THE WINDSOCK

July, 2024

Editor: Frank Huber | Layout Editor: Frank Huber

The President's Flight Deck

July is here and that means AirVenture! If you are going to AirVenture, be sure to find our Chapter camp site at the intersection of Sunrise and 15th. This site is slightly north, and quite a bit west of our previous location. Look for the red/white and gray awnings. We will be hosting our annual pasta feed on Thursday evening, featuring the scrumptious cooking of Kim Otis and her homemade pasta sauce; husband Steve will be boiling the pasta water. As this event has grown, Kim and Steve could use some help in setting up the equipment, tables, and possibly food prep. If you can help, let me know next week via text message or in person, so I can let Kim and Steve know. Family and friends are welcome to join us at the pasta feed!

Our pancake breakfast on June 29th was a huge success! The most notable item was the rain free day; one of just a few in June! Thank you to all the volunteers that made the event memorable, and to all the pilots that brought aircraft in for display. I received several emails from people stating they had a fun time at the event! Let's do it again next year! Frank Huber has written an article for this newsletter with details and pictures, be sure to check it out.

I hope to see you at AirVenture!

Kevin

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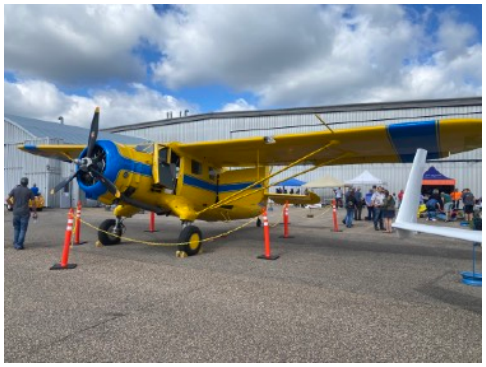
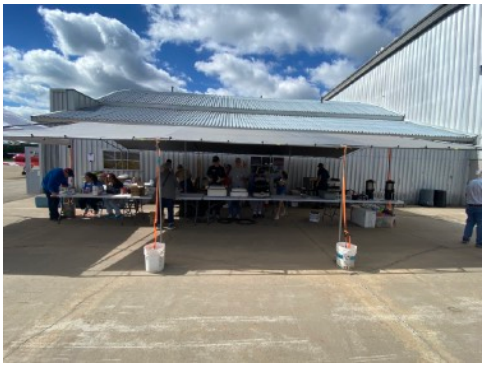
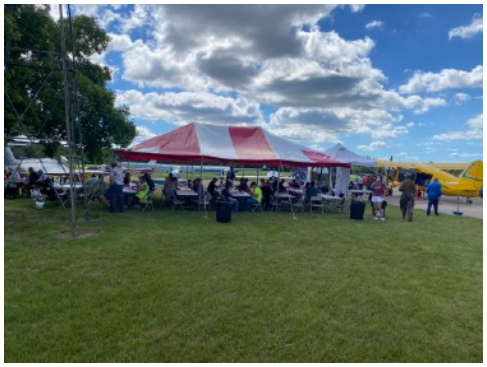
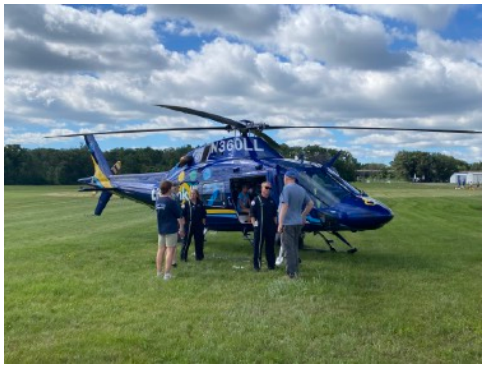
Contact the Board at: board@eaa237.org

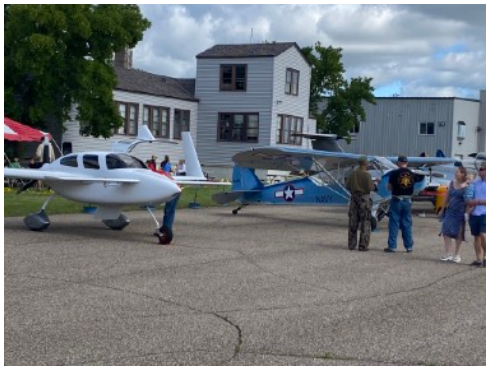
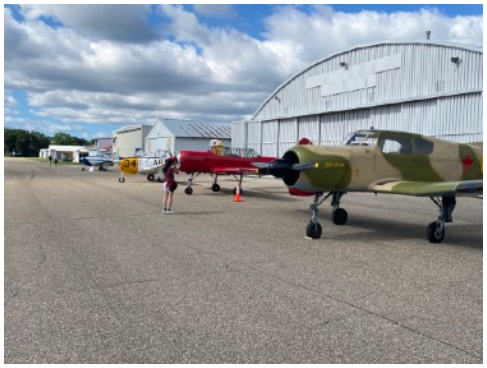
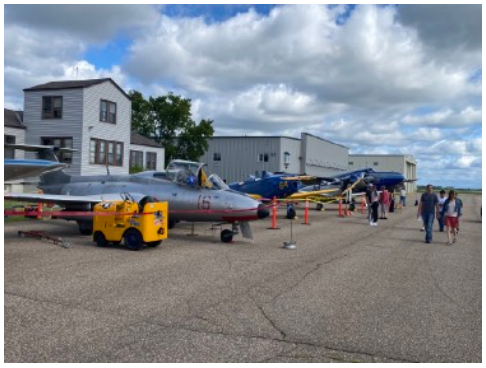
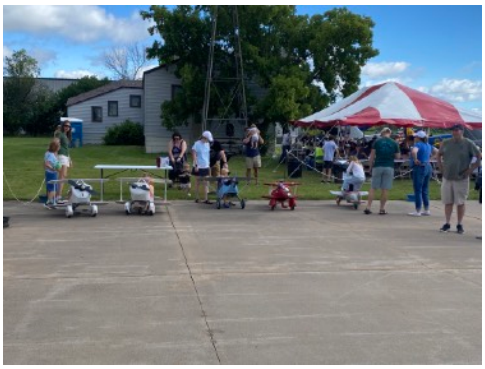
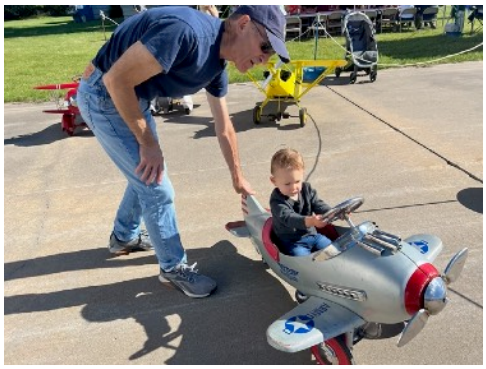
Chapter 237 Saturday, June 29th Pancake Breakfast

Our chapter pancake breakfast was a huge success on Saturday, June 29th. It was a beautiful sunny and breezy day for our event. We served an estimated 325 meals and cleared $1,500 in profits. We had a fairly steady stream of customers most of the morning. There were a number of planes that flew in, including a three plane formation of two Yaks and a T-34. We also had a number of planes that our members and local pilots brought over for the people to see. A Lifelink crew flew their helicopter over to the event and answered peoples questions for most of the event. The kids really enjoyed the chapter's pedal planes. My grandson, Olliver logged at least an hour of flight time and liked the low wing fighter the best.

The use of the ramp and hangar of the old Golden Wings Museum worked beautifully for the event. I think the biggest success of the event was all the chapter members that stepped up to help at the event. We had a good crew of volunteers that spent seven hours on Friday moving things over from the chapter building, setting up tents, the cooking equipment, tables and chairs, running electric cables for some of the equipment and doing all the other things necessary to prepare for the event.

Saturday we had plenty of chapter volunteers doing all the things necessary to make the event run smoothly. We had members cooking the pancakes, sausages, eggs, making coffee and also members serving all the food, keeping the tables clean and syrup dispensers full, taking the money and manning a Chapter information booth. When the event was over we had enough volunteers to clean up and get everything put away in only a few hours. All of this adds up to a very successful event for our chapter. *By Frank Huber*

The Chapter 237 Young Eagles July 19th event was cancelled due to weather. Our next scheduled event will be on Saturday, August 10th form 9am until 2 pm at Atlantic Aviation. As always we can always use pilots to fly the Young Eagles, volunteers to to register the participants and handle the paperwork, people to answer questions about the program and the chapter and volunteers to marshal the aircraft and move the participants safely to and from the aircraft. Come on out to enjoy the fun of watching the young people experience the fun of aviation.

Both of our Chapter 237 Ray Aviation Scholars are making good progress towards finishing up their Private Pilot training. Cody Phillipi , a member of the Build a Plane program, is working on solo certification for his first solo cross country. He then will be doing some night flight training and finishing up with the long cross-country. Cody has been working on preparing for the oral portion of his check ride.

Liam Dewanz, who is flying in the CAP Cadet program at the Stanton Airfield, has been working on his first solo cross-country and doing solo flight maneuver practice flights. He too is working on preparing for the oral portion of his future check ride, which is going to be schedule on his birthday in September. Both of our scholars have been slowed down by the rainy weather and high wind days we have been experiencing this summer, but should both finish up in the next few months.

The Explorer Post is not meeting in July or August. They will be attending AirVenture. Our Explorer Post members will be joining Explorer Posts from all over the country counting airplanes at the flight line on 18/36, parking airplanes in the Home-built area and working the ropes on Papa taxiway.

Chapter 237 Coming Events

* EAA Air Venture Monday, July 22 - Sunday July, 28 Oshkosh, WI
* Chapter 237 Young Eagles Event 9am-2pm at Atlantic Aviation
* Chapter IMC/VMC meetings VMC at 6:30pm IMC at 7:30 at chapter building
* Forest Lake Young Eagles event on Saturday, August 24 https://youngeaglesday.org/?yedetail&event=8FRrjVEq4
* Chapter 237 Meeting on Monday, August 26 Food at 6pm Meeting at 7pm

Editors Note: When you receive your August Sport Aviation, please save the The Adventures of Aviore magazine and bring to the chapter building so we can make them available for the young people, who attend our Young Eagles events. Thanks!

WHAT OUR MEMBERS ARE BUILDING, RESTORING AND FLYING
Frank Huber's
1948 Cessna 140

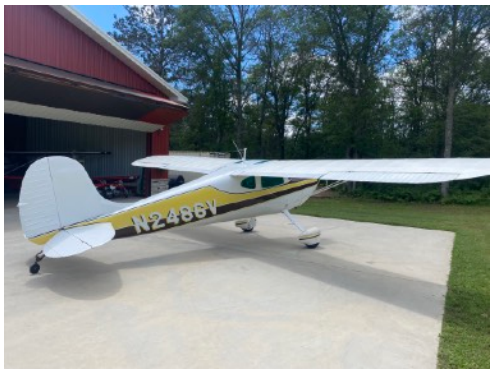
I sold my RV-7A on June 1 because my wife, Deb was not interested in taking any trips. So I decided I didn't need a fast airplane just to fly around in the local area. I had owned a 1946 Cessna 140 back in 1984-1989, which Deb had enjoyed flying with me in. So I started looking for another simple fun to fly Cessna 140 to buy. There were a fair number of 140s for sale, but the real nice looking ones were located on the west coast. I found one in the Baltimore area that looked nice, but when I opened the cowling, I found it covered with oil. Soon after, I found a nice looking one located in Iron River, Wisconsin, which is 40 miles east of Superior. I drove up on Sunday, June 23. I liked the airplane so I bought it. A friend flew me up the following week, so I could finish the deal and fly it back to KANE.

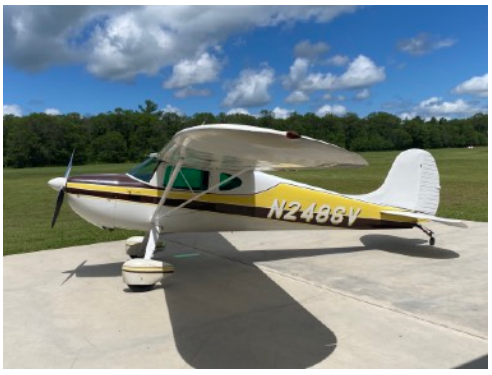
The plane did not have a transponder, ADSB or a com radio. I flew the plane back with a handheld radio after letting the tower know I was coming without ADSB and a transponder. RC Avionics offered me a good deal on a used Garmin 327 transponder and a UAVIONIX Tail Beacon. I am also having them install a new Becker com radio, which has a built-in VOX intercom. They are also adding headset and mic jacks on the right side of the airplane and push to talk switches on the yokes. With that work done I will have a nicely equipped avionics system.

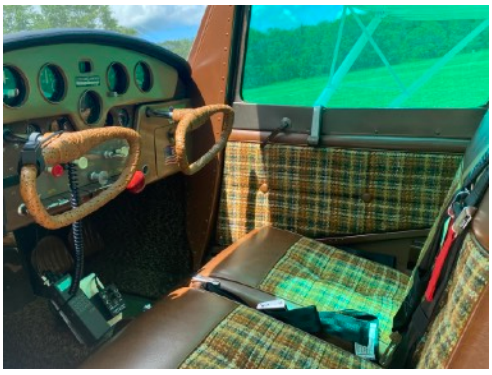
The plane was painted and had a new interior installed in 1971. It won best of type at Oshkosh in 1972. The wings and fuselage still look good, as the plane has always been hangared. But they need some TLC to buff out the years of dirt and a good polishing after that. The interior is very 1970s and long on the tooth. So I have ordered a new interior from Airtex, which will bring it into the 21st Century.

The plane also came with the STC kits for a light weight starter and an alternator replacement for the old heavy generator. I also plan to add the STC for a spin on oil filter to replace the old oil screen set up. I also plan to add the PMA Challenger lifetime oil filter. Since the plane will now have an alternator, I plan to add the STCed EarthX battery, which will decrease the empty weight of the aircraft by twenty-four pounds versus the weight of the lead acid battery. I plan to have all those items added to the plane during it's August annual inspection by chapter member Duane Kruse.

The engine runs great and the plane flies nice, with just a need for some left rudder trim to be added before the next flight. The plane already has the EAA STC for auto fuel usage, so it's going to be a very economical airplane to operate. I am going to enjoy doing all the work necessary to make it into a very nice 140 and a plane I can fly into the future as long as my health will allow me. *By Frank Huber*







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Quiz: Do You Know These 5 IFR Aircraft Requirements?
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The 7 Least Common Instrument Approaches, And How To Fly Them
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VFR To IFR Departure Procedures Video
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The Pilot's Guide For Landing At Busy Airports
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Leaning Your Mixture On The Ground Video
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How To Make A Perfect Crosswind Takeoff
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Towered Vs. Non-Towered Airports On A Sectional Chart Video
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8 Steps To Making Your First Solo Landing Perfectly Smooth
https://www.boldmethod.com/blog/lists/2024/05/eight-ways-to-make-your-first-solo-landing-smooth/

Does The Airport Have Right Patterns ? Video
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How Interference Drag Affects Your Aircraft's Performance
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Calm Winds At Non-Towered Airport Leads To Landing Incident
https://www.boldmethod.com/learn-to-fly/maneuvers/calm-winds-nearly-led-to-a-runway-collision-during-the-day-at-vfr-nontowered/

When Should I Use Ident? Video
https://www.boldmethod.com/shorts/shorts.vfr.0079/

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AIR FACTS

The journal for pilots by pilots for pilots

Challenges in Vietnam *By Ralph Grigg*
https://airfactsjournal.com/2024/07/challenges-in-vietnam/

Memories of Flying the L-1011 *By Jeff Hill*
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Our Overton Window *By Parvez Dara*
https://airfactsjournal.com/2024/07/our-overton-window/?trk_msg=19H5RMNTMT4K7DBVGRLIGQ4BKQ&trk_contact=RMPCRR64F9CCIR5GOMICQNF7OC&trk_sid=9KCLJDC8CC3C0AV01CCUK4V9KG&trk_link=IFNMO7APB1C498953PPSTDQF8G&utm_source=listrak&utm_medium=Email&utm_term=Our+Overton+Window&utm_campaign=F24072A&utm_content=The+Time+When+I+Almost+Landed+Short+++Survival+Gear+After+the+Crash

Joby's record 523-mile eVTOL flight: A huge leap for hydrogen aviation *By CC Weiss*
https://newatlas.com/joby-hydrogen-evtol-range/

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First Solo Ends a Stall Spin at 45 Feet
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Air Force Pilots Begin Training for Air Tractor-Based Light Attack Variant *By Mark Phelps*https://www.avweb.com/aviation-news/air-force-pilots-begin-training-for-air-tractor-based-light-attack-variant/?MailingID=%CAMPAIGNID%25

Drone-Downing Ukrainian Piston Planes Annoying Russians

://www.flyingmag.com/military/drone-downing-ukrainian-piston-planes-annoying-russians/

Thomas P Turner's

Mastery of Flight

FLYING LESSONS for July 11, 2024

This week's LESSONS:
You've likely seen the viral video this week of a Cessna 152 attempting to climb toward a mountain ridge, only to appear to stall, fall off on a wing and dive, barely clearing terrain as it reversed course and pullied out—according to several comments and by simply looking at the Cessna's shadow in the video—within perhaps three feet of the ground. Astute observers note the Cessna's elevator appeared to be fully up through the entire maneuver, making the recovery even more miraculous.

A lot of instruction, pilot talk and editorial space is devoted to techniques for high density altitude operations. The conversation is almost exclusively limited, however, to the challenge of obtaining maximum performance for takeoff and obstacle clearance. Once past the trees or power lines, in almost all discussion of hot-and-high flight stops as soon as the airplane leaves the immediate airport environment.

True, the detrimental effects of high density altitude are most obvious, and most immediately critical, close to the ground. If you don't manage the engine and mixture properly, and you don't precisely fly the optimum takeoff technique, configuration, angle of attack and indicated airspeed, you risk not getting far enough from the runway to broach the topic of maximum performance for an extended climb.

The Cessna 152 pilot had clearly been successful at making a takeoff on that hot summer day. But he didn't quite have the performance to clear the ridge. How do you optimize performance in an extended climb? And how can you be sure the performance you're getting is sufficient to clear a mountain or ridge?

Optimum Climb

Once clear of the tree line, if rising terrain along your flight path—or a need to climb through a gap in the clouds, or past busy airspace, or for some other reason—requires expeditious climbing, there are precise techniques for getting the most out of the airplane.

1. Throttle. Fly at full throttle unless the Pilot's Operating Handbook (POH) or Airplane Flying Manual (AFM) specifically prohibits it. The manual might have a recommended climb power setting at something other than full throttle. But unless it's an engine or airframe limitation give it everything it's got for a maximum performance climb.
2. Propeller. If the airplane has a controllable pitch propeller, and again unless there is a POH/AFM or AD limitation against it, use maximum propeller speed for optimum climb. You want maximum RPM with a fixed-pitch propeller too, which is one way of attaining the fourth optimal technique.
3. Rudder. It's easy to underestimate the importance of rudder coordination in a climb. But coordination really is vital to eking maximum performance, especially as density altitude increases. Uncoordinated flight increases drag significantly and drag robs performance. Climbing in a slip or skid can reduce climb by hundreds of feet per minute. But use rudder correctly so the airplane climbs directly into the relative wind streamlines the aircraft, and that increases its ability to climb.
4. Mixture. Achieving the optimal fuel-to-air ratio is so important to maintaining maximum climb that I'll address it in a separate section below.
5. Airspeed. As attaining maximum climb performance becomes more important, maintain V_Y speed for maximum climb rate. Although V_Y is published at a single value in the POH/AFM, the speed that reflects best-rate angle of attack reduces with a reduction in airplane weight. If there is terrain directly ahead, then, fly at V_X for best angle of attack, but this speed too decreases with a reduction in weight.

We've discussed in recent FLYING LESSONS how V-speeds change with an increase in altitude…V_X speed increasing as you climb, while V_Y decreases. For example, the Cessna 152 POH tells us:

Best rate of climb, sea level ……..67 KIAS
Best rate of climb, 10,000 feet ……..61 KIAS

The pitch attitude for a given indicated airspeed is shallower as density altitude increases and power is reduced

Best power

For maximum climb you need maximum power. With the throttle and propeller giving their all, the greatest variable for power development is mixture. We (hopefully) learn to lean for maximum takeoff power, but the importance of continuing to lean as the air thins in a climb isn't given much emphasis. Fail to lean in a climb, however, and the progressive richer mixture in climb—that is, more and more fuel per unit of thinning air—results in less-than-optimal power. The trick, then, is to progressively lean the mixture in climb so that you are always close to the very Best Power setting.

There are several ways to do this, depending on the engine and the airplane's instrumentation. For example, a simple airplane like our Cessna 152 example has a fixed-pitch propeller and, generally, little or no engine instrumentation useful for fine-tuning the mixture. The C152 POH tells us how to find maximum available power for a short-field takeoff:

> Mixture….RICH. Above 3000 feet, LEAN to obtain maximum RPM.

The POH repeats this same guidance on the Climb checklist.

Maximum propeller speed is the criteria for maximum power. Once established at climb speed with the throttle fully forward, lean slowly until RPM reaches its maximum and begins to drop. Enrichen the mixture slightly so the RPM returns to its maximum. Note the precise value; when RPM begins to drop, lean the mixture very slightly until it returns to that maximum value. Keep doing this every 500 to 1000 feet all the way to the top of your climb.

Many airplanes have an Exhaust Gas Temperature (EGT) gauge. The Cessna 182Q POH, as an example, includes this step on its MAXIMUM CLIMB PERFORMANCE checklist:

> Mixture…..FULL RICH (mixture may be leaned above 5000 feet)

The C182Q POH includes in its Amplified Procedures a section on using what it calls the Cessna Economy Mixture Indicator—an EGT. It suggests finding leaning to find peak EGT and then enriching to find a temperature 50°F rich of that peak point. Not mentioned in the book, once you find this point on the EGT gauge, every 1000 feet or so in climb lean the mixture as needed to keep the EGT at that same reference line.

Data from both Lycoming and Continental engine manuals differ from the Cessna guide, showing that maximum horsepower—Best Power—occurs at 75-100° Fahrenheit rich of peak EGT.

Probably the most precise method, and frankly one of the easiest to maintain precisely, is sometimes called the Target EGT technique. This is possible with an engine monitor that displays EGT digitally. Establish Best Power at 75-100°F rich of peak EGT. Note the indicated EGT (or the hottest EGT among them). As you climb, lean to maintain approximately this same EGT.

The Target EGT method works regardless of field elevation for takeoff, and at any altitude as you climb. Set throttle and propeller, lean until reaching the target, and keep it there until level-off.

In a turbocharged or turbonormalized airplane the general rule is to climb at full rich mixture until passing critical altitude. The greatly reduced loss of thrust in climb that turbo systems provide may still suffer because the mixture is often set very rich in these engines—far richer than Best Power, in a regime where power is lost because of delayed combustion (sometimes defined only partly incorrectly as "flooding the engine"). If climb becomes critical you may have to lean to Target EGT until above the terrain, watching cylinder temperatures carefully as you do so.

It will take some experimentation and practice to learn how to optimize your climb. Enter an extended climb in an area without obstacles and learn how to find the right attitude for the right airspeed—adjusting pitch up or down a degree or two at a time to see the vertical speed result—while keeping the slip/skid ball or bar centered and the mixture fine-tuned for your current altitude.

Over the top

You're skillfully managing throttle, propeller speed, rudder coordination, mixture control and airspeed. You're getting every bit of climb performance the airplane is capable of delivering under the current conditions. How can you be sure the performance you're getting is sufficient to clear the rising terrain?

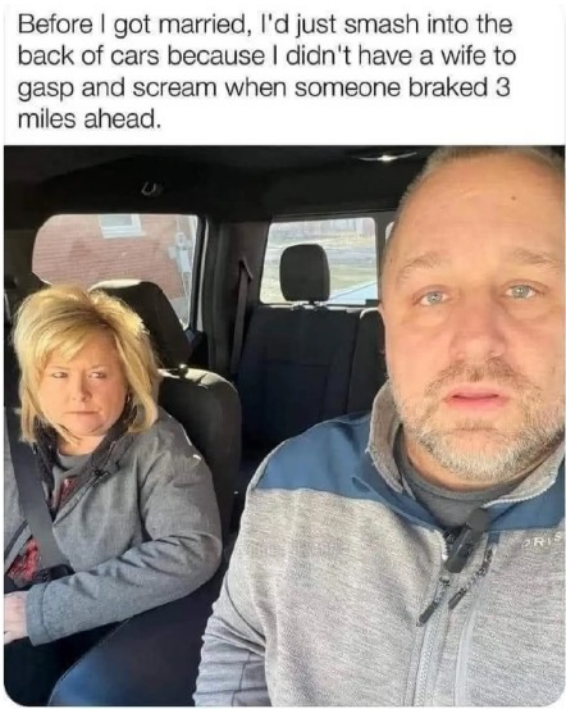
You can't. Unless you are already above the terrain there's no way to tell for certain your climb will be sufficient. This is especially true in the mountains, where changing wind patterns frequently create invisible turbulence and downdrafts that inhibit an airplane's climb.

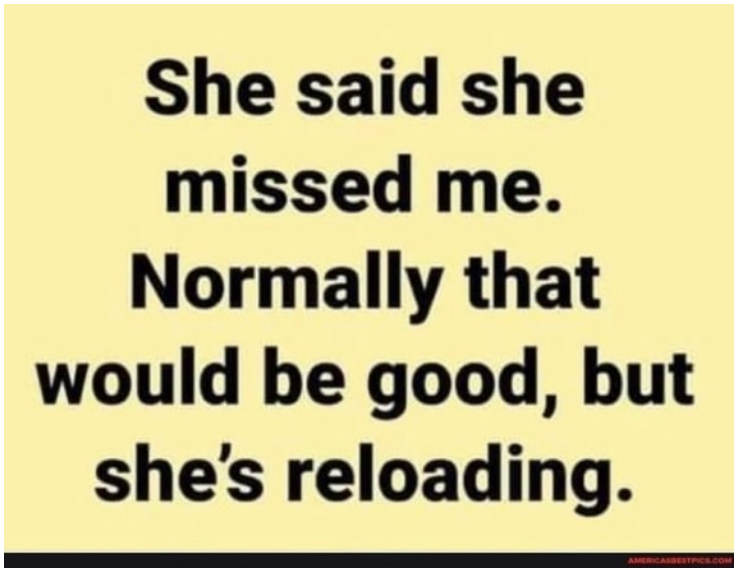
Mountain pilots in the know instead climb over lower terrain, circling up sometimes even right over the airport. They climb in this area of safety until they are at or above a safe height above the highest terrain they'll overfly. Only when already high enough to clear terrain do they turn on course and fly toward the mountain or ridge.

This strategy, in fact, is codified in FAA procedures. A Visual Climb Over Airport (VCOA) describes this maneuver as a way to safely depart IFR when in visual conditions in mountainous terrain. Obstacle Departure Procedures (ODPs) may specify something similar. Even the airline crowd sometimes climbs visually over lower terrain before turning on course.

The pilot of the Cessna 152 miraculously survived a near collision with terrain. Most pilots who put themselves in a similar position are not so lucky. Not everyone gets the message about high density altitude takeoffs, but we do talk, read and write a lot about it. Very rarely to we adapt this LESSON to the need to maximize climb performance as altitude increases in climb. Now you know.

THE LIGHTER SIDE





My doctor asked if anyone in my family suffered from mental illness and I said, "No, we all seem to enjoy it."

Just once, I want a username and password prompt to say, Close enough."

Common sense is not a gift. It's a punishment because you must deal with everyone who doesn't have it.

In future Windsock editions, I plan to showcase aircraft that our members are building, restoring and flying. Please email me with the aircraft you are building, have completed building, are restoring or have purchased and are flying. I will follow up with you to provide a questionaire and will come out to take pictures to include with your article.

If you have a story or photo you would like to see in our newsletter, contact
Frank Huber | eaap51@comcast.net | 763-245-0170

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