

CPA FLIGHT LINES

SEPTEMBER 2024



North American Aviation T-28C
Based in Colorado Springs, CO
(photo credits: Steve Rodemer & Andy Holmes)

President's Corner

by Adrian Nye



CPA is following the politics surrounding possible closure of Boulder airport, and doing what we can.

There will be two propositions on the November election ballot in the city of Boulder, one about closing Boulder airport and the other about using the land for affordable housing. In mid-August there was an effort by city staff and airport opponents to adjust the wording of the propositions to make them more practical and implementable and to give them a better chance of passage. Fortunately, on Aug 15 the city council rejected the updates, as they correctly

thought approving the change would look like they were putting their finger on the scale, because the ballot would say the initiatives came from the council not the public. The next step is "third reading" which is final approval of the ballot language which will occur on September 5.

*This was written August 18. Please see "**News Flash!**" below for update on ballot measures.* The Save Boulder Airport committee held a fundraiser August 13 to raise funds for a campaign against the measure, which immediately raised more than half the requested amount. Several CPA Board members attended. The committee is very experienced and competent, led by a former City Council member and includes at least one current council member. A former mayoral candidate who almost won last year is also involved. Please donate if you can, visit <https://saveboulderairport.com/donate/>

I learned at the fundraiser that Boulder already has plans for over 18,000 new housing units, not counting the airport land. That is 40% growth. Most of us think that the low-income housing issue is not driving the airport closure effort - it's just an attempt to rally more voters behind the issue. But it might work.

Last month Boulder attorneys sued the FAA about who has final say on the airport and when. FAA claims it has the final say in perpetuity because it funded purchase of 38 acres of the land in 1971 and prior, relying on a 1980 law to apply retroactively. Boulder says the time limit it agreed to was 20 years and it is being denied its property rights for the 100 acres it funded. To make the suit even more complicated, FAA is a federal administrative agency and the recent Supreme Court torpedoing of "Chevron Deference" will give rise to questions about the limits of its authority. The currently backlog in federal court is at least 2 years before the case could even begin.

One interesting thing is that the city spent money on outside council and filed this lawsuit before waiting to see (by ballot measure) if Boulder citizens even want the airport closed. Again, it is a sign that some powers that be are not neutral.



There has been an active war of words in editorials in the Boulder Daily Camera and the Denver Post. So far I've submitted two guest editorials to the Daily Camera and the second was published on August 19 in the Daily Camera. It will appear elsewhere in this issue.

I had a good trip to Alaska. I took the obligatory seaplane ride in a 1959 Beaver from Ketchikan into the Misty Fjords National Monument, where we landed in the middle of nowhere. It was awesome. Turns out the pilot winters here in Colorado and teaches out of Western Air Flight Academy at KBJC. Small world!

I hope you are enjoying the beautiful August weather and getting some flying in.

Adrian



In This Issue...

<i>President’s Corner</i>	<i>2</i>
<i>News Flash!</i>	<i>5</i>
<i>Aviation Events Brief – September</i>	<i>6</i>
<i>CPA Poker Run</i>	<i>8</i>
<i>From The Line</i>	
Mountain Pass VFR GPS Waypoints Established in Colorado	11
What Next When Engines Run Rough?	14
Editorial Published in Boulder Daily Camera	16
<i>That’s A Wrap</i>	
Pueblo	18
Fort Collins	21
<i>On The Horizon</i>	
Spaceport & Trinity, New Mexico	22

NOTICE: The deadline for submissions for the October 1st issue of Flight Lines is September 20.

Email your article to newsletter@coloradopilots.org.



NEWS FLASH! August 28, 2024

by Adrian Nye

Good news! The ballot measures to close Boulder airport have been withdrawn. The sponsors say they want to wait until the lawsuit against the FAA is resolved.

Boulder is still not taking Federal and state grants. This decision was made by Boulder staff and not approved by the city council, even though it has multi-million-dollar consequences to the taxpayers, and likely delays adoption of unleaded fuel. I believe the Save Boulder Airport coalition will turn their sights to reversing that decision. It is especially important right now because the Inflation Reduction Act has increased grants to airports and Colorado also has a larger than usual pool of money to distribute.

At 1:40 am this morning, August 28, 2024, the Longmont City Council rejected the Modern West 2 amended concept plan (directly under the approach path of runway 29 at KLMO). Political bodies always seem to leave these controversial decisions until last and force everybody to stay up ridiculously late, in hopes people will just go home. But about 75 people were there until the bitter end, most of them pilots, and they presented good arguments. The major reason was the FAA determination that it is an incompatible use, and the uncertainty around whether the FAA might try to claw back past grants or refuse future grants. We can thank the FAA for this one, because they refused to tell the developer how to make it a compatible use, or whether that's possible at all. It was essentially a rezoning request, so the developers can still build what was previously approved in the year 2000 when that land was annexed, so it's not really a final win. Also, Modern West 1 has already been approved and is just as problematic. It was approved without city council or public input because it complied with existing zoning. Modern West 1 will result in residential housing 164 feet from airborne aircraft on the RNAV 29 approach into KLMO.



Aviation Events Brief – September 2024

History Comes to Life @ KAPA feat. “That’s All Brother,” “Yellow Rose,” and more

Friday, August 30, 2024 - Monday, September 2, 2024, from 1000 to 1700

Wings Over the Rockies Exploration of Flight, 13005 Wings Way, Englewood, CO 80112

Wings Membership or Daily Ticket Required

Free [pre-registration](#) required for Members-Only Tour of C-47 & B-25 on 08/30/24 from 1000 to 1200

Centennial Airport Community Noise Roundtable

Wednesday, September 4, 2024, from 1830 to 2000

7565 South Peoria, Englewood, CO 80112 or GoToWebinar

Webinar Registration [here](#)

‘A Journey Back in Time’ concert – Commemorative Air Force

Friday, September 6, 2024, from 1700 to 2130

SheltAir BJC, 9586 Metro Airport Ave, Broomfield, CO 80021

Tickets [here](#)

Breakfast Fly-In @ KAPA

Saturday, September 7, 2024, from 0930 to 1230

Wings Over the Rockies Exploration of Flight, 13005 Wings Way, Englewood, CO 80112

Registration not required

CPA – Monthly Board of Directors Meeting-ALL MEMBERS WELCOME TO ATTEND

Monday, September 9, 2024, from 1830 to 2000

SheltAir BJC, 9107 Rocky Road, Broomfield, CO 80021

In Person, or CPA website link or at <https://bit.ly/CPABoardMeeting>

Arapahoe County Public Airport Authority

Thursday, September 12, 2024, from 1500 to 1700

7565 South Peoria, Englewood, CO 80112

Registration not required

US Aircraft Expo

Friday, September 13, 2024 – Saturday September 14, 2024 from 1000 to 1500

SheltAir BJC, 9107 Rocky Rd, Broomfield, CO 80021

Free registration [here](#)

Longmont Airshow @ KLMO

Saturday, September 14, 2024, from 1100 to 1300 (gates open at 0700)

229 Airport Road, Longmont, CO 80503

Free to Attend, Airshow Performers lineup [here](#)

Aims Aviation Day @ KFNL (CPA Volunteer Opportunities Available)

Saturday, September 14, 2024, from 0800 to 1700

6350 Aviation Circle, Loveland, CO 80538

Volunteer via email to education@coloradopilots.org



EAA1627 Young Eagles Rally – Pancakes and Burgers @ KBDU

Saturday, September 14, 2024, from 0830 to 1330

Journeys Aviation, 3335 Airport Road, Suite A, Boulder, CO 80301

CPA Fly-In Bentonville, AR

September 12 -15, 2024

Safe flights to all attendees. Wishing you blue skies and tailwinds.

Registration closed

Jefferson County Airport Advisory Board

September 18, 2024, at 1700

RMMA Terminal, 11755 Airport Way, Broomfield, CO 80021 (Mt. Evans Room)

Registration not required

CPA Mountain Flying – High Elevation Airport Operations Ground School

Saturday, September 21, 2024, from 0830 to 1700

Wright Brothers room, Administration Building, 7565 S Peoria St, Englewood, CO 80112

Register [here](#)

4th Annual – Keep ‘Em Flying! 1940s Hangar Dance - CAF Rocky Mountain Wing

Saturday, September 21, 2024, from 1700 to 2200

780 Heritage Way, Grand Junction, CO 81506 – Grand Junction Regional Airport – Gate 10

Tickets & Donations [here](#)

Kremmling Grand River Aviation Breakfast Fly-In @ 20V

Saturday, September 21, 2024, from 0800 to 1200

Grand River Aviation, 450 Airport Road, Kremmling, CO 80459

Colorado 99s Wings & Wheels Poker Run

Saturday, September 21, 2024, starts at 0800-ends at 1230

www.colorado99s.org/pokerrun

CPA Fly-In Nucla, CO

September 27 -29, 2024

Safe flights to all attendees. Wishing you blue skies and tailwinds.

Registration closes September 1, 2024

HAVE AN AVIATION RELATED EVENT?

Contact the CPA Webmaster at webmaster@coloradopilots.org and the CPA Newsletter Editor at newsletter@coloradopilots.org to have your event published on our website calendar and in the monthly Flight Lines Aviation Events Brief!





CPA Scholarship Fundraiser Poker Run Saturday, October 12th, 7am – 12pm

We are looking for some adventurous pilots to help raise funds for our scholarship program. The CPA Education Committee is organizing a Poker Run with the goal to raise \$2,000. Space is limited to the 1st 20 participants, [get your registration in today!](#)



The process is simple:

- 1. Complete the Poker Run registration form and submit a \$100 registration fee.**
- 2. Upon receipt of your registration, we will provide you with your first two (2) cards via text.**
- 3. On Saturday morning, October 12th, fly to 3-5 airports of your choice ANYWHERE in the State of Colorado.**
- 4. At each airport, take a photo to provide “evidence” of your arrival. An additional playing card will be sent to you via text for each airport arrival.**
- 5. When you’ve completed your run, send us a text summarizing your winning hand.**
- 6. The 1st, 2nd, and 3rd place winners will receive CPA SWAG.**

We will also have CPA memorabilia available for you to receive at KGXY, KLMO, KEIK, KBJC, and 18V ... although the choice of airports for your Poker Run is totally up to you!

For further information, please reach out to Mike Mayfield (mp.mayfield@gmail.com, 719-440-9836) or Deborah Cassel (deborahcassel@comcast.net).

Thanks in advance for your continued support of the CPA Education Committee and our Scholarship Program!





CPA Education Committee Poker Run Registration Form

Name:	
Address:	
City / State / ZIP:	
Phone Number:	
Email Address:	
CPA Member: (Yes / No):	
Airports you Plan to Visit:	
Aircraft Type:	
Aircraft N Number:	

Please email your registration form to: mp.mayfield@gmail.com.

The \$100 registration fee can be sent to our Scholarship Fund GoFundMe campaign:

[CPA SCHOLARSHIP CAMPAIGN](#)

OR ... a check can be sent to Colorado Pilots Association PO Box 200911 Denver CO 80220-0911. Please mention "2024 Scholarship Fund" on your check.



FROM THE LINE



CPA MEMBER ARTICLES

Mountain Pass VFR GPS Waypoints Established in Colorado, by Bill Dunn

What Next When Engines Run Rough?, by Bill Marvel

Editorial Published in Boulder Daily Camera, by Adrian Nye



Mountain Pass VFP GPS Waypoints Established in Colorado

by Bill Dunn ATP/CFII, CPA Mountain Flying Program Assistant Chair

Colorado Pilots Association is excited to announce that new VFR RNAV GPS waypoints (WP) are now located in key Colorado mountain passes. In a joint effort that started as an initiative from Colorado Department of Transportation Aeronautics Division (CDOT), as of press date, ten (10) Colorado mountain pass waypoints have been established in the National Airspace System (NAS) database. They have also been charted on VFR charts, with even more coming soon! The WP project was set in-motion after CPA Mountain Flying program leadership including Brian Brieske, Bill Dunn, and Bill Standerfer responded to a request for subject matter expertise (SME) & input from Kip McClain at CDOT. The Aeronautics Division of CDOT had learned about an Alaska system of waypoints being used successfully by pilots in the mountainous terrain of Alaska, and wanted to see if a similar plan could be designed & executed in our state.

After studying the system in Alaska, the CPA team concurred that pilots flying in Colorado would benefit from a system of this type and intent, but there would need to be key differences from the Alaska concept. They explained that the AK system works well for pilots flying in the remote areas of that state, but employs significantly different techniques and procedures, due to the often-restrictive cloud ceilings and visibilities obscuring the AK mountains. Additionally, the pilots in AK mostly operate in comparably low elevations/altitudes (1000-5000 MSL), resulting in much better aircraft performance than we have in Colorado, and the very high elevations of the CONUS mountain west (see figure 1).

Navigational challenges Alaska pilots experience relate to proper identification of landmarks in their vast wilderness and choosing the proper valley to use to access a pass. Their typical navigation technique relies heavily on pilotage, following rivers and turning off a primary river system, at the confluence of a *different* stream or river, then flying up a valley toward a mountain pass in the headwaters of that drainage. Flying below cloud layers with peaks obscured, river & creeks valleys can look very similar and be mistaken. The AK system of WP's is designed to provide positive guidance downstream, at the start of the valley, so the pilot turns toward the intended pass and up the proper tributary. For that reason, AK does not place a WP in the pass, but at the start of the valley that leads to the desired pass (see figure 2).



figure 1

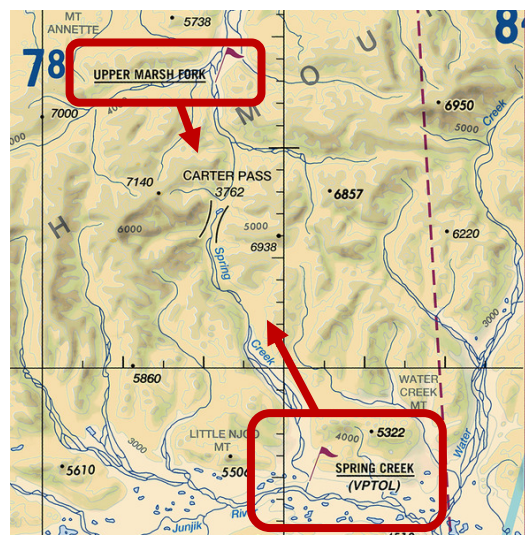


figure 2

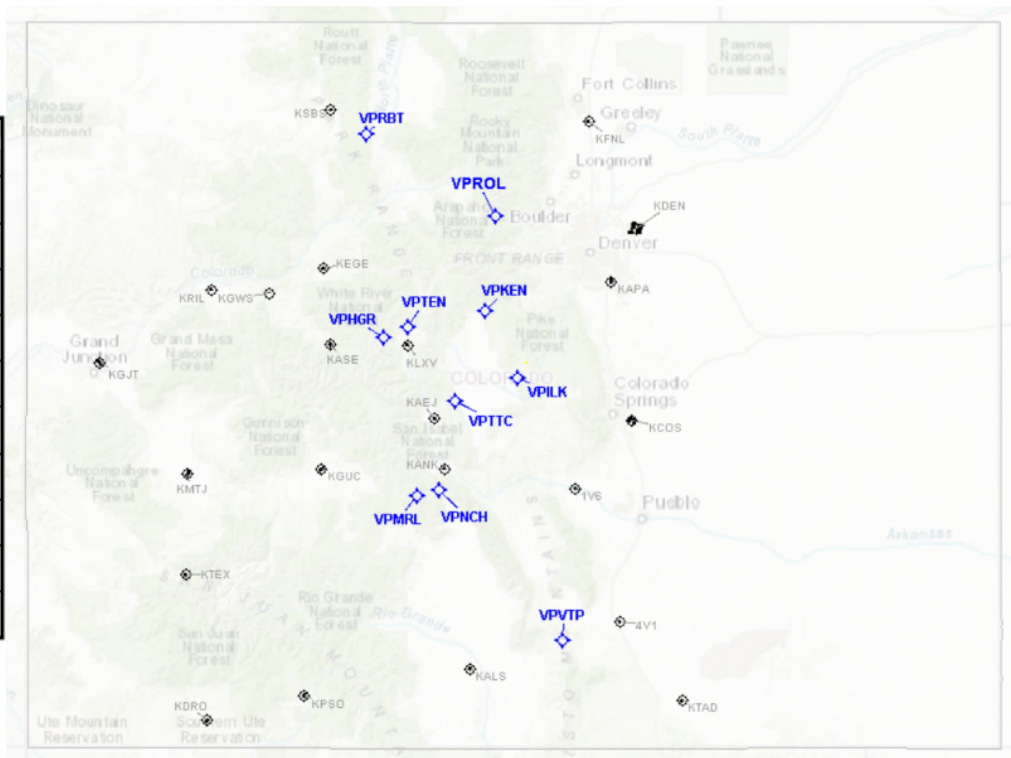


Operational differences pilots in Colorado (CO) must consider:

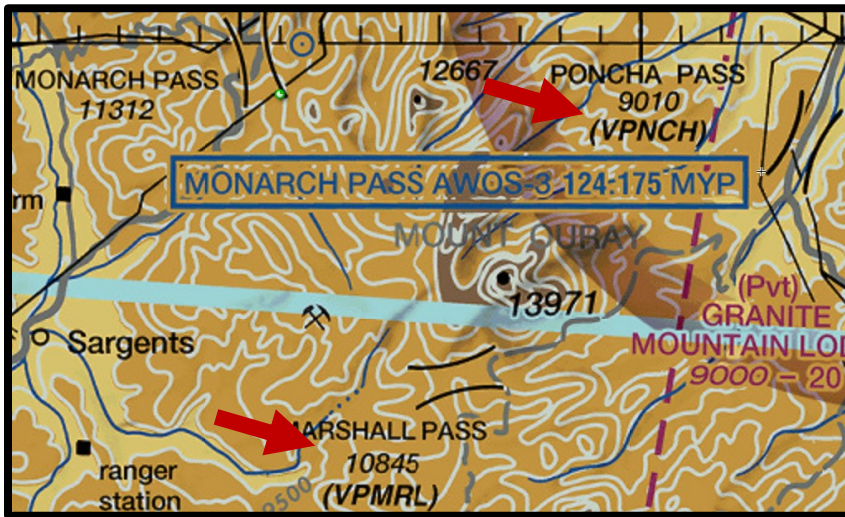
- ✓ Pass crossing altitudes in our state (9000-14000+) double those used Alaska, resulting in diminished aircraft performance. This makes flying in valleys unacceptable (You can't outclimb the terrain!)
- ✓ Pilots in CO and similar states are taught to fly above the ridgelines & peaks adjacent to valleys. This technique is so pilots can take advantage of orographic and thermal lift found there, gaining sufficient altitude to cross a pass well before arriving at the pass. Proper mountain technique mitigates some of the associated, negative performance issues and wind impacts.
- ✓ Staying above the high/adjacent terrain always 'claiming the high ground' provides for built-in escape turns to lower elevation. If pilots fly down in the valleys, turns are inherently more dangerous, as they are always toward higher elevation.
- ✓ Weather impacts are very different in Colorado than in AK. The CPA Mountain Ground & Flight Courses teach pilots that best practices are to fly when mountains are not obscured; and when winds are from directions and at velocities that are less conducive to strong downdrafts and turbulence; and of course, are within pilot and aircraft limitations.
- ✓ Given all these factors, it is more important in Colorado to have positive identification of the pass location, instead of a starting point down the valley from a pass.

Colorado's Phase One of the process: the CDOT-CPA team selected ten passes mostly from the continental divide eastward, to chart and establish in the NAS/GPS database. The passes and their WP names selected for this phase included:

PASS NAME	Elevation MSL	WPT NAME*
Rollins	11,671'	VPROL
Hagerman	11,960'	VPHGR
Kenosha	10,001'	VPKEN
La Veta	9,380'	VPVPT
Marshall	10,845'	VPMRL
Poncha	9,015'	VPNCH
Rabbit Ears	9,426'	VPRBT
Tennessee	10,424'	VPTEN
Trout Creek	9,346'	VPTTC
Wilkerson	9,507'	VPILK



The new waypoints became available on July 11, 2024 (NAS charting cycle). They are shown as follows on the VFR charting on the Denver and Cheyenne Sectionals. Note the waypoint names each starting with “VP” listed on the last line of the pass name following the elevation:



In the example to the left, three passes are shown. Note the location of the WP names you can add as part of your routing in your GPS (VPMRL) for Marshall Pass and (VPNCH) for Poncha Pass.

All passes selected to have waypoints, are considered to be in a category of less complex, lower elevation, and quicker transit, than others. This is why in this example Monarch Pass does not and will not have an associated WP.

Additional charting product changes are planned to enhance the safety of flying in the Colorado mountains. Phase Two will add more waypoints this fall and provide supplemental mountain flying safety information to pilots not familiar with flying in Colorado... so stay tuned!



What Next When Engines Run Rough?

by Bill Marvel, the RV-14A Guy

I'm working on an article for the next issue about using the Exhaust Gas Temperature (EGT) gauge for its most important function, which isn't leaning the engine! Yes, it can help with leaning but by far its most important function is the EGT's power to home in on engine problems. This short article is a lead in to the next one.

As a quick overview, think for a moment about what can cause engine roughness, either continuous or intermittent (the most vexing).

Obvious answers might be a broken engine mount or a chunk missing from a propeller blade. But most likely is a combustion problem. The first two would be continuous and easily found on a ground inspection; the third not necessarily.



An EGT probe on the bench. The actual sensor is the small pin projecting into the circular clamp.

If the case of the latter, we know that combustion occurs in the cylinders. We also know that unless ignition, fuel and air all arrive at the right place at the right time and in the right quantity in each cylinder, roughness results. Cylinder performance is monitored in several ways. On the ground are compression checks, oil consumption/samples and borescope inspection.

But in flight, which is where we detect the problem, we only have cylinder head temperature, exhaust gas temperature and fuel flow. But fuel flow indications are overall for the engine and not per cylinder. And CHT measures the temperature of a large mass of metal which changes slowly because of that mass.

In contrast, an EGT probe has a very small thermal mass and a corresponding fast response time. This allows it to reveal any combustion anomaly almost instantly. And make no mistake. It pays a huge price for that responsiveness by living in a hellish environment, the worst in the entire engine, where it routinely sees inflight temperatures in the 1200-to-1400-degree Fahrenheit range and higher in turbos.

The key to unlocking this powerful tool is having EGT instrumentation on all cylinders and a graphical display of each simultaneously. Older aircraft sometimes had one EGT gauge on a single cylinder, and I think it was there mainly to fill a hole in the instrument panel with an inexpensive but largely useless device. Fortunately, today most aircraft either come with a graphical, all cylinder EGT/CHT system or can easily be retrofitted with one.





This mounted probe from a different manufacturer features cooling fins to dissipate some of the incredible heat the probe experiences.

An important feature that allows the EGT to do this troubleshooting job is that each cylinder has two spark plugs. And because they both fire at once, there is a very distinct EGT signature if both are working and a different signature if one fails. Similarly, if there is a fuel or air problem, the EGT also responds immediately and shows any difference between the cylinders. These display characteristics will immediately reveal which ignition system is at fault or which cylinder has a fuel/air mixture problem. That, in turn, will guide additional troubleshooting to isolate the cause – bad spark plug, bad plug lead, bad ignition power source, clogged fuel injector, partially blocked air induction tube, etc.

I'll continue with this in the next issue but the above is a good background from which to start. Keep in mind that all of this applies regardless of the type of ignition you have – magneto, electronic or one of each. And it doesn't matter if the airplane is certified or one you built in your garage. If it is a reciprocating engine with two spark plugs per cylinder, this information applies.

Editorial Published in Boulder Daily Camera

by Adrian Nye

The following appeared Sunday Aug 19 in the Boulder Daily Camera:

Boulder Airport's Problems Already Being Solved

By the time Boulder airport could close in 2040, the main reasons now given for closing it will likely be much improved or gone: Noise and leaded fuel.

It's crazy but true - most training aircraft now in use were built in the 1970s, over 50 years ago. They are ancient noisy gas guzzlers, getting more expensive to buy, fuel and maintain. While still safe with proper maintenance, they can't last forever. A new generation is gradually becoming more practical and economically smart. Journeys Aviation flight school at Boulder airport is already operating two new, much quieter training aircraft that use half the fuel. Next year the FAA MOSAIC initiative will further encourage a transition to quieter aircraft. By 2040, my bet is that nearly all training aircraft will be newer and quieter. These aircraft are also great for towing gliders.

Boulder is slowing the transition to unleaded fuel by not taking Federal and state grants, but leaded fuel will be banned by 2030 by EPA order. So that problem will soon be gone as well.

We all know that short-range electric aviation is coming, we just don't know when. It will be quieter and cleaner. What if someday there were a fast shuttle from Boulder airport to DIA where you could take your vacation flight to Paris? It's not far-fetched. Do we really want to throw away the only possible location for such a useful service? That in the meantime could save lives the next time there's a wildfire or flood?

Let's bring this carefully back to earth - what if everything stays as it is now? The four large flight schools at Rocky Mountain Metro airport in Broomfield, and the smaller ones at Boulder, Erie, and Longmont all use the airspace between Broomfield and Fort Collins for practice. The area is constricted by the Denver airport airspace to the east and the mountains to the west. Lately the airspace is so busy it is difficult to find anywhere safe to practice. Flights go farther and farther north in search of space, even though this is costly and time consuming.

If Boulder airport were to close, the airspace over Boulder would suddenly become the most attractive place to practice by most of those flight schools, because it is so close. Airplanes could be over Boulder more than they are now, not less. Boulder could do nothing about it because the FAA controls airspace.

Whichever future comes to pass, closing the airport would be irreversible and inadvisable. Why throw away a permanent asset because of temporary problems that will inevitably be fixed? Boulder could assist in fixing them instead of spending a fortune on a protracted legal fight with the FAA. Boulder would spend an estimated \$40 million over 20 years on maintenance expenses for the airport, because it can't take Federal and state grants if it wants to close the airport. Instead, keep the airport open, take the grants which have always made the airport self-sustaining, and help solve the noise problem by spending a tiny fraction of that \$40 million on encouraging replacement of the noisy aircraft.

Adrian Nye is a former flight instructor and President of the Colorado Pilots Association



THAT'S A WRAP



CPA FLY-IN DEBRIEFS

Pueblo – July 19, 2024

Fort Collins – August 3, 2024



The Pueblo Two for One Duo!

by Bill Marvel, event host

Our first ever trip to aerospace venues at Pueblo was rewarded by good flying weather and two very informative tours. Although public visits are occasionally given at the Initial Flight Training Facility, we were the first “outside” group to ever tour the United Launch Alliance propulsion test shop. Previously, only family members and related contractor employees have been able to do that.



Program director Mark Maryak (Yak), a former B-52 pilot, started with a briefing

Following a brief introduction and distribution of nametags, we drove to the CAE Initial Flight Training Facility where we went through metal detectors and showed IDs for comparison to our pre-submitted attendee list. CAE is a government contractor (the formal name got so convoluted with mergers they just call it CAE) which currently runs the training program. The initial briefing covered a lot of information on their mission, personnel, aircraft, training areas, deconfliction procedures and the like. Many questions from us followed.

During every 7-week course, each student receives about 35 hours of training and solos in around 10. It is all daylight VFR including short cross countries and occurs M-F with the first briefing at 0430! They all follow the exact same

procedures used in USAF pilot training bases afterwards. Each flight involves a very thorough brief and debrief by the instructors, who are mostly former USAF pilots but who today are civilian CAE employees.



Hangars are huge and house all airplanes every night



The Continental engines have routinely reached TBO with no cylinder work

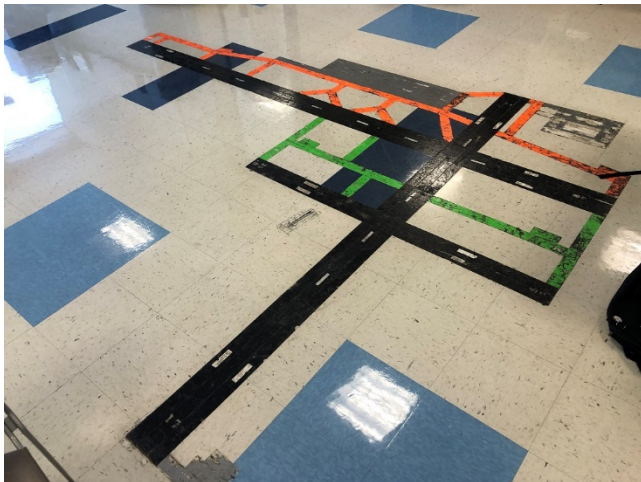
Incredibly, their 60 DA-20 Katana aircraft are expected to triple in number over the next 10 years as training expands. So are the number of rooms in their onsite hotel for participants. They have enough hangar space that every airplane is in a hangar every night. Of the 60 aircraft, 40 are in the air at any given time. Each has ADS-B in and out and are continually tracked by both ATC and CAE, the latter from a small control tower called the “SOF” (Supervisor of Flight). Each aircraft monitors two different frequencies simultaneously. It is a very busy, intense training operation with carefully planned areas and corridors where aircraft are deconflicted both horizontally and vertically. Their engines routinely run to their 2400-hour TBO with no major maintenance needed. Brake linings are changed each 100



hours and their most frequent flight training stoppage is for hot days when oil temps reach the 240-degree red line. Flight instrumentation is set up with the student on the right side and instructor on the left, since ongoing pilot training will be in aircraft with power levers on the left and stick in the right hand. They currently have a problem with scoring in a portion of the fuel system which creates mixture problems when temperatures range from cool at night to very hot in the daytime, as occurs this time of year.



Students sit on the right side, so they have throttles in the left hand and stick in the right.



Runway/taxiway diagrams are on the floor of every briefing room

Their safety record has been exemplary with no fatal crashes and only two aircraft seriously damaged on or near the ground while taking off or landing. Following that tour, we headed back to the terminal building for a taco bar lunch with our own "buffet" table and drinks with plenty of time to talk a bit more and get to know each other before the ULA tour. Doing it that way was the recommendation of the restaurant owner for our large group, since he and one helper ran the entire business.

The ULA tour was equally informative and since none of us had any real idea of what they did there -- most impressive! What unfolded behind the walls was fascinating. On the one hand they have automated equipment with machining accuracy of 1/10,000 of an inch and on the other, devices that can create and test up to 45,000 psi of pressure. They deal with super cold liquified gases down to 450 degrees below zero when testing fuel and oxidizer valves that carry cryogenic propellants. Because of expansion and contraction of materials containing these liquids, special tubing is designed to accommodate the movement needed. A high-speed camera can record over 2,000,000 frames per second and a vibration table shakes components susceptible to launch vibrations all the way up to some incredible frequency I can't remember!

Despite their name, the propulsion test shop does no work (yet) in propulsion system design or manufacturing, but instead tests a wide variety of components used on their huge space launch rockets. Much of what they do involves failures that occur



Vulcan launch vehicle model



during launches. Problem components are sent to them, and their engineers decide how to create whatever tests are needed, how to set them up and how to record data. It is a playground for new engineers just out of college because of the innovation available to them.

The Pueblo facility has machines that tear metal apart to determine breaking strength and 3D printers which make super high strength, complex parts using an Inconel alloy that cannot be machined because it work-hardens too quickly. ULA is in the rocket business (big rockets!) – that put astronauts and satellites into orbit for both NASA and the defense department. All are made in Decatur, Alabama and Harlingen, Texas. No photos were allowed except one I took in the lobby of a model of their new Vulcan launch vehicle, but they answered our many questions. One had to do with two NASA astronauts currently stranded on the Space Station due to a capsule problem. ULA clarified that the capsule is a 100% Boeing construct, and they are not involved with it. Overall, even those among us without technical backgrounds could appreciate the complexity and scope of what goes on there. As an indication of the feeding frenzy underway in the space business, we were told that 7 of their 14 engineers at the Pueblo site had left for employment offers from Jeff Bezos, owner of Blue Origin, another competing launch business. He was offering about \$35,000 more per year than ULA for certain types of engineers and the market responded. To give you an idea of the inter involvement despite the competition in aerospace these days, one of Bezos' companies manufactures the rocket engines used by competitor ULA!

This was a memorable trip for those who could make it, whether by flying or driving, and several did the latter due to Pueblo's proximity to Denver. It was impressive to learn more about what's taking place here in our home state even though a lot of it, like this ULA test facility, is very low key.



Fort Collins Brewery Tours Fly-In/Drive-In

by Jan McKenzie, event host



An old saying, often mis-attributed to Benjamin Franklin, is that “Beer is proof that God loves us and wants us to be happy.” That could well be agreed to by the 19 CPA members who drove or flew to Fort Collins on August Third for two brewery tours, good friends, and a good meal enjoyed by all.

After lunch, the tours began at Gilded Goat Brewing Company, a micro-brewery owned and operated by Charlie Hoxmeier, a microbiologist and CSU professor, and his family. He gave us a very complete and informative walk through of making beer and ale from starting grain to finished product. We had lots of questions to which he had ready answers – nice to get the story from an expert!

After a quick chance to sample their delicious brews, we moved on to the much larger and very well-known New Belgium Brewing Company, makers of the famous Fat Tire amber ale. That tour covered their wide-ranging brewing operations and the history of New Belgium, a pioneer in craft brewing in the USA. It also included enjoying samples of several of their regular and sour beers.

The day finished with an Italian meal with wine and (of course!) beer at the home of Jan McKenzie and Marty Brophy. Everyone enjoyed dinner and socializing with other pilots and guests, most of whom were also beer and/or wine lovers. CPA Fly-In Chair Bill Marvel provided CPA merchandise door prizes. This was a typical fun CPA event! Get in on that fun by attending future fly-ins!



ON THE HORIZON



CPA FLY-IN LISTINGS

Spaceport America & Trinity Site, New Mexico – October 18-20, 2024

Four Slots Available for Trinity/Spaceport!

As a result of two unexpected cancellations, all members on the standby list have been accommodated and four slots on the trip are now available. Signup information for this October 18-20 event is in the August Flight Lines issue. Interested members should contact host Bill Marvel at flyins@coloradopilots.org.





Stay up to date with Colorado aviation events here:

<https://bit.ly/COAVEvents>



Check Out the Latest Colorado Pilots Association Board Minutes

Log in to <https://www.coloradopilots.org>

select CPA Member Benefits, then select Meeting Minutes

Follow the Colorado Pilots Association on [Facebook](#), [Instagram](#), [Twitter](#), and [LinkedIn](#)



LinkedIn

*The content in **Flight Lines** is for general information only and may or may not be accurate. Pilots and aircraft owners and operators must refer to FAA regulations and manufacturers' instructions and maintenance and operating handbooks for authoritative information. The writings herein present the opinions and advice of the authors only and do not reflect the position of the Colorado Pilots Association, Inc. or its officers and directors.*

Colorado Pilots Association
PO Box 200911
Denver, CO 80220-0911
512-585-1015

