

Earthrise



The official newsletter of the Canadian Association of Rocketry
Le bulletin officiel de l'Association canadienne de fuséonautique

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Hello fellow rocketeers!

Spring is here! And if you are like me, you are eager to see the last of cold and snow, and to get out flying. Just like leaves sprout from tree, I know that there are new rockets sprouting in garages and homes all across the country. I know that launch planning is going on in many regions and I certainly hope that we can all get in some great flying this year.

It was great to see so many of you take part in our recent AGM. I believe that we had the largest ever attendance, at least in recent memory, and it is awesome to see so many taking an interest in our hobby. There was some enlightening discussion around several topics. Thanks to all that presented, and thanks for all the volunteers that make CAR/ACF run. There is a lot of effort put in by many. Be sure to thank your provincial reps, club reps, RSO's and everyone else that enables us all to fly. Special shout out to David Buhler and Shane Weatherill for all their efforts.

One direct result of the AGM was the establishment of a new committee. The ERD Liaison Committee, comprised of Garth Illerbrun, Taras Tataryn, Andre' Choquette and Mike Dennet, have been tasked to build relationships with Explosives Regulation Division of NRCAN to ensure that our questions and concerns around motor importation and regulation are being heard. A big task, but these gentlemen are up to it.

As always, I am happy to chat with anyone on rocketry. If you have questions, concerns, or ideas for our hobby, contact me!

Safe and happy launching to you all!

Bonjour à tous les fuséonautes!

Le printemps est arrivé! Si vous êtes comme moi, vous avez hâte que la neige et le froid disparaissent, et de pouvoir sortir voler. Comme les feuilles poussent dans les arbres, je sais que de nouvelles fusées bourgeonnent un peu partout au pays, dans les garages et les maisons. On voit aussi que la planification des lancements est en cours dans beaucoup de régions, et j'espère que nous aurons de bonnes conditions de vol cette année.

Ce fut un grand plaisir de voir autant d'entre vous participer à notre AGM! Je crois que c'était l'AGM la plus courue depuis très longtemps, et c'est merveilleux de voir tant de personnes motivées par notre passe-temps. Il y a eu des discussions intéressantes sur plusieurs sujets. Merci à tous les présentateurs, et merci à tous les bénévoles qui font fonctionner CAR/ACF, en y mettant beaucoup d'efforts. N'oubliez pas de remercier vos représentants provinciaux, vos représentants de clubs, vos RSOs et tous ceux qui rendent les lancements possibles. J'envoie également un merci spécial à David Buhler et Shane Weatherill pour tout leur travail.

Un des événements résultant de l'AGM a été la création d'un nouveau comité. Le Comité de Liaison ERD/DRE (Division de la réglementation des explosifs) composé de Garth Illerbrun, Taras Tataryn, André Choquette, et Mike Dennet, a pour mission de bâtir une relation de travail avec ERD/DRE Canada pour s'assurer que nos problématiques autour de l'importation et la réglementation des moteurs soient adressées. Une tâche conséquente, mais ces membres ont les talents nécessaires!

Comme toujours, je répond toujours présent aux discussions sur la fuséonautique. Si vous avez des questions, des inquiétudes, ou des idées à propos de notre passe-temps, contactez-moi!

Je vous souhaite à tous des lancements sécuritaires et réussis!

Cover Photo: Brad Wall's Dominator lifts off on a K1100 at the Edmonton Rocketry Club's *Fire and Ice* launch. Photo by Paul Sampson.

Décollage de la fusée Dominator de Brad Wall, à l'aide d'un moteur K1100, au lancement "Fire and Ice" du club d'Edmonton. Photo par Paul Sampson

Welcome to all of my fellow rocketeers across the country! Hopefully the new year has been progressing well for you, and you have managed to find time to get to those projects that were in your build pile. As I prepare this issue, I can't help but think that winter in Canada is kind of a unique season for rocketeers. For most of us flying season is months away, and even if we wanted to fly the weather doesn't really cooperate. That allows us a lot of time to repair what we broke in the previous season, create designs, get in on the black Friday sales in November, and put together our new projects for the flying season.

My own building season has been focused on an upscale model of the Estes Corkscrew. Like many of you, projects that I upscale tend to have some connection to my involvement in rocketry as a child. The Estes Corkscrew was my favorite rocket which I flew fondly from our acreage until the day I lost it in a mature wheat field. Last year I used the website rocketreviews.com to find a Rocksim file for the out of production Corkscrew. After checking online to see if anyone else had done this first, I used that file to sim up a 3 inch upscale version. I have now completed my Corkscrew and recently flew it at the Fire and Ice launch hosted by the Edmonton Rocketry Club. Another rocket I purchased for this season is the Wildman Rocketry Mach 2 kit. This tiny little kit is going to be built for L motors and I hope to bump up the L altitude record at least a couple notches. I have no doubt that Rocky Tyson will be along shortly afterwards to set that altitude to a more unachievable level! Be sure to read Rocky's article on his L altitude rocket in this issue.

Last season I put out an editor's challenge to build and fly a rocket based around the Estes Executioner. The challenge was to cross 850 feet and return safely to the ground in the shortest amount of time possible. I did not get very many entries however the winner is Jason Rodney flying out of Calgary. His up and down time was 45 seconds exactly. Jason wins a small nomex chute protector and a Pro38 one grain case.

I do not have a specific challenge in mind for this season, but I encourage you to check out the altitude records below and also on the CAR/ACF webpage. Let's see if the Canadian rocketry community can bump some of these numbers up in the coming flying season. I wish you all a great flying season to reconnect with flyers, welcome new members to your clubs, and enjoy this hobby we all love.

Salutations à tous nos fuséonautes! J'espère que l'année avance bien pour vous, et que vous trouvez du temps pour compléter les projets qui étaient sur votre liste. En écrivant ces lignes, je me dis que l'hiver a une signification particulière pour les fuséonautes canadiens. Pour beaucoup d'entre nous, il reste plusieurs mois avant la saison des lancements, et même si on voulait faire des lancements plus tôt, la météo ne le permet pas. Cela nous donne beaucoup de temps pour réparer les dommages subis la saison d'avant, faire de la conception, profiter des ventes du Vendredi Fou en Novembre, et compléter de nouveaux projets pour la saison des lancements.

Dans mon cas, la saison de "construction" s'est focalisée sur une version "augmentée" de la fusée Estes Corkscrew. Comme beaucoup d'entre vous, quand je fais des versions augmentées de fusées, c'est relié à mon enfance. Quand j'étais jeune, la fusée Estes Corkscrew était ma préférée, et je la faisais voler sur notre propriété, jusqu'au jour où je l'ai perdu dans un champ de blé mûr. L'année dernière, j'ai trouvé un fichier Rocksim du modèle Estes Corkscrew (qui n'est plus produit) sur le site rocketreviews.com. Après avoir vérifié sur l'Internet pour voir si quelqu'un d'autre l'avait déjà fait, j'ai utilisé ce fichier pour faire une version augmentée avec un diamètre de 3 pouces. J'ai complété mon Corkscrew et je l'ai fait voler au lancement "Fire and Ice" du club de fuséonautique d'Edmonton. J'ai aussi acheté un kit Wildman Rocketry Mach 2. Ce petit kit est prévu pour les moteurs L et j'espère batter notre record d'altitude sur moteur L avec une bonne marge. Je ne doute pas que Rocky Tyson se fera un point d'honneur de re-battre ce nouveau record d'altitude ensuite. Assurez vous de lire, dans ce numéro, l'article de Rocky sur sa fusée d'altitude sur moteur L!

A la saison passée, j'avais annoncé un concours dont l'objectif était de construire et faire voler une fusée basée sur le modèle Estes Executioner, de la faire atteindre au moins 850 pieds d'altitude, et qu'elle se pose intacte dans le moins de temps possible. Il n'y a pas eu beaucoup de participants, mais le gagnant est Jason Rodney, un membre du club de Calgary. Son temps a été d'exactly 45 secondes. Jason gagne un petit protecteur de parachute en Nomex, et un boîtier Cesaroni à 1-grain de type Pro38.

Je n'ai pas de concours précis en tête pour la saison à venir, mais je vous encourage à jeter un coup d'oeil sur les records d'altitude documentés ci-dessous et sur le site web de CAR/ACF. Voyons si la communauté canadienne de fuséonautes peut améliorer quelques records cette année... Je vous souhaite une excellente saison de vol, reprenez contact avec vos camarades, accueillez de nouveaux membres, et profitez de ce passe-temps que nous aimons tous!

Model Records

HPR Single Stage, Single Motor

All altitudes must be verified by an accepted altitude determination method and be recorded by the launch organizer. Only single motor flights are permitted, and staging is not allowed. A Model Rocketry Altitude Record Form must be filled out and sent to CAR/ACF HQ for a record attempt to be evaluated.

A Impulse - John Glasswick

1.25 - 2.5 Ns
81.00 m / 266 ft
Fall Fire, October 21, 2017

B Impulse - John Glasswick

2.5 - 5 Ns
221.00 m / 725 ft
Fall Fire, October 21, 2017

C Impulse - Matthew Borghese

5 - 10 Ns
53.34 m / 175 ft
Fraser Valley Rocket Club, October 20, 2018

D Impulse - Dale Madu

10 - 20 Ns
349.60 m / 1147 ft
SAM 2011, August 13, 2011

E Impulse - Adrian Liggins

20 - 40 Ns
450.80 m / 1479 ft
Roc Lake, July 02, 2006

F Impulse - Dale Madu

40 - 80 Ns
622.00 m / 2041 ft
Rock Lake 19, July 01, 2017

G Impulse - Gregory Lewis-Paley

80 - 160 Ns
1838.55 m / 6032 ft
LDRS 24, July 18, 2005

HPR Single Stage, Single Motor

All altitudes must be verified by a commercially manufactured altimeter and be recorded by the launch organizer. Only single motor flights are permitted, and staging is not allowed. A High Power Altitude Record Form must be filled out and sent to CAR/ACF HQ for a record attempt to be evaluated.

H Impulse - Rocky Tyson

160 - 320 Ns
3359.80 m / 11023 ft
Rock Lake 13, July 01, 2011

I Impulse - Rocky Tyson

320 - 640 Ns
4419.00 m / 14498 ft
LRA Club Launch, November 06, 2021

J Impulse - Greg Gollan

640 - 1280 Ns
4048.70 m / 13283 ft
Rage at the Gage, September 04, 2016

K Impulse - Rocky Tyson

1280 - 2560 Ns
6852.20 m / 22481 ft
Roc Lake 2011, July 02, 2011

L Impulse - Ron Veale

2560 - 5120 Ns
4257.75 m / 13969 ft
Sullivan Lake 21, September 13, 2014

M Impulse - Greg Gollan

5120 - 10240 Ns
8370.10 m / 27461 ft
Rage at the Gage, September 17, 2017

N Impulse - Gregory Mills

10240 - 20480 Ns
12831.20 m / 42097 ft
Roc Lake 9, June 23, 2007

O Impulse - Michael Dennett

20480 - 40960 Ns
13413.03 m / 44006 ft
LDRS 24, July 17, 2005

[X-71 Starship & STARSHIP's Bounty Hunter Pilot Pack](#)

Starship's is a collaboration of my two favorite past times, Launching model rockets and playing board games. The dice/card game can be played solo at home and with multiple kits it can be played with friends at the range or save your range stats and play at the next meet-up or club meeting. Things like Ignition, Lift-off, and Recovery in the real world will give you extra points towards your player in game. Not necessary but it does give that extra boost of fun when playing against a friend.

The dice game will take you (The Bounty Hunter) and your Starship the X-71 across the Xion Galaxy, looking for and engaging a fugitive. The X-71 Bounty Hunter Kit offers 3 locations including a Diner in Axion city, an Abandon Spaceport in Xeon II and an Oxygen Bar in Xeon III. Each location offers a mini dice game, the results are depicted on the cards but prizes vary from +50 health to more powerful weapons and modifier tokens. These locations will spawn randomly in your game and can be combined with other Starship kits to make more exciting adventures.

Game Includes:

- +] 1 Unique Pilot Card
- +] 2 Boss Cards
- +] 3 Location cards
- +] 3 Travel Distance Dice
- +] 2 Blue Dice
- +] 2 Pink Dice
- +] Modifier Tokens
- +] Initiative Marker

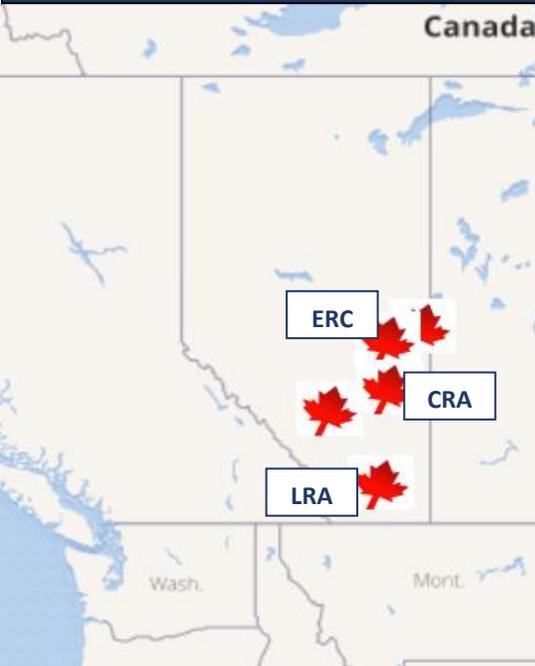
Rocket Kit Includes:

- +] HITEK Clear Pilot Resin 4K Nose Cone
- +] 22mm Carbon Fiber Airframe
- +] 1mm Carbon Fiber Wings/Fins
- +] 9in Top Flight Parachute
- +] 10ft Kevlar recovery cord
- +] Carbon Fiber Launch Lugs



Upcoming Launches

Bruce Aleman



1. Hanna 2022

(Calgary Rocketry Association):
April 9, 2022, [Click for Details](#)

2. LRA Club Launch

(Lethbridge Rocketry Association):
April 30, 2022, [Click for Details](#)

3. Fusée Fête (St-Pie-de-Guire)

(Quebec Rocketry Club):
May 14-15, 2022, [Click for Details](#)

4. LRA Rock Lake 23

(Lethbridge Rocketry Association):
July 1-3, 2022, [Click for Details](#)

5. Vipe (St-Prime)

(Quebec Rocketry Club):
July 9-10, 2022, [Click for Details](#)

6. AARM 50+2

(Edmonton Rocketry Club):
July 16-17, 2022, [Click for Details](#)



*Launch dates and locations subject to change, check with local clubs for final details.

Altitude Rockets

I designed this rocket specifically for started back in late 2012 after my the I record was sitting at 8099' and could break that record. I planned on minimum diameter rocket. A CTI I216 longer burn. The major theme in the 3FNC design and I went with single The parachute used was a small 24" during recovery.

For the construction of the rocket, I tube and 1/16" G10 for the fins. I the fillets, and sanded a taper to the made from a polyurathane mold 160mah lipo battery and an LL rocket was sprayed with primer to fill unpainted to reduce diameter and

traveled from Vernon B.C. to be this project. They had to put up with month, so I figured a trip to the watch the fruits of my labour.

Nov 6, 2021 during a Lethbridge was perfect with light winds and a launch tower designed and built for motor boosted the rocket to 14,498' throughout its flight until just above location thanks to the radio tracking from the launch site fully intact and

I will hopefully have the chance to bit more ambitious, but, if successful, will tell.



Rocky Tyson

an I altitude attempt. This project actually successful K altitude record flight. I had noticed after some rough designs in Rocksim, I figured I using a CTI I216 Classic rocket motor in a 38mm motor was selected due to its high impulse and design was "minimal weight and size" so it was a deployment at apogee as it was simple and light. hexagon as I was trying to avoid significant drift

chose filament wound fiberglass for the body used fiberglass cloth reinforcement overlaying leading and trailing edges. The nose cone is which houses the Raven2 flight computer, Electronics LR4 radio tracking beacon. The any imperfections and sanded smooth but left weight.

The trip to the launch site was a long one as we there. I had my family with me for support on my messy hobby all over the house the previous prairies for them was a good way to relax and

The flight took place at the Rock Lake site on Rocketry Association club launch. The weather clear blue sky. It launched from my home built this flight. The flight was successful and the at over mach 1.6. I was able to track the rocket the horizon, where I had a good heading on its beacon. It was recovered approximately 2kms reporting its max altitude. The record was mine.

I have another altitude project in the works that launch at the next Rock Lake event. This one is a could grab the all time altitude record. Only time



Lethbridge Rocketry Association Club Launch

Bruce Aleman

The Lethbridge Rocketry Association hosted a club launch on November 6, 2021. After a challenging season of fire bans in the area restricted our usual launches, we were hoping that a good dump of snow would fix things. The Monday prior to the launch when I called the local fire marshal, we had 10cm of snow on the ground and the temperature was freezing, so permission was granted. Thanks to our famous chinook winds, by Saturday the snow had disappeared, the temperature was nicely above zero and the wind was gone. While driving to the our equipment storage site early in the morning the last of the overhead clouds disappeared and we had a gorgeous day of light breezes, blue sky, and sunshine. For our smaller club launches, I usually pre-prep as much as possible for the rockets I want to fly. This time, I had a large project ready with some serious nostalgia behind it. In preparation for the LDRS 24 launch that the LRA hosted in 2005, our club got together to build a 4" minimum diameter Black Brant X. Designed as a two-stage, it only ever flew single stage on an N1100 at LDRS. At the time, it set the N altitude record at 29 000'. At a future launch it was prepped for a two stage flight, but that flight didn't happen, and then the rocket sat in multiple garages for fifteen years. Last year I decided it was time to pull the rocket out and make some decisions. Looking at the original design, we concluded that it would never fly as a two stage. With that decision made, I overhauled the av-bay to incorporate modern electronics, gps, and removed the existing CO2 system. With new ground tests completed (in the snowstorm I referred to above), a CTI M1060 built and loaded, and the av-bay wired up we were ready to go. Come launch day Tim Rempel and I quickly set up the two pads we would use, along with the model system. At this point Rocky Tyson had arrived from Vernon, BC and was prepping a number of unique designs, one of which would set the current I altitude record. With perfect wether, we loaded the Black Brant on the pad, and stepped back the 200 meters for the flight. Just prior to launching, Jason Lampi and Jason Rodney showed up to come fly for the day, and we had an audience! The countdown complete, the M1060 took a second to get up to pressure, then sent the rocket on a beautiful slow climb to 12 000'. Everything worked perfectly, and my Eggtimer GPS took me right to the landing site. The rocket is now stored in my garage, ready for another flight at Rock Lake, this time on an N2500 and set to travel twice as high.



Prepped and ready for RI's inspection.



On the pad and armed for flight. [\(Click for video\)](#)

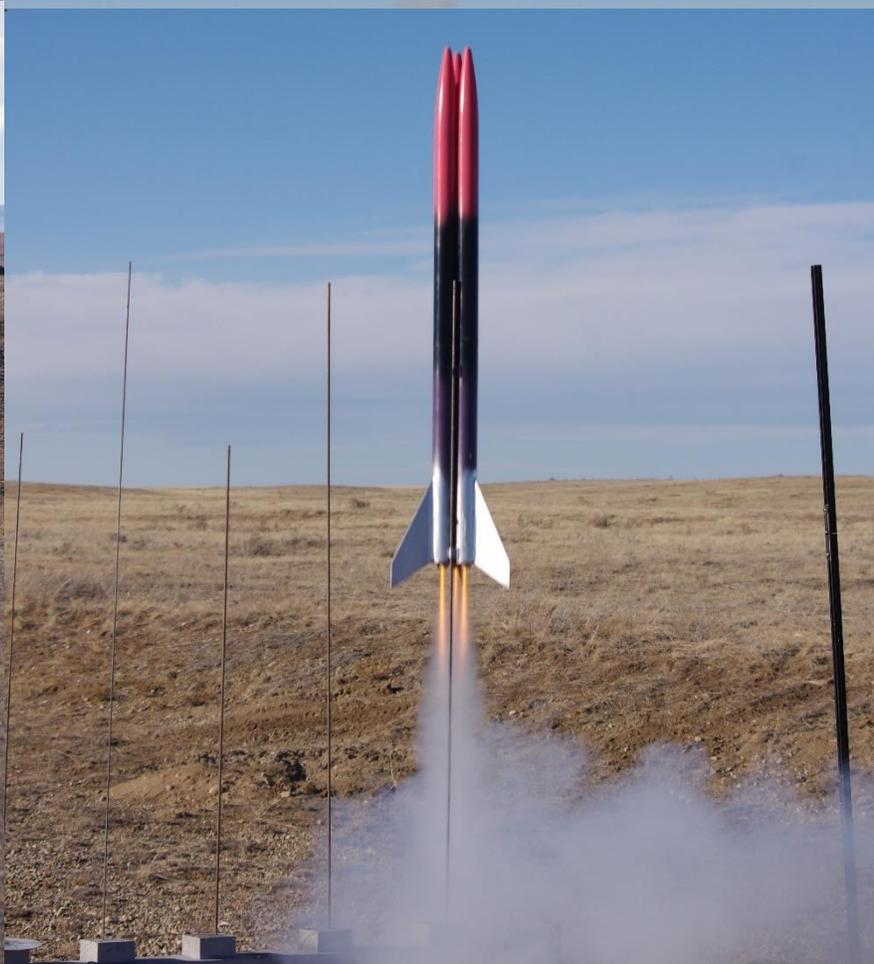
The day continued with a nice mix of model flights and high power flights. The weather held for the entire day, allowing two certification flights to proceed. After the successful flight of the Black Brant I prepped my Madcow 4" Patriot for a flight on a CTI J520 skidmark. Without any special camera gear, I decided to prop my phone on a rocket near the pad and see what happened. The image below was what I got. Next time I will have to leave it closer...or buy a padcam.



We had been contacted by a group from Vancouver earlier in the season to plan to attend a launch in order to try some certification flights. After they arrived at the site, they started prepping and realized they had a lot of prep work to do in order to achieve their goals. Look for George Liu to write an article for a future Earthrise edition with more details about their beautifully designed and 3D printed rocket components, as well as their telemetry and steerable chute design ambitions!

With time in the launch window running out, they worked with the RSO to make a safe modification to the rocket they planned to fly, in order to get on the pad just before the launch window closed. With minutes to go we picked up the countdown, and sure enough, the ignitor failed to light the motor. A dash to the pad to replace it was followed by a successful ignition with ten seconds remaining! The deployment worked as planned and a successful certification was achieved.





Rocky Tyson's I altitude rocket lifting off on an I216 (top left). The LRA's Black Brant flying on an M1060 (top right)
Tim Rempel's Small Endeavour on an H (bottom left). Bruce Aleman's Trifecta on a cluster of 3 D12s. (bottom right).

The Launch

With some easing of COVID-19 restrictions, this year's Rage at the Gage high-power rocket launch saw more flights and more spectators than last year. In fact, we ordered two porta-potties this year as was our usual practice before COVID. Eleven fliers attended Rage at the Gage 2021, including three new fliers, all of whom made certification attempts. With a threat of high winds and showers for the weekend, rocketeers planning high-altitude flights did not attend this year. In fact, we were forced to suspend launching for most of the afternoon on Saturday because of windy conditions; nonetheless, we cranked off 16 flights on Saturday. The weather was good on Sunday, when the high-power flights reigned (11 of 16 flights that day, including 5 out of the 6 high-power cert flights over the weekend).

Rage at the Gage has always been a 3-day event, with the first day reserved for range setup. This year for the first time, we requested permission from Base Gagetown and Transport Canada for high-power flying all three days. This enabled us to use time on Friday afternoon after the range was setup to get right into the high-power stuff. Why not?

Rage at the Gage is a family event, open to fliers of all ages and levels. By the time the smoke cleared late Sunday afternoon, we had put up six low-power (3-B, 3-C), ten mid-power (1-E, 7-F, 2-G), and twenty-four high-power (9-H, 8-I, 6-J, 2-K) flights. Connor Gray, a junior member from Nova Scotia, put up five of the six low-power flights. Then, when he made his first mid-power flight on a CTI F59 White Thunder motor, he was all smiles! We will see him again next year, for sure! Six other rocketeers joined the mid-power flying, including Paul Gray (Connor's father), Peter Clarke, and Mark Roberts, each with two flights; and Glen MacGillivray, Sebastian Richard, and Mark Robbins with one flight each.

Certification Flights

Certification flights are always highlights of any high-power launch and we had more than our usual number this year. Evan Campbell, a new member of NB Rocketry and CAR/ACF, began the parade of cert flights on Saturday. He flew an Aerotech Mega Initiator on a CTI H123 Skidmark for his L1 attempt. Unfortunately, the motor ejection charge did not fire and the rocket made a ballistic impact. Incidentally, Skidmarks were popular this year because of the wet summer that we had. Rocketeers had been waiting for several years for this opportunity to use their Skids and Sparkies.

We had to wait until Sunday for the next cert attempt, this time by Glen MacGillivray. Glen is another new member of our club who just translocated from Ontario to Cape Breton, NS. A former CAR/ACF member who hasn't flown for some time, Glen reactivated his membership and L1 certification level just in time for this year's launch. Glen's first flight was on Friday afternoon, a custom-built mid-power bird that had been in storage for many years. It flew on a CTI 29 mm G106 Skidmark. It disappeared in the dense brush and weeds characteristic of the launch site and couldn't be found after extensive searches on Friday and Saturday. Losing a favorite rocket is a bitter pill to swallow, but Glen bounced back and flew not only a L2 attempt, but a L3 attempt on Sunday. Both flights were with the same rocket, the Apogee "Peregrine," and both were successful. The L2 was on a CTI I175 White and the L3 was on a CTI J290 White. Late Sunday afternoon, Mark Roberts came across Glen's mid-power bird while searching for his rocket and was able to return it to its owner. Glen went home a very happy rocketeer!

Mark Robbins flew his Madcow DX3 (4"-diameter) on an Aerotech J270 White Lightning for a successful L3 certification. This beauty was loaded with two Altus Metrum EasyMini flight computers and a Jolly Logic Altimeter2 in the payload bay and an Altus Metrum TeleGPS in the nose cone to insure successful deployment and recovery. The altitudes from the various devices were within 10' of each other with an average of 3490'.

Paul Gray went for L2 certification with his PML Miranda (the same name as his daughter) on a CTI I240 Imax. Another successful certification!

Alain Olsen joined the certification parade on Sunday with his Madcow Tomach 2.6" fiberglass bird loaded with two Eggtimer Quantums for altitude check only and an Eggtimer GPS TX. The rocket featured 3D printed parts inside the avionics bay and nose cone. It flew on a CTI I255 Red Lightning motor to 3800'. As per our usual recovery scenario, the rocket was hard to spot in the dense alders and grasses which abound in our launch site. Alain says he will use a screamer next time.

Electronic Endorsements and Rocket Inspector Certifications

Mark Robbins, a flier from Nova Scotia, completed his EE certification, putting him in position for a L4 attempt at a future launch. During the past two years, we have encouraged club members to become certified rocket inspectors (RI's). Not only does having more inspectors onboard help spread the workload, it is also a great learning experience for the apprentice inspectors. Rachel Daigle, Shawn MacHatten, and Sebastian Richard all completed their RI Level 1 certifications at this launch. Given that we have only one high-power launch a year, we increased the inspection opportunities by arranging "mock" inspections at our various low/mid-power launches throughout the past flying season. At these launches, members brought high-power rockets that were flight-ready except for the motors, which were replaced with dead weights.

Cool Flights

In addition to the cert flights, there were several particularly entertaining flights. Sebastian Richard started the high-power flying on Friday afternoon. He flew his Wildman Shape Shifter Jr. on a CTI I223 Skidmark to an altitude of 3097'. This sparked (pun-intended) the crowd's enthusiasm and led the way for a weekend of high-power. On Sunday, Sebastian flew his custom-built rocket "Serenity" on a CTI J453 White, but unfortunately the flight ended prematurely due to a motor CATO a few hundred feet above the ground. Fortunately, the damage was mostly limited to the airframe above the fins and motor mount, and with some new tube and a coupler the rocket will go on to fly again at a future launch. Sebastian also flew two other high-power flights during the weekend, including a personal altitude record of 4496' with his Wildman Punisher 3 named "New Horizons" on a CTI J290 White.

Master scratch-builder Bill Daigle flew his beautifully finished Upscale Crayon (with parts from Dollarama and Home Depot) on a CTI I255 Red Lightning to around 2000', which wowed the crowd.

Mark Roberts flew another scratch-built bird on an Aerotech I229 T. It was named "Tom Egemo" in honor of a boyhood friend. The motor ejection charge fired before the rocket left the rail, separating the two airframe sections, and sending the lower airframe into a spectacular sequence of spirals and twists as the motor burned itself out. The damage was surprisingly minor.

Mark Robbins flew a scratch-built rocket fashioned from gift wrapping paper core tubes that he then fiberglassed for strength. Appropriately named "Gift Wrapped," the rocket featured many custom 3D printed components and flew on an Aerotech H112 Blackjack to 2040'. Mark Robbins also flew his level 3 DX3 rocket twice on H motors, which resulted in two very nice low and slow crowd-pleasing flights!

Peter Clarke boosted his PML ¼-scale Patriot named "Warp" on an Aerotech Single Use DMS J425-14A Redline. With its red flame and a thrust to weight ratio of 16:1 (no wonder he named it Warp), this flight drew some exclamations from the crowd!

The daughter and father team of Rachel and Bill Daigle treated us to the two K impulse flights of the launch on Sunday afternoon. Rachel's scratch-built "Big Freaking Bertha" (6.5" diameter and 100" length) boosted on an Aerotech K535W for a nice flight. Rachel had flown her "Craypuppy," another creative scratch-built work, on a CTI H123 Skidmark on Saturday for another crowd-pleasing flight.

Of course, no rocket launch is over until the Fat Boy flies. In fact, the last flight at Rage at the Gage 2021 was a Fat Boy, a really big Fat Boy. Bill Daigle sent his beautiful 12-inch diameter upscale Fat Boy on its maiden voyage with a CTI K740 C-Star. It was a nice flight and a fitting end to a weekend of rocket camaraderie!

Acknowledgements

Thanks to reduced staff due to COVID, the Atlantic Office of Transport Canada made a special effort to review our launch request in time for the launch. We extend our thanks to all the TC staff involved. We thank the staff of CFB Gagetown for their cooperation and assistance in making the arrangements for us to launch on the Base. Our appreciation goes out to those members of NB Rocketry and friends who pitched in to help with the range duties and odd jobs to make this launch possible. It was gratifying to see so many people helping out.



Bill Daigle posing with his upscale Fatboy (above), and the flight of the Fatboy (below).



Evan Campbell preps his Initiator for his Level 1 Certification attempt (top left) before its successful flight on an H123 Skidmark.





Glen MacGillvray with his Peregrine prior to it's flight on a J290 (above). Mark Robbins' Gift Wrapped flying on an H112 (below)





Mark Robert's rocket beginning its disassembly on the pad courtesy of an I299 CATO (above and inset)
Rachel Daigle's Craypuppy on the pad, and flying on an H123 Skidmark (below)





The man behind the pictures! Sebastian Richard flying his drone (left), and posing with his New Horizons rocket (right), and the flight of his Serenity rocket on an I345 (below). [Click for his video of Rage at the Gage 2021](#)



Rage at the Gage – A First Timer’s Impressions

Alain Olsen

I decided to attend the Rage at the Gage event held last September to get my L2 certification. It was André Choquette who finally convinced me that the place was impressive and worth going to at least once. He was right.

The Rage at the Gage event is held on the huge Gagetown military base, which is located in New Brunswick. The launch site on the base is quite remote and there are no services nearby so one must plan ahead. I decided to camp in a tent, but I would recommend to anyone thinking about this to go with a proper camper or RV as the night was cold and windy.

All the folks I met in the NB rocketry club were really friendly and helpful in getting me sorted out. Special shout out to Rachel and Bill Daigle, Mark Roberts and many others!

For my L2 certification, I flew a Madcow Tomach 2.6” dual deploy, made from fiberglass. It’s a very nice kit with quality parts. I selected it because I wanted to get my L1 to L3 certifications using the same rocket and I like that the fins are sturdy and not prone to breakage. I purchased it during a Black Friday event, so the price was reasonable. The rocket flew on a Cesaroni 38mm 5171255 motor, to an altitude of about 3,800 ft. Top speed was about 550ft/sec. The flight was simulated using OpenRocket and flight results were within 5% of predicted values.

I used two Eggtimer Quantums for the altimeters, the second one was only there for backup. On this flight, both Quantums were only recording flight data; the ejection event was a single deploy using the motor, since I hadn’t done proper ground tests for the ejection charges before the launch.

I had a GPS tracker in the nosecone, again from Eggtimer. I did not really need it as the rocket landed fairly close to the launch pad, but since the rocket landed in some brush and the ground was very deeply rutted due to tank tracks, it was hard to spot even when standing really close to it; I’ll likely add a loud chirper next time I fly in similar conditions.

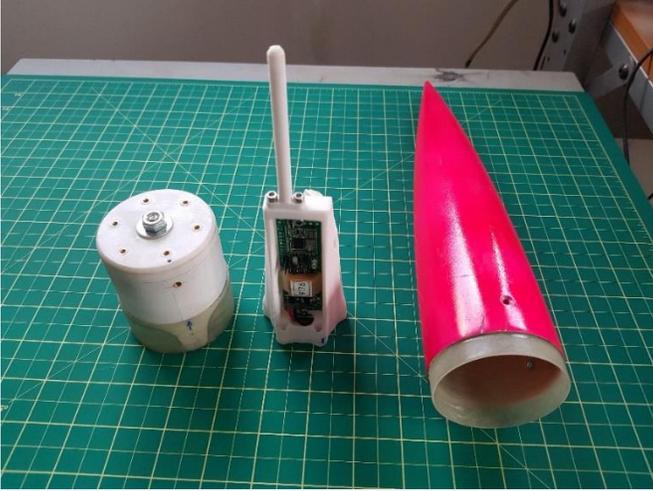
The only really unusual feature on the rocket is the use of 3D printed parts in the avionics bay and the nosecone. Since the first goal for this rocket was for me to obtain my certifications, I designed and printed all parts with robustness in mind, not for the absolute lightest weight possible.

For the nosecone, the bulkhead itself was 3D printed and offset by 3” into the nosecone to allow for more space inside the payload bay for the main parachute and harness. All parts were printed with PLA and despite the material’s low melting point, I’ve had no issues throughout the whole year (for extra safety margin, PETG or ABS would be better choices).

This was my first time going to Gagetown and I really enjoyed it. I would highly recommend it to anyone considering going, as I got to meet great people and the site is truly vast and open. I look forward to attending the Rage in 2022!

Alain





Rage at the Gage – Les impressions d’un neophyte Alain Olsen

J’ai décidé de participer au lancement “Rage at the Gage” pour y obtenir ma certification de niveau 2. C’est André Choquette qui m’a convaincu que le site était impressionnant et méritait d’être visité au moins une fois. Il avait raison! “Rage at the Gage” est un lancement qui a lieu sur l’immense site de la base militaire de Gagetown, située au Nouveau-Brunswick. Le site est assez isolé, et il n’y a pas de services à proximité, donc il faut se préparer en fonction. J’ai décidé de camper dans une tente, mais je recommande plutôt d’y aller avec une roulotte ou un véhicule récréatif, vu que les nuits peuvent y être froides et venteuses.

Tous ceux que j’ai rencontré dans le club NB Rocketry étaient bien gentils et m’ont aidé à m’organiser pour l’occasion. Je tiens à remercier spécialement Rachel et Bill Daigle, Mark Roberts, et bien d’autres! Pour ma certification de niveau 2, j’ai fait voler une fusée Madcow Tomach en fibre de verre de 2,6 pouces de diamètre, conçue pour le double déploiement. C’est un kit très bien fait, avec des pièces de bonne qualité. Je l’ai choisi parce que je voulais obtenir mes certifications 1, 2, et 3 avec la même fusée, et je considère que les ailerons sont solides, avec peu de chance de casser. Je l’ai acheté pour un prix raisonnable durant une vente du Vendredi Fou. Pour ce vol, j’ai utilisé un moteur Cesaroni 5171255 de 38mm. L’apogée du vol était de 3,800 pieds, et la vitesse maximale autour de 550 pieds/seconde. J’ai simulé le vol avec OpenRocket, et le vol réel se comparait à la simulation avec une différence de 5% ou moins.

Pour les altimètres, j’ai utilisé deux EggTimer Quantums. Pour ce vol, les altimètres servaient uniquement à enregistrer les données de vol de façon redondante. Le déploiement a été déclenché par la charge d’éjection du moteur, vu que je n’avais pas fait de tests au sol d’un scénario comportant des charges d’éjection contrôlées par les Quantums.

J’avais un localisateur GPS dans le cône, également un produit EggTimer. Il n’était pas vraiment nécessaire vu que la fusée s’est posée assez proche de la plate-forme de lancement. Quand même, comme la fusée était dans la broussaille, et que le terrain était très inégal à cause des traces de blindés, elle était difficile à voir même de près; la prochaine fois, je vais m’assurer d’inclure un circuit bruiteur puissant pour ce genre d’occasion.

La seule particularité de cette fusée est que j’ai utilisé des pièces imprimées en 3D pour la baie avionique et pour l’intérieur du cône. Vu que le but principal de cette fusée était de m’en servir pour obtenir mes certifications, j’ai conçu les pièces pour qu’elles soient solides, pas pour une légèreté maximum.

Pour le cône, la cloison de séparation était imprimée en 3D et décalée de 3 pouces à l’intérieur, histoire d’avoir plus de place pour le parachute principal et le harnais. Toutes les pièces étaient imprimées en plastique de type PLA. Même si ce plastique fond à une température assez basse, cela ne m’a pas donné d’ennuis cette année. Pour plus de sécurité, les plastiques PETG ou ABS seraient préférables.

C’était ma première visite à Gagetown et j’ai bien aimé l’expérience. Je le recommande chaudement à tous ceux qui considèrent y aller, j’y ai rencontré des gens fantastiques et le site est vraiment grand et ouvert. J’ai hâte d’aller au Rage en 2022!



What is CAR/ACF?



CAR/ACF Mission

The Canadian Association of Rocketry is a world-class association of rocketeers organized for the purpose of promotion, development, education and advancement of amateur aerospace activities. The Association provides access, leadership, organization, competition, communication, protection, representation, recognition, education and scientific/technical development for its members.

CAR/ACF Vision

We, the members of the Canadian Association of Rocketry are the pathway to the future of amateur aerospace and are committed to making rocketry the foremost sport/hobby/activity in the world. This vision is accomplished through:

- A dedication to safety and responsibility
- Partnerships with its valued associates, the aerospace industry and government
- Development of programs that meet or exceed Canadian government regulatory requirements
- A process of continuous improvement
- A commitment to leadership, quality, education and scientific/technical development
- A safe, responsible and enjoyable aerospace development environment.

More about CAR/ACF

- CAR/ACF was established in 1965
- CAR/ACF is a self-supporting, non-profit organization whose sole purpose is to promote development of Amateur Aerospace as a recognized sport and worthwhile amateur activity.
- CAR/ACF is an organization open to anyone interested in legal and responsible rocketry.
- CAR/ACF is the official national body for amateur aerospace in Canada.
- CAR/ACF is a chartering organization for model rocket clubs across the country. CAR offers its' chartered clubs contest sanction and assistance in getting and keeping flying sites.
- CAR/ACF is the voice of its' membership, providing liaison and certification programs with Transport Canada, Natural Resources Canada (Explosives Regulatory Division), and other government agencies through our national headquarters in Calgary, Alberta. CAR also works with local governments, zoning boards and parks departments to promote the interests of local chartered clubs.
- CAR/ACF is the principal stakeholder representing Non-military, Non-commercial aerospace on the Transport Canada Canadian Aviation Regulatory Advisory Council (CARAC) which is responsible for maintaining and developing the Canadian Aviation Regulations (CARS).
- CAR/ACF is a Rocketry Association whose rules and regulations as formally acceptable to the Minister of Transport.



Qu'est-ce que l'ACF?



Mission de l'ACF

L'Association canadienne de fuséonautique est une association de classe mondiale organisée dans le but de promouvoir, développer, éduquer et faire progresser les activités aérospatiales amateurs. L'association fournit accès, direction, organisation, concurrence, communication, protection, représentation, reconnaissance, éducation et développement scientifique / technique à ses membres.

Vision de l'ACF

Nous, les membres de l'Association canadienne de fuséonautique, sommes la voie de l'avenir de l'aéronautique amateur et nous nous engageons à faire de la fusée le sport / loisir / activité la plus importante au monde. Cette vision est réalisée à travers:

- Un dévouement à la sécurité et à la responsabilité
- Des partenariats avec ses précieux collaborateurs, l'industrie aérospatiale et le gouvernement
- Un développement de programmes qui respectent ou dépassent les exigences réglementaires du gouvernement Canadien
- Un processus d'amélioration continue
- Un engagement envers la direction, la qualité, l'éducation et le développement scientifique / technique

En savoir plus sur l'ACF

- L'ACF fut établie en 1965.
- L'ACF est une organisation autonome à but non lucratif dont le seul objectif est de promouvoir le développement de l'aéronautique amateur en tant que sport reconnu et en tant qu'activité amateur valable.
- L'ACF est une organisation ouverte à toute personne intéressée par les fusées légales et responsables.
- L'ACF est l'organisme national officiel de l'aérospatial amateur au Canada.
- L'ACF est une organisation membre de clubs de fusées miniatures à travers le pays. L'ACF offre à ses clubs affiliés sanction et assistance pour obtenir et conserver des sites de vol.
- L'ACF est la voix de ses membres et fournit des programmes de liaison et de certification avec Transports Canada, Ressources naturelles Canada (Division de la réglementation des explosifs) et d'autres agences gouvernementales via son siège national à Calgary, en Alberta. L'ACF collabore également avec les administrations locales, les conseils de zonage et les départements des parcs pour promouvoir les intérêts des clubs à charte locaux.
- L'ACF est le principal intervenant représentant l'aérospatiale non-militaire et non-commerciale au sein du Conseil consultatif de la réglementation de l'aviation canadienne (CCRAC) de Transports Canada, qui est chargé de maintenir et d'élaborer le Règlement de l'aviation canadienne (DORS/96-433).
- L'ACF est une association de fusée dont les règles et règlements ont été officiellement acceptés par le ministère des Transports.



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Rear photo/photo de résumé:

Rocket inspections at *Rage at the Gage* and *Fire and Ice*. Consider completing your RI training this season!

Inspections de fusées à "Rage at the Gage" et "Fire and Ice". Essayez de compléter votre formation de RI (Inspecteur de Fusées) cette saison!