



TASK



July 2021, Vol.37 No. 2

In This Issue:

- **President's Report**
- **Thought For The Day**
- **Humour**
- **COG Locator**
- **Field Safety**
- **Reference Tables**
- **3D Printed Sanding Blocks**
- **Fibreglass Fuselage Repairs**
- **Watts Up?**
- **Aero Towing Basics**
- **Ahi Aerobatic Sloper Review**
- **Slope Soaring At Westover**
- **Old Time SOGGI Picture Quiz**
- **Boeing 737 Max Quiz**

From the Editor

Welcome to the June/21 edition of your TASK! By the time you get to review this issue, the flying season should be well in hand! Thankfully, the Provincial Stay at Home Order was lifted in time to salvage our flying season! I am very excited to finally be able to get out on our old/new Hwy #6 flying field!

This year's honour for "first to fly" at our new/old Hwy 6 location, goes to none other than Otokar Koprnicky who flew on May 24/21! 🍷

It will be awesome to once again to have a "Porta Potty" on site. What a "relief" that will be....quite literally! :)

I want to once again thank Andy Meysner & Ann Tekatch for taking the time to submit articles for your TASK! Ann's latest acquisition, the Ahi, has an excellent reputation as an aerobatic sloper! We are excited to see it in action!

As we head to the flying fields, I want to remind everyone to be alert to the presence of ticks! Especially the Black Legged Tick! The liberal use of insect repellent is highly recommended, especially if you are launching from an area with long grasses nearby. Just to be doubly safe, I always make sure I take a hot shower using lots of soap after each flying session. Apparently, the little blighters don't like the combination of soap and hot water!

See you at the field! Respectfully Submitted,

Lyle Jeakins, TASK Editor

President's Report:

As I write this, we've had our flying sites open for 2 days following the province relaxing restrictions on outdoor activity, with a maximum gathering allowed of 5 persons. Both the Hwy 6 field and Westover of course are large enough to enable gatherings of several groups, but unfortunately the parking areas at these sites do not allow much room for separating groups of vehicles, as for example we were able to do at Haldibrook Rd. So that is the reason we are limiting the number of members at Hwy 6 and Westover. Many vehicles parked at either site might raise questions from the locals or field owners, and we do not want to risk that.

So please bear with us with the message board process for going flying, but hopefully the outdoor gathering numbers allowed will increase shortly.

I would like to thank the Executive team for all their effort in getting the fields open quickly following the province's May 20 announcement of allowing outdoor gathering.

Hope to see you at Hwy 6 or Westover soon.

Andy

Thought For The Day:

"Don't judge each day by the harvest you reap, but by the seeds that you plant."

-Robert Louis Stevenson

"Do not go where the path may lead, go instead where there is no path and leave a trail."

-Ralph Waldo Emerson





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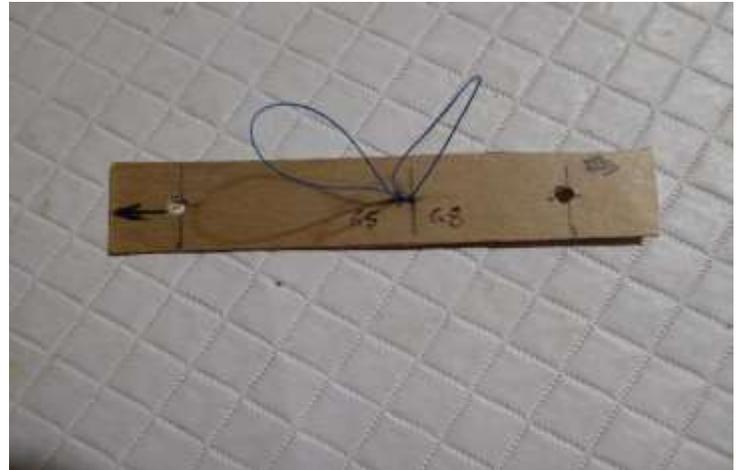
C.O.G. Locator: By Andy Meysner

How do you balance your planes at the desired CG position? Here is a method I use that also has the advantage of enabling balancing the plane in roll as well as pitch. I also find it easier and a lot more accurate than traditional methods of balancing on support points under the wing.

Just attach a slinging point on top of the wing or fuselage at the desired CG position. If you don't want to attach a sling point and the wing is attached with bolts, just make up a sling attachment as shown below.



Sling point at CG attached to top of wing.



Plywood sling attachment to fasten over wing bolt holes.



Plane slung at balance point with required amount of lead ballast to be installed hanging on nose.

Field Safety:

With the upcoming flying season now upon us, it is a good time to review our field safety procedures. Keith Morrison, the editor for our MAAC magazine brought up some good points in the November/December edition of the MAAC magazine.

Personally, I feel as more and more members become acquainted with electrically powered sailplanes, these procedures become even more important.

The following are some of the points raised by Keith that I think we need to be aware of.

Don't fly alone:

While the Provincial Orders are in effect, all members are required to post their intention to go flying on our SOGGI message board for either our Hwy #6 flying field or at the Westover Slope Soaring site. Through the message board, members can ascertain who else may be contemplating a flying session. More importantly, they can find out if there is an opening available to fly. There is always safety in numbers when it comes to flying at the field. The Westover Slope Soaring site is strewn with a number of loose rocks and potholes on the slopes. It's easy to twist an ankle when retrieving a model. Here it becomes even more important to fly with a friend, should a potential emergency situation arise.

First Aid Kit:

You should be aware that the club's First Aid Kit has been refreshed and updated. It will always be in the field flight box should the need arise.

It's important to have the kit open and accessible whenever members are flying at the field. You don't want to have to dig it out of the box and then try to open it in an emergency. Time is of the essence in an emergency situation!

Spotters:

Use a spotter if possible when flying at the field. An extra set of eyes can be invaluable to alert you when other models are landing or when full sized aircraft are approaching the field. Or heaven forbid, you should accidentally lose sight of your model.

Electric Motors:

Our SOGGI guidelines are very specific to the safe operation of electrically powered sailplane models. Each member is encouraged to review the safety guidelines as outlined in our rules and regulations. This is especially important at the beginning of the flying seasons after a long winter of inaction.

Failsafe Modes:

It's important that each model be set up with a failsafe settings should the receiver and transmitter lose contact with each other. Setting the model up so that it goes into a slight turn with a little down elevator, will help prevent your valuable airplane from becoming lost.

Checklists:

The use of checklists is highly recommended! It's so easy to become distracted by other members or actions happening on the field! By following a checklist, you have a better chance of enjoying a wonderful flying experience and coming home with your prized possession in one piece!

Extreme Conditions:

It looks like we are in for a very hot, humid summer! Whenever you are at the field, shade is of the utmost importance. If you don't have a portable sunshade, please note there is a club owned sunshade in the flight box.

We intend to have a porta potty on site, so members should feel free to hydrate as much as possible. Don't wait until you are feeling thirsty, it may be too late, as that is one of the signs of dehydration.

Know your Location/Address:

it's important to know the address or GPS coordinates for each location where you fly. In an emergency, you will be required to provide this information to the 911 operator.

With a little bit of planning and preparation, we can all increase our chances of enjoying a wonderful season of outdoor flying!

A word of caution regarding our new/old Hwy 6 flying location. Hwy 6 is a very busy arterial highway, where drivers routinely exceed the posted speed limit of 80 km/hr. 100 + kms/hr is not uncommon! With this thought in mind, I would recommend when members are leaving, that it is a lot easier and safer, to turn right than to try and cross the four lanes when turning left.

Reference Tables:

I find it helpful to have quick access to conversion tables that we seem to require from time to time.

CONVERSIONS					
INCHES		MM	INCHES		MM
Fraction	Decimal In.		Fraction	Decimal In.	
1/64	0.015625	0.3969	1/4	0.25	6.35
1/32	0.03125	0.7938		0.315	8
	0.0394	1		0.3543	9
3/64	0.046875	1.1906	3/8	0.375	9.525
1/20	0.05	1.27		0.03937	10
	0.0591	1.5		0.4724	12
1/16	0.0625	1.5875	1/2	0.5	12.7
	0.0787	2		0.5906	15
3/32	0.09375	2.3813	3/4	0.75	19.05
	0.1181	3		0.7874	20
1/8	0.125	3.175	1	1.00	25.4
	0.1575	4		1.1811	30
3/16	0.1875	4.7625	2	2.00	50.8
	0.1969	5	3	3.00	76.2
	0.2362	6			

Metric To Imperial Measurement Conversion Table

I use this table when referring to wingspan, especially for the larger scale sailplanes.

Metric	Inches	Feet
1.0 M	39.4"	3.3'
1.5 M	59.0"	5.0'
2.0M	78.7"	6.6'
2.25M	88.6"	7.4'
2.5M	98.4"	8.2'
3.0M	118.0"	9.8'
3.6M	141.7"	11.8'
4.0M	157.5"	13.1'
5.0M	196.9	16.4'
6.0M	236.2"	19.7'
7.0M	275.6"	23.0'
8.0M	315.0"	26.3
8.8M	346.5"	28.9
9.0M	354.3"	29.5'
10.0M	394.0"	33.0'

3D Printed Sanding Blocks: by Lyle Jeakins

<https://www.thingiverse.com/mightynozzle>

My son and I bought a MonoPrice Select Mini V2, 3D printer about two years ago. It uses PLA filament and we made a few things with it. It's always an amazing thing to watch the print head whirling away as it slowly builds your project, one very thin layer at a time.

I was strolling through the files on thingiverse.com looking for something that might be applicable to our r/c hobby. I spied these incredibly cute looking mini-sanding blocks. My 3D printer uses PLA filament and has a pad 5" x 5.5" and can handle an item about 4 1/2" tall. These sanding blocks should work just fine.

I should point out, if the design works well, it's customary at least, in my books, to show some love ie. a tip to the designer.

I proceeded to download the other three .STL files into my UltiMaker Cura slicing program. This program allows you to adjust the size, density of infiling etc. Once you are happy with the piece, the program converts the image into a .gcode file which you then bring over to your 3D printer.

The first one I attempted was the long thin sanding block about 3 1/2" x 3/8" in dimension. It took a little over one hour to print. It prints four parts all in one operation. I got a kick out of the tiny thumb wheels....didn't think they would work but to my amazement the whole assembly fit together quite well!



Fibreglass Fuselage Repair: by Bill McLean

Bill, known as “BillyMac” on RCGroups, is a retired Airforce mechanic living in Florida and is really into large scale, aero towed sailplanes. He has given me permission to reprint this article on fibreglass repairs.

During the Christmas Holidays, I looked at an VERY OLD Amethyst sailplane that I crashed 10+ years ago. This method was done earlier on a GRAPHITE 1, Alpina and now the Amethyst.

The method that I used could be adapted for fuselages made out of FG, such as a Scale model. The carbon tails on newer models, are probably best repaired from the outside.

The idea was to make a sleeve and insert it inside the fuse, and epoxy it in. These are my steps that I followed.

1. Join the two halves together using CA.
2. Wrap the fuse where it is broken with Saran wrap, so the FG wrap wouldn't adhere to the fuse.
3. Wrap 2 layers of glass over the break using slow curing epoxy. I also used angled Aluminum to ensure that the tail was straight by taping them down.
4. Once cured, cut off the sleeve, from the fuse by spreading the sleeve apart.
5. Wrap 1 layer of heavy Carbon fiber at a 45% bias and epoxy. I was fortunate that there was ample room to pull the back section of the fuse away from the front. Allow to cure.
6. Trim the sleeve to about 4-5 inches in length. Also trim the FG so you can compress the sleeve and slide it in the front section and back section. Sand the outside of the sleeve so the epoxy has something to adhere to.
7. Sand the inside of the tail and mixed up slow cure epoxy, and coated the front half, and the sleeve. Slide the sleeve into the front section. Then do the same thing for the aft section. The sleeve will naturally want to expand to it's normal shape, holding very tight against the fuse. It should be a snug fit.
8. Once everything is looking good, and everything is epoxied I used the angle aluminum as braces to hold everything straight and taped them on.

I used 2-3 layers of glass and 1 layer of heavy CF at a 45deg bias to the break. Once cut length wise with a Dremel and then compressed, it will naturally expand pushing out against the fuse. Plus when I epoxied it, I used a bit of milled fibreglass in the epoxy.

Once the epoxy has cured, this will be a very strong repair, with negligible weight gain. Fill and paint.



Watts Up? By Lyle Jeakins

I wanted to share my experience with regards to setting up an electrically propelled model. At our last swap meet in the Fall of 2019, I picked up a 2M ARF called a Fournier RF-4D made by VMax, out of Vietnam. I wouldn't call it an "ARF" per se, more like a "NNRTF" (Nowhere Near Ready To Fly!) But that's another story!

It's AUW is about 48 ozs with a low wing and a thick chord. Normally it is configured with a large draggy centre wheel and two outrigger wing wheels. Initially, I elected to not install them and therefore, I needed to install a folding propeller of some type.

This a motor glider type model, which means I will be running the motor more often in order to maintain flight. I decided to use an E-Flite 480 brushless motor connected with a Thunderbird 36 amp ESC. The specs for the motor indicate 22 amps of continuous running with short bursts of 15 secs or less at 28 amps max.

I happened to have a Master Airscrew 12" x 6" that fit the 4 mm motor shaft. Once I had it installed, I felt that maybe I had too much prop! I used a 3s Lipo and connected it all inline with my watt meter.

Next, I proceeded to run up the motor to max throttle! Wow! That was a lot of thrust! I maxed out at 27-28 amps and 310 watts of power! As I suspected, too much current draw and probably too much thrust for a 2M motor glider!

I then connected a 2s Lipo and proceeded to run it up to full throttle again. Now the maximum amperage draw was 17-18 amps or only 133 watts. Probably not enough!

Terry Dawson gave me a 11" x 8" APC folding prop to try out. As the hub wouldn't fit the motor's 4mm shaft, I tried swapping the props onto the Master Airscrew hub with no luck as they were too thick at the root.

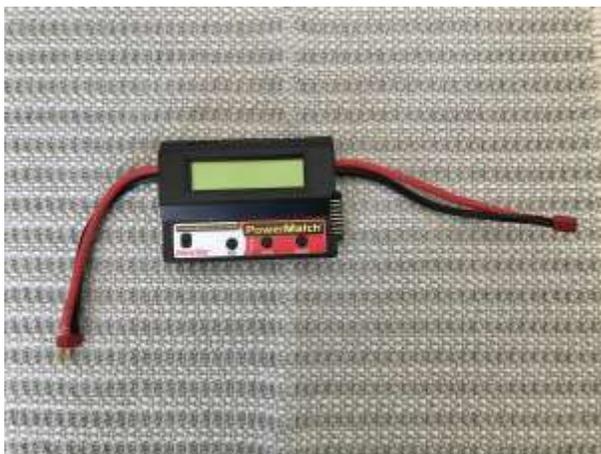
Terry contacted me to let me know he was placing an order Ali Express. They happen to offer a complete 10" x 6" replacement folding prop complete with spinner. So we added that to his list as well.

I waited about 4 weeks for the folding prop to arrive. I quickly installed the new prop, hooked up the watt meter and the 3s Lipo. This time at full throttle the meter read 17 amps or about 189 watts. Perfect! I can now safely run this motor at 3/4 throttle for as long as the battery holds out without fear of causing damage.

As you can readily see, a good watt meter is an essential tool when trying to set up a new electrical powered model. I highly recommend that you get and use one! Might save burning out a new ESC or motor, and the possible loss of an expensive model!



2M Fournier RF-4D



ElectriFly PowerMatch Meter



Meter connected in series with the Lipo battery and ESC



The meter can also be used to check remaining charge and voltage of NiCad & NiMH packs.

Aero Towing Basics: By Chris Evens, NODD RC

Editor's note: A number of our members have been dabbling in aero towing or at least thinking about it! I found this article online recently and with permission from the author, I felt it would be good to share it with rest of our membership.

Chris is an avid r/c enthusiast that lives in Australia. He has posted a number of interesting r/c related articles and this is one of them. Chris has given me permission to re-print his article on aero towing basics. I hope you find it informative as I have.

Aero towing Basics!

Unlike full-scale, for R/C the towline is not usually attached to the tow-plane's tail. Instead an RC tug's release is mounted atop of the fuselage just in front of the wing's trailing edge. It's done this way to minimize the influence an out of position sailplane has on the tug. Instead of heaving the tug's tail all over the place, the towline is mounted closer to the tow-plane's CG where it has much less effect.

Full-scale, you can get away with towing from the tail because the sailplane pilot has a great view of what's going on and should, in theory, be able to maintain a good towable position behind the tug. Standing on the ground however, RC pilots have a harder time judging where in relation to the tug their glider is. An RC tow-plane with the towline attached to the rear of the wing can tolerate an out of position sailplane much better than a full-scale towing from its tail. That's not to say a grossly out of position RC glider can't screw things up too though. There's just more wiggle room in RC.

There are a few things you can do to help the tow-pilot out even more. Here's a few tips that hopefully will help first time aerotowers...

Stay off the rudder! The towline attached to the nose of your glider will on it's own take care of yaw. Because the sailplane is basically wind-vaning behind the towline release point, yanking back & forth on the rudder is ineffective & will likely do more to get you out of position than anything else. To some extent the same applies to elevator. Once trimmed properly, you shouldn't need to touch the elevator during tow. Some guys have a flight-mode for towing where the trim is setup just so but for the most part, just **leave the elevator alone & let the glider follow the tug on its own.**

The ailerons on the other hand, that's where you need to focus your attention. "**Just keep the wings level**" is what I tell people new to aero towing. You want to do this with ailerons alone. **If you have aileron to rudder mixing, program that to be disabled when your release switch is in the closed position.**

Don't bank with the tow-plane during turns, again keep the wings level. If the tow-pilot is making a fairly tight turn (which he should avoid doing) then bank just a little in the opposite direction. This will keep your sailplane on the outside of the turn & help maintain air-speed.

Keep an eye on the towline. Under some circumstances, like when the tow-plane reduces his climb rate, gets off the throttle or during turns, the sailplane may begin to overtake. It's a good idea to attach a small streamer close to the sailplane end of the towline. If you see this going slack deploy the spoilers which will slow you down. Then as the line tightens back up retract them.

Keep your finger on the release at all times during tow. A common release switch location (on mode 2 radios) is the upper left. This allows you to place your left index finger on the toggle switch & in an emergency you simply pull the switch like a trigger (pull towards you to release, push away to close).

If things start to go bad, RELEASE! Don't try to "save it", get off immediately. Remember its not just your model at risk, its the tow-plane too. This is especially true during the initial ground-roll. If you catch a wing-tip, nine times out of ten, its going to end badly. **You'll impress folks a whole lot more by being smart by releasing vs pulling off a miracle save.**

Get off tow while you can still see your glider. It's the sailplane pilot's decision when to end the tow. Once you're happy with the altitude, communicate with the tow-pilot & let him know that you're about to release. Then once you see that you're free, say "I'm off". Confirm this, don't just assume you're free. That lets him know it's safe to throttle down, turn & dive back home.

At what height should I get off? Well you want to be high enough to make the tow worthwhile. Towing to 100 feet is just wasting everyone's time. Then again hanging on until both planes are just specks isn't fair on the poor tow-pilot. The further away you get, the harder it is to maintain orientation. I've seen plenty of tows go bad at extreme height simply because one or both pilots couldn't see well at that range. Find the happy medium, somewhere between way too low & crazy high. Tow to medium altitude with something like this KA-8. If you're flying giant scale, 4 meter & up, then you'll be fine at higher altitudes. Something like the UMX ASK-21 micro, you'll want to keep fairly close.

Don't tow overhead. This advice is more for the tow-pilot, which I have only limited experience doing but don't be shy. If you see he's hauling you overhead request a turn. It's considerably more difficult to judge the plane's attitude when viewed from directly below. Much better to keep the plane out in front where you have a better angle.

Don't panic during turns. At certain angles during a turn you may notice your sailplane disappears. This happens when the wing is viewed edge-on at long range. You have a few options when this occurs. The first is to do nothing. Stay off the sticks & wait for the turn to progress. The wing should come back into view shortly. This can be somewhat unnerving though. Another option is to bank slightly until you can see the wing again. Don't over-do this, obviously. The third option is to simply release & re-orient the sailplane back into view.

A variant of this disheartening visual effect often occurs shortly after takeoff. As both planes climb out heading away from you, you'll be presented with a rear-on view. This is bad news as not only is the wing being viewed edge-on but the fuselage when seen from the rear, all but disappears too. An experienced tow-pilot will usually make a turn early on during the tow to avoid this situation. If he doesn't, don't hesitate to get on his case.

Anyway, I hope these few tips are helpful. Have fun!

Ahi Aerobatic Sloper Review: By Ann Tekatch

The Ahi (www.dream-flight.com) is a 4 channel, 1.2m wingspan, EPO foam, aerobatic, slope-soaring glider by the American company, Dream-flight. It's an ARF and it only took me a few hours to assemble it and set it up. It has pre-cut slots in the wing for aileron servos and a pre-installed servo tray. I bought Dream-flight's flight pack which includes four metal-gearred servos and a 4.8v NiMh receiver battery that fit the Ahi perfectly.



The kit includes some Dream-flight and Ahi decals, but decorating the plane is left to the modeller. I like contrasting stripes on the underside of my glider wings so I applied self-adhesive Monocote black trim stripes on the wing bottoms and yellow, orange & black stripes on the top to make the Ahi pretty. The soft foam leading edge would be chewed up by the vegetation on our slope, so I added fibreglas-reinforced clear tape to the leading edge of the wings. I think I will also add protection of some sort to the bottom of the tail fin for the same reason.

A Spektrum 4 channel AR410 receiver with internal antennae fit perfectly into the Ahi.

All of the Ahi parts went together beautifully. The only problem I had was with the wing rod. It would not insert all the way into one wing half because the internal wing clamp was slightly out of adjustment. I fixed the problem by rounding one end of the wing rod and it slipped into the wing clamp with ease.

The receiver battery compartment allows the battery to be moved slightly so achieving a perfect centre of gravity will be no issue with no weight needed at the nose. The AUW of the finished model is about 360g or 13 oz.



I'm looking forward to throwing this little beauty off the slope soon and I hope it bounces off the rocks as well as my EPO Alula flying wing does.

Old Time SOGGI Picture Quiz:

Winner! Winner! Chicken Dinner! :) In our March issue of TASK, I posted a picture submitted by Bob Thayer, of a number of members taken at our Rockton meeting hall a few years ago. I received a couple of responses, one from Ann Tekatch, who named all but three members in the picture! Good on you, Ann! The identity of the fellow standing on the left remains unknown



at this time.

Here then are the names of all the members in the above picture:

Standing Back Row, (Left to Right):

Keith Armstrong, Jack Linghorne, Otakar Koprnicky

Standing Middle Row, from Left to Right:

(Unknown), Werner Hildesheim, (Werner's son), Cliff English, Bud Wallace, Bob Hammett, Bill Woodward, Dick Colley, Peter Clarke,

Kneeling Front Row:

Stan Shaw, Stuart Watson, Doug Wilkins

The Boeing 737 MAX Quiz: By Andy Meysner

In the previous **December/20 issue of TASK** we included the following quiz. This was intended to solicit some answers from members and subsequent discussion to be included in this issue, on what I find to be a very interesting subject.

What do you believe is the *single root* cause (emphasis on *single root* cause, not other factors) behind the crashes of the 737 MAX.

1. Faulty or inadequately designed Manoeuvring Characteristics Augmentation System (MCAS) software.
2. Insufficient redundancy in angle of attack sensors.
3. Pilot error.
4. Insufficient pilot training.
5. Inadequate regulatory review of the 737 MAX design.
6. Boeing's realization that they could provide a relatively low cost (to Boeing) competitor to the Airbus A320 series.
7. Placement of the engines forward and higher relative to the original 737 design.
8. Landing gear that is too short on the original 737 design with insufficient ground clearance to accommodate the larger diameter turbofan engines.
9. The relationship between Boeing and the FAA.
10. Politics.
11. The contribution to the US economy provided by Boeing.
12. Boeing management not listening to their engineers.

There has not been any feedback to the editor, so I will provide my opinion. I would stress that it is only my opinion, but it is well supported by independent sources and personal engineering training in determining root causes of major accidents. An example of independent opinion was published in the Globe and Mail business section on January 22, 2021 (ref. 1).

Not all, but most of the factors above had an influence on the crashes of the 737 MAX. However, in my opinion, the root cause was #7, placement of the engines forward and higher relative to the original 737 design. This results in a tendency for the plane to pitch up. The MCAS was included in the 737 MAX design to counteract this tendency. Failure of the MCAS was not the root cause, although lack of redundancy in the MCAS did result in the crashes. The engine placement being the root cause does not make the aircraft unsafe, provided there is high reliability in the MCAS.

From what I have read in other sources, there also appears to be some truth to #12 in the list above. From an engineering design and ethics perspective there is much to discuss on this subject. A lot of this is covered in reference 1 and is worth reading.

A letter (ref. 2) to the Globe and Mail from a WestJet pilot with thousands of hours experience on the Boeing 737 MAX, responding to reference 1, also provides a balanced perspective.

I can provide a copy of the references if you are interested. They make worthwhile reading.

Ref. 1: Brian A. Barsky*, The Globe and Mail, January 22, 2021, "The Boeing 737 MAX remains a risky ride".

Ref. 2: Francis Hane** (a Boeing 737 MAX pilot), letter to the Globe and Mail, January 25, 2021.

*Professor of the Graduate School in the College of Engineering at the University of California, Berkeley, where he is a Warren and Marjorie Minner Faculty Fellow in Engineering Ethics and Professional/Social Responsibility and Emeritus Professor of Computer Science.

**Copied from the website of the Transportation Appeal Tribunal of Canada, where Dr. Hane is a part-time member.

<https://www.tatc.gc.ca/en/about-us/members/francis-hane.html>

Dr. Hane is currently employed as a Boeing 737 pilot at WestJet Airlines. As an active airline pilot, he has also served on several committees for both the Air Line Pilots Association (ALPA) and the WestJet Pilots Association (WJPA). Prior to his position with West Jet, his flying activities included flight instructor, bush flying in Canada's Arctic and flying air ambulance operations in the Mitsubishi MU-2. Dr. Hane was awarded a PhD in biophysics from the University of Waterloo and completed a post-doctoral fellowship in chemistry (medical imaging) at Lakehead University. His research focused on the biophysics of Alzheimer's disease, and he has made other scholarly contributions in the fields of applied physics, physical chemistry, pharmacology, medical imaging, and law. In addition to his aviation career, Dr. Hane still actively conducts biomedical research.

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