



# CROSSWINDS

## *of Mt Pleasant*

July 2022 (Volume 10)

**PRELUDE.** Happy Independence Day Aviators!!! I am sure many of you have seen the new movie “Top Gun - Maverick”, and even though it highlights the junior varsity of US military aviation (the Navy - lol), it’s still a must see and a good reminder that there’s no better way to celebrate our freedom than by flying (even when limited to 120 knots!).



### ➤ G FORCES:

- ❖ So, What Is A G After All? Good ‘ole Mav talks a lot about “pulling Gs” and the limits of the F-18 fighter jet, as well as the pilots’ bodily limits. In fact, the movie had him pulling 10 Gs to complete the mission, which I’ll speak more to a little later ‘cause that’s a lot!!!

A “G” is the unit measure of gravitational force acting upon a structure or body. 1 G is what we all feel when we are standing around talking about how cool we are in the pilot lounge. It is also what you experience in an airplane when flying straight and level unaccelerated. At 1G, the structural load placed upon the airplane and your body is 1 x its weight. When you start “accelerating” the airplane vertically and/or laterally (like what you feel during Steep Turns or on amusement park thrill rides), the gravitational force (or Gs) placed upon the airplane and people in it increase in proportion to the rate of acceleration demanded at the moment.

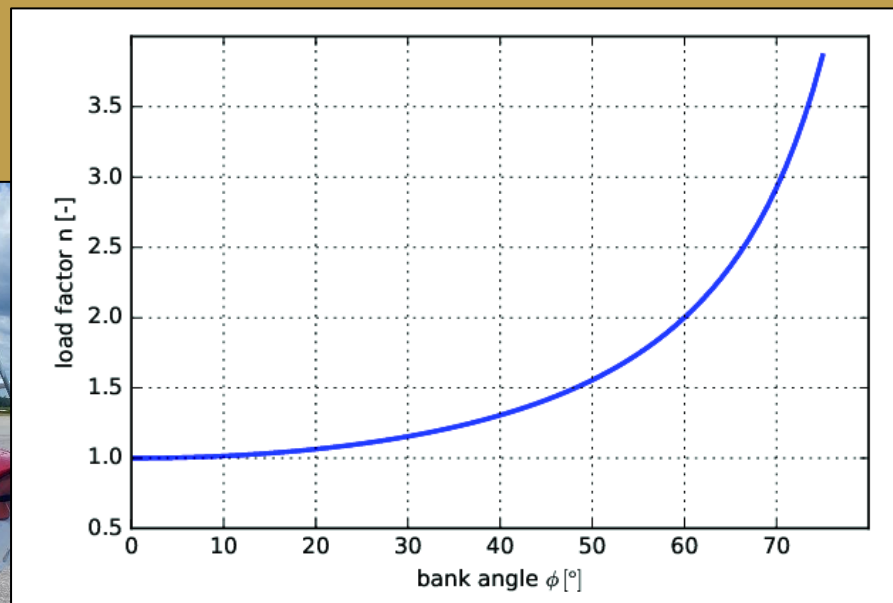


*Maverick Pulling Gs*



*Glen Cleary, Private Pilot!*

- ❖ In a level 60-degree bank turn (regardless of the type of airplane, its weight, or its starting speed) you will be pulling 2 Gs. At 2 Gs, the load placed on the airplane and any person or things in it, is twice its weight. Every manufactured airplane has a positive and negative load limit that the test engineers have set, beyond which the structure begins to break down. For a Cessna 172N, the positive load limit for normal category operations with flaps up is 3.8 Gs and the negative load limit is -1.52 Gs. The same is true with the human body – it can only take so much positive G force before the blood flow away from the brain causes one to “black out” from lack of oxygen to the brain (negative Gs have the opposite effect and can also hurt us if too excessive).



*Daniel Ashland, Commercial Pilot!*



- ❖ SPOILER ALERT!!! Getting back to Top Gun Maverick, that's why you see some of the pilots "black out" when attempting to pull 10 Gs in their F-18. After all, 10 Gs is the force of 10 x the pilot's body weight (a 200 lb guy will feel like he is 2,000 lbs and the blood flow away from the brain happens quickly).
- ❖ I never flew this plane, but I understand the F-18 has technology that will not allow pilots to pull more than 7.5Gs unless they deliberately use an override function that allows it to occur. In theory, an instantaneous (or transitory) 10 G pull is possible without destroying the airplane, and with the help of a G-suit and Maverick-like muscles/ G-strain techniques, the pilot may avoid blacking out like the guy pictured below.



*"G-LOC " G Induced Loss of Consciousness aka "black out"*

- ❖ Don't try this at home, and definitely not in a general aviation airplane. If you truly "have the need, the need for speed," there are schools like Patty Wagstaff's in St Augustine, Florida, that will take you up in their aerobatic planes and give you that higher G, Top Gun-like experience. Or some of you could go to USAF or USN flight school. In any case, check out the Weight and Balance and Performance sections of your Pilot Operating Handbook, and know the G limits and categories of the planes you fly. But don't become your own test pilot, like the recent Cirrus pilot on YouTube filming his barrel rolls for all the world and the FAA to see. Maverick may never lose his wings, but us mere mortals most certainly can. A GREAT AVIATOR IS ONE WHO RESPECTS THE RULES AND LIMITS OF THEIR CRAFT!





## CONGRATULATIONS!

- Leslie Wilson (Initial Solo - C172C)
- Harrison Stone (Initial Solo - C172C)
- Chris DeKanchuk (Initial Solo - C172S)
- Glen Gleary (Private Pilot - C172M)
- Daniel Ashland (Commercial Pilot - C172N)
- Alex Mozingo (Commercial Pilot)

*Chris DeKanchuk - Initial Solo!*

## FLEET UPDATE:

### Maintenance.

- N1833Y (C172C). Completed 100-Hr inspection; New main tires
- N733CZ (C172N). Completed 100-Hr and 24-month IFR inspections
- N73453 (C172M). 100-Hr inspection scheduled for week of 11 July
- N431DE (DA40). IFR inspection completed



**GRATITUDE.** We are grateful to live in this still amazing nation that invented the flying machine and has connected the world through aviation. May the freedom of flight be yours to enjoy for a lifetime!

*Fly Safe... Have Fun!!!*

Best, Scott & Julie