November 2020 *APA NEWSLETTER*

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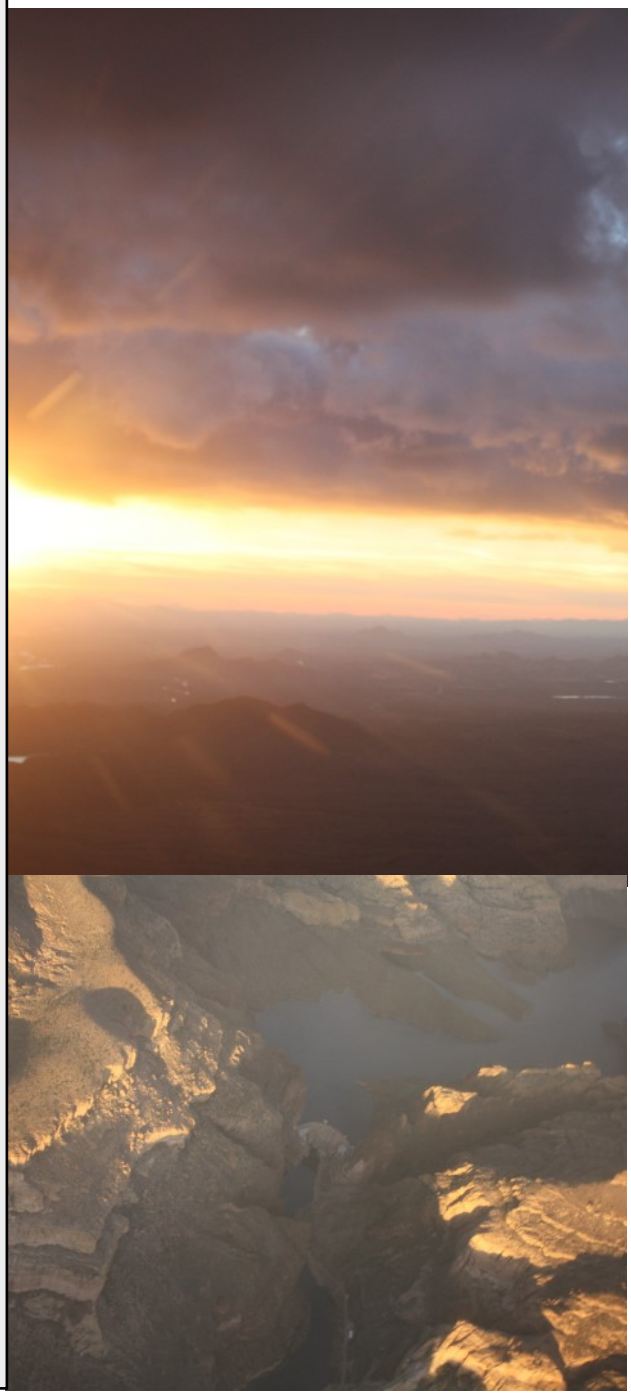


President's Report

Greetings,

It appears that summer has finally lost its grip on Arizona. Snow has fallen up north and down south, closed toed shoes and sleeves are needed in Phoenix, and the sound of reciprocating engines overhead is back! It's a glorious time to be a pilot in Arizona. Now if we could get some rainfall in the Valley, we'd be talking!

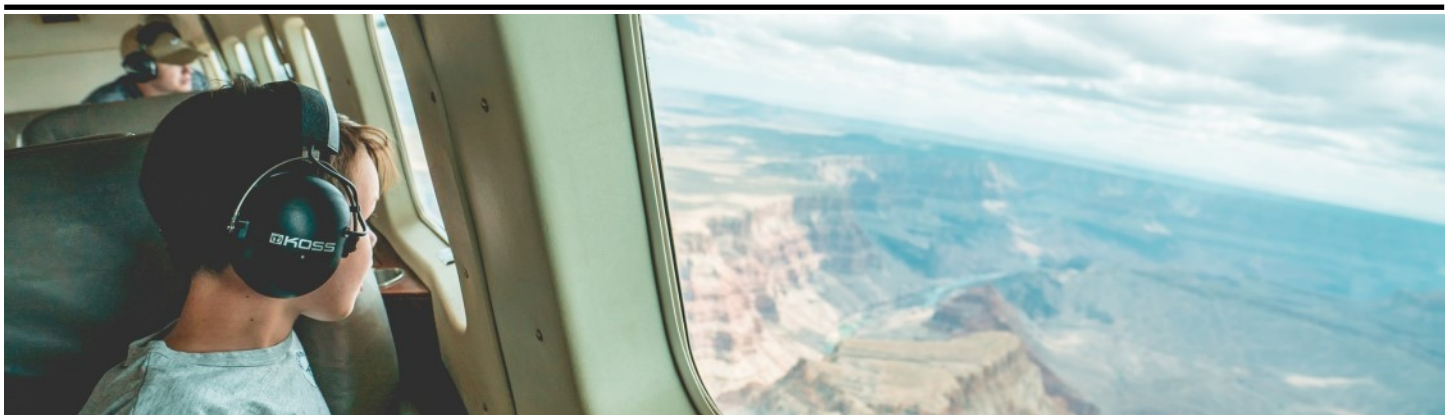
The extremely dry weather skunked both the September and October Grapevine camping trips. Tonto Forest is bone dry. The risk of a backfire sparking a wildfire is simply too much of a risk. Our Forest Service personnel are tapped out and we don't want to add to their workload. We are still planning on camping in November, with the associated volunteer work parties needed to rid the area of weeds, do some runway maintenance, and some drainage projects. Several members heeded my call to action last month and volunteered for upcoming projects. *Thank you!* Those that have volunteered with us in the past know that it's more fun than work. Those new to it will learn that quickly. We'd love to see you out there making a difference with us.

While this edition of the newsletter will reach you after the election is over, the importance of TFRs will remain. The frequency of VIP and presidential visits will taper off quickly, but will not disappear. TFRs pop up quickly, and it is the pilot's responsibility to remain clear. A pilot near Bullhead City was recently treated to a pyrotechnic display and some formation flying from an F-16. Please do your research and don't bust the TFRs.

Get out, get flying, and stay safe!

Blue Skies,

Brian



Executive Director's Report

Jim Timm — November 2020

I can't believe it; suddenly, we went from the hot summer weather straight into winter. I made my last flight in the hot summer temps and started pulling the engine out of my airplane to have it top overhauled and have numerous upgrades incorporated. When I get it back in a few weeks I should have some cool mornings to break it in again. At least I'm sure counting on it. Well, at last the election is over, and maybe we can get back into a normal life again, or whatever that will be with the Coronavirus still with us.

I just read that the U.S. Air Force has built and flown a mysterious full-scale prototype of its future fighter jet. The Air Force is testing the new fighter prototype designed and built under its Next Generation Air Dominance (NGAD) program. It has not been made public how many prototypes have been built or how much flight time the design has accrued. They have refused to divulge any aspect of the aircraft's design — its mission, whether it was uncrewed or optionally crewed, whether it could fly at hypersonic speeds, or if it has stealth characteristics. Details about the fighter's potential performance and capabilities are being kept classified. "We've already built and flown a full-scale flight demonstrator in the real world, and we broke records in doing it," Assistant Secretary of the Air Force for Acquisition, Technology and Logistics, Will Roper, told Defense News.

"We are ready to go and build the next-generation aircraft in a way that has never happened before." It has been reported that the demonstrator was engineered and tested digitally before the physical prototype was constructed, allowing the design to take flight much more quickly than seen with previous fighter programs. NGAD funding for fiscal year 2021 comes in at around $1 billion. How a sixth-generation fighter program might affect fifth-generation jets like the F-35 is not yet clear.

Because of the continuing pandemic, this month's report may be a bit short, but on a positive note, all the usual meetings are continuing, either as a teleconference or a video-conference. No more wasting time driving to meetings, and surprisingly, the meetings are just as productive as before.

MISCELLANEOUS ITEMS

FAA

From a FAAST Blast notice, the FAA issued a final rule on September 30, 2020, that further amends Special Federal Aviation Regulation (SFAR) 118 - FAA Regulatory Relief Due to COVID-19. Aviation activity continues to increase, and the industry is

beginning to address the backlog of required training, checking, and testing requirements. However, many of the challenges that existed when the FAA first issued the SFAR in April remain today as the public health emergency continues. The revision, SFAR 118-2 was effective on October 1, 2020, and is available for public display in the Federal Register here: https://bit.ly/30Gs4i3

The chart contained within this final rule provides a summary of each affected regulation; the original SFAR relief provided on April 29, 2020; the amended SFAR relief from June 25, 2020; and the second amended relief provided in this latest SFAR update. Those who may be affected by this amendment should carefully review the eligibility, conditions, and duration of each section of relief to ensure compliance. The FAA has also revised the FAQs to help explain the amended regulatory relief.

AIRSPACE

The forest fire season is still here, so watch out for fire TFRs. Fortunately, the election season has ended and we don't have to constantly look out for the Secret Service VIP TFRs. They may still pop up on a rare occasion, but not as they have been.

Everything else in our airspace world seems to have calmed down for now, and there isn't anything that I am aware of coming up that should impact our flying activity for the present.

SAFETY

The General Aviation Joint Steering Committee (GAJSC) and the National Transportation Safety Board (NTSB) have determined that a significant number of general aviation fatalities could be avoided if pilots were to conduct more thorough preflight inspections of aircraft that have just been returned to service. In-flight emergencies have been the direct result of maintenance personnel who have serviced or installed systems incorrectly.

Maintenance related problems are one of the most deadly causes of accidents in general aviation. Contributing to this is a pilot's failure to identify maintenance discrepancies because of a lack of knowledge and improper techniques used during the preflight of the aircraft.

So what can you as a pilot do?

Conduct an Advanced Preflight that goes beyond the standard preflight checklist. Advanced preflight is a program that helps you become more aware of all the safety-related data on your

> Maintenance related problems are one of the most deadly causes of accidents in general aviation.

aircraft and focuses on a detailed approach to your preflight inspection, based on your aircraft's maintenance history. While this requires some time, consider developing an additional items checklist that can be used in conjunction with the aircraft's preflight checklist for all future preflight inspections. It is a valuable tool whether you own, rent, or borrow an aircraft.

Put Yourself in the Right Mindset — assume that there is something wrong, even if you used the best mechanic. Mechanics typically do an excellent job, but if you assume that all is right, you'll miss catching any possible mistakes, worn items, improperly rigged items, or whatever else might be wrong. Always look over any part of the aircraft that has maintenance performed on it.

Use Your Senses and a notepad to write down anything you sense is not right. LISTEN to the airplane (not just the engine!). Do you SMELL anything abnormal? Fuel? Oil? Does it vibrate more than usual (FEEL)? Do you TASTE (or smell for that matter) any of that acrid smoke that comes with burning electrical items? Step 10 to 15 feet back from the airplane. Does anything LOOK out of place? Be prepared to abort takeoff if something goes wrong or doesn't feel right. Always be wary and always be safe.

Aviation safety in this reporting period was not the best because we had two fatalities. Unfortunately, the NTSB didn't report any accidents, but the local media did report two aircraft accidents. One was an aircraft that had the landing gear collapse during landing, and the other one was an experimental aircraft that collided with the ground, killing both occupants. See my November Accident Summary report elsewhere in this newsletter for the details. Please continue to fly safely.

CONSTRUCTION

With funding made available from the FAA, many airports around the state have construction projects in progress or planned to start. Unfortunately, we don't have the latest details on all these projects, so always check for NOTAMs at your destination airport to see what may be happening, and when you do get there, always use caution. Always fly informed.

APA is actively working with several airports around the state, assisting with updating their Airport Master Plans, thus providing the pilot and aircraft owner's perspective in the process. Chandler Municipal Airport (CHD), Lake Havasu City Municipal Airport (HII), Superior Municipal Airport (E81), Sedona Airport (SEZ), Flagstaff (FLG), Laughlin/ Bullhead International Airport (IFP), and Grand Canyon Airport (GCN) are currently in the Master Plan update process. Chandler Municipal Airport will be having their last update meeting on October 28, and the final updated Airport Master Plan

should be submitted to the FAA for approval before the end of the year.

THINGS TO DO - PLACES TO FLY FOR BREAKFAST:

Because of the present virus pandemic, some of the airport restaurants have take-out service available. Call ahead.

- The fly in breakfast at Coolidge Municipal Airport (P08) is on the first Saturday of the month, and the breakfast season is still on schedule.
- The Falcon Field EAA Warbirds Squadron fly in breakfast and car show, which was on the third Saturday of the month, is still on hold, awaiting approval from the City of Mesa to restart.
- Grapevine is open full time, but the third Saturday of each month is a special time for a group camp dinner on Saturday evening. Come and camp for the weekend! The camp host will prepare the main course, and campers, please bring a side dish or dessert to share. Current fire restrictions forbid any open flames, even charcoal on the Tonto. Also, please shut down and roll your aircraft off and on to the runway to avoide any backfire sparks! ***Always check for TFRs because Grapevine, which lies within a National Forest, is heavily used by the Forest Service for fighting wildfires.***
- The City of Casa Grande is planning on refurbishing the food service area in their airport terminal, formally occupied by the Foxtrot Cafe, and will be issuing a request for quote for someone to provide food handling services at the airport. Hopefully, the Casa Grande Airport will again have a fly in breakfast available soon.

Check with the APA Getaway Flights program and online calendar for *fun* weekend places to fly.

Jim

Got great aviation photos that you'd like to share?

newsletter@azpilots.org

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AFTW

ARIZONA FLIGHT TRAINING WORKGROUP

WE ARE A SAFETY-FOCUSED GROUP OF AVIATION TRAINING PROFESSIONALS WHO RECOMMEND BEST PRACTICES FOR UTILIZING AIRSPACE IN ARIZONA WITH THE ULTIMATE GOAL OF REDUCING ACCIDENTS, INCIDENTS AND PILOT DEVIATIONS.

We make an effort to:

- **Facilitate communication and address safety concerns between flight schools, flight instructors, the FAA and other airspace users**
- **Share training tools, concepts, and ideas**
- **Improve understanding among operators**

CHECK US OUT!

AFTW.ORG

On our website you can find:

- **Practice area charts and information**
- **Stanfield VOR procedures**
- **Safety Topics of the Month from the GAJSC**
- **Meeting minutes and events**
- **Flight training resources, news and more!**

November Aviation Accident Summary

by Jim Timm

The following are the NTSB reports of aviation accidents in Arizona from late September through late October. The APA will use detailed accident information to develop safety programs, briefings, and posters/flyers that would help pilots learn from the mistakes made by others and take the action necessary to prevent them from having similar accidents.

For this reporting period, aviation safety may be unknown in that there were no accidents reported by the NTSB. Because of the virus pandemic, the head of the NTSB has taken the position that investigators will not be going to accident sites for investigation, except in special directed cases, and will rely on FAA and local law enforcement notes and photos for information. It's unknown if this is the reason for zero reports, or if pilots are being extra careful and no reportable accidents have occurred. However, based on local media reports, two accidents recently occurred, and one of them was rather serious in that two people perished. Because no information is available from the NTSB, details of these two accidents were obtained from the Aviation Safety Network (ASN); they are presented in this summary below.

THE FOLLOWING INFORMATION WAS PROVIDED BY THE ASN

Accident Date: **October 11, 2020**
Title 14 CFR Part 91
Location: Mesa
Aircraft Type: North American AT-6G Texan
Injuries: 2 Uninjured

WHEELS UP LANDING

The airplane had initially departed Falcon Field (FFZ), and when attempting a landing at Avra Valley (AVQ), it had a mishap that damaged/lost the left landing gear wheel in the touch and go landing process, and then returned to Falcon Field. Because they had experienced a hydraulic failure, the landing gear collapsed during the landing, and the airplane slid to a stop on its belly, and the pilots safely exited the airplane.

Accident Date: **October 24, 2020**
Title 14 CFR Part 91
Location: Cordes Lakes
Aircraft Type: Lancair 235
Injuries: 2 Fatalities

CONTROLLED FLIGHT INTO TERRAIN

An experimental Lancair 235, amateur built by Norman Leckenby, impacted the high desert terrain about 5.5 miles east-southeast of Cordes Lakes, Yavapai County. The airplane departed Phoenix Deer Valley Airport and was destined for Page. Both occupants onboard the airplane received fatal injuries and the aircraft was destroyed.

The wreckage was located by a helicopter at approximately 12:15 PM on October 26 after it was reported missing.

GAJSC

General Aviation
Joint Steering Committee

Avoiding Controlled Flight Into Terrain

This outreach guidance is provided to all FAA and aviation industry groups that are participating in outreach efforts sponsored by the General Aviation Joint Steering Committee (GAJSC). It is important that all outreach on a given topic is coordinated and is free of conflicts. Therefore, all outreach products should be in alignment with the outline and concepts listed below for this topic.

Outreach Month: November 2020

Topic: CFIT (SE 34 Output)

The FAA and industry will conduct a public education campaign emphasizing the need for training and currency when flying in mountainous areas.

Background:

Technological advances in situational awareness have dramatically reduced the number of General Aviation CFIT accidents over the past 20 years. Nevertheless CFIT accidents continue to occur and at least half of them are fatal. This program acquaints the audience with the nature of CFIT accidents, their precursors, technological and safety risk management solutions to CFIT challenges.

Teaching Points:

- Pilots of all certificate levels are prone to CFIT accidents.
- Most General Aviation CFIT accidents occur during the day and half occur in VMC.
- Pilots must accurately assess the risk associated with each flight and plan accordingly. They must also continuously reassess risk en route and commit to alternate plans before they are in a state of emergency.

References:

- *Avoiding Controlled Flight Into Terrain – PPT and Presentation Notes*
- *AC 61-134 General Aviation Controlled Flight Into Terrain Awareness*
- *Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25A) – Chapter 2 – Aeronautical Decision Making.*
- *Aeronautical Information Manual Chapter 7- Safety of Flight, Section 5 – Potential Flight Hazards, 7-5-6 - Mountain Flying*

DOWNLOADS: PowerPoint Presentation Slides...

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ArizonaSkiesAviation@gmail.com

~ Scholarship Corner ~

by Chris Nugent

This month's update will be brief, as we are in the middle of our application cycle that ends November 15th. I am pleased to report that our new online application tool is up and running, and we have started to receive applications from interested students. We typically receive the bulk of the applications towards the end of the cycle, so it will be interesting to see this year's final tally (as a point of reference, we received 24 applications in 2019). I've spoken with a few of the applicants to answer questions about the application process, etc. and despite all the uncertainty related to the pandemic, they have all been very positive about their choice to pursue an aviation career. And as we all know, a little optimism goes a long way these days.

I want to thank all of you that have donated to the scholarship program while joining the APA or renewing your memberships over the past year. However, we are still far behind where we would like to be in regard to funding the program. So, as we come to the end of this calendar year, I would like to ask that you consider making a tax-deductible donation to the APA scholarship program. The aviation industry has fundamentally changed over the last few months, and scholarship programs like those supported by the APA membership will become more important than ever.

Thank you for your continued support and help so the APA can fulfill our mission of building the next generation of Arizona aviators.

Stay healthy and fly safe.

Chris

MEMBERS' PHOTO CORNER

Thank you to **Kevin Vescio Sr** *for this month's photos*

Where will you go next? Send your photos to newsletter@azpilots.org!

The following articles contain content that is not necessarily the opinion of the APA.

Is There a Gap of Aviation Knowledge Between Military and General Aviation Pilots?

By Barbara Harper and Howard Deevers

The public tends to believe, and most General Aviation pilots also tend to believe, that military and airline pilots have special skills that the average pilot does not have. They do have type ratings and advanced training that most of us will never get. However, we all start the same way, with basic training, advancing to our first solo flight, our first cross country flight, and finally to a check ride that put that Private Pilot Certificate into our pockets. During wartime, the military would take a person with no experience and train them to be a fighter or bomber pilot, with the training focused on combat situations and not on flying for pleasure. Not all applicants made it through the training. During and right after WWII, many pilots were lost in training accidents.

After the war, training changed little. The public was beginning to use aviation for travel much more. Many airline pilots were former military pilots, so much so that the public still thinks that most airline pilots are retired military pilots, or that you had to be a military pilot before becoming an airline pilot. Of course, we know that is not the case today.

Great changes have been made in all aspects of aviation since the end of WWII. Most significant is the reduction of fatal crashes of airliners and general aviation aircraft. All of us are thankful for that. Of course, it took a lot of hard work to get to where we are today. The job is not over.

Trying to find the root of aviation issues and to correct or educate is not easy. Aviation safety people look at trends, but may not go back to the initial beginning of a problem, specifically, knowledge. The education and training at the beginning may be the same, but beyond that, military and civilian airmen are different. The end goal for both is flying safely, but military pilots have additional goals of achieving and maintaining air dominance during combat operations.

The military pilot's formal training courses can be long and arduous, incorporating technology such as radar, data links, and electro-optical targeting devices, and G suits. Producing military pilots is a costly and time consuming investment that varies by military service and aircraft type. Producing a mission ready fighter pilot can take up to 5 years and cost between 3 and 11 million dollars.

In the many years that I have been instructing, both civilians and military, I have found that there is a gap of knowledge on airspace and the performance of civilian aircraft. This is not to say that military pilots are not outstanding, but the challenge of airspace knowledge and civilian aircraft performance knowledge is deficient. Military pilots who want to fly in something as small as a Cessna 182, may not have a good understanding of the airspace and performance characteristics of the 182, now flying low and slow, as compared to an F-16 or an A-10. The military and airline pilots are guided under some parts of ATC almost from engine start to engine shut down.

Flying VFR in a “lowly C-182” may be something that would require a bit more training. They must now think about the airspace they are flying in, and about having 3 other passengers, and full fuel in that 182. These may not be subjects of great interest, but when the Arizona temperatures are 100 degrees or more, they take on great importance when you are not flying at 17000 feet and 400 knots with 10,000 pounds of thrust (or more) pushing you along.

To fly that Cessna 182, the CAP, and most flight schools, or places that will rent a C-182, will require a check ride with a qualified instructor. This is the time that the instructor can uncover those gaps in knowledge. Anytime you are transitioning into a different aircraft, a thorough review of the POH performance section should be mandatory. Failure to do so could be hazardous to your health. As a Sergeant in the Air Force once told me: “Failure to prepare is preparing to fail.”

Barbara and Howard

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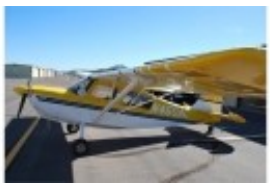
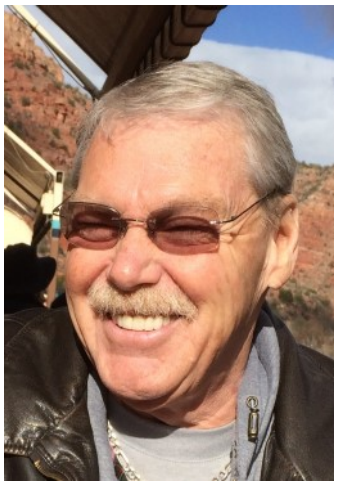


GAARMS REPORT

NOVEMBER 2020

By Fred Gibbs



2020 TO DATE:

As of late October when I wrote this article, there has been no change in the NTSB's report of fatal accidents here in Arizona, so I am pleased to report no change in our fatal accident rate. Within the GAARMs statistics, I try to only include general aviation accidents; therefore, the 2 helicopter crashes would not be counted within the GAARMS report, reflecting a very safe year so far, with only 3 general aviation accidents. The NTSB report, shown here, lists all five fatal accidents with five fatalities. The compilation below only reflects fatalities. Within the individual reports, both fatal and serious injuries are reported. Those statistics clarify the five fatalities (four pilots and one passenger) plus three other serious injuries, one pilot and 2 passengers. A copy of the NTSB fatal accident report is shown below:

(Estimated) Report Publish Date(s)	Report(s)	Event Date	Location	Make/Model	Registration Number	NTSB No.	Event Severity	Type of Air Carrier Operation and Carrier Name (Doing Business As)
Preliminary 07/28/2020	Preliminary Report PDF | HTML	07/07/2020	Payson, AZ	BELL UH1H	N623PB	WPR20LA211	Fatal(1)	
Preliminary 07/08/2020	Preliminary Report PDF | HTML	06/09/2020	Safford, AZ	Vans WILSON RV4	N173CW	WPR20LA176	Fatal(1)	
Preliminary 07/08/2020	Preliminary Report PDF | HTML	06/09/2020	Maricopa, AZ	Zenair CH601	N6402X	WPR20LA177	Fatal(1)	
Preliminary 05/20/2020	Preliminary Report PDF | HTML	04/24/2020	Mesa, AZ	Bell UH 1H	N3276T	WPR20LA130	Fatal(1)	
Preliminary 02/26/2020	Preliminary Report PDF | HTML	01/24/2020	Payson, AZ	Piper PA28	N3672K	WPR20FA079	Fatal(1)	

Page size: 10 — 5 items in 1 pages

A short re-cap of the accidents follows:

Two of the accidents occurred during the month of June, ironically both on the same day, and both were experimental home-built aircraft. A Zenair CH601 departed Deer Valley enroute to Ak-Chin, struck the very top of a small mountain about 2 miles northeast of the Ak-Chin airport and was destroyed by fire. The pilot/owner was fatally injured. The second accident involved an RV-4 inbound to the Safford Airport. The aircraft impacted a hillside during the approach, and the sole pilot onboard was fatally injured.

Two of the other accidents involved helicopters, one near Mesa, the other near Payson. Both were Bell UH-1H's. The crash near Mesa was apparently caused by the loss of the tail rotor, while the second helicopter was assisting in firefighting efforts, using a long line to lift/transport supplies to a hotshot crew. On the fourth lift, things went drastically wrong and the helicopter crashed.

> "Any professional DID NOT become a professional by practicing 2 hours a week!"

The fifth crash was a Piper PA-28 on a personal cross country flight. The pilot stated in an interview that after a flight earlier that morning, he departed from Falcon Field Airport (FFZ), Mesa, Arizona, enroute to Payson. He landed in Payson, refueled, and departed for the return flight back to FFZ. During the return flight, the pilot decided to fly over the mountains southwest of their position. He stated that he flew about 1,000 ft above ground level (AGL) over the mountains, while the passengers were spotting wildlife on the terrain below. The pilot stated the airplane was running well and doesn't remember anything else until waking up in a small creek at the accident site.

FOR INFORMATION ON ALL ACCIDENTS/INCIDENTS THAT OCCURRED LAST MONTH, REFER TO JIM TIMM'S ACCIDENT SUMMARY HEREIN.

Enjoy flying safe –

Going flying, escaping into the beautiful "wild blue yonder" is a great way to enjoy quarantine, but if you take your wife or a friend with you, don't forget masks, wiping down your controls, avionics knobs, door handles, seat buckles, etc., and be sure to clean all of your headsets.

The COVID-19 pandemic has really slowed down aviation activity, and it has now been over 6 months battling this pandemic, and possibly just as long since you have been in the cockpit. The pandemic has put many us into the "Rusty Pilot" mode, and thus you need to be very careful on the comeback. Remember, 3 takeoffs and landings in the previous 90 days makes you legal to carry passengers again, but it does not make you a proficient pilot!! There is a BIG difference between being currently legal vs. proficient. A thorough pre-flight may be in order. Just how long has your airplane just been sitting there?? Stale fuel, stale oil, any bird nests, etc., can all lead to disaster. Start slow, be methodical, make sure all is well before launching, and start easy working on restoring the luster to your skills. Like I always say, any professional DID NOT become a professional by practicing 2 hours a week!!

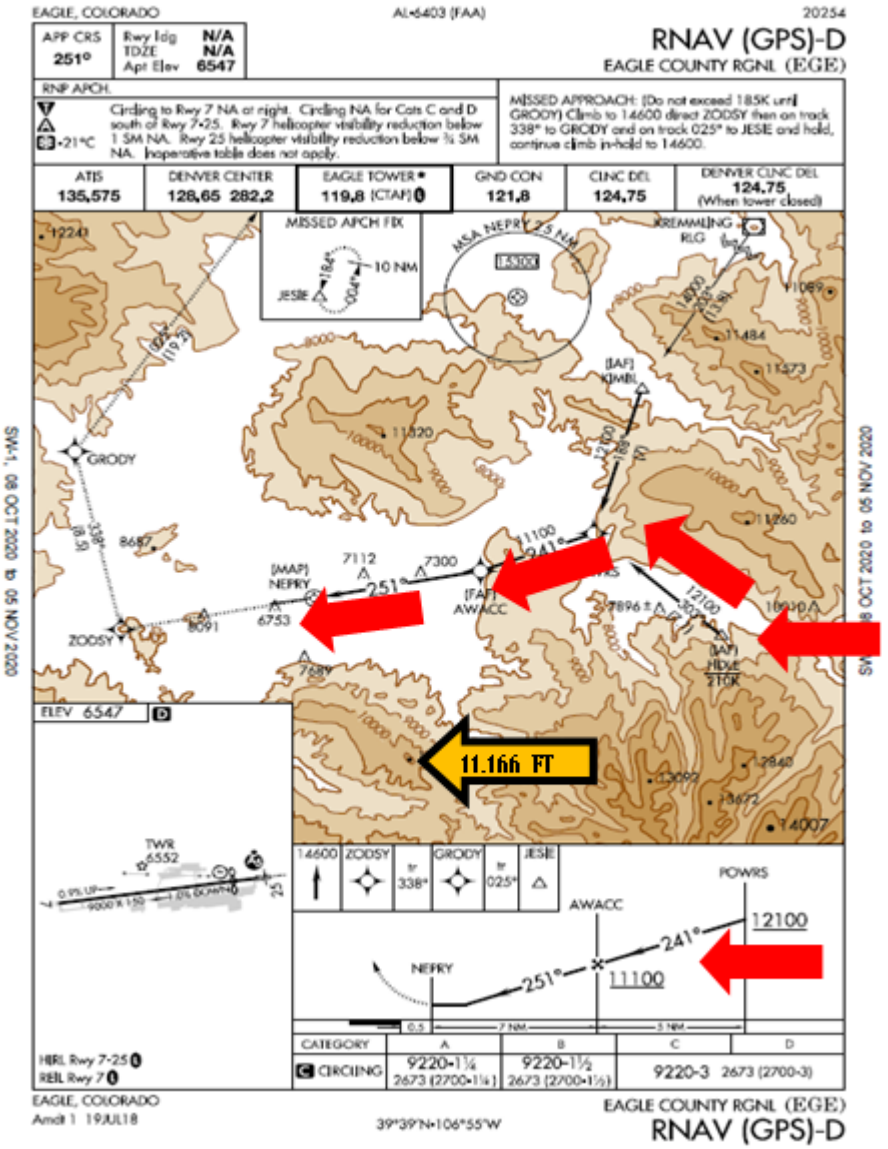
Fred's Perspective…

Last month's article left off with us arriving into the Denver Centennial airport on the first part of our return trip from Lexington, KY, in Doc's pristine turbo Cessna 182 that he had just purchased. It's a really nice C182T, fresh annual plus a pre-purchase inspection, fresh IFR certification, full oxygen and full tanks (80 gallons), full IFR G1000 panel, autopilot, lots of bells and whistles, ADS-B in and out, air bag-style seat belts and shoulder harnesses, Rosen visors, a beautiful leather interior, and a great paint job. All we had to do was "kick the tires and light the fire" and head home to Flagstaff, with just one "minor" issue. My newly minted private pilot/new owner Doc had NOT one hour of complex airplane time, NOT one hour of time in a C182, NOT one hour of turbo time, nor any experience whatsoever (except for some YouTube videos) on how to operate the G1000 glass panel. My job was to teach Doc both how to fly the Turbo 182 and learn basic operation of the G1000 during our flight back home. We had allowed 3 days to do lots of flying, and if the weather were to cooperate, possibly some mountain flying in Colorado.

We started out day 2 of this trip by spending almost an hour on the ground reviewing checklists, equipment, controls, G1000 basics, engine operation, speeds and power settings, and basic navigation set-up for the first leg. The first stop out of Centennial would be Eagle, CO, about a 1-hour flight in crystal clear skies and unlimited visibility, with light winds aloft for a smooth ride. Thank you, Mother Nature! And, oh yeah, still no autopilot – YET! I had Doc check the (paper) sectional chart for any airspace issues for a direct flight to Eagle – there were none. We did a basic direct flight plan in the G1000, choosing to cruise up at 12,500FT, using flight following from Denver Center the entire way. About 1600 Zulu, we lifted off and were on our way. Denver Center started throwing us curveballs right off the bat, issuing us headings and altitudes to keep us clear of both traffic and airspace, i.e., the Denver Class B airspace. However, once clear of the Bravo airspace, Denver turned us loose to our own navigation, and Doc punched up direct Eagle. Looking out the windshield at those 12, 13, and 14,000 ft mountains in front of us, it seemed daunting and doubtful 12,500 would suffice.

Ahah! Another teaching moment arrived. We discussed oxygen requirements and regulations, and the common sense application thereof, and decided we would maintain 12,500 as long as possible. A few spots necessitated a climb up to 13,700 to overfly a few high points, then back down to

12,500. None of the climb-over and back-down maneuvers took more than 20 minutes, never exceeding the regulations, either time-wise (30 minutes) or altitude-wise (14,000). Additionally, we both have lived in Flagstaff , elevation 7000 ft, for a long time and are certainly acclimated to high altitudes. We both had our Oximeters on our fingers, and our O2 levels never dropped below 97%! (YES, I made him buy one specifically to keep in his airplane; I have had mine for years!)



About 25 miles east of Eagle, I had Doc pull up the RNAV (GPS) D RNY 25 approach into Eagle. My plan was just to follow the procedure into Eagle, so Doc could see the altitudes and obstacles involved on that approach. Eagle is a fascinating airport and a beautiful place to live - if you like living “way out there”! Anyway, since Doc is going to start instrument training once we get home, this would be a good introduction on how these approach-thingies work. I showed him how to simply follow the instructions on the approach plate once the approach is input into the GPS – headings and (crossing) altitudes, and speed control. In visual conditions, a piece of cake and spectacular scenery; in IMC, you had better have it down pat, never deviate an inch, and have your skills sharply honed and procedurally everything in the bag with a nice bow on it. AWESOME! Follow the red arrows in, notice the surrounding terrain elevations, approach minimums vs. field elevation, and the visibility requirement – 1 ¼ mile for us small guys and 1 ½ miles for the category B aircraft. Impressive landing though – Doc is starting to get the hang of it!

Next leg, Eagle to Aspen, just a short hop over the mountains to the south and we’d be there. A check on the Aspen weather from the G1000 indicated clear skies, 10 mile visibility with light winds. However, one look out the window towards the south presented an almost 12,000 foot mountain in the way, only 7 miles south of the airport, and almost 6000 feet above airport elevation! (See gold arrow on the approach plate.) Even with a 1000 foot-per-minute climb, we could not clear the mountain if we tried to fly a direct route, and we seriously doubted we could sustain a 1000 feet-per-minute out of 7 or 8000 feet anyway.

Ahah! Another teaching moment. So, how do we handle this? Since Eagle is surrounded by very high mountains, it seemed the only logical way out of this valley is to circle up overhead the airport to

a safe altitude then turn on course. However, Eagle is a class Delta airport, so any attempt to circle overhead the airport requires tower approval to ensure separation with any other arriving or departing traffic. Since we wanted to depart southbound, again, it seemed only logical to request a circling climb while remaining south of the airport, but relatively close to the airport, and within the boundary of the class Delta. Now that we had a game plan, aircraft all checked out, ATIS in hand, we called Ground and made our request. YUP, it took a couple of transmissions from Doc to get Ground to understand what we wanted to do. *Learning to talk on the radio is, and will always be, a never-ending process!!* Clarifications completed, Ground cleared us to taxi to runway 25, and Tower cleared us for takeoff. Tower then requested we climb as requested, but remain south of the centerline of runway 25 at all times, staying within 5 miles of the airport (basically inside the class Delta), and to please advise them when we were ready to depart the Delta. Doc promptly responded that he understood the instructions, and we were off. We climbed at 600 feet per minute in a standard rate turn, making 3 full circles before advising tower we were ready to turn on course. Tower acknowledged, thanked us for our compliance with instructions, and wished us a good flight. With the GPS set up, Aspen, here we come.

But, unbeknownst to us, there was a “fly in the ointment” that would eventually foil our plan to land at Aspen. And that flaw was self-induced and introduced another “Ahah” moment, another “Won’t do that again!” teaching moment. Tune in next month to follow the ongoing saga…

SAFETY PROGRAMS: There are not many FAASTeam safety programs on the schedule over the next couple of months all around the state, so go to WWW.FAASAFETY.GOV , click on “Seminars” and check them out for any Webinars you might be interested in. You might find one that is right up your alley!! Should you desire a particular safety or educational program at your local airport or pilot meeting in the future (post COVID-19), like the BasicMed program or our “Winter Wonderland” snow season special, contact me directly at fredgibbs@azpilots.org, or call me at 410-206-3753. The Arizona Pilots Association provides the safety programs at no charge. We can also help you organize a program of your choice, and we can recommend programs that your pilot community might really like.

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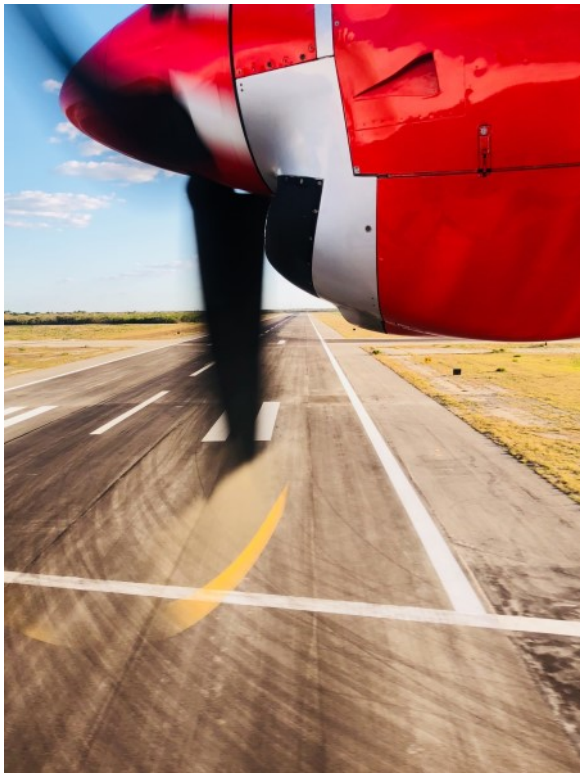
Runway Slope

By Juergen Theerkom

Not all runways are smooth, straight, and flat. A shocking reality, but there it is. As we fly around in the valley of the sun, we use large, controlled, paved airports, fewer and fewer new pilots have had experience dealing with some of the more challenging aspects of working out of airports and aerodromes that present a different, more irregular environment. I say that because just the other day I watched a business jet arriving and landing in Sedona (SEZ) using the down-slope runway. Yes, the winds were favoring that runway by 3 knots, and he/she made the landing without a problem, but it kept me thinking.

We discuss the illusions and challenges of dealing with sloped runways during training, but it's a whole new experience when we are faced with reality. If we combine slope with a few other interesting challenges — obstacles, wind shear, sloping terrain, and perhaps some density altitude (that's a given for SEZ in summer or even early spring), we can discover we have our hands full. In order not to scare ourselves, let's tackle the problem a bit at a time. Let's focus on slope.

Landing and taking off from a sloped runway is neither a good nor a bad thing. It is just a bit different than working with a nice, flat landing surface. Of course, it is the flat surface that is used to give us the baseline performance standards in an aircraft POH. There are three immediate consequences of dealing with a sloped runway: the effects of the slope itself, the factor of wind, and the visual illusions encountered. To keep things simple, I'll not talk about factors like density altitude, surface, and wind shear. In simple terms—all else being equal—if we have a choice, we would opt to land uphill and take off downhill. The up-slope will shorten our landing roll, and the down-slope will shorten our takeoff role. We will have that wonderful and inexplicable force called gravity working for us for a change. On a downhill takeoff, a portion of our weight vector will be acting as if it were thrust; on an uphill landing, a portion of our weight vector will be acting as if it were drag. Of course, there is a mathematical way to calculate the effect of an increased thrust or drag vector, but I'd like to talk about some Rules of Thumb. However, it's important to remember that Rules of Thumb are only that: a simple way to arrive at a ballpark solution. For specific answers to questions, it is necessary to go directly to the Pilot Operating Handbook or Aircraft Flight Manual for your aircraft and work with the tables and charts provided. The lower the margin of error you can live with, the greater the



> 1.0% of slope is equivalent to 2-3 knots of wind.

accuracy you must work with. A good Rule of Thumb for estimating the advantage or disadvantage of a sloped runway is that a 1.0% runway gradient (an increase or decrease in altitude of 10' for every 1000' of runway length) is equivalent to a 10% increase or decrease in effective runway length.

Where can I find the correct up/ down-slope information for the pre-flight calculation? Well, the first logical place I would look is the airport diagram to find the slope along the runways. Electronic Flight bags may or may not give this information, so the best source is the AF/D. You will need to look at the AF/D section within the corresponding chart supplement for the area of that particular airport and read it among the PCN (Pavement Classification Number) information, and even then it can be rather cryptic. All it says is 1.8% up NE for Sedona, to come back to my example. It is up to the pilot to figure out it is referring to Runway 03 for an upslope and Runway 21 for a downslope.

Just as density altitude can be thought of as performance altitude, the altitude at which the aircraft "thinks" it is operating, so too effective runway length can be thought of as the performance length of the runway, the length of the runway the aircraft "thinks" it has to work with. For the example of SEZ, landing on a 5132' runway with a 1.8% up-slope will give us an effective runway length, a performance length, of almost 6000' (5132' x 1.18 = 6055'). Landing downhill on that same runway will give us an effective runway length of just over 4200' (5132' x 0.82 = 4208').

Sadly, life isn't always quite so simple and straightforward. One aspect of takeoffs and landings that must always be considered is wind. As a general Rule of Thumb, a 10% increase in groundspeed results in a 20% increase in ground roll. This is a strong argument against being casual about approach speed on landing and about landing or taking off with a tailwind. If our touchdown speed is, for example, 50 knots, and we require 500' to execute our landing roll in no wind conditions, landing with a 5 knot tailwind will increase our landing distance by approximately 100' (5/50 = 0.1 or 10%; 1.2 x 500' = 600'). On takeoff, with the same 5 knot tailwind, our ground roll will be increased approximately the same 20%, perhaps slightly more. Putting the two factors of slope and wind together, we can determine that approximately ***1.0% of slope is equivalent to 2-3 knots of wind*** in its effect on takeoff and landing performance. It will require at least a 3.0 % up-slope to counteract the effects of a 6-10 knot tailwind on landing. For most general aviation aircraft, takeoff with tailwinds greater than 10 knots is not recommended under any circumstances. Ideally, we would choose to take off downhill with a headwind and land uphill with a headwind, but this isn't always possible.

In the event that we must take off or land with the wind at our tail, particularly on shorter fields, we must make some careful calculations. A basic Rule of Thumb for all flying is, "If you're

not SURE it's safe, don't do it." It may be more prudent to wait things out and live to fly another day, rather than trusting luck and hoping things will work out.

Understanding visual illusions is also important, particularly when setting up for landing on a sloped runway. Illusions in themselves are not a problem, but the problem comes from failing to recognize you are experiencing an illusion and responding to visual information as though everything your poor, old brain is telling you is the whole truth and nothing but the truth. The easiest way to simulate the illusions resulting from a sloping runway is to hold your arm straight out from your shoulder, palm down with your hand flat. This is what a level runway looks like on a normal approach. Now, tilt your hand up. This is the view you see when setting up for landing on an up-slope runway. The illusion tells you, you are too high. The potential danger is that you will respond to the illusion rather than the reality and come in too low. Tilting your hand downward simulates the illusion of the down-slope runway. The illusion is that you are too low and, thus, the potential difficulties arise when you approach the runway at too high an altitude. Landing on a down-sloped runway is particularly difficult because, as you flair, the runway drops away and you risk running out of airspeed while still well above the landing surface. Easy does it. We already saw that landing on a down-sloping runway will increase our landing distance by virtue of the addition to our thrust vector provided by the weight of the aircraft. When we combine, "If you're not SURE it's safe, don't do it," and the potential danger that you will respond to the illusion rather than the reality and come in too low, with the natural tendency to approach too high resulting from the visual illusion, plus the difficulty of finding the surface after flair, we must be very alert to the rapidly shrinking options before us.

There are airports that do not fit the typical up or down-slope situation, but may have other factors such as cliffs on the approach end, a hump in the middle obscuring the other end of the runway, a dip, or combinations of them all. Payson and Catalina Island are examples that come quickly to mind. Always be ready to execute a missed approach: add power, level off, and go around for another try.

Juergen

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