
EAA Chapter 32 News

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

February, 2020



**“What the heck is this, and why is it so different?”
Find out inside this issue.**

We'll see YOU at the ARC at 10:00 am on Saturday, February 15.



Fellow Chapter 32
Members and Friends,

I'd like to welcome everyone to the new year. 2020 should be another really good one for our chapter and its members. Don't forget your **Chapter 32 DUES ARE DUE!!** Your Board of Directors are working hard to bring new programs and presentations to you. Our Aviation Resource Center (ARC) is just about completely restored from the devastating flood of 2019. Remaining work is in the planning stages, and parts of it are still under way. If we all pitch in, we can get it all done in fairly short order.

The Board of Directors are also working on contingency plans in case the river misbehaves again this year. We're looking at possibly renting semi trailers if that happens, loading them up and storing them off site for the duration. It would be a lot easier to clean up if the building is emptied of its contents BEFORE the floodwaters mess up what's there.

Other things we're working toward this year are as follows. If anyone is interested in teaching a seminar or becoming a chairperson for one of these, please let one of our elected members know.

Topics include;

- Welding classes
- Fabric covering seminar / classes
- Aviation electric systems seminar and/or workshops
- 7 Young Eagle Events on second Saturday of month
- Poker Run fundraiser
- Pancake Breakfast fund raiser
- Fly-in /Open House
- Fly-Out / Destination unknown at this point
- Aircraft Maintenance workshop and/or presentations.
- Discussions about what our members are building / flying.

President's Corner

by Dave Doherty

What's left?

- Both drill presses and band saw need to be addressed to remove rust.
- We may need additional welding equipment for the TIG welder (welding masks, rod, tips, etc.). Most of that stuff fell into the muck during the flood, and some of it got ruined.
- The inner west wall will need to be reattached at the bottom, and cross-bracing reattached and tightened up.
- Heavy machinery (lathe, shear) will need to be positioned to their respective permanent locations.
- A new donated dry-erase board needs installing in the conference room.

That's most of what we're doing to get things in order. My hope is that our volunteer staff won't be all burnt out and will help out with some of what's left by the end of the year. It has to get done, one way or the other. At present, I can proudly say **ALL THE WORK HAS BEEN DONE BY VOLUNTEERS!!!** The only exception was hooking up the propane tank and replacing some of the gas valves that were destroyed during the flood. That was done by our propane supplier. I can't thank everyone who donated their blood, sweat, tears and money to get us to where we are today. I'm proud to have been a part of that.

Aviation Explorer Post 9032 is now having regular meetings. The post is growing rapidly, with nearly 20 members. There is a lot of aviation interest in the area, and this venue is a great way to introduce all things aviation to tomorrow's leaders. Meetings are held on a bi-weekly basis, with a work session at the ARC and an education session either at the ARC or elsewhere.

At our Holiday and Awards Banquet in December, I announced that I was about to undergo a surgical procedure to remove some cancer issues in my mouth and gums. I had surgery on December 9, and had much of my lower jaw removed. A bone from my left leg was used to reconstruct the jaw where tissue and bone were removed. Results were good. They say I won't need radiation or chemotherapy. However, late in the month, I developed an infection in my leg at the wound site where the bone (fibula) was removed. I spent New Year's eve and day in the hospital, where I was put on antibiotics, then sent home. It flared up again, and I spent another week there. Just when I thought things were getting a lot better, an infection that was in my jaw flared up, and I spent several weeks in the hospital. During this time, I've lost considerable weight, and am currently on an all liquid diet. My energy levels are not what I'd like, and I'm doing all I can to recover. It WILL happen in due time.

As a result of my current condition, I feel I can no longer perform as your Chapter 32 President in its proper capacity. I have instructed the Board of Directors to find an interim Chapter 32 President for the duration of my term, in accordance with Chapter By-Laws, Paragraph IX, subpara. I: "If the office of Chapter President, Chapter Vice President, Chapter Secretary, or Chapter Treasurer becomes vacant for any reason, the Chapter Board of Directors shall elect a successor who shall hold the office for the remainder of the normal term, or at the option of the Chapter Board of Directors, hold a special election to fill the vacancy(s)." *(Editor's Note: An interim president was chosen at the Board of Directors meeting on February 8. Details are posted elsewhere in this newsletter.)*

I shall continue to try and remain active in the chapter and do what I can to further the mission of EAA Spirit of St. Louis Chapter 32.

*Blue Skies,
Dave Doherty
President, Spirit of St. Louis Chapter 32
St. Louis, Mo
"The Spirit of Aviation in St. Louis"
Email: dwdoherty@aol.com
Phone: (636) 240-5982 (cell)*

Yet Another Gentle Reminder About Dues

from Your Friendly Editor

Yeah, I know...you're just recovering from Christmas spending and starting to worry about tax time, and here's some guy wanting more of your money. We all know that being a member of EAA Chapter 32 is really a great deal, and the only way to keep the good times coming in 2020 (if you haven't done so already), is to send \$40.00 to our esteemed treasurer, Don Doherty:

**Don Doherty (Treasurer)
1036 Pegasus Circle
St. Peters, MO 63376**

Not only will you continue to enjoy the benefits of Chapter membership, but you will get this fine publication delivered to your e-mail in-box each month....**BUT WAIT...THERE'S MORE!** Paying your dues by the end of February guarantees your name will appear in the latest membership roster. Thank you for playing!

*Jim Bower
EAA Chapter 32 Newsletter Editor*

January Meeting Minutes

Dave Deweese

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

Visitors Udonna Eke-Okoro spoke with Rick May, he's just recently become interested in aviation and came to check out the chapter.

Don gave the treasurer's report: we made money on the holiday party. Ray Foundation: we've got approximately \$6k in the account for Kyle to work with. Don also reported checking and savings account balances. We discussed keeping two hangars: we've had trouble, in the past, with keeping both filled. Jim and Steve's aircraft are both gone. Is anyone interested in space, post repairs? Don doesn't expect the airport to have it back in shape until the summer. It sounds like we've got two that might be ready before that. For both hangars and the ground space for the ARC we're paying \$420 a month. Motion made that, if we get rid of one hangar, we consider the one which floods first. Concern brought up that hangar space in the St. Louis area is at a premium, so it might be hard to get space back later on. If we did it would be more expensive, since renters who have had space for a while are grandfathered into lower rates. Rules are that the space must be rented to members versus rented to non-members. Suggestion made to post in the newsletter and see if anyone is interested, if not, make a decision next month.

Chris spoke regarding the Ray Foundation. We're looking for a candidate for the 50/50 scholarship. Chris is attending a webinar next month and would like to have a candidate soon (March), he notes that we've got an existing group in the Explorer Scouts. Dave suggests a written essay. Chris notes that the scholarship favors multiple past Young Eagles flights and chapter participation, Explorer Scouts counts. Pam suggests Liam who she remembers from Young Eagles events and notes that he has joined the local chapter. Chris would like to get a note in the newsletter that essays need to be directed to him ASAP. (Chris' e-mail address is victorycomics@hotmail.com.) He notes that the preference is not for advertising this to the general public; we're looking for known airport bums. Andrew offered to help come up with an online form for filling out the essay. Don is concerned that this would make it too public, Jeff reminded that we've got an existing pool of candidates in the Explorer group (including Liam).

Rick was not in attendance but thanks us for a great 2019 and reminds the chapter that our next event is in April.

Andrew debriefed us on the last Explorer Scouts meeting on January 14. There's about 15 in the group, participation is growing as it's a new group. Upcoming activities include a speaker from the NWS, Bob Murray gave a presentation on avionics in homebuilts. They meet on the 2nd and 4th Tuesday of the month from 6 to 8pm. They plan to participate in the Jamboree in Forest Park this year, EAA32 was there last time and has been invited to return.

EAA32 signage: Dave has identified vendors.

Food cards: Ron Burnett is not here this month. Should we continue this program? Don says yes. Remember that Schnucks has a program, as well as smile.amazon.com.

Door codes: Bill has solved the problem with uploading codes. If you don't have a code see Bill.

Flood restoration: disposition of tools that may or not be usable. Base vinyl need reinstallation in the office. We tried peel-and-stick: it caught a snake but did not keep the material on the wall. We need to decide what to do with the sunk boxes of the D'Apuzzo Sportwing project. Opening one revealed aluminum ribs which weren't damaged by water. We should plan on opening the others and inventory the contents. Don has a list that he'll bring to the next meeting, we'll bring the boxes in and complete the inventory. Horizontal braces need to be installed on the west wall, we need someone who can weld to help. In the office we need to sort our magazine collection and get them in the book cases. Don has taken care of the blinds issue in the office area. Joe's going to take care of shelves for the tall cabinets. Some furniture needs to be moved to final locations and the dry erase board needs to go on the wall.



EAA R/C Model program for kids: do we have contacts in the AMA? Al and Andrew are both members. Don suggests pairing up with a local R/C club. Al notes that his group has an organized training group. Joe asked how this fits into the big picture, Andrew says R/C planes and drones is in the topics list for the Explorer group. One idea would be for a representative from the R/C group to speak and gauge the interest level. Al will look into that.

New Business: We have a new gigantic LCD screen; Dave and Bill feel that a rolling stand would be a good idea: is there someone who can fabricate one? Jon has a mount from a 65" screen that he's willing to donate to the chapter.

2020 is shaping up for more floods, we need to form a committee that will make a plan. One suggestion is to renting semi trailers that we could pack and haul items out. We'll pass around a sign-up sheet in this meeting and make a note in the next newsletter.

Workshops and activities: we built a list in the November meeting, including welding, fabric covering, electrical systems. We have 7 Young Eagles events scheduled, we're looking into participating in the GSLBAA (Greater St. Louis Business Aviation Association), and others. We'll publish the list in the newsletter and look for volunteers/leadership.

The next Board of Directors' meeting is scheduled for February 4, the next chapter meeting is February 15.

Dues are due: \$40 per year, see Don Doherty.

Send feedback to Bob on the holiday party.

2020 EAA Chapter 32 Young Eagles

Rick May

Schedule For 2020 Young Eagle Events Second Saturday of the Month April Through October

Saturday April 11th

Saturday May 9th

Saturday June 13th

Saturday July 11th

Saturday August 8th

Saturday September 12th

Saturday October 4th

Chapter #1387 Troy MO Young Eagle Event in Mexico, MO on Saturday May 2nd.

As in the past, this year our events will open for registration about 8 AM, We will stop taking registration forms at noon. We are planning on still having a cookout lunch available starting about 11 AM or so. Laura will continue holding the scout merit badge class at all events, and her class will still be held even if we can't fly kids for Young Eagles. Any adult ride along will be considered to be an "Eagle Flight" this year. We will have Eagle flight forms available for the adults. However adult (parent) ride alongs will only be available if attendance and aircraft are available. The decision will be made regarding the availability of ride alongs on the day of the event. Our Young Eagle events/open houses are the perfect opportunity to promote EAA, Chapter #32, and the general knowledge of the availability of participation in General Aviation to the public. Let's really try to promote this at our events. Our Young Eagle events will be posted on the National EAA Calendar this year and we are exploring additional ways of letting the general public know about the events locally. FYI our Young Eagle events are all posted at www.eaa32.org. This is also where make any corrections to the scheduled events and post cancellations as early as we can.

We have many new members that have joined the chapter over the last year or so and I would like to welcome everyone to any or all of the Young Eagle events we hold. If you are one of our new members as well as any others who perhaps have not had the chance to check out what we do the 2nd Saturday of the month, please come out and join us we usually have a lot of fun, (what's better than a day at the airport anyway especially with a bunch of planes flying from our ramp)

If any one has any questions or comments please tag up with me at the meeting this Saturday, send me a e-mail rmay5154@aol.com or give me a call at (314) 503-6042. See you Saturday

Zenith STOL 750 Project

By Arthur Graves

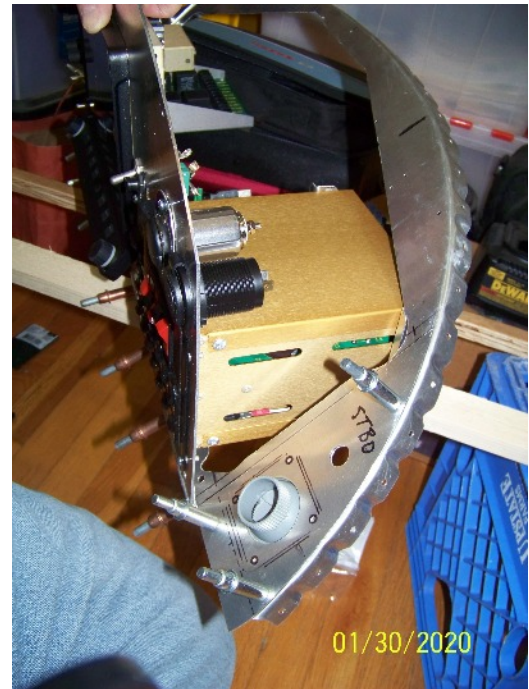
I finally have discernable progress on my instrument panel. The overall layout is driven by the plane's mission, which is to be fully flyable from either seat. So the Primary Flight Display/EFIS is in the middle. Dual throttles on the outside ends. As a retired mechanic, ease of access for maintenance is important. All major components are mounted to nutplates so I don't have to wrestle with nuts on the backside.



ABOVE: Dynon HDX PFD/EFIS is in the middle. Lower left is the UL Power engine control, above which is the intercom and radio. Above the HDX, left to right, is horizontal trim rocker switch, ELT remote switch, and dpdt momentary flap switch. Below the HDX is a panel mount USB plug to conveniently download data from the HDX. Bottom right is the radio stack power panel, above which is a toggle switch and circuit breakers. There is a cigarette lighter type aux plug and a twin USB aux plug.

The right hand fixed panel has a spherical vent to control air from the NACA vent. Above the vent is the mounting hole for the throttle. Left side has holes for the same vent and throttle.

BELOW: Because of the size of the power panel, I could not make it completely clear the frame to hinge out. So we added stop flanges so that when I remove the faceplate mounting screws, the power panel cannot fall completely out.



BELOW: With the instrument panel hinged out 90 degrees, I can get to all the panel wiring and reach through the big hole to access the electronics mounted on the firewall.

Now I just need to install it and wire it all up. 90% done, 90% to go.

With any luck we should be able to begin flight testing sometime this spring.



Airplanes You've Probably Never Heard Of

Nikitin-Shevchenko IS-1 (Another article stolen from the interwebtubes)

The Nikitin-Scheyevchenko IS series, (Istrebitel Skladnoi – folding fighter), were single seat polymorphic fighters designed and produced in the USSR from 1938.

Development

Nikitin's test pilot, Vladimir Vasiloyevich Schyevchenko, investigated the practicality of a biplane fighter with a folding lower wing which retracted into the upper wing. The intention being to combine the short field length and climb capabilities of the biplane with the speed of the monoplane fighter. Assisted by Nikitin in his investigation, Schyevchenko built a scale model at MAT in 1939. Later in 1939 OKB-30 were tasked with the design and manufacture of the full-scale IS, which was completed by 6 November 1940.

The fuselage forward of the cockpit, wing spar booms and the combined lower inner wing and undercarriage assemblies were built up from welded 30KhGSA steel tubing, whilst the rest of the airframe was constructed from D16 duralumin throughout except for fabric covering on the control surfaces.

The pneumatically actuated inwards retracting undercarriage was housed inside the inner lower-wing which folded at approximately $\frac{1}{2}$ span to lie in recesses in the sides of the fuselage. The outer halves of the lower wings remained horizontal as the wings retracted and were housed in recesses in the under-surfaces of the upper wings. Retraction of the wings was carried out by a single vertically mounted pneumatic actuator in the fuselage which unlocked the bracing struts either side and pulled the wing upwards as the bracing strut was pulled upwards.

Control of the undercarriage retraction and wing folding was accomplished with a single three position lever in the cockpit. With 'Chassis Down' selected the wing and undercarriage were extended,

selecting 'Chassis Up/Wing Down' retracted the undercarriage into the inner lower wing, and selecting 'Wing Up' retracted the wing, selection of wing position could be made at any time to enable the pilot to choose the best configuration for the situation the aircraft was in.^[1]

Flight tests were successful but the performance of the monoplane configuration was inferior to the contemporary monoplane fighters such as the MiG-3 and Yak-1 . A second machine was built fitted with a more powerful engine but flight tests were interrupted by the German invasion in 1941. Even more powerful versions were designed with AM-120 or AM-37 engines, however the invasion forced abandonment of the concept.

General characteristics

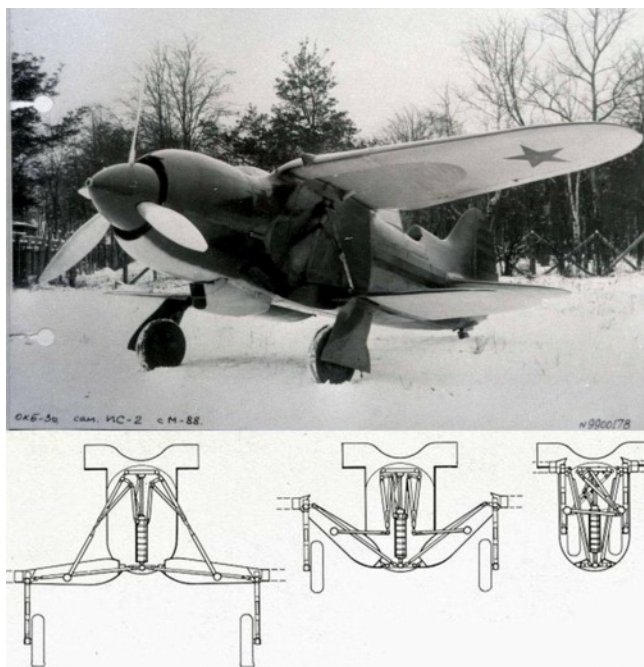
- Crew: 1
- Length: 6.79 m (22 ft 2-1/3 in)
- Wingspan: 8.6 m (28 ft 2-1/2 in)
- Wing area: 20.83 m² (224 ft²)
- Empty weight: 1,400 kg (3,086 lb)
- Gross weight: 2,300 kg (5,070 lb)
- Powerplant: 1 × M-63, 820.27 kW (1,100 hp)

Performance

- Maximum speed: 453 km/h (281 mph)
- Range: 600 km (372.8 miles)
- Service ceiling: 8,800 m (28,870 ft)
- Rate of climb: 10.16 m/s (2000.5 ft/min)

Armament

- 4 x 7.62mm ShKAS machine guns in upper wing roots synchronized to fire through propeller disc.



February Executive Committee Meeting Minutes

Dave Deweese

In attendance: Dave Doherty, Rick May, Chris Ward, Laura Million, Bill Doherty, Dave McGougan, Jim Bower, Don Doherty, Lisa Miano

Scheduled events for 2020:

We need guest speakers, none lined up yet. Don will present financials in March. We mapped out scheduled events: chapter meetings, YE events, the Pumpkin Drop, and the Christmas Party. Bill suggests having chapter members present their projects.

Website: Laura has been playing with the new, free solution provided by HQ. Some information: YE info, contacts, are populated automatically. There's also an option for entering our events which will show up on the site. If Laura decides this is the right solution she'll look into getting EAA32.org pointed at the new domain. When this happens she'll notify Jim to put a note in the newsletter. The aliased emails are now working. Bill asked if allows discussion groups or forums ala Yahoo boards, Laura doesn't believe there is. Andrew had proposed using Facebook, Google has an option, Bill has also identified a site. Bill also mentioned getting our Facebook page associated with the IFlyStLouis page.

Calendars reminded Rick of the Boy Scout Jamboree and he asked about the dates. Dave Doherty says it will be October 2, 3, and 4.

Don talked with Dennis and found out going through the phone company for internet service would cost at least \$60 per month. Chris mentioned cell phone boosters. Don also mentioned that Dennis pays around \$100 per month, though he's running a business, not a one or two day per week operation.

If we keep a second hangar we talked about the possibility of switching to Ron Wright's, who is giving his up: we'd need to ask if the airport would allow this.

Aviation Explorers:

Looking at funding options, we discussed three variations of how it would relate to Chapter 32. Combining the two brings up the possibility of passing a gross income threshold that would complicate tax filing: a 12-page form plus additional schedules. Dave Doherty called Andrew and put him on speaker. They could operate as a subsidiary of EAA32 but would maintain a separate bank account. This is probably the simplest. Second option has Post 9032 is a subsidiary but without the tax-exempt status. A third option would have 9032 separate, with its own board and officers, and would need to register with this state. Andrew prefers the first and Don prefers the third: 9032 would operate at this facility but finances would be separate. Andrew guesses the process will take 6 to 8 months. Dave Doherty proposes that 9032 exists as in option 1 until the requirements and paperwork of option 3 is complete. In the short term they'll need their own account to keep funds separate. The relationship to the Boy Scouts is complicated: they'd have to change their name if they become a separate 501c3 versus existing as part of a sponsor organization like chapter 32. Andrew projects 1,000 to 2,000 dollars in fund raising, which Dave and Don didn't think would cause a problem. We could start out this way and monitor in case we need to re-evaluate. Don feels like this is okay for the first year. We voted to go with option one for the first year. Andrew asked Don for a ceiling to stay below, Don or Dave will need to head to St. John's bank to set up an account.

While Andrew's on the phone Chris wanted to discuss the Ray Foundation. He has received packets for candidates. One option is an essay, FAA medical is required ahead of time, as well as applying for the FAA student pilot's license. They need to have taken at least one Young Eagles flight, and as with Kyle the candidate needs to be active in the chapter, preferably there's some family involvement as well. We then do our part of the screening and send the information to HQ. Chris let Andrew know that they are at the point of identifying and screening candidates. Andrew's looking into getting this information to the scouts, Chris says October's the time limit, but the sooner the better: the candidate has one year to get their license so they're better off starting flight training while the weather's good. Note

that this won't be shared with the public; it's aimed at people we've identified. Andrew will start with the 9032 roster and i.d. potentials, the other option would be to open it to all of them. Chris feels the process itself will eliminate quite a few, leaving a few viable candidates. Chris also explained (about the 50/50 system) that the first \$5,000 comes from the Ray Foundation, and the chapter then pays the remainder of what it takes to get the license, hopefully less than \$5,000. Rick suggests bringing this up at the Explorer's Tuesday meeting. Note that 9032 will participate in Scout Fest in October.

Andrew spoke with Katie at HQ regarding the Explorer camp during AirVenture. Chris will be there but has his own campsite. If we only have 7 or 8 scouts only one advisor is required and does not need to be in the camp site constantly except at night.

Young Eagles:

Dates are set for 2020, Rick also intends to announce other nearby events that could use volunteers. He'd like to post our events on the National EAA calendar of events and presented proposed wording.

Rick is still interested in the Flying Start program. He'd like to promote this on our website and at our meetings for the next few months. Jim Hall is working with Rick on this but he'd need others, pilots in particular. Chris has experience with this in Jefferson City and Laura got involved in the chapter as part of an earlier incarnation of the program. We would hold a meeting that would include flight instructors and pilots. Chris notes that this differs from Young Eagles in that the pilot-candidate relationship is not a one-time thing; the pilot is a mentor. Rick would like to present this at Saturday's meeting. Dave Doherty assigned Rick as February's speaker. Note that this year parent ride-alongs will be treated as Eagle Flights.

Building needs:

Magazines need to be sorted and organized, both in the office and in the loft. One goal is to complete our Sport Aviation collection. Bill Jagust is going to work on this. Chris notes public schools and libraries will take donations of magazines, as our stock of newer issues is overflowing. He will take them if we let him know which to take.

Dry erase board needs to be installed and some other office components need to go in their permanent locations.

Completing the west wall will finish up our building repairs. Don notes that there is volunteer labor for this, but Dave will at least need to supervise if he has a specific configuration in mind.

We need a plan for the next time waters come up. If anybody has insight into tractor trailer rental and storage let Dave know. Dave has looked into rental of trailers but the storage spot is a question mark. Bill thinks he may have some contacts at a leasing company who could provide guidance. Chris says he has a very big, isolated lot where trailers would fit. An initial guess is that we'd need two trailers, maybe three.

Dave ordered 100 t-shirts in various sizes.

Don's shutting down telephone line, Laura will remove the number from the website.

Bill has fixed the door code problems.

We'll continue movie nights, April, May, June, August and September. Don and Bill discussed getting a new screen.

Dave's looking for an interim president for at least six months to maybe the next election. Bill and Dave McGougan will work together on this.

Don discussed some alterations to chapter hangars to allow for more clearance. There's a platform he'd like to raise. This would require taking down everything that's currently up there. There's a post that could go away if we installed a truss. Currently nobody is in our hangars as the county is still working on flood repairs. Rent was fractional up to January 1 when they raised it back to the full amount.

Next board meeting will be in three months, May 16 after the meeting.

“It Is the News so Let Us Chat about It”

mr. bill

The last three weeks it has been the main topic. The basketball man and how he and 8 others left this world. Aviation has a dark side. Flying can get us from Point A to Point B quickly these days. In fact a supersonic jet is presently (back) in development so we again can move faster than speed of sound.

BUT the real trouble these days is not so much SPEED as it is WHAT WE CAN SEE.

My McDonnell DC-9-80 had an AUTOLAND feature that had me monitor the electronic Instrument Landing System (ILS) to the height 50 feet above the runway surface while the autopilot flew the airplane. At that point with the help of special runway lights, I would follow thru and watch the airplane complete its landing phase, of FLARE, and RETARDING of the throttles. As I have written before it was cool to “ride along and watch the process.” The tough part was clicking off the AUTOTHROTTLES and the AUTOPILOT after landing and taxiing in the restricted visibility to the terminal gate.

On the Boeing 737 NG-Next Generation there is this neat glass display called a HUD, a Heads Up Display that gets me to the runway like a video game. I follow “needles” and “circles” to the runway touch down point.



Boeing 737 HUD (Heads Up Display)

So there is a lot of fancy stuff for the Big Jet. But there is fancy stuff for the small aircraft too.



The new Garmin panels show the local terrain around the airplane/helicopter in a three dimensional display maps. There are even warnings “TERRAIN, TERRAIN!” when you are approaching rising ground around your aero machine. This is the TAWS system, Terrain Avoidance and Warning System.

So as pilots we can find ourselves in a “pickle.” We want to get there and we MAY do anything to keep scooting along a road, a highway, or a patch of ground to get to our destination for ourselves or our passengers. The history books have several accident reports of famous music people who were offered an airplane ride instead of the bus to the next show or a television interview. Sadly the plane did not reach its destination.

I flew for a Fortune 150 corporation in the 1990s whose management team always told us to “Do the right thing. We trust you guys.” I remembering telling them that the small airport where the paper plant was, is “fogged in.” Their response was “small airport weather not good, then get us a big limo to drive us there.” What a relief for us pilots to NOT have to make that tough instrument landing approach to about 500 feet. Then fly (circling) around cranking and banking, try to maneuver the airplane to get into position to land the jet. Nice to know that we did NOT even have to attempt it in the corporate world. WE picked up the jet’s phone and ordered a long limo for the ride to the paper factory from the ALTERNATE airport with good weather.

At the BIG jet place we do not even do circling approaches unless the clouds are 1,000 feet above the airport surface and the required visibility is 3 miles or better. Those are the basic requirements for VFR-Visual Flight Rules.

So the pilot of the helicopter knew he was going into a LOW visibility situation. It is all about your “ATTITUDE” of how you approach it. With the emergency call to the police, even their helicopter pilots were NOT allowed to take off unless the clouds are above 800 feet above the surface. Your reference to this altitude is the top of the Gateway Arch is 630 feet above the ground. They also needed 2 miles visibility minimum. The police helicopter did NOT take off for SAFETY reasons because the minimums were not there. So that should tell you how tough the situation was to fly that charter helicopter in. The pilot did call the tower to get permission

to fly through their airspace. He also was told later that there was a LOW ALTITUDE Alert on his airship. The remainder of the flight shows that there was some disorientation that cause the helicopter to start a decent and hitting the ground at over 170 mph. Classic spatial disorientation. Sad because the helicopter had full IFR (Instrument Flight Rules) instrumentation. The pilot was instrument rated. The beauty of the helicopter is the fact that it can hover in flight. So stop the forward progress and just hover and climb vertically out of the situation. Always easier said, than done. A pilot must totally FOCUS on the instruments, keep the instrument scan going, and block out distractions from the passengers on board. Moving one's head back and forth to the passengers is the quickest way to get the fluid in the ears moving and once that starts the spatial disorientation can begin. Here are two videos for your edification. The first one shows how spatial disorientation can occur; the second one is a news clip of the Kobe Bryant crash. Click on the pictures below to see the videos.

It is just a sad moment that we pilots “believe we can continue flight into known low visibility conditions.”

Q? Longest airline flight today?

A: The 19 hour flight from Singapore to New York.

(The main problem is whether people can handle it.)

Q? Longest sailplane flight on record?

A: 1,869.1 miles ride the mountain wave in South America.

Q? What happens when you can travel at the speed of Light?

A: Einstein believed that two parts traveling at the speed of light would pass thru each other like (flash) light beams do.



Unsung Heroes: The Night Witches

by Rob Mulligan

Russia, 1942. Not a good place to be.

A year into the war with Germany, the German 6th Army surrounding Stalingrad, millions dead and countless more dying of starvation and disease. Supplies and equipment were running low and the need for people to throw into combat was soaring. These were the conditions that gave rise to some of the most daring and impressive pilots ever, the 588th Night Bomber Regiment, nicknamed the Night Witches by the German forces. The name alone pretty much conveys how ridiculously amazing these women were, but let's go into a bit more detail.

Formed in October of 1941, the Night Witches were an all female bomber regiment tasked with precision bombing runs against German military targets. The formation of the group took some time, as the move to recruit female combat pilots had initially been rejected, with one recruiting officer quoted as saying "Things may be bad but we're not so desperate that we're going to put little girls like you up in the skies. Go home and help your mother." This in spite of the fact that many young Russian women had more piloting experience than the pilots of the front line fighter regiments thanks to the Osoaviakhim, a paramilitary flying club that provided free training to Soviet boys and girls in the 1920s and 30s.

Soviet military officials then, as US military officials now, questioned whether it was strategically or morally appropriate to send women into combat. But the Night Witches proved to themselves and a skeptical country that their gender made no difference in the defense of one's home.

– Phyllis-Anne Duncan

The heavy casualties of the war brought about a quick change to this attitude, and three regiments were formed, commanded by the famous aviatrix Major Marina Raskova. The selection process for the 588th (and its companion squads, the 586th Fighters and the 587th Dive



Bombers) was grueling, the young women going through two years' worth of training in just six months. Up to fourteen hours a day were spent in the air, including night flights and simulated dog-fights. By June 1942, they were ready to fight against the formidable might of the German invasion.

The Night Witches were not a well equipped regiment. Wearing hand-me-down uniforms from male pilots (boots were reportedly stuffed with paper and fabric to make them fit), they flew in aging Polikarpov PO-2 biplanes. The PO-2s were about as basic



as a plane could get and still technically qualify as a plane. First built in 1928, they consisted of fabric strung over a wooden frame, and lacked any but the most rudimentary of instrumentation. There was no radio to communicate with ground control, and navigation was done with a stopwatch and a map – just a normal map, not even a flight chart. The planes carried no guns and only had enough weight allowance to take two bombs up on a flight, forcing the Night Witches to make multiple sorties in a single night, returning to base each time to collect more bombs.

The one thing the PO-2 had going for it, and which the Night Witches used to full effect, was its remarkable maneuverability. With a top speed of around 95mph, the plane was slower than the slowest speed a German fighter could maintain (its stall speed), allowing them to pull tight, evasive circles that the faster German craft couldn't match. Combine this with the impressive [nap-of-the-earth](#) piloting skills that allowed the Night Witches to get

closer to the ground than the planes of the Luftwaffe could manage, and shooting down a PO-2 from the air became a challenging prospect. There was, supposedly, a promise to award an Iron Cross to any Luftwaffe pilot who actually managed to bring down a Night Witch.

Whilst the German fighters struggled to bring down the Night Witches (who included Evgeniya Rudneva), the ground defences proved rather more formidable. 6th Army encampments were protected by what was known as the 'circus of flak' – concentric rings of up to two dozen flak cannons and searchlights. The traditional tactic for dealing with this had been to fly directly towards the target and hope to get your bombs away before the flak could blast you out of the air. It wasn't the most successful tactic. The Night Witches developed a far more



effective method for getting past the circus of flak: flying in groups of three, two planes would approach the target and wait for the searchlights to pick them up. These two would then split apart and manoeuvre around the target, drawing the attention of the cannons. The third plane, having waited behind, would cut their engines and glide in to deliver the bombs. This was repeated until each of the three planes had made a bombing run. The mind boggles at the sheer level of stone-cold bravery needed to repeatedly offer yourself as a distraction to dozens of flak cannons, protected only by a flimsy frame of wood and fabric, and to keep doing that night after night.

At its largest the Night Witches' regiment consisted of 80 flying crew, plus ground support. By the end of the war they had collectively flown over 23,000 bombing runs. The surviving pilots had all flown around 1,000 missions each by 1945 (for sake of comparison, Colonel Don Blakelee, who had more missions for the USAF than anyone else in WW2, completed 500). Thirty of them had died in combat, and over a quarter of the pilots had been awarded the title of Hero of the Soviet Union.



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