



Volume 2021-03

# Middlesex County R-C Fliers Club Newsletter – March 2021

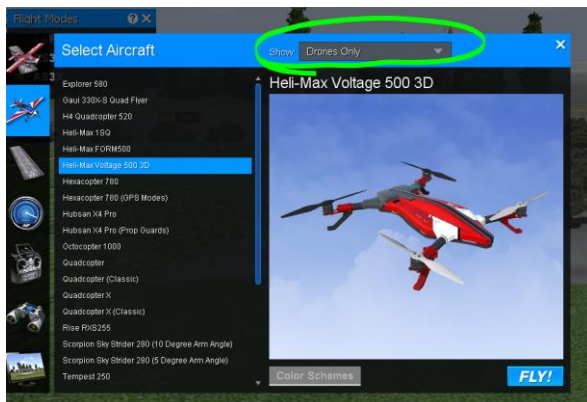


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 Facebook: <https://www.facebook.com/groups/MCR CF/>  
 YouTube: <https://www.youtube.com/user/MiddlesexRCFliers>

<p><b>MCRCF Regular Meeting - Wednesday, April 14</b></p> <p><b>Next Workshop: Neil Cumbie</b></p> <p><b>Topic: Batteries</b></p>	<p><b>7:30 PM via ZOOM online meeting.</b></p> <p><b>Members - watch for an email with information on joining the meeting.</b></p> <p><b>Non-members are welcome - contact the club via email for an invitation.</b></p>
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**All Scheduled In-Person Events are considered CANCELLED\* until further notice**

**\*Due to you know what... WEAR YOUR MASK at the field when you can't separate!**



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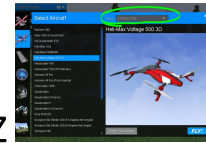
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## 2 INTRODUCTION TO FPV RACING DRONES - BY MEL SUAREZ



### 2.1 FPV DRONE BASICS

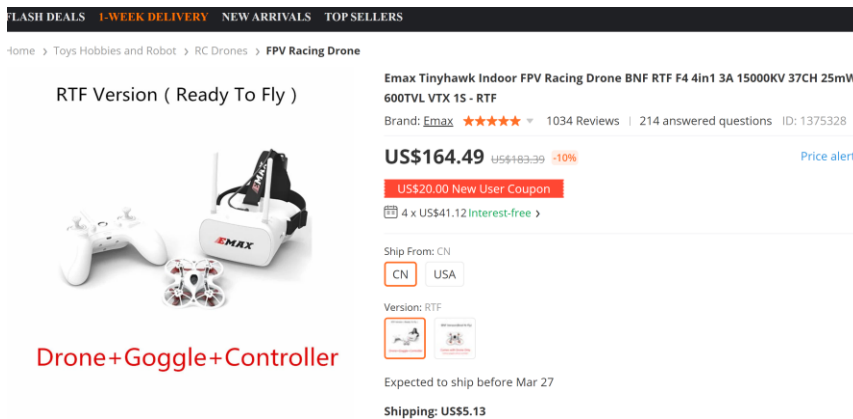
We had our first of a series (hopefully) of workshops on Wednesday, March 3rd. Yours truly was the first one to volunteer. Here's a summary of some of the concepts and things that people provided in the way of support material.

What is an FPV racing drone? What are the basic parts? Note that this is *just* a very informal introduction.

Please read AMA guidelines called "Unmanned Aircraft Operation Utilizing First-Person View" - <https://www.modelaircraft.org/sites/default/files/550.pdf>

So back to the basics. **First there's the drone.** It's basically a durable-as-hell, typically a quadcopter, built for speed, and very aerobatic. It has an onboard **video camera and transmitter (vtx)** that includes data for your on-screen-display (OSD) that typically transmits at 5.4 GHz. The OSD data consists of battery voltage, flight time, channel, flight mode, etc.

"Micro-drones", that fit in the palm of your hand, are a good way to start doing the FPV thing because they bounce when they crash and they're inexpensive. They have built-in video and you can get one for \$75 or so BNF. And, it includes flight data as well!



FLASH DEALS 1-WEEK DELIVERY NEW ARRIVALS TOP SELLERS

Home > Toys Hobbies and Robot > RC Drones > FPV Racing Drone

RTF Version ( Ready To Fly )

Emax Tinyhawk Indoor FPV Racing Drone BNF RTF F4 4in1 3A 15000KV 37CH 25mW 600TVL VTX 1S - RTF

Brand: Emax ★★★★★ 1034 Reviews | 214 answered questions ID: 1375328

**US\$164.49** ~~US\$183.99~~ -10% [Price alert](#)

US\$20.00 New User Coupon

4 x US\$41.12 Interest-free >

Ship From: CN  CN  USA

Version: RTF  RTF  BNF

Expected to ship before Mar 27

Shipping: US\$5.13

Drone+Goggle+Controller

Drone BNF RTF"

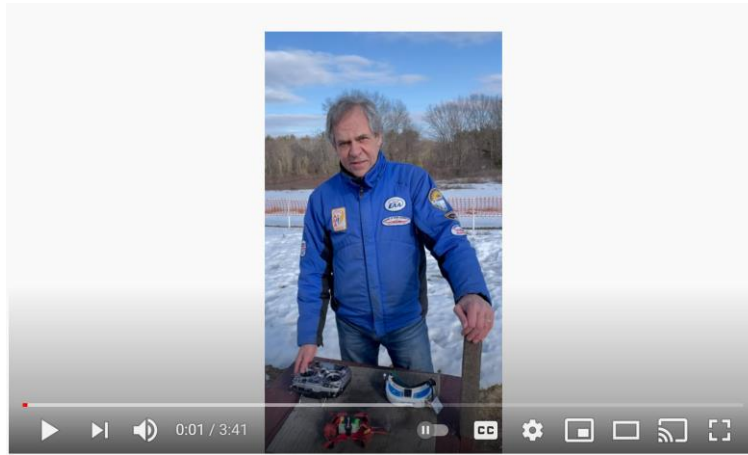
Look up "Emax Tinyhawk Indoor FPV Racing

**Then there's the goggles.** They are key, of course. FatShark dominates the field. Goggles receive the VTX signal and pump it to tiny screens in the goggles. I have FatShark Dominator v3 with a Furious diversity module that takes the stronger of 2 antennae signals for display. These were top of the line at the time. There's cheaper stuff out there.

**Flying a micro-drone** can be tricky. Why? Because they are *so* light that the wind can easily take them, especially in the most stabilized mode, where there isn't enough pitch allowed to penetrate into the wind. Best thing to do in that case is 1) cut the throttle *immediately, before it flies away* and 2) possibly switch to a more aggressive mode so you can pitch the quad more.

*Micro-drones are extremely easy to lose.* Drones are *much* harder to find than airplanes as they are much more spindly. But micro drones are tiny and disappear even faster and even in just tall grass. It's good to make them as colorful as possible. I've used fluorescent paint and red tape. Also, try to fly carefully, avoiding tall weeds, forests, places where finding would be difficult. Best places to fly, especially as a beginner is a soccer field. Your backyard may be handy but there are probably lots of trees and such. Indoors is good for LOS practice, but hard for FPV flight.

**A flight of the Vortex racing drone** is available here: <https://www.youtube.com/watch?v=2KR--byxk3M> that shows the Vortex 150, getting set up and flying. Note that it is important to NOT fly over the pit area. So do not do what I did.



Video courtesy of Paul Sullivan.

up) jacket where my wife has sewn on patches.

Note the fancy (if beat

Here's what the goggles' DVR recorded. The video quality is awful in the recording while excellent in the actual flight:

[https://youtu.be/y\\_vEBW7DtAs](https://youtu.be/y_vEBW7DtAs)

BTW, if anyone would like to experience FPV flight, I have an extra set of goggles that you can "ride along" with. You'll see what I see while I fly.

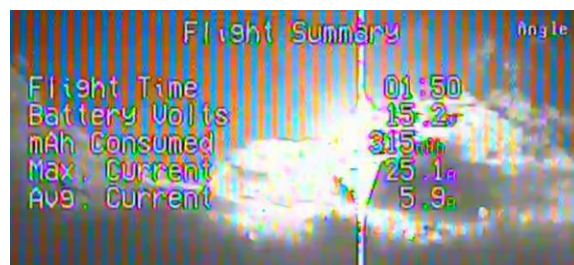
## 2.2 THE FPV GOGGLES

Most RC pilots are used to flying stuff – so there's an aircraft with receiver and a transmitter. FPV flight (to state the obvious) includes a new kid in town – the goggles.

Basically, the signal comes from the vtx through an antenna/ae that pumps the signal into tiny tv screens within the goggles. The goggles that I have include:

- battery – typically a little 2s LiPo
- channel button – to allow picking the channel you want. The Dominator allows you to scan for the best channel/band. Also, you can set this to what someone else is flying and pickup their feed.
- display control – to increase the brightness up/down and increase the contrast (left/right)
- micro-SD card slot – in support of DR. The card must be bought separately (about the size of a fingernail)
- DVR – to record the received vtx signal and thus your flight onto the micro-SD card.
- HDMI interface – allows the goggles to accept visual feed from a computer, e.g. RealFlight

At the end of the flight, the OSD provides a nice summary of the flight. The quality of the DVR is quite awful compared to the actual signal that one sees. Max current was 25.1 amps. Who knew?



Word from the guys in the club is that it's better to use a separate onboard high res camera for capturing the flight.

## 2.3 FLYING

If you have flown RC helicopters, you are ahead of the game and drone flying will come easily. If not, I would definitely use a simulator to "wire your brain" and save mucho bucks (\$\$). More on simulators below.

You can also practice with a cheap ready-to-fly (RTF) drone. It is critical, when flying visual-line-of-sight (VLOS) to be able to keep the tail towards you. Can't stress this enough! Then, start doing figure 8's gently, in front of you, and then circles. I do recommend with drones whose tail end are hard to distinguish – this is most of them – that you put something quite visible in the back of the drone. My neighbor used a straw attached vertically to the tail side using plastic zip-ties.

**Flying FPV comes next.** Before you fly, I recommend that you have a plan. Where are you going to fly to on the field? It's good to have a target. Note some visual cues *before* you go up. A cone, a fence, a tree. One on either end of your flying area. Also, forward motion is your friend. Remember that the drone has no aerodynamic rudder surface to help the vehicle align with the line of flight. So, you need to use the rudder control (yaw) to make it turn the fuselage in the flight direction, otherwise you will be going sideways quite a bit.

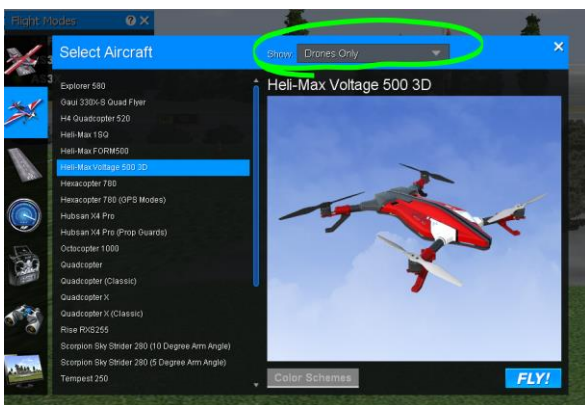
Hovering is the hardest part. But who needs to hover anyways? It is hard to judge your vertical velocity, so it's good to get the drone a bit off the ground – but not too high – so you have time to react else it may slam on the ground until you get the hang of it.

## 2.4 FPV SIMULATORS

As mentioned earlier – and as any experienced pilot knows – simulators are a fantastic way to save money and time.

RealFlight comes with several drone simulations. You can fly VLOS or with the camera set to “nose” and feel like it's FPV. Below is a picture of the RF 9.5 drones available.

But there are free or inexpensive drone programs out there and you can either use your transmitter or buy a controller.



Here's an an amazing video on how to use your FPV FatShark goggles with either Liftoff or FPV FreeRider simulators: <https://youtu.be/b5S2IJGdxBA>

From Randy Grossman during the workshop: “Here is a free fpv drone simulator which is pretty good and should run on most pc's if you can use your transmitter to control or have another game controller to use:

<https://www.currykitten.co.uk/currykitten-fpv-sim/> .”

## 2.5 FINDING YOUR LOST DRONE

There's nothing as sad as losing a drone (or plane), especially your first one. Some methods that may help:

<b>Before lost:</b>	
Add a Beeper	My racing drone starts beeping when it's down, usually b/c of low battery. However, you can also buy a beeper and simply attach it to the drone.
Use a spotter	It is very helpful to have a spotter alongside keeping an eye on your drone b/c when/if it goes down, you may have no clue as to where it is and he/she should.

<b>After lost:</b>	
Leverage the throttle/motor	If there's still <i>some</i> batter left, try to get near where the drone is and once in a while hit the throttle to hear for a response
Use the Tx	You can use the Tx as a sensor. On the Tx there's a Receiver Signal Strength Indicator (RSSI) that indicates how much RF you are receiving. If you point the Tx reception in the right direction it increases in strength and as you walk closer it also increases. This will be your guide. Check out <a href="https://www.getfpv.com/learn/fpv-essentials/rssi-lost-fpv-drone/">https://www.getfpv.com/learn/fpv-essentials/rssi-lost-fpv-drone/</a>
Check video cam	The FPV camera, if operational, can be a great clue, especially if it happens to be pointed horizontally upon landing, even with the ground. You can go in a big circle around the area where you think you landed until you see yourself. Then go from there.
Check DVR recording	IF you happened to be recording the flight, then the video could be of great help tracing the flight. The FatShark Dominator, for example, has a replay option built-in.
"Hire" a search & Rescue Drone	The MCRCF Club has guys with camera drones that can help with search & rescue. See the "Random Stuff" below for details. Or reach out to the Club in general.

## 2.6 REFERENCES




<https://www.getfpv.com/learn/> - excellent site with all kinds of info. Thanks Randy.

<https://www.youtube.com/watch?v=qy-a1VecFRM> – Here's what appears to be an excellent FPV-capable micro-drone for little money. Check out the amazing indoor/outdoor flight by this guy, Captain Drone.

<https://www.digitaltrends.com/cool-tech/most-expensive-drones-in-the-world/> - a nice shopping list if you have \$250k. You never know!

[youtube.com/mel\\_suarez](https://www.youtube.com/mel_suarez) - Mel's YouTube channel with some low-quality hacker stuff.

<https://www.youtube.com/thedroneracingleague> - from Jeff Ward – the Drone Racing League (DRL)

<h3>3 FROM THE HANGAR</h3> 	
<h4>3.1 IMMERSIONRC VORTEX 230 MOJO ARF RACING QUAD</h4> <p>John Parisi: "I have this one. I like it but don't fly that often." Price is around \$350. Nice looking drone, John.</p>	
<h4>3.2 TONY DIPERSIO'S BEAVER</h4> <p>(no notes on this one...but it's a beauty!)</p>	
<h4>3.3 YOUR PICTURE HERE →</h4> <p>...</p>	<p>Guys/gals, send me pictures of your flying vehicles to share with the club.</p>

## 4 TIPS

### 4.1 THE SMART BATTERY CHARGER AT THE FIELD - BY JEFF WARD

I had acquired a Spektrum smart battery charger (DC only input) and when I tried to use it powered by a 12 Volt battery (either my deep-cycle marine battery or in my car) it would error that the input was below 13 Volts and refuse to charge. The only way it worked was when the car engine was running, as the alternator puts out more than 13 Volts.

I finally got around to reading the user manual and found that the input voltage threshold is a settable value, and all I had to do was go into the settings menu and adjust it down to 12 Volts. Doh!



## 5 FROM THE EDITOR – BY MEL SUAREZ

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### 5.1 THE WORKSHOP WAS FUN, MAN!

It was fun doing the workshop on FPV Racing Drones. It gave me a chance to explain some things, answer some questions and do a mind-meld with fellow members who are in that space or thinking about it.

If there's interest, a follow-on might be in store. Randy spoke about some topics that could be covered in more detail, such as BetaFlight set up of a drone and dealing with optimization of the RF band to use, etc.

## 6 AMA EVENTS – ARE YOU GOING? NOT FOR A WHILE, EH?

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From the Event Finder at <https://www.modelaircraft.org/> for **District 1&2, 3/1/2021 – 5/31/2021**

Not a lot going on. Nothing in District 1, that is why I also pulled up District 2.

<b>APRIL 11</b>
<b>FAC</b> <b>AMA RECORD TRIAL</b> <b>Contact: DAVID ACTON</b> <b>Location:</b> 337 County Rd 12 New Hampton NY 10958 <a href="#">Visit Website</a>
<b>MAY 9</b>
<b>FAC</b> <b>AMA RECORD TRIAL</b> <b>Contact: DAVID ACTON</b> <b>Location:</b> 337 County Rd 12 New Hampton NY 10958 <a href="#">Visit Website</a>
<b>MAY 22 - 23</b>
<b>HATSCHEK INTERNATIONAL CHALLENGE</b> <b>CLASS AA</b> <b>Contact: DAVID ACTON</b> <b>Location:</b> 337 County Rd 12 New Hampton NY 10958 <a href="#">Visit Website</a>

## 7 RANDOM STUFF



### 7.1 WHATSAPP??? -- A CHANCE TO TRASH TALK WITH FELLOW MEMBERS



How to get onto WhatsApp?

- Install WhatsApp on your phone
- Send your phone number to someone you know is on the MCRCF WhatsApp group (almost everyone is an admin) – e.g. any officer
- That admin adds your name/phone to their contacts on their phone
- Via WhatsApp, that admin sends you a link to the MCRCF WhatsApp group
- You click on the link and you will be in. You won't see old threads, just new ones after joining.
- Be sure to introduce yourself when you join.

Alfredo, Bob, Carl, Dan, Dan de, Dany, Don, Gerald, James, Jeff, John, Long, Mack, Neil, Paul, Randy, Ray, Rohan, Saket, Sharad, Stephen, Tony, Yaz, +1 (413) 687-8619, +1 (617) 828-3967, +1 (617) 877-7683, +91 98192 01230, You

### 7.3 RC INSTRUCTORS

List of available instructors. Please note: this list is a work in progress. Some instructors may be listed below, however their schedules may preclude instruction at a given time. Contact Info will be added in the future but can be found in the Current Membership List.

Instructor	Contact Info
Ray Capobianco	617.697.4514
Gerry Crowley	978.857.1408
Tony DiPersio	978.430.2800
Jeff Ward	978.987.1142
John (Yaz) Yassemedis	603.321.8442
Stephen Faust – incl. FPV racing drones	978.925.9810
Neil Cumbie – 3D and XA (new)	678.358.7006
Jim Orsborn (Horizon Hobby Coach)	<a href="https://www.horizonhobby.com/flight-school-find-a-coach.html">https://www.horizonhobby.com/flight-school-find-a-coach.html</a>

### 7.5 NEWSLETTER GLOBAL TABLE OF CONTENTS

You want to buy a charger, say. And you know there was an amazing piece on it in one of the newsletters. But you which one??? We have a global table of contents listing some of the major articles. (Work in progress)  
<https://docs.google.com/spreadsheets/d/1ZAbMnamPiclwd50E3XxQ2JhXYEQAZfkB3R0qvxZOiuo/edit?usp=sharing>

### 7.7 SUPPORT YOUR LOCAL HOBBY STORE & GET DISCOUNT

This is one great hobby store and the owner, Bill Horton, has agreed to provide our Club with a discount. Show a current MCRCF membership card and receive a 5% discount for any purchase over \$25.



<http://abcrc hobbies.com/> 11 Rockingham Rd, Windham, NH 03087; (603) 458-6481

### 7.9 CLUB SAFE LOANER IS AVAILABLE

The AeroScout is ready for use in exposing people to flight. Contact Jeff Ward to reserve it. It comes with 1 22mah battery and transmitter.



The aircraft is kept in Jeff's workshop with a combo key enclosure.

### 7.2 LOANER REALFLIGHT SIMULATOR & LAPTOP AVAILABLE

If you're a new pilot or an instructor and would like to take advantage of our loaner laptop/simulator, contact Jeff Ward (see Page 1). Picture below.



It now runs RealFlight 9.5.

### 7.4 MCRCF.ORG MEMBERS ONLY PAGE

Contains our Membership List, RealFlight files that mimic our field, and other info. Go to [mcr cf.org](http://mcr cf.org) and click on the "Members Only" link. You will need ID & password from a club member to get in.



Members Only

[Annual Financial Summary Reports](#) in Acrobat PDF format

[Current Membership List and contact information](#) in Acrobat PDF format

[MCRCF RealFlight Files](#) for download and use with RealFlight simulator.

[MCRCF YouTube Channel info and login](#) in Acrobat PDF format

### 7.6 LIST OF MANEUVERS

Tired of flying the same patterns all the time? Check out 100 maneuvers and some links on how to do (some of) them:

<https://drive.google.com/file/d/1O0eF2NAFN7SgUS0sOMc5hXOCTJBdJeM0/view?usp=sharing>

### 7.8 PLANE RETRIEVAL

Call Paul Sullivan – his friend, Mike, charges ~\$50 to retrieve a plane...depending on the complexity of the rescue!

Also, several members have camera drones and can help with a search & rescue efforts. Carl ("Mack") McKenzie - 978 208-7969

## 7.10 TRAINING REPORT

Member	Training/Checkout Status	Type
Steve Marone	Needs training/checkout (New in 2021). Flight testing drones w/ Triton.	Test Drone
Eli Wiel	Needs Training/checkout (new in 2021). Flight testing drones w/ Triton.	Test Drone
George Butch Balduf	Training In progress	Nitro plane
William Schwahn	N/A – part of FLIR company. Jerry left message.	
Gerald Sunderman	Training In progress*	
Jon King	Needs official checkout. Jerry left message.	
Hugh McNeil	Limited progress. Would like to proceed with loaner laptop/sim.	
William Lunt	Needs Training/checkout (new in 2020)	
Charlie Petricone	Training In progress - but has not renewed in 2021. Mel helped him get RealFlight 9.5 going.	Nitro & Electric

\* Wants to take it easy during the pandemic.

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