

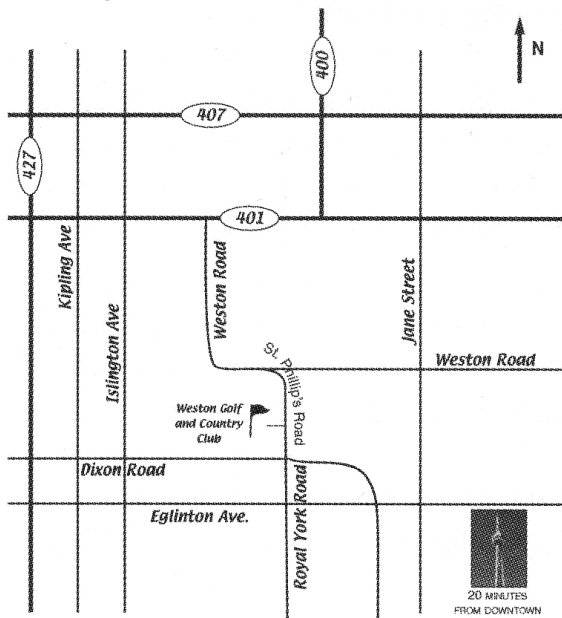


## Humber Valley Meeting Announcement

**Wed Dec 7<sup>th</sup> 2016 @ 7:00pm**  
**Weston Golf and Country Club**

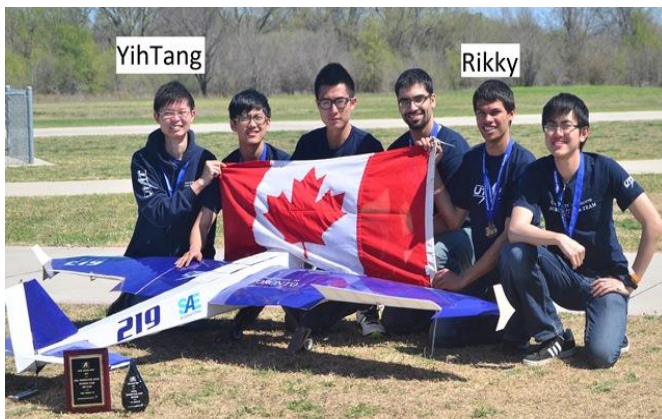
Wadsworth Room  
50 St. Phillips Road, Toronto ON M9P 2N6

Please note our new meeting location. This is a first class facility with large meeting rooms, a convenient location just south of the 401 at Weston Road and lots of parking. If you come via the 401, drive south on Weston Road and keep right on St. Phillips Road. Then keep a close watch for the entrance on the right past some tall hedges. It kind of sneaks up on you! Then keep to the right and park in the lot at the rear of the building. The main entrance is right off the parking lot. The Wadsworth meeting room is straight ahead on the left. **Feel free to bring a friend.**



Snacks and soft drinks will be served. Hope to see you there!

## What's this?



What the heck is this all about?  
Check out the Dec 7<sup>th</sup> meeting program on page 2!

## Calendar of Upcoming Events

Sat Dec 3 <sup>rd</sup>	Indoor Flying @ York University 9:00 am to 11:00 am
Wed Dec 7 <sup>th</sup>	Club Meeting @ 7:30 pm • Noise Guidelines Update Discussion • Buy and Sell ( <b>Starting @ 7:00 pm</b> ) • A Student Design Approach to UAV's
January	No January meeting. Happy New Year!
Thurs Jan 1 <sup>st</sup>	New Year's Day Fun Fly
Sat Jan 7 <sup>th</sup>	Indoor Flying @ York University 9:00 am to 11:00 am
Sun Jan 15 <sup>th</sup>	Indoor Flying @ York University 2:00 pm to 4:00 pm
Sat Jan 28 <sup>th</sup>	Indoor Flying @ York University 9:00 am to 11:00 am
Wed Feb 1 <sup>st</sup>	Club Meeting - Executive Elections - Annual General Meeting (AGM)

## 2017 Renewal Reminder

The new 2017 membership application form is attached to this Flyer and we will have copies available at the December 7<sup>th</sup> meeting. Please note the fee for renewals before Jan 1<sup>st</sup> is only \$75.00. What a deal! After that you will have to pay more. Fees are \$80.00 up to January 31<sup>st</sup> and \$100.00 after that. **Renew early and save!!** We have also maintained membership benefits for seniors and juniors joining under the "Family" plan. See the notes on the renewal form.



... to renew your membership today!

Make sure you have the correct amount in cash or bring a cheque to the meeting to renew. You can also mail your application form and cheque to **Bruce Gillespie** at the address noted on the form. It is important to fill in all the required information clearly so that we have accurate data in our membership database.

## Buy and Sell at Dec 7<sup>th</sup> Meeting @ 7:00 pm

Now is a good time to clean up your work bench and get rid of all that stuff you don't need. Bring it to the December meeting and see what you can get for it and get some good old fashioned Humber Valley club bargains!



If you are in the buying mood, you will surely see a few bargains so don't forget to bring your wallet.

**Note: Buy and Sell Starts @ 7:00 pm**  
**Meeting Starts @ 7:30 pm**



## Dec 7<sup>th</sup> Meeting Program Announcement A Student Design Approach to UAV's

We are fortunate to have two recently minted aeronautical engineers, **Rikky Duivenvoorden** and **YihTang Yeo** address the club about "A Student Design Approach to UAVs: Competitors".

The University of Toronto Aerospace Team (UTAT) is a group of Engineering students who study and work in various aerospace disciplines. UTAT has competed in the Unmanned Systems Canada (USC) and Association for Unmanned Vehicle Systems International (AUVSI) student UAV competitions annually since 2013. This talk will discuss the competition challenges, as well as the design approach and solutions from the past three competition years. The objective of the talk is to present solutions from the perspective of the remote control flying hobby, and emphasize the improvements and additional payloads that were necessary to solve specific problems. Topics will include airframe design, an overview of the avionics, communication and payload architectures, as well as an introduction to the ground control station and computer vision subsystems. A selection of the most memorable lessons learned from developmental and systems testing will also be covered.

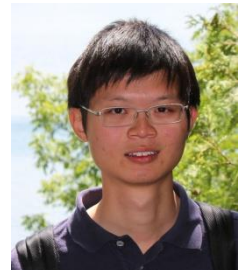
**Rikky Duivenvoorden** obtained a Bachelor of Applied Science



(BaSc) in Engineering Science with a major in Aerospace Engineering from the University of Toronto in 2014. During his professional experience year, he worked at Messier-Bugatti-Dowty (now Safran Landing Systems). He recently completed the Master of Applied Science degree in the Dynamic Systems Lab under the supervision of Prof. Angela Schoellig at the University of Toronto Institute for

Aerospace Studies (UTIAS). His research focused on using an L1 adaptive controller on a quadrotor to achieve consistent performance in the presence of uncertainty and disturbances. In UTAT he attended numerous competitions including SAE Aero Design, the USC student UAV competition, and the AUVSI student UAS competition. He has enjoyed flying remote controlled airplanes for the past eight years. He plays the piano in his spare time.

**YihTang Yeo** obtained a BASc degree in Engineering Science



with a Major in Aerospace Engineering and a Minor in Robotics and Mechatronics. He started a Master degree at UTIAS in Professor Hugh Liu's Flight Systems and Control lab in September. His Master thesis involves designing and controlling vertical take-off and landing (VTOL) fixed-wing UAVs. In the University of Toronto Aerospace Team (UTAT) he

participated in the Powered Flight Division, which competed in the SAE Aero Design competitions and last year, formed and led the Aerial Robotics Division which builds multi-rotor UAVs to participate in the Unmanned Systems Canada (USC) competition. During his professional experience year he worked at Messier-Bugatti-Dowty in the Boeing 787 stress

analysis department, mainly working on fatigue analysis and developing tools to facilitate faster analysis. He enjoys programming, photography, biking, hiking, playing badminton, and coin/stamp collection.

I think this presentation will be a great opportunity to see how our aerospace engineers are trained and get experience in practical situations. If students like these are the future of Canada's aerospace industry, it is in good hands.

... **Milt Charlton**, Program Director

## Update on Noise Policies and Guidelines

**Tom Gottlieb**, Vice President

As I reported to you in the November Flyer, Val Oddo and I met with the City on November 17<sup>th</sup>. The meeting was attended by:

- The Supervisor of Customer Services, Etobicoke York District, Parks, Forestry and Recreation,
- The City Permit Officer – he prepares and issues the permit,
- The Parks Superintendent – he manages tree planting, road/fence repair, operations, etc., and
- The Provincial Offences Officer, By-Law Enforcement.

We provided lot of information about the club, our organization and executive structure, the constitution, our safety and noise guidelines, MAAC insurance and safety rules, and other history of the club going back 30 years.

The group was very impressed and really had no idea how we are organized and manage operations. We emphasized that we value and appreciate the use of the park and always endeavor to be good permit holders and responsible community neighbors.

Notwithstanding, it was clear from the By-Law officer that any citizen complaint must be investigated and is taken very seriously by the City. There was general agreement that there are many other factors contributing to noise in the area, including trucks, trains, commercial aircraft and other illegal sources like the dirt bikes that sometimes trespass across the north edge of the field. We were advised that the park may not be used by motorcycles and that we should call 311 to report any illegal use of the park.

There was considerable discussion on the definition of our allowable fly zone north of the pilot stations and south of the railway tracks and what factors contribute the most to creating sound. We explained the importance of propeller choice and tip speed and of course good muffler selection as being bigger factors than simply engine displacement and type.

The City has agreed to renew our permit with certain conditions of use that coincide with our noise policies. We will confirm these at a later date when the permit is issued.

Given all this and after lengthy discussion and debate within the executive committee, we have made some modifications to the Noise Policies and Guidelines that were published in the November Flyer. The main changes describe more specifically the acceptable sound and RPM limits and which engines require mandatory testing. We are also introducing an updated





procedure for logging test results and issuing a new Sound Card (see the sample below) that each pilot can retain to prove that his engine and propeller combination was tested and passed the club's sound guidelines.

As a club, we feel we cannot emphasize enough that it is not the responsibility of the executive to enforce noise limiting guidelines. It is the responsibility of each pilot to make his plane and as quiet as possible and to fly it as quietly as possible to preserve the use of the field for the future enjoyment of all members. The cliché that applies here is:

**Ask not what your club can do for you.  
Ask what you can do for your club.**

What we need here is a culture change in the club. Our future depends on it. It is your responsibility to minimize the noise you spread into the communities to the south, east and west. How can you do it? Follow these updated guidelines.

### HVRCF Noise Policies and Guidelines

- 1) No combustion engine (nitro or gas) flying before 10:00am.
- 2) All combustion engine and propeller combinations must generate less than 88dB sound level at 25 feet.
- 3) All engines must not exceed maximum propeller tip speed of 0.65 Mach at full throttle according to the prop chart below.
- 4) Any nitro engine over 1.0 cubic inch displacement and all gas engines must be tested and the result logged by a member of the executive committee or sound committee. For each unique engine/propeller combination, sound must be less than or equal to 88dB at 25 feet and propeller tip speed less than 0.65 Mach at full throttle. Each passing test will be issued a new Humber Valley "Pass" Sound Card that should be kept with the member's club and MAAC cards. The Sound Card may be laminated to the airplane fuselage or wing at the pilot's option. See sample at right.
- 5) Nitro engines under 1.0 cubic inch displacement may be challenged by an executive or sound committee member and be required to pass a sound test as described above for other engines.
- 6) Planes must be re-tested after any change in prop, engine or airframe. Test results will be logged in the Sound Test Log Book and the pilot will be issued a new Sound Card.
- 7) A pilot flying a combustion engine aircraft may be requested by any executive member to produce his Club Membership, MAAC Card and Sound Card (if applicable above) at any time or be grounded.
- 8) Pilots are encouraged to choose 3-bladed props or smaller diameter - higher pitch prop for lower tip speed at same RPM.
- 9) All airplanes: No prop ripping - EVER.
- 10) All pilots (combustion or electric engine) should "Sign In" and "Sign Out" in the Flight Log Book upon arrival and departure. This is designed to provide a record of who is at the field in the event of any future incident and allow us investigate and respond with facts.

- 11) All combustion powered planes must use at least a quiet stock muffler. Stock baffles may not be removed.
- 12) Pilots are encouraged to fly responsibly to minimize noise as follows:
  - a. Conservative throttle management.
  - b. Avoid full throttle flying if there is a brisk prevailing North wind (sound carries South).
  - c. Choose to fly at lower altitude at slower speed rather than high altitude, high speed.
  - d. Avoid continuous full throttle circuits or passes.
  - e. Avoid continuous full throttle 3D maneuvers.

### Notes:

- 1) The club's sound meter and optical tachometer are kept in the storage container. You may request to borrow this equipment any time to experiment with different muffler setups or propellers and measure the effect on sound. The meter is easy to use. Ask any executive member for instruction. Always return it to the container and report any missing or malfunctioning equipment to an executive member.
- 2) To arrange to have your plane officially tested and logged contact Val Oddo, Tom Gottlieb, Tony Phan, Paul McMillan or any named member of the sound committee. You may also contact any of these individuals to replace a lost card without retesting providing a pass result was previously logged.
- 3) The Flight Log Book is stored in the First Aid / Charging metal cabinet. Please lock these away if you are the last person to leave the field.

HVRCF Sound Check Card: Test ID: <u>2016-001</u>	
Member Name:	<u>TOM GOTTLIEB</u>
Airplane Model:	<u>SUPER CHIPMUNK</u>
Engine:	<u>05.91 4 STROKE</u> dB Level: <u>83</u>
Prop Size:	<u>14 x 6</u> Max RPM: <u>9,000</u>
Test Date:	<u>15/11/16</u> Tested By: <u>Tom Gottlieb</u>
	dd/mm/yyyy

Above is a sample Humber Valley Sound Card. Place in your member card pouch, keep in your toolbox or laminate to your fuselage or wing with Scotch Tape!

### **Noise Guidelines are Subject to Change**

The executive committee reserves the right to change any guidelines in response to any threats to the field at any time without prior notice. Please do not take these privileges for granted. Any executive or member of the Sound Committee has the right to ground a plane for any perceived or real noise related issue. Pilots may take up complaints to the President but we have unanimously decided on a zero tolerance policy concerning members following the noise guidelines. The construction of the townhouse development to the west of the field may impact future guidelines.



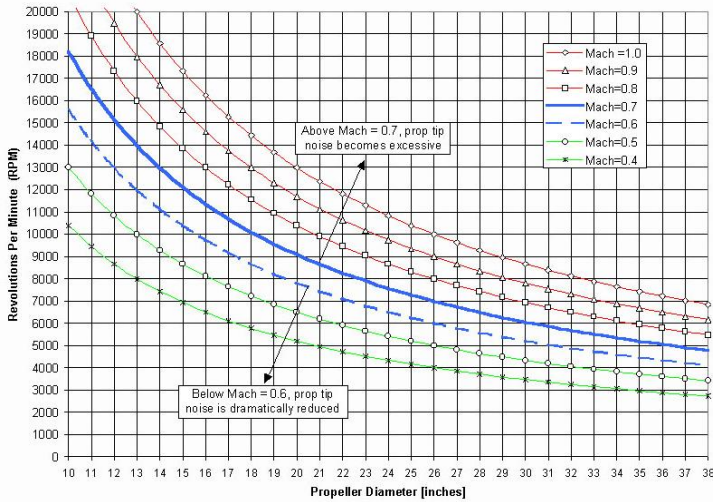
## Allowable Propeller Speeds

To reduce excess propeller noise, it is mandatory that maximum propeller speeds be under 0.65 Mach. The chart below provides a RPM cap based on the propeller diameter.

It is generally accepted that as propeller RPMs get over 10,000 RPM (in the smaller propeller diameters) the frequency becomes more annoying to the human ear. We highly recommend propeller speeds for the smaller propeller sizes be minimized to reduce this noise.

The chart below shows the relationship between RPM and tip speed according to the prop diameter.

Figure 1. Propeller Tip Mach Numbers (@ 75 degree F, ambient temperature)



The table below captures Mach 0.65 RPM by prop diameter.

Prop. Dia	RPM @ 0.65 Mach
7	23,400
8	20,475
9	18,200
10	16,380
11	14,891
12	13,650
13	12,600
14	11,700
15	10,920
16	10,238
17	9,635
18	9,100
19	8,621
20	8,190
21	7,800
22	7,445
23	7,122
24	6,825
25	6,552
26	6,300
27	6,067
28	5,850
29	5,648
30	5,460
31	5,284
32	5,119

## How to Measure RPM



You can measure RPM with a handy Hangar 9 tachometer. This is also very useful for tuning your engine. You can pick one up for under \$40 at most hobby shops. The club has purchased one for general use and it is stored with the sound meter to assist with sound testing and maximum RPM measurements.

## Indoor Flying Returns to Humber Valley

**Yes you heard right! Indoor is back at HVRCF!**

Indoor flying is off to a great start. Check below for remaining dates. The space is HUGE! You will love it!

## Where is it? (See map from the November Flyer)

Here is the information you need and how to get there:

We are using the "Field House" in the Tait McKenzie Building at 1 Thompson Rd within the York University grounds. It is at the north end of campus with access from Steeles Avenue west of Keele Street. The main entrance to the building is on the **South side** of the building and parking is available opposite the main entrance. Park in the South lot right opposite the main entrance doors.



Parking is only \$5.00 on Sundays, \$7.00 on Saturdays.

## When is it?

Please carefully note the remaining dates and times. Saturdays are in orange, Sundays are in blue.

Day	Date	Time
Saturday	Dec 03, 2016	9 AM - 11 AM
Saturday	Jan 07, 2017	9 AM - 11 AM
Sunday	Jan 15, 2017	2 PM - 4 PM
Saturday	Jan 28, 2017	9 AM - 11 AM
Sunday	Feb 12, 2017	2 PM - 4 PM
Saturday	Feb 18, 2017	9 AM - 11 AM
Sunday	Mar 26, 2017	2 PM - 4 PM
Saturday	Apr 01, 2017	9 AM - 11 AM

## Your 2016 Executive

- President, Val Oddo ..... (416) 566-9807
- Past President, Paul McMillan ..... (905) 851-7387
- Vice President & Editor, Tom Gottlieb ..... (416) 781-3189
- Treasurer, Bruce Gillespie ..... (416) 741-4385
- Secretary, Danny Karaiskakis ..... (416) 356-1295
- Program Director, Milton Charlton ..... (416) 783-6413
- Field Officer, John Neves ..... (416) 937-8579
- Chief Instructor/Safety Officer, Tony Phan .... (416) 436-8088

## Other Appointed Positions:

- Web Master, Paul McMillan ..... (905) 851-7387