeur had flood issues and St. Charles Flying Service will likely still be in the administration building. We've done it here in the past but if it's cold out the floor will be cold here as well. All Occasion is another option that we've tried before.



Dave McGougan's Kitfox Project

I have just finished the primer coating on the left wing. I had to order one more quart to finish the right wing; going to Wicks tomorrow to pick it up. I came out pretty good after the flood...I only lost two very expensive pieces of plexiglass, I did lose 90% of my tools. Anyway, back to work!



Art Zemon Presents "A2Z Aircraft"

Our friend Art Zemon has created A2Z Aircraft to help provide an income stream to Chapter 32.

The URL is <https://a2zaircraft.com/> and it works like this:

Orders placed with A2Z Aircraft support EAA Chapter 32. I run A2Z Aircraft and donate the profits from every order to the chapter.

1. Go to the Aircraft Spruce website <https://www.aircraftspruce.com/> and find the items that you want. Write down the part numbers!
2. Use the form found at A2Z's website to enter your shipping address, the part numbers, and the quantities.
3. Art will email you with the total dollar amount for your order.
4. You send the money to Art via Google Pay or PayPal. (Sorry, no credit cards, checks, or cash.)
5. Your items are drop-shipped directly to you.

This is What Flying is All About

by Art Zemon

I took advantage of beautiful weather yesterday to fly my son-in-law Geoff and Geoff's son Caedmon to the LSA Expo in Mount Vernon, IL. On the way, we flew over the confluence of the Mississippi and the Missouri rivers. The Mississippi is on the left; the Missouri on the right. Can you tell which one is muddier?



It was Caedmon's first flight in a small airplane. I think that he found it mildly pleasurable.



On the way back, St. Louis approach and the Lambert tower controllers were more than kind in allowing us to make a low approach along runway 12R at KSTL. We flew along the runway at 120 knots about 70 feet off the ground. Caedmon got to wave at the tower controllers and all of the folks in the airline terminals.



Thanks to Geoff for catching these photos while I was busy flying.

Flight log viewer		
Last logged flight		
Takeoff: 07.09.19	14:37	
Flight time: 00.98		
Pilot number: 1		
Max altitude: 4649ft		
Max airspeed: 157kts		
Max/Min vertical speed: -2050/+2220fpm		
Hobbs1: 0093.00	Tach1: 0200.87	Maint1: 016.45

The numerologist in me was tickled to note that I now have 200 hours on N2468Z's tachometer. Dad subscribes to Flying magazine and passes down old issues. The appeal is vicarious:

“Non-Pilot” Report

by Dave Deweese

Imagine having such insight into the quirks and subtleties of multimillion-dollar planes that companies call you up with invitations for test flights. It hit me that I get paid the same thing for club newsletter articles regardless of technical expertise, so here is the first of my "Non-Pilot Airplane Reviews".

As a preface, most of my flight time is in Microsoft Flight Simulator. The same joystick, pedals, and throttle apply to everything from a Cub on up, so wide variations in the control feel of real airplanes always come as a surprise. Hollywood flying movies long suggested to me the image of an intense pilot tightly gripping the yoke in preparation for adventure. To discover that thumb and forefinger could direct the motions of Kim Nack's Thorp or the flying club's RV-12 was disconcerting. I'm cautious by nature, and that combined with an active imagination makes it easy to envision a sneeze leaving me inverted at three or four thousand feet, wondering how to get out of my predicament.

Following both of this year's Young Eagles rallies I've enjoyed Old Buzzard rides: in August Art took me up in his BD-4C; in September Jeff and I flew in his Cessna.



BD-4C

These two single-engine, high-wing, tricycle-gear four-seaters have what I might describe as a "reassuring" feel: they want you to be fairly definite in what you ask them to do. Mr. Bill coached me through most of a 172 flight a year or so back. We tried a stall and it was a relief to not find myself spinning downward like a hapless British WWI

pilot who met the Blue Max. We got through most of the landing pattern before I chickened out, but not before learning that turns were manageable and predictable.

The BD-4C, in particular, has firm ailerons, maybe because it's fast and there's more air going over the surfaces. That's just my non-engineering guess, though upon climbing out Art adjusted his course as we overtook a Cessna that had taken off before us. Younger Dave noted top speed numbers in airplane books; the faster the better I thought. These days, when my priority is simply to be up there enjoying the view, Vne is less of a selling point.

Up in the sky both proved to be excellent platforms for looking back down at the ground. The strutless BD has a slight advantage to the photographer. I was rather distracted by the avionics, however, and spent a little less time looking outside. They provided a solution to an issue that's worried me after reading some ground school stuff, namely how one keeps track of location in relation to that big upside-down airspace cake over Lambert: push a button a few times and up comes an airplane icon in light blue air, flying below dark blue air. If I stay below the latter I'm not barging in on anyone else's party.

Even without digital graphics Jeff and I got into no such trouble, despite the fact that we flew to a point where downtown and the arch were in plain view. I made a note to develop a similar mental database of landmarks and associated altitude numbers.

As far as landings go both machines feel pretty similar to the passenger. Art explained the difference: a pilot must fly the BD-4C all the way down to the runway, unlike the Cessna, which will settle on its own. At least this confirms my

Flight Simulator 172 experience.

Interiors of factory-built birds often embody styling that reflects the era of their manufacture. Jeff's plane sports



Cessna 172

earth tones that recall the nineteen seventies and legendary airliners of my youth. Because of this the 177 and 310 are favorite daydream planes: on imaginary cross-countries they spark the vibe I got riding in a 727 or DC-10 across the southwest on summer visits to San Diego.

On the other hand, the fact that the interior of the BD-4C is unfinished in no way detracts from its appeal. A Spartan look, accented by two big, high-tech glass displays on the panel, evokes that sort of excitement I got from Star Wars in 1977: it's like riding in the Millennium Falcon. The

theme carries through to the bare-metal exterior, which brings to mind X-planes of the fifties and sixties, gleaming under the desert skies of Edwards Air Force Base.

In summary, were I to rate the BD and Cessna, it'd be hard to pick a favorite. Both spark gut reactions to the Airplane Siren Song I heard as a boy, reactions that have not changed much over these many decades, and both represent fine ways to spend a sunny late summer afternoon.



Mr. Hubert Looney, who helps us with Young Eagles.

Young Eagles Rally

Saturday October 5th

Rick May

On Saturday October 5th we held our last scheduled Young Eagles event for the year.

The upcoming weekend of October 26th & 27th is the Open House and “Pumpkin Drop” to be held at the St. Charles county airport on October 26th. Depending on the weather as well as potential response and turnout for the Pumpkin Drop, we may have a limited Young Eagles event on Sunday the 27th. As of today (October 14th) the weather channel is calling for a high of 60 and 20% chance of rain, more on that to come.

The event on the 5th was very successful. We flew 62 kids on 36 flights with 10 aircraft. There were better than 30 scouts in attendance for the merit badge class and they all received their Young Eagle flights. The numbers show we flew just as many non-scouts as scouts, which is a good mix.

It has been noted this year that even with the flood during the early season and cancellation of our first four events we are close to flying the same amount of kids as in past years with half the events. Total Young Eagles flown at our events this year is 185 and that does not include flights that our pilots have done at neighboring events in conjunction with other chapters. There is no doubt that our pilots as well as all the volunteers are committed to making Young Eagles an important segment of the general aviation scene in the St. Louis area. A big hats off to all of you. Another observation showing up this year is the repetition of our guests for additional flights. Another good sign that the program is being successful in generating a strong interest in aviation with many of them. A few mentions on attendance.

Welcome back to Tom Crocco. After a couple years Tom brought his (always popular) Ercoupe to the event on the 5th and flew 5 very happy Young Eagles. Thanks to Tom and hope to see you at future events. Many of you may know Hubert Looney with the CAF wing at the field. Hubert has been with EAA a long time and has flown kids for many years in the St. Louis area. It was great having him at our event with his Bonanza and participating with us.

As for ground crew, welcome Bob Clarke and his wife Gina. Bob is a fairly new chapter member and helped us out for his first event. After a few flights with some of our seasoned ground crew guys (I think Paul) he was taking care of his own flights and doing a great job. Also thanks to Gina for taking care of food & drink sales during the day. I hope you enjoyed yourselves and we look forward to seeing you both at future events. Next month we will try to give a full recap of our 2019 events.

Whether we have an additional event on the 27th or not, thanks to all of you for your contributions during the year. Flood or not we still had a lot of fun and a lot of flying during the year. See you all at our regular chapter meeting on the 19th.

Blue Skies, Rick



View From the Trenches

Young Eagles Rally Recap

By Pam Hanson

Wow, what a great Young Eagles Rally we had on Saturday!!! It was a fun and busy day with having flown 61 young passengers and I believe only one or two adult passengers. (Of the 61 young passengers, only one took a 2nd ride for the day....)

Liam was there again with his uncle. He is currently 17 years old and may I add... one of the sweetest boys you ever could talk with. He said he is needing to get a job so that he can start taking flying lessons. He has already researched a few places. ~ ~ He heard Michelle and I talking about new members and heard that the prorated amount to become a member for the year was \$10.00. He said he had that amount on him and was able to pay for the remainder of the year's dues. So... let us all welcome Liam to our group.

In addition, two other people completed the paperwork to become members. Kudos to Michelle Stephenson for talking with and encouraging people who may have been on the fence about joining our great Chapter!!!!

Lisa Miano has updated the Chapter Hall of Fame picture board with all of the current member photos. Our photo board has grown quite a bit over the last year or two. Many thanks to her for her awesome pictures!

Chris and Victoria Ward were missed... but we can all imagine how important it is to attend a grandchild's sporting event!!!

Upon arriving Saturday morning, who did we see right away? Ron Davis !!!! I told him how amazed I was that he was there so early in the morning!!!

Don Jonas was in attendance ensuring that plenty of new passengers were being flown. He must have kept to the flight pattern quite well being his flight times kept in line with the other pilots... No need for worry... unlike last month. Ha....

In all, we had eight amazing pilots who were flying all of the passengers! It was a great turnout... and a tad on the windy side.... The wind was super chilly at the registration desk. ~ ~ Michelle and I have a request that on the cold, windy days the registration desk be moved further into the hangar so that we aren't freezing... (I'm sure Victoria agrees with this!) ~ ~ I had to go into the conference room a couple of times just to warm up....

Tom Crocco. was there with his Ercoupe ... which from here on out has it's new French pronunciation.... (Air Coo)... with a special higher pitch when saying Coo! Thanks Tom for being such a good sport about me renaming your plane!!!

Thanks to Hubert Looney for joining us. He is a long time EAA member.... He'll need to attend more Rallys... just so he can 'get' me... (I think I kind of scared him a bit.)

Andrew (our Explorer Post contact), you were missed. There were a couple of boys who were interested in the program. ~ ~ We'll have to get a small flier put together so that we have some information on the Post..... such as contact info, when and where meeting times are, a brief summary of proposed events and activities on your calendar... and where to find online information...

Bill Doherty and Kyle Hanson did a great job on the food preparation.... and Gina Clarke, thanks for helping with the sales!

Oh... and Bill Jagust... yes, you did a great job in blocking the sun out of my eyes.... but really..... For some unknown reason (cough cough... size).... Kim Nack did a much better job at blocking it....

Rick May, after last month, I had great hopes in your abilities as a ground crew, but this past Saturday your responsibilities were slacking just a bit.... It was the first time I had passengers bringing us their registration forms in order to get their certificates. ~ ~ I'm sure you gave them explicit instructions on what to do with them.... so, all is good ~ ~ With being one of the main components in the Young Eagles Days... we appreciate everything you do!!!!

In fact, ALL of these Young Eagles Days are only possible with the help of everyone involved. I love being a part of Chapter 32.... and am always amazed at how smoothly it runs each and every month!!! Thanks go out to every single member.... This is a great organization with great... amazing... superb people!!!!

“After the Floods Are Gone...”

mr. bill

I was rolling in my car up Grafton Ferry road towards (the west side boundary) of Smartt Field, Saint Charles County Airport, Portage de Sioux, MO when on the radio was the Earth, Wind, and Fire Song, “After The Love Is Gone” was playing. My brain changed the words of the song to “After the floods are gone!” Wow, what a year! It was finally GREAT to get the EAA 32 ARC (Aviation Resource Center) building back in business. Thank you Dave D, Number 1, and President for ALL the work you have done. A no truer statement is, “You do not know what you have until it is gone.” Thanks to ALL who help bring it back to life from the floods.

With the flood waters gone things needed to be checked over. A thorough look was done to the Sonex and the insurance company made me an offer and I accepted it for the airplane. The airplane was at the south end of the Smartt Field taxiway and spent some time floating in the three foot flood waters. Now Wentworth will come to take the airframe to their parts business in Minnesota.

The “Pinky” Tri-Pacer needed a thorough check over because her wheels were in the water and she was outside for a month or so due to the floods and the rains around the area. When I went to sump the fuel tanks for a flight this is what I found:

Here is what was drained out of the left fuel tank:

So as a good mechanic I ran the airplane all over the



Sediment from the left tank.

grass runway to slosh the fuel and water around to get it to the lowest part of the tank. After leaving the airplane sit in a tail low position I was able to determine that there was no more water in that tank. I did take off on the RIGHT tank because I thought that was the RIGHT thing to do!

Another HAPPY moment now with the flood waters gone was to fly Young Eagles! Yeah!



Water in the left tank...this was after TWO FULL SAMPLER TUBES ALREADY!

But along with flying around Smartt Field there are many interesting factors we need to be concern about. The other day as I was rolling on runway 18 for takeoff with a 13 year old in the left seat of Mr. Rich E. RV-7A. I announced over the (Unicom frequency) radio that a flock of birds just flew over the runway from East to West. As we were rolling down the runway on the takeoff roll the birds returned flying East midway down the runway! As I pulled the throttle slowly back I was struggling with the correct verbiage to say over the radio. “EXPERIMENTAL Romeo Echo is REJECTING the takeoff on runway 18 due to birds!” The rejection of the takeoff roll was easy. In our Politically Correct world these days my mine struggled to use the “correct word” rejecting the takeoff and not aborting the takeoff.

<https://youtu.be/30tFL9YgrMM>

The silly birds hanging out at the EAA 32 ARC

Why does the correct words matter?

When we chat again I will explain some things to you and Lucy (Lucy always had some explaining to do to Ricky) and I will share that info with you then.

So, thank you all for the great help and getting our EAA 32 ARC back and up and running. Thank you Lady P for the great job you did with organizing all the Young Eagles at the sign in desk. And a big thanks to ALL the ground crew and cooks who make the Young Eagle Pilots look good!

Q? All the Boeing 737 Max jets are grounded, right?

A: Nope. "In a rare exemption, approved by Canadian aviation regulator Transport Canada, the 11 flights in August and September were partly to maintain the qualifications of senior training pilots. Air Canada told Reuters in response to a query about flight tracking data." Remember, Big Brother IS watching!

Thatcher Update

Burt Bierman

On Sep 13, Ben Carlson, his father and son, visited the Aviation Resource Center of EAA Chapter 32, Smartt Field. They are from Kearney, Nebraska. They stopped by to see my Thatcher CX5 build project.



Ben is in business producing parts for Thatcher aircraft.

His website is - thatcheraircraft.com.

We discussed many topics. The fuel system in my CX5 is designed for the Revmaster 2300R 87hp engine with the Revflo slide carburetor (or throttle body injector). The fuel pressure requirement is 1.5 ~ 2 psi. To attain this fuel supply, I use a duplex fuel valve with two fuel lines to each wing tank. One is for fuel pickup and the other is for return fuel to the tank.

Fuel is gravity fed from a fuel reservoir located 12" above the slide carburetor mounted on the firewall.

Because these lines are open, the maximum fuel pressure in the whole fuel system is 2 psi.

In comparison, the Evektor Sportstar does not use a duplex fuel valve. They dump all the return fuel into the left wing tank. This leads to some interesting choices for the pilot.



To achieve maximum engine rpm, my goal is to decrease the crankcase pressure. To do that, I opened up the breather port to 3/4". I piped it to the firewall mounted functional oil separator, and further to exit at the bottom of the firewall.

The tube is slant cut to help scavenge pressure from the engine.

Ben was interested in build issues like what parts were the most challenging to build. The biggest issue for me was accuracy and tolerances in the plans. These required me to be creative because the plans need to be more comprehensive.

Thankfully, I thrive on the virtual solutions.

Why the P-38 Flunked in Europe

By Robert F. Dorr

Celebrated as one of the Pacific War's best fighters, Lockheed's Lightning earned a less-than enviable reputation in European air combat.

The American fighter pilot spotted two indistinct shapes cutting diagonally across a road just slightly above and in front of him. They were blemishes in motion. Twelve o'clock high, he thought. He rechecked his armament switches, rammed his throttles to full power and went down low, as low as he dared, hugging the treetops. The afternoon shadow of his P-38 Lightning raced across French hedgerows and fields as the pilot sought to identify the other two aircraft. He wanted them to be Focke-Wulf Fw-190s, falling nicely into the crosshairs of his nose-mounted 20mm cannon and four .50-caliber machine guns.

Captain Robin Olds kicked left rudder, slid his piper across the nearest plane's left wing and, in an instant of epiphany, saw the Iron Cross painted on the rear fuselage. Until that instant, he hadn't been certain the planes were German. Olds shot down one of the Fw-190s moments later, then followed the second into a violent left break, fired and watched the pilot bail out. It was August 14, 1944, and Olds had just used his P-38 Lightning to rack up the first two of his eventual 13 World War II aerial victories.

"I loved the P-38 but I got those kills in spite of the airplane, not because of it," Olds recalled. "The fact is, the P-38 Lightning was too much airplane for a new kid and a full-time job for even a mature and experienced fighter pilot. Our enemies had difficulty defeating the P-38 but, as much as we gloried in it, we were defeating ourselves with this airplane."

It was, Olds hastened to add, "the most beautiful plane of our generation." And it fought well in the Mediterranean and the Pacific. So what happened in northern Europe, and how could things have gone so wrong?

A survey of Stateside training bases in 1941 showed that 87 percent of prospective pilots requested to be assigned to the big, sleek, twin-engine Lockheed Lightning. "We were in awe of the P-38," said future ace Jack Ilfrey. "It looked like a beautiful monster." "If you were a boy in America, you wanted to fly it,"

said another future ace, Winton "Bones" Marshall. "If you played with Dinky metal toys and balsa wood airplane models, you wanted to fly it." On the eve of Pearl Harbor, the P-38 captured the imagination of young Americans like no other fighter. Eighth Air Force commander Lt. Gen. James H. "Jimmy" Doolittle would later call the P-38 "the sweetest-flying plane in the sky."

With tricycle gear, twin booms and a centerline fuselage pod brimming with guns, the P-38 was powered by two 1,600-hp Allison V-1710-111/113 liquid-cooled engines driving three-bladed, 9-foot Curtiss Electric propellers. Although a fully loaded Lightning weighed more than 10 tons—nearly twice as much as a P-51 Mustang—a skilled pilot could fling the P-38 around like a lightweight. The problem was that while American pilots were generally well trained, they weren't well trained for a complex twin-engine fighter.

"...the P-38 Lightning was too much airplane for a new kid and a full-time job for even a mature and experienced fighter pilot."

Robin Olds

Struggling to keep the air campaign over Europe alive in the face of disastrous bomber losses, the U.S. Army Air Forces rushed two P-38 combat groups to England. On October 15, 1943, the 55th Fighter Group became the first to conduct operations. The Lightning men mixed it up with Me-109s and Fw-190s on November 6, and racked up their first aerial victories. "We were arrayed against the Luftwaffe and they were facing us head-on," one of the pilots said, "and we were not winning."

The P-38 performed usefully but suffered from a number of problems. Its Allison engines consistently threw rods, swallowed valves and fouled plugs, while their intercoolers often ruptured under sustained high boost and turbocharger regulators froze, sometimes causing catastrophic failures.

Arrival of the newer P-38J to fill in behind the P-38H was supposed to help, but did not help enough. The J

model's enlarged radiators were trouble-prone. Improperly blended British fuel exacerbated the problems: Anti-knock lead compounds literally seethed out and became separated in the Allison's induction system at extreme low temperatures. This could cause detonation and rapid engine failure, especially at the high power settings demanded for combat.

The P-38's General Electric turbo-supercharger sometimes got stuck in over-boosted or under-boosted mode. This occurred mainly when the fighter was flown in the freezing cold at altitudes approaching 30,000 feet, which was the standard situation in the European air war. Another difficulty was that early P-38 versions had only one generator, and losing the associated engine meant the pilot had to rely on battery power.

In an article on ausairpower.net, Carlo Kopp noted that in their early days in the European theater, "Many of the P-38s assigned to escort missions were forced to abort and return to base. Most of the aborts were related to engines coming apart in flight...[due to] intercoolers that chilled the fuel/air mixture too much. Radiators that lowered engine temps below normal operating minimums. Oil coolers that could congeal the oil to sludge. These problems could have been fixed at the squadron level. Yet, they were not."

Eighth Air Force historian Roger Freeman described how bravery plus the P-38 was not enough during a mission on November 13, 1943, "an unlucky day for the 55th. In typical English November weather, damp and overcast, forty-eight P-38s set out to escort bombers on the target leg of a mission to Bremen; one turned back before the enemy coast was crossed and two more aborted later. At 26,000 feet over Germany, pilots shivered in bitterly cold cockpits, flying conditions were unusually bad, and the probability of mechanical troubles at that temperature did not help. Again outnumbered, the 55th was heavily engaged near the target as it strove to defend the bombers, for which it paid dearly. Seven P-38s fell, five to enemy

fighters and the others to unknown causes." Another 16 Lightnings limped home with battle damage.

Things got better. The arrival of the improved P-38J-25 and P-38L models, modified on the production line based on lessons learned in Europe, helped, but problems remained. Lightning pilot 2nd Lt. Jim Kunkle of the 370th Fighter Group remembered: "The critical problem with us was we didn't have much heat in the



cockpit. On high altitude missions it was very cold. And we didn't have the engine in front of us to help keep us warm. Bomber guys had those heated blue union suits that they wore but we tried heated clothing and it didn't work for us."

The only source of heat in the cockpit was warm air ducted from the engines, and it was little help. Lightning pilots suf-

fered terribly. "Their hands and feet became numb with cold and in some instances frost-bitten; not infrequently a pilot was so weakened by conditions that he had to be assisted out of the cockpit upon return," wrote Freeman.

Major General William Kepner, the fiery commanding general of VIII Fighter Command, wondered, as so many others did, why the P-38 wasn't producing the results everyone wanted, and what to do about it. Asked to provide a written report, 20th Fighter Group commander Colonel Harold J. Rau did so reluctantly and only because he was ordered to.

"After flying the P-38 for a little over one hundred hours on combat missions it is my belief that the airplane, as it stands now, is too complicated for the 'average' pilot," wrote Rau. "I want to put strong emphasis on the word 'average,' taking full consideration just how little combat training our pilots have before going on operational status."

Rau wrote that he was being asked to put kids fresh from flight school into P-38 cockpits and it wasn't working. He asked his boss to imagine "a pilot fresh out of flying school with about a total of twenty-five

CONTINUED on next page...

hours in a P-38, starting out on a combat mission.” Rau’s young pilot was on “auto lean and running on external tanks. His gun heater is off to relieve the load on his generator, which frequently gives out (under sustained heavy load). His sight is off to save burning out the bulb. His combat switch may or may not be on.” So, flying along in this condition, wrote Rau, the kid suddenly gets bounced by German fighters. Now he wonders what to do next.

“He must turn, he must increase power and get rid of those external tanks and get on his main [fuel tank],” Rau wrote. “So, he reaches down and turns two stiff, difficult gas switches (valves) to main, turns on his drop tank switches, presses his release button, puts the mixture to auto rich (two separate and clumsy operations), increases his RPM, increases his manifold pressure, turns on his gun heater switch (which he must feel for and cannot possibly see), turns on his combat switch and he is ready to fight.” To future generations this would be called multi-tasking, and it was not what you wanted to be doing when Luftwaffe fighters were pouring down on you.

“At this point, he has probably been shot down,” Rau noted, “or he has done one of several things wrong. Most common error is to push the throttles wide open before increasing RPM. This causes detonation and subsequent engine failure. Or, he forgets to switch back to auto rich, and gets excessive cylinder head temperature with subsequent engine failure.”

Another P-38 pilot described the multi-tasking challenge this way: “When you reduce power you must pull back the throttle (manifold pressure) first, then the prop RPM, and then the mixture. To increase power you must first put the mixture rich, then increase prop RPM, then increase manifold pressure. If you don’t follow this order you can ruin the engine.” Rau added that in his own limited experience, his P-38 group had lost at least four pilots who, when bounced, took no evasive action. “The logical assumption is that they were so busy in the cockpit trying to get organized that they were shot down before they could get going,” he wrote.

Rau described part of the solution: “It is standard procedure for the group leader to call, five minutes before [rendezvous with the bombers being escorted,] and tell all pilots to ‘prepare for trouble.’ This is the signal for everyone to get into auto rich, turn drop tank switches on, gun heaters on, combat and sight switches on and to increase RPM and manifold pressure to maximum cruise. This procedure, however, will not help the pilot who is bounced on the way in and who is trying to conserve his gasoline and equipment for the escort job ahead.”

During advisory visits to his fighter group, Lockheed and Allison representatives asked for suggestions. Rau wrote that their number-one request was a unit power control, incorporating an automatic manifold pressure regulator, which would control power, RPM and mixture by use of a single lever. He may not have known P-51 pilots could perform all these functions with one hand—never possible in the P-38, even in later versions.

Rau also pointed to the need “to simplify the gas switching system in this airplane. The switches [valve selector handles] are all in awkward positions and extremely hard to turn. The toggle switches for outboard tanks are almost impossible to operate with gloves on.” That last issue was no small thing given the need to wear gloves in the Lightning’s frigid cockpit.

Critics and champions of the P-38 alike often failed to remark on the obvious—that it was a multi-engine aircraft while most fighters were single-engine. Long after the war, former 1st Lt. Arthur W. Heiden wrote: “The quality of multi-engine training during World War II bordered on the ridiculous. I am convinced that with training methods now in use we could take most of civilian private pilots who might be about to fly the Aztec or Cessna 310, and in ten hours, have a more confident pilot than the ones who flew off to war in the P-38. A P-38 pilot usually got his training in two ways. The first way, of course, was twin-engine advanced training in Curtiss AT-9s, which had the unhappy feature of having propellers you couldn’t feather. After sixty hours of this, the student received ten hours of AT-6 gunnery, although he might get his gunnery training in the AT-9, since AT-6s were in short supply.”

Frank E. Birtciel, who flew 72 combat missions in P-38s and 49 in P-51s, said that near the end of training in the AT-9, the usual practice was to give a student pilot a “piggyback” ride in a P-38 with a second seat, and then check him out in the RP-322, a version of the fighter with simpler systems. Birtciel said procedures were so lax that a training instructor simply appeared amid a group of students one day and asked, “Anyone want to fly a ’38?” He raised his hand, expecting to be a backseater, and found a fully operational, single-seat P-38—not an RP-322—waiting for him on the ramp. “The crew chief told me how to start it up and I took off and flew it without any instruction,” he said.

At the end of 1943 and the beginning of 1944, with the U.S. daylight bombing campaign still moving in fits and starts, the first P-51 Mustangs entered service with the 354th Fighter Group, whose airmen never flew any other fighter once they reached England. The

Mustangs' arrival in Britain altered every aspect of the Americans' aerial campaign against Hitler's Fortress Europe. Whatever Lightning or P-47 Thunderbolt pilots might have said then, or might say today with 70 years of hindsight, the Mustang's combination of speed and maneuverability was superior to that of any other U.S. fighter, and it had the legs to go deep into enemy territory.

A P-51B could carry 400 gallons of fuel, almost as much as the bigger P-47, but the Mustang got 3.3 miles per gallon while the Thunderbolt and Lightning got less than 1.8. The P-51's lower rate of fuel consumption gave it a combat radius of more than 700 miles, enough to reach any target the bombers could. It was 30-70 mph faster than any German piston-engine fighter until the Fw-190D and had better acceleration, while its maneuverability and climb rate matched or exceeded anything the Luftwaffe could field.

The 55th Fighter Group was the first to get the new P-51D, trading in its old P-38s for the bubble-canopy fighters. The change from the torque-less twin-engine P-38 to the single-engine P-51 caused some initial problems, but once the pilots fully adjusted to their new rides, they found that the Mustang gave them an edge in both speed and maneuverability over all Luftwaffe piston-engine fighters at altitudes above 20,000 feet. The P-51's chief disadvantage in comparison to the P-38 was its vulnerability to enemy fire, particularly the liquid-cooled Merlin engine, which could be put out of action with a single hit. At those times the former Lightning pilots may have found themselves wishing for a second engine to carry them back to base.

P-38 expert Warren M. Bodie wrote that the Lightning should have been converted from Allison to Merlin power, exactly as was done with the P-51. "Neither P-38 pilots, mechanics, facilities or logistics were prepared to operate efficiently in one of the bitterest European winters on record [1943-44]," he noted. "No other Allison-powered aircraft ever operated at altitudes of more than 20,000 feet over the Continent for even a half hour." Bodie was a staunch advocate of the P-38, but in a 1991 interview he acknowledged that it achieved "mixed results" in combat with the Luftwaffe over northern Europe.

Only one fighter group in northern Europe, the 474th, flew the Lightning from arrival in Europe until war's end. As part of the Ninth Air Force, the group flew mostly ground-attack missions at relatively low altitudes, and thus avoided most of the concerns associated with air-to-air action higher up.

One role in which the P-38 excelled, regardless of where, was photoreconnaissance. The F-5—its nacelle packed with cameras and its pilot focusing on high-speed missions intended to avoid enemy aircraft, get the pictures and get home—was a great success, whether at high altitude or "dicing" on the deck (see "Eyes of the Army," September 2010).

The P-38 served importantly in every theater of the war, but it truly came into its own in the Pacific in the hands of pilots such as Majors Richard I. "Dick" Bong and Thomas B. McGuire, America's top aces with 40 and 38 victories, respectively. Many of the men in P-38 cockpits fighting Japan started out with far more experience than those who were initially rushed to Europe. They fought in warmer weather and at lower altitudes, and while some of their Japanese adversaries were also seasoned, few were as skilled as the typical Luftwaffe fighter pilot of December 1943. The vaunted Mitsubishi A6M Zero lacked armor and self-sealing fuel tanks and was overrated in some areas, including its fabled maneuverability.

While a combat radius of 500 miles was a challenge to the P-38 under conditions in Europe, thanks in part to greater efforts to manage fuel consumption in the Pacific—aided by advice from Charles A. Lindbergh, who visited combat units and taught younger pilots how to save gas (see "The Lone Eagle's War," March 2013)—550 miles was not uncommon. When Major John Mitchell led 16 P-38s to attack and kill Japan's Admiral Isoroku Yamamoto on April 18, 1943, the mission spanned about 420 miles (see "Death by P-38," May 2013).

The P-38 Lightning inspired young men, fought a global war and earned a reputation as one of the greatest fighters of all time. In the European Theater of Operations it was somewhat miscast, sorely misused and severely challenged. But it remained the mount of preference for many pilots, who loved this airplane like no other.

Robert F. Dorr is a U.S. Air Force veteran, a retired senior U.S. diplomat and the author of 75 books and thousands of magazine articles about the Air Force. His latest book is Fighting Hitler's Jets (which is reviewed on P. 61). For additional reading, try: The Lockheed P-38 Lightning, by Warren M. Bodie; The Mighty Eighth, by Roger A. Freeman; Fighters of the United States Air Force, by Dorr and David Donald; and Fighters of the Mighty Eighth, by William N. Hess and Thomas G. Ivie.

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