The Flightline

Volume 52, Issue 2 Newsletter of the Propstoppers RC Club, AMA 1042, April 2022

Inside This Issue

President's Message

Fellow Propstoppers,

It was nice seeing many of you at our April meeting.

We had the good fortune to be able to return to the Brookhaven Gym for some Tuesday morning flying this winter. I am sorry we were not able to provide any evening flying and even the morning flying was interrupted for a month by COVID and twice more for police activities.

The fields are both in good shape and we will get the brush hog into CA in mid to late May.

Thanks to Larry Woodward's contact with Leslie Forster at Elwyn we are stepping up our support of two of their adult day programs.

Thanks to Dave Harding and the AMA we are continuing our support of Drexel's Aeronautical Engineering class. I am hoping some of our younger members come out to support and assist his class this year. AMA started a special College Club membership this year. I am hopeful that this will bring more youth to the AMA and local clubs throughout the country.

Please plan to attend our Fun Fly/Picnic/Benefit on June 25th. We will need some help with the logistics, contests, set up, and clean up. Please volunteer an hour or two to assist Paul Pujol and Michael Black with lunch and the contests. They are putting a good deal of time and effort into this event.

Happy Flying!

Mike

Minutes of the Propstoppers Model Airplane Club, February 8, 2022.

Call to Order: The meeting was called to order (over Zoom) by President Mike Black.

Treasurer's Report: No Report.

Membership: Membership status is as presented by the email list recently sent to all members.

Newsletter: Editor Larry Woodward indicated that the January issue just had been released and asked for anyone with information to share, interesting articles, photos, events or related experiences to contact him for possible inclusion in future Newsletters.

Website: Webmaster Michael Black, No report.

Safety: Safety Officer Eric Hofberg reported that no safety issues are currently of concern. The Safety committee encourages everyone to review the Club's rules and regulations regarding safety in our flying activities.

Picnic Committee: Picnic Committee Chairman Paul Pujol announced the first picnic event of the season will be held Saturday, June 25th, with a rain date for the following day Sunday, the 26th.

There were flying contests being proposed/discussed such as a balloon pop contest and a best aerobatic flying contest. Rules are still to be developed. A fee (possibly $5) will be in place that will be collected for a charity use.

There will be a picnic menu likely to include hot dogs, hamburgers, potato salad, macaroni salad, potato chips, sodas, water, etc.
The committee has high hopes that no TFR's will be in place for our picnic date. The committee is looking at the possibility to connect our Picnics with some kind of "international event", known in advance, that would make quite unlikely that our president will be in our area during such event, and therefore the chance of a TFR be reduced.
Larry suggested looking into the White House public schedule of events that might offer some clues as to possible good dates for our own future activities.

Fields at Elwyn and CA are now fully open for members and guests.

We respectfully ask all members to stay in compliance with all Health Department recommendations. The fully vaccinated are no longer required to wear a mask at the field.

Please respect those who are continuing to wear masks or who are not vaccinated, by maintaining social distancing.

LOA with Philadelphia International:
Please comply with the following rules to stay in compliance with our FAA Agreement:

- Maximum altitude 400 feet
- In case of Fly-Away call 215-492-4123 immediately. This is a direct line to the TRACON Office at Philadelphia International Airport.

Field mowing schedule:
Mowing has begun for the season.

Tuesday morning breakfast at the Tom Jones Diner has resumed.

Our current agreement with FAA has been revised to provide extended hours at CA Field **You may now use CA Field from 8 AM to sunset everyday day all year round.**
We just ask that as you enter and exit during school hours that you do so slowly and carefully being aware of pedestrian traffic.

Elwyn Field Flight Hours

8 AM to Sunset daily for all planes with one exception. Sunday mornings from 8AM to noon electric only.

Suggestions were made for avoiding problems related to the balloon contests, specifically with the string attachments.

Old Business:

Port-a-potty rental for picnics: $190 seems to be a fee for a 28 days rental. Michael is looking into some other possible ideas/alternatives to build with PCV.
The rental has not only the cost but also the issues with access for the providers for delivery and retrieval of the "equipment". Other alternatives were mentioned but no overall understanding has been reached at this moment.

CA field improvements:
Work is still required that perhaps Chuck could handle such as cutting a path to the new runaway. Mike is trying to reach a contractor to discuss work to improve the entrance to the field.
Larry commented on the need to remind members to try not to drive over the fields and use the paths to reach the typically designated parking areas.

Electric Funfly/Contests/Picnic/Sell or Swap

BENEFIT: DREXEL University Aeronautical Engineering Program

PROPSTOPPERS R.C. AMA

AMA Club # 1042

Location: CA Field—behind Gateway Community Church

708 S. Old Middletown Rd. Media PA 19063

Date: Saturday, June 25th, (Raindate Sunday June 26th)

Time: 11 AM till 5 PM Lunch Provided Spectators welcome

Cost: $10 Pilot Fee Sell or Swap: $10

Contests: Limbo, Balloon Pop, Best Aerobatics $5/contest

# of participants and fees collected will determine prizes

Drive in, drop off equipment, drive out, park in lot , shuttle back

All pilots must have current AMA card.

NO FUELED AIRCRAFT PERMITTED

Please follow all Safety Rules and Regulations!

TFR's**:**
Mike has been in touch with Mike Rodney, President of the Valley Forge club, to try to work out a coordination of efforts with AMA to review the possible options on the matter of No-Fly limitations related to the frequent presidential visits to nearby areas.

Our chances however appear quite limited. Mr. Rodney apparently has a contact in the secret service who informed him that the protocols and arrangements to protect the president leaves little space to allow for our activities. The greatest concern is the need to keep the airspace at low altitudes clear of activity that could interfere with emergency flights, such as scrambling jets or

helicopters in response to an incident. Our best tactic appears to be to link our activities to some kind of charity event/demonstration and seek a waiver.

Mr. Rodney is inviting our members to go to Valley Forge when our field is closed. However, Mike indicates that anyone interested in visiting Valley Forge should be aware that their rules are significantly stricter than ours. For instance, a member must display all their credentials at the field. Even the Rangers at the park seem very active when it comes to asking for credentials from visitors with flying aspirations.

Eric mentioned that the Flying Club at Chester County seems to be in the process of losing one of their best fields that they have had for about 15 years. It appears that their new field is much more limited than the current one.

New Business:
Mike suggested giving consideration to the new students (under alternative programs) being served at the CA facility. Theyt may require more careful driving around the building, specifically on week days.

Days of operation are 8 AM to sundown in both fields except Sundays. For more information and or refreshing our understandings regarding flying hours please check the latest Newsletter and the website.

Reminder: be sure to complete the TRUST test/exercise available from the FAA or AMA websites.

The exercise ought to help everyone refresh their overall awareness of the important considerations for safety when flying. It will also assure awareness of the flying protocols and procedures to stay in compliance of the latest FAA regulations. All RC pilots must be able to show evidence of FAA registration and TRUST completion to be in compliance.

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Minutes of the Propstoppers Model Airplane Club,
April 23, 2022 at CA Field

Call to Order: The meeting was called to order at 12: 07 PM by President Mike Black.
Roll call showed 15 members present. Minutes of the February 8 meeting were approved by the membership.

Treasurer's Report: Treasurer Pete Oetinger reported a strong budget reserve.

Membership: No Report

Newsletter: Editor Larry Woodward reported that he expects to have the April issue ready by the end of the month.

Website: Webmaster Michael Black, No report.

Safety: Safety Officers Eric Hofberg and Ryan Schurman: No report

Old Business:

Picnic:
The first club picnic/ fun fly will be June 25 Saturday with food provided by the club. No one is required to bring anything but you may bring if you have something to share.
Porta-potties will be available for the picnic costing $180 for 28 days of use.

CA field improvements:
A new driveway is planned on the entrance side of the field to lead directly to the new south side runway. This is needed to prevent driving over the runway to park.

New Business:

We have received word that plans have been submitted to the township to develop the higher properties around CA field. The current status of this project is still unknown.

Dave Harding gave a review of the club's support for the Drexel and Widener engineering students and their academic programs. The president mentioned that AMA now has a college membership program with reduced dues.
It was decided that we should design the June 15 fun fly as a charity event to support these educational programs. Pilots from nearby clubs will be invited. It was proposed that a $10.00 per pilot fee be applied to support the educational cause. The President will investigate further the possibility of receiving a special FAA waiver for any TFR that might be posted at the time of the event.

While at the Elwyn Field, Larry Woodward spoke too Leslie Forster a director of non-residential programs at Elwyn. Club officers met with her to confirm our relationship and say that we will support their outreach programs.

Adjournment took place at 1:06 pm

Editor's Notes:

By Larry Woodward

After more than 50 years of marriage, my wife and I have pretty much run out of ideas for exciting gifts for each other. After all, we have more than enough stuff accumulated over the decades and anything we really want, we probabbly already have it; in duplicate! So, I was really surprised this Xmas when she gave me something I didn't know I wanted, a DJI Mini 2 quadcopter photo drone.

It has been an interesting change of pace from my usual fixed wing flying. It definitely is not the same kind of enjoyment I get from piloting an aiplane, but it has opened up a whole new set of opportunities and interests. Sometimes it is good to break out of the mold, even one you created for yourself.

Another unexpected benefit of my Mini 2 has been how it, or more specifically it's technology, has given me a hint into the future of FAA regulation of our hobby. See my article in this issue on the subject of the DJI Mini-2 technology.

As I look over the other articles acccumulated for this issue, I see an unintentional focus on aviation technology, both historic and future.

Dave Harding's article on the 1909 Bleriot XI showcases one of the earliest successful monoplane designs, which that year completed the first flight ever over the English Channel.

Pete Oetinger's article on the UAV Forecast App showcases a robust tool, built around internet based weather and regulatory data, that makes it easy to plan the best days and times for flying under select conditions.

And of course, we include an update on the race to corner the market for commecial passenger drones with an article on Boeing's latest investment in the Wisk Aero electric air taxi.

Murray Wilson suggested an interesting article on an early technology that never quite worked out, inflatable airplanes.

So, welcome to the Spring 2022 "Technology" issue.

Regarding the search for a new field, In the last issue I painted a pessimistic view for the future of Elwyn and a somewhat rosy picture for CA. So much for my Crystal ball. Read the minutes of the past two meetings to see the current "Lay of the land."

I'll be on my way north for a summer on Cape Cod by the time you get this issue. Enjoy a great summer of flying. I'll see you in the fall.

Bleriot XI

A technical triumph from 1909 looks very nice in Brookhaven Gym 2022

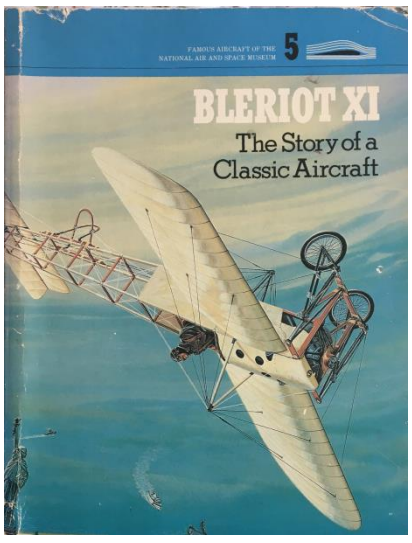
.by Dave Harding

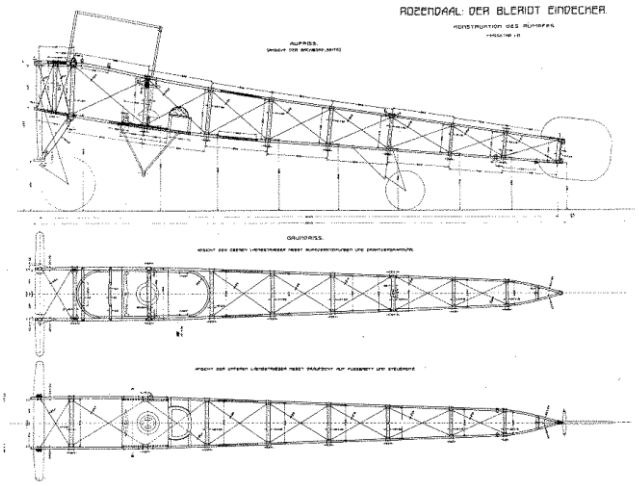
Twenty years ago Mike Black arranged for the first indoor flying sessions for the Propstoppers Club. Most of the models flown by club members were either rubber powered or, what was then an emerging class of electric powered models, many of them free flight. Some kits were available but some of us began to scratch build

At this time I was making regular trips to the UK to see my mother and on one of these trips discovered a number of clubs held regular indoor flying meets. So I began to take some of my small electric powered free flight models to fly at these meets.

Just prior to such a trip I got the urge to make something special to fly there and decided on making a scale model of the Bleriot XI, a landmark airplane as the first to fly The English Channel from France to England in 1909.

I had been fascinated by this airplane, its development story and the technical differences to other pioneering designs. Indeed I had a book describing the development and details of the design, including original plans.





So I decided to build an electric powered RC model built to original plans including all the details; structures and bracing wires. I controlled it via vertical and horizontal tail, the wings remaining fixed by their guy “wires”, I included all the original bracing.

However, when taking my grandson on a trip to London we visited the Science Museum and I was thrilled to see they had a full sized original Bleriot XI. But wait, the airplane on display was not listed as a Bleriot but a JAP Harding!

Now only the old motorcycle or three wheel car fans would probably recognize JAP or J.A. Prestwich, the builder of superb V Twin engines.

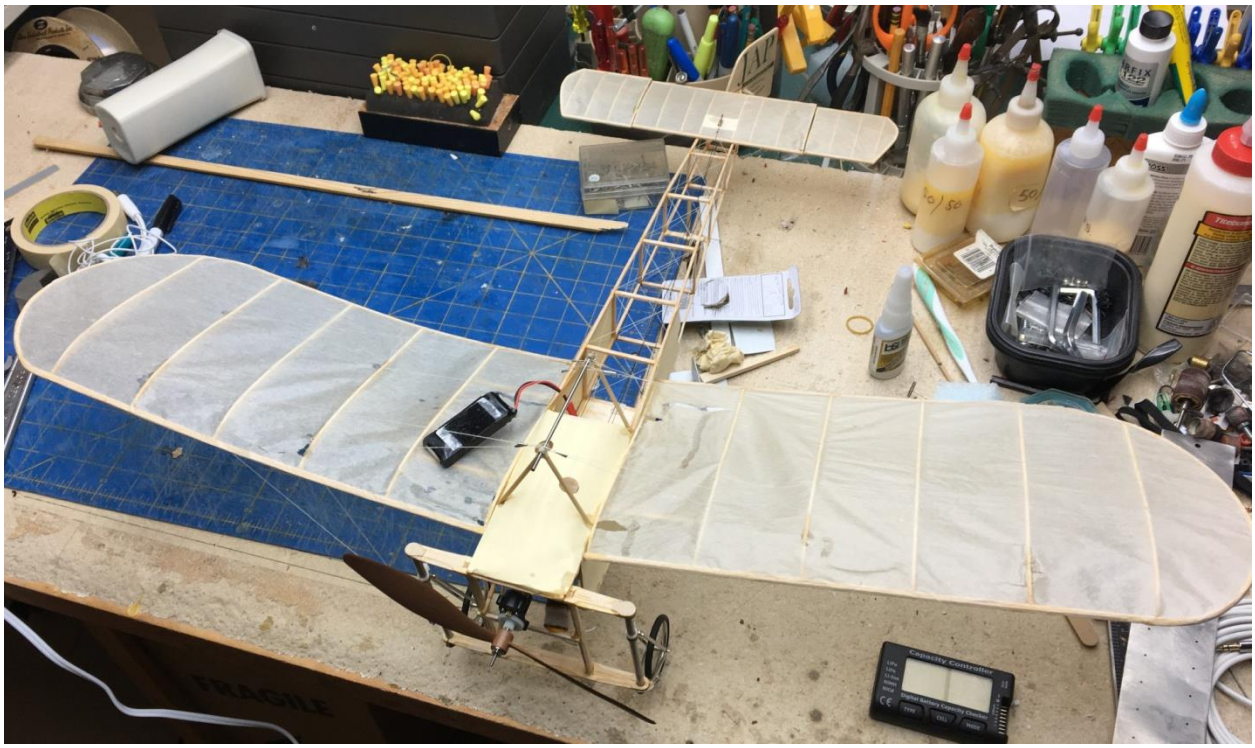
The museum caption suggested the airplane was probably built by Leslie Harding, JAP professional racer who then became their representative in France. So they built the airplane with a JAP engine installed and modified the vertical tail which displayed the JAP Harding claim!

Oh, my grandfather worked for JAP for a while and told me the story of the occasion he had to transport a racing engine to the works team then racing at the Brooklands track. But I digress….

Anyway, I packed the models and shipped them to London and had a great time flying at several meets.

Well, that was ten years ago so when we began flying in the Brookhaven gym again I sorted through the old models and found the Bleriot. Checked it out, charged the battery, replaced the 72 Mhz radio and flew it!
We missed getting a flight video at that time so I took it back the following week. However, like everything else these days, there is more traffic. Just into a nice flight I was “taken down” by a small fighter.

Still, it was an easy fix and ready to fly again;



But the story of the Bleriot XI is tied up with the whole process of development the airplane in the first part of the 20th century.

Yes, the Wrights flew in December 1903 then continued to develop the design for the next several years in a field which is now part of the US Air force Wright Field site.

Meanwhile the rest of the World was trying to develop airplanes without much success. The French were particularly vigorous with many people trying all kinds of designs. Remember most of the descriptive terms relating to airplanes came from these efforts; Fuselage, Empenage, Decalage, all French terms!

On a visit to the Paris Le Musee de l'air I saw a whole assembly of French airplanes built in the early part of the 20th century. Most of them didn't fly! But the French scene was energized by the visit of the Wrights in 1908 and the countless demonstrations they made. Many excellent French airplanes followed up to and through WWI

Interestingly enough, the Wrights didn't move on from their early successes and the World wide rush to design and build airplanes rapidly overtook the Wrights, who were completely engaged in trying to protect their patents on control by wing warping.

Most of the successful designs for the following decade or two were biplanes although Bleriot sold almost 1000 of the XI before WW1. The reason there were few monoplane designs, like the Bleriot XI, was a growing concern that the monoplane was an inherently flawed design.

They began to experience a growing number of fatal accidents which involved wing failures. Bleriot of course worked to understand this issue. His design was structurally tested up to six g maneuver loading by sand bagging the wing while inverted. But still the accidents occurred. Aeronautical technology was almost nonexistent at that time and many phenomena poorly understood.

One result was some militaries including the French Army and the UK Army Flying Corps banned all monoplanes from consideration in purchases of new fleets. They eventually formed RAF maintaining this ban till the 1930s! (Don't you just love the Hawker Hart?)

Eventually the causal phenomenon was discovered to be the wing torsional stiffness and strength; under certain conditions the wing would twist and components failed. In the case of the Bleriot XI the failure was of the forward spar in compression. Bleriot increased the strength and stiffness of this part to solve the problem.

Oh, the reason the biplane was superior in this case is the way it can be braced; one wing to the other providing substantial torsional stiffness and strength. However, at reduced aerodynamic efficiency compared to the monoplane.

Click here to see flight video of the Bleriot XI at Brookhaven Gym.

Jerry Yellin, 93, Dies; Flew the Last World War II Combat Mission

Submitted by Eric Hofberg

The New York Times Obituaries

By Richard Goldstein

- Dec. 24, 2017

Jerry Yellin, who flew a combat mission over Japan in his plane Dorrie R on the day Emperor Hirohito surrendered, at Culpeper Regional Airport in Virginia in May 2015 for an observation of the 70th anniversary of V-E Day.Credit...Saul Loeb/Agence France-Presse — Getty Images

When the Japanese bombed Pearl Harbor on Dec. 7, 1941, plunging the United States into World War II, Jerry Yellin was a teenager living with his family in Hillside, N.J.

Having been intrigued by flight since he was a youngster — he constructed planes modeled on World War I aircraft — he joined the Army Air Corps in February 1942, on his 18th birthday, and became a fighter pilot.

On Aug. 15, 1945 (Aug. 14 in the United States), Lieutenant Yellin was leading an attack on Japanese airfields by four P-51 Mustang fighters from his 78th Fighter Squadron, as American airstrikes on Japan continued even after the atomic bombings of Hiroshima and Nagasaki earlier that month.

In the days following the atomic raids, all aircraft pounding Japan were to receive a coded signal from their bases if a Japanese surrender came. If one did, they were to halt their missions and turn back.

Emperor Hirohito announced Japan's surrender at noon local time on Aug. 15, just as Lieutenant Yellin, flying from his base on Iwo Jima, was leading his four-plane attack.

But as he told it years later, for some reason that he could never determine his planes did not receive the cease-fire message that had gone out to American aircraft at the time.

It was only when he returned to Iwo Jima some three hours after completing the mission that he learned the war had formally ended while he was still blasting away.

Mr. Yellin died on Thursday in Florida at 93. His death was announced by his son Steven.

In paying tribute to him, the Air Force's chief of staff, Gen. David Goldfein, called him the fighter pilot "who flew the last combat mission of World War II."

But for Mr. Yellin, the war had not truly ended. He was afflicted by what is now known as post-traumatic stress disorder, having witnessed the carnage on Iwo Jima and later having 16 members of his squadron killed on missions.

Iwo Jima was needed as a base for fighter planes that would escort long-range B-29 bombers based in the Mariana Islands while they raided Japan. It was conquered with a fearsome toll on both sides.

“Body parts were everywhere and the smell of death permeated the air,” Mr. Yellin recalled in a May 2014 interview with the Library of Congress for its Veterans History Project, telling of his first weeks on Iwo Jima after the Marines had seized its airstrips from the Japanese.

Mr. Yellin, who later flew 19 missions over Japan, was especially grieved by a very personal loss on that final raid of the war.

His wingman, Lt. Philip Schlamberg, a 19-year-old Brooklyn native he had helped mentor, never emerged from a cloud embankment that the four Mustangs of the 78th Squadron encountered upon crossing the coast of Japan en route home. Mr. Yellin speculated that he had been shot down by Japanese antiaircraft fire.

“Because of our common Jewish heritage and because he was one of our younger pilots, I had naturally taken Phil under my wing,” Mr. Yellin recalled in “The Last Fighter Pilot,” a biography written by Don Brown with Mr. Yellin’s collaboration and published this year.

Earlier in 1945, in another particularly searing episode, a less experienced pilot was lost on a mission to Japan while flying Mr. Yellin’s Mustang, which he had named Dorrie R for his girlfriend, whom he had met while training in California. The unit dentist had grounded him that day to carry out the urgent removal of painful wisdom teeth.

Mr. Yellin was discharged from the military in December 1945 as a captain and received the Distinguished Flying Cross.

And then his battles continued.

“I was angry,” he said in the Library of Congress interview. “I could go to college. I had no desire to do that. I couldn’t hold a job. I had many, many jobs. I was depressed. Every symptom that they now diagnose as post-traumatic stress disorder, I had.”

Mr. Yellin married Helene Schulman in 1949, and they began raising a family even while his emotional distress continued. It was not until he embraced Transcendental Meditation in 1975, at the suggestion of his wife, that he was able to alleviate his stress and find a productive life.

Jerome Yellin was born on Feb. 15, 1924, in Newark. After graduating from high school, he worked seven days a week in a steel mill to earn money for college. Then came Pearl Harbor Sunday.

In his later years he helped fellow veterans, from World War II and the wars that followed, in their efforts to overcome combat-related trauma.

Mr. Yellin and his wife, who died in 2015, had four sons, David, Steven, Michael and Robert. They survive him, as do six grandchildren and a sister, Maxine Giannini.

In 1983, when Mr. Yellin was a consultant to some banks in California, he was asked to visit Japan to speak about investments in real estate in the United States. He was reluctant to make the trip, having demonized the Japanese during the war. But his wife wanted to go, and when he got to

Tokyo, he later said, he was impressed by the “well-dressed, well-mannered, beautiful-looking people.”

The Yellins sent their son Robert, a college senior at the time, to visit Japan in 1984. He loved the country and married a Japanese woman, Takako Yamakawa, four years later. The Yellins attended the wedding and made many subsequent visits to Japan to see the couple and their three children.

Takako’s father, Taro, had been a pilot in World War II. But Jerry Yellin and Taro Yamakawa found they could surmount the hatreds spawned by the war and, as Mr. Yellin once put it, “We became brothers, he and I.”

“I went from thinking a group of people were my enemy to finding my best friend,” Mr. Yellin told People magazine in 2017. “It’s a lesson to remember that at the end of the day we are all human and have so much love to give.”

An earlier version of this obituary misstated Mr. Yellin’s full given name. It was Jerome, not Jeffrey.

A version of this article appears in print on Dec. 25, 2017, Section B, Page 5 of the New York edition with the headline: Jerry Yellin, 93, Is Dead; Led Final Raid Over Japan At the End of World War II.

UAV Forecast App

Real time information to help you decide when to fly

By Pete Oetinger

My son, Phil, introduced me to a great phone app for predicting flying conditions. It's called "UAV Forecast", and it's free.

With a quick glance, you can tell if there's a good time to fly today or tomorrow. You can also buy a subscription (for about $23) so you can see a full week out. The app has links at the bottom to jump to the other pages: Conditions, Forecast, Wind Profile, Map, and Settings.

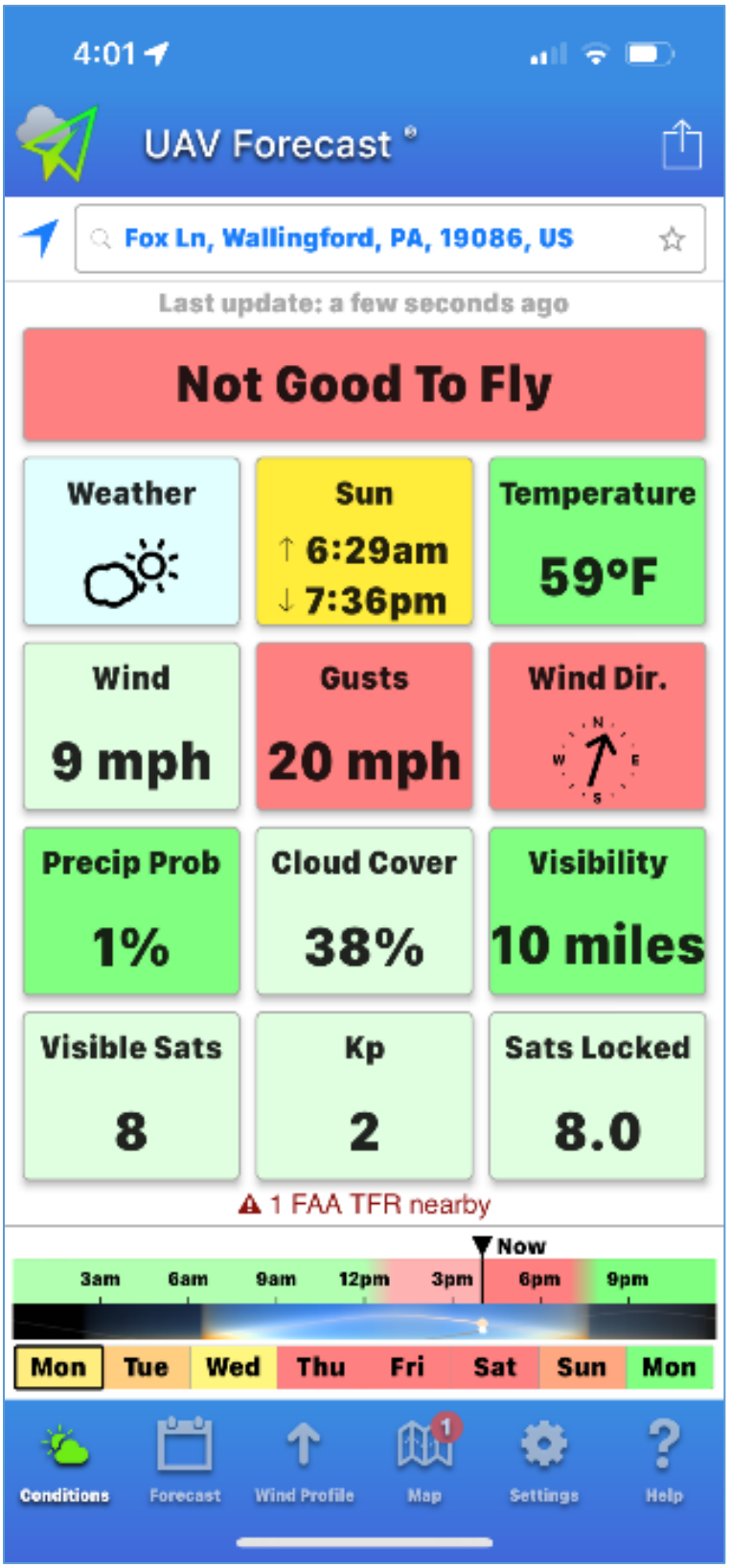
Here is the **"Conditions" screen** for the selected location. You can set up and save various locations and choose which location to check.

The Summary message, is shown near the top.

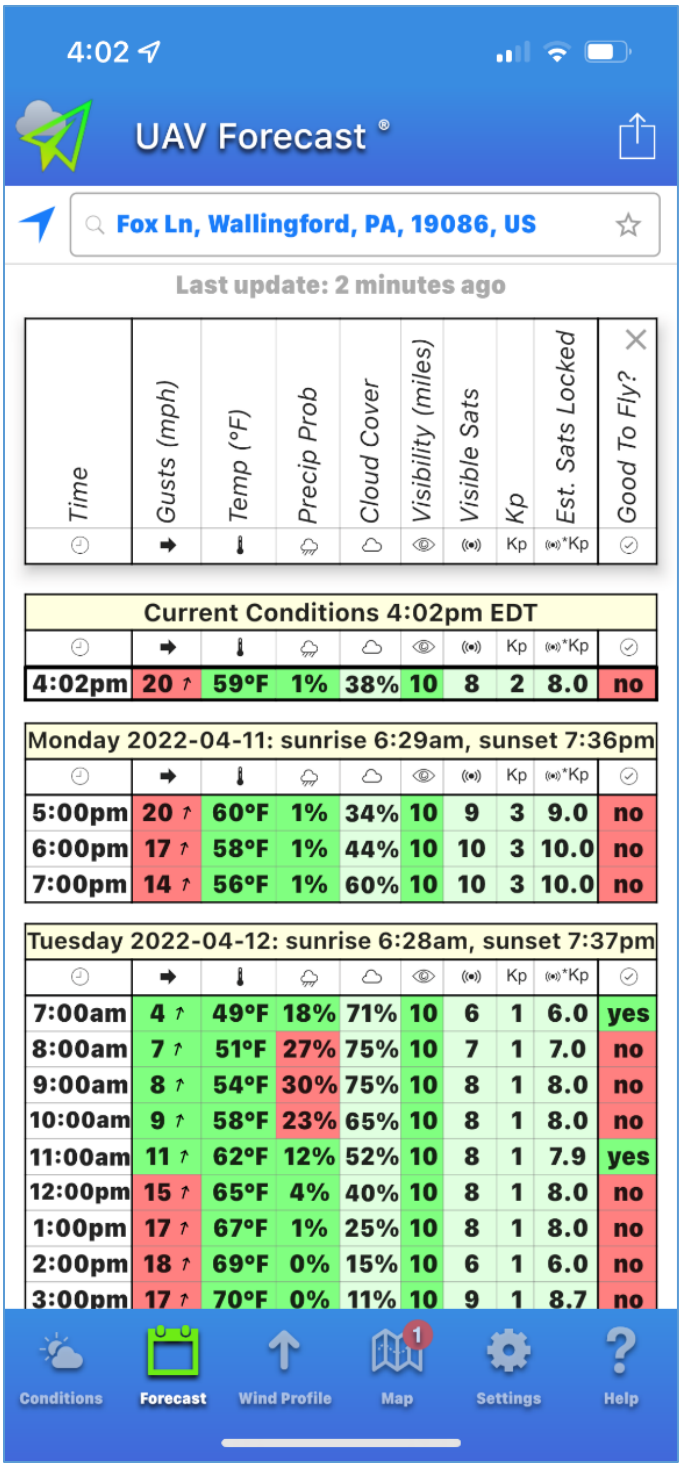
The individual prediction boxes are shown in green or red, based on the threshold limits you set. You can "disable" category, and that box shows in a pale color and therefore does not affect the Summary message.

If any of the enabled boxes is red, that means the value is outside the Threshold limits you set. If the value is inside the Threshold limits, the the box will be green. If there are no red boxes, the Summary message will be "Good To Fly".

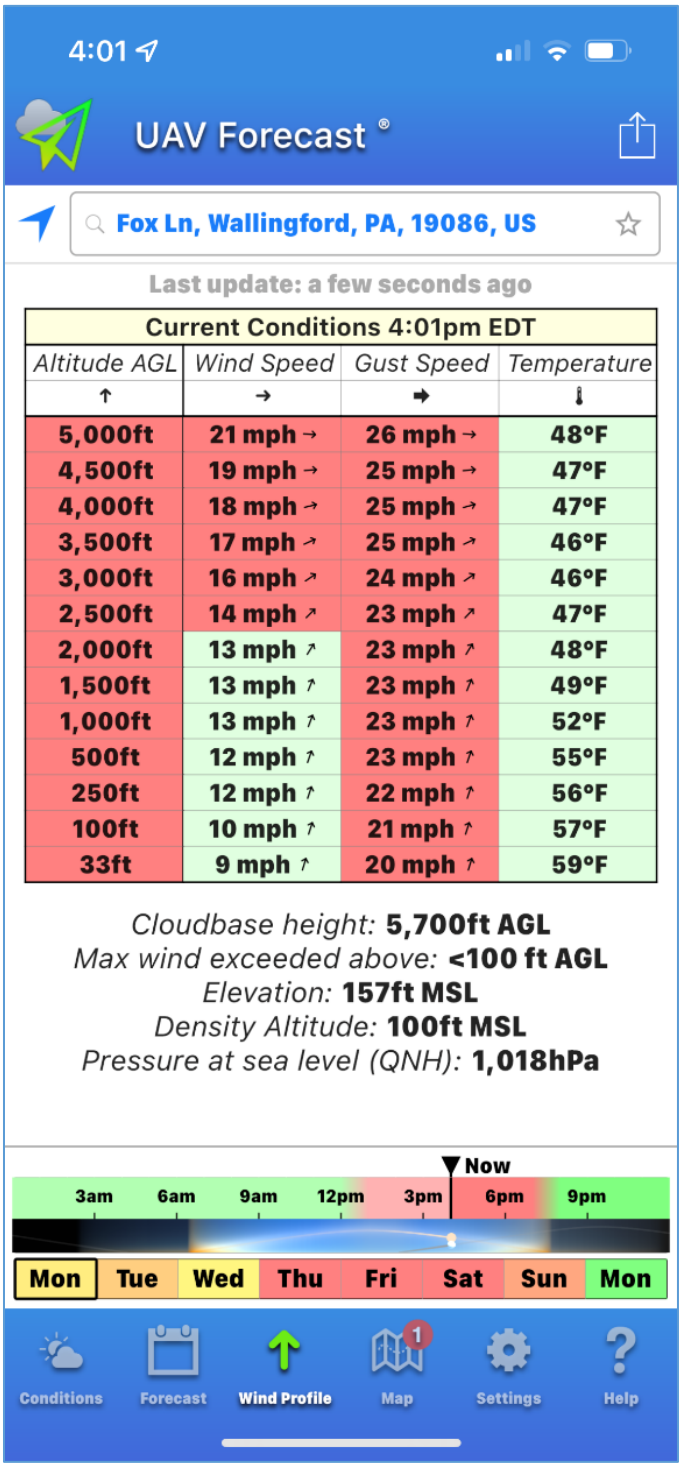
A slider bar on the "Time" scale at the bottom shows you the conditions at that particular time of day. You can see in this example that it was good for flying in the morning, but changed around noon. Clicking on the "Day" below that allows you to choose which day of the week to check. As mentioned above, if you use the free version you will only be able to look at today and tomorrow.



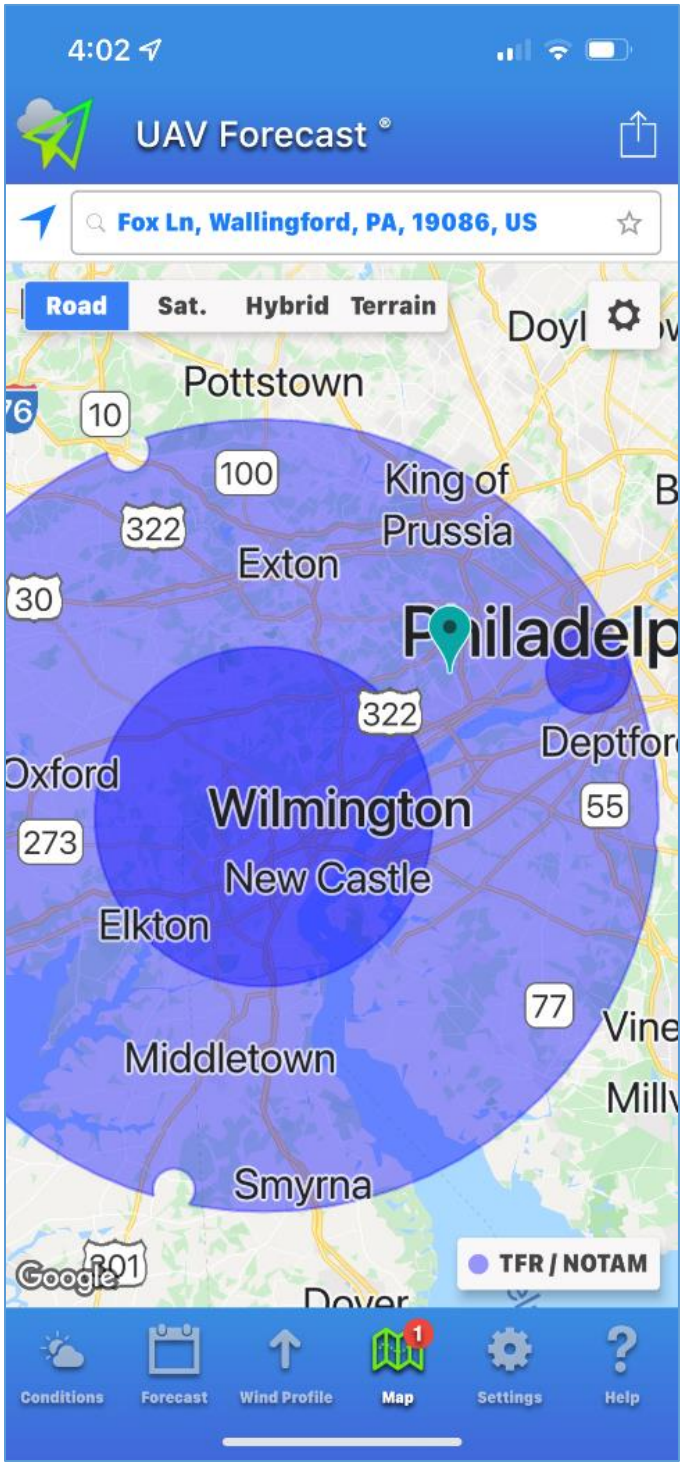
The **Forecast screen** shows the weather forecast for today and tomorrow (or further if you purchased that option).

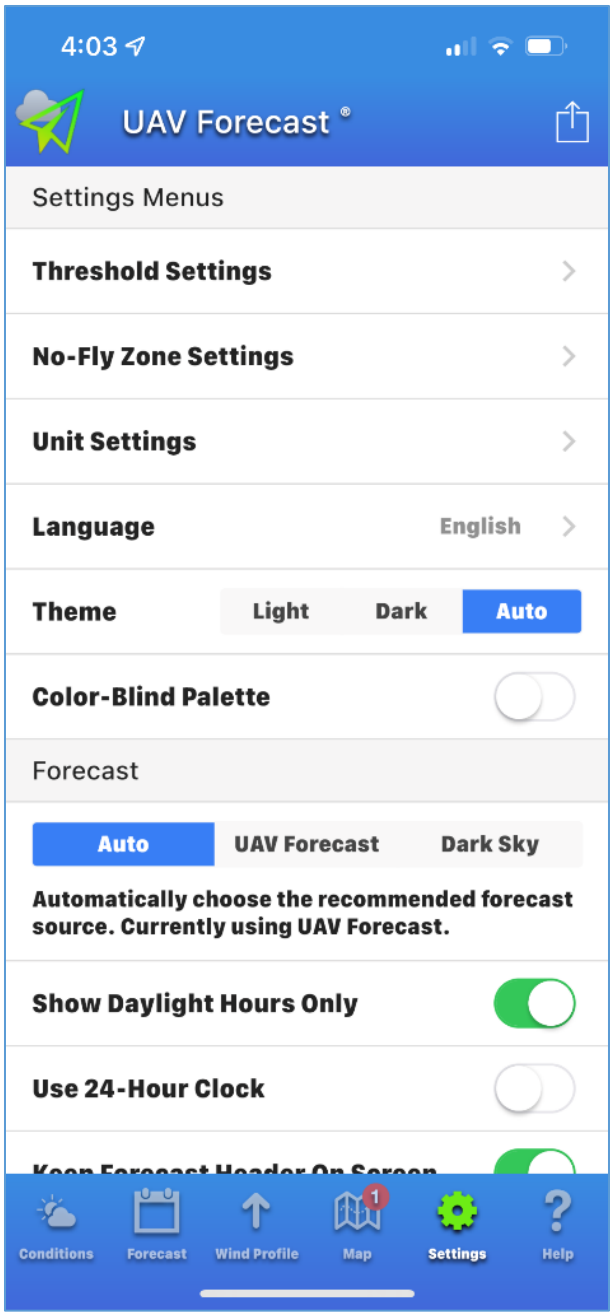


The **Wind Profile screen** shows the current wind profile at the location.



The **Map screen** is customizable to show the No Fly Zone information. I've customized my app to only show the TFRs, but you can also add on local airports, helipads, etc.

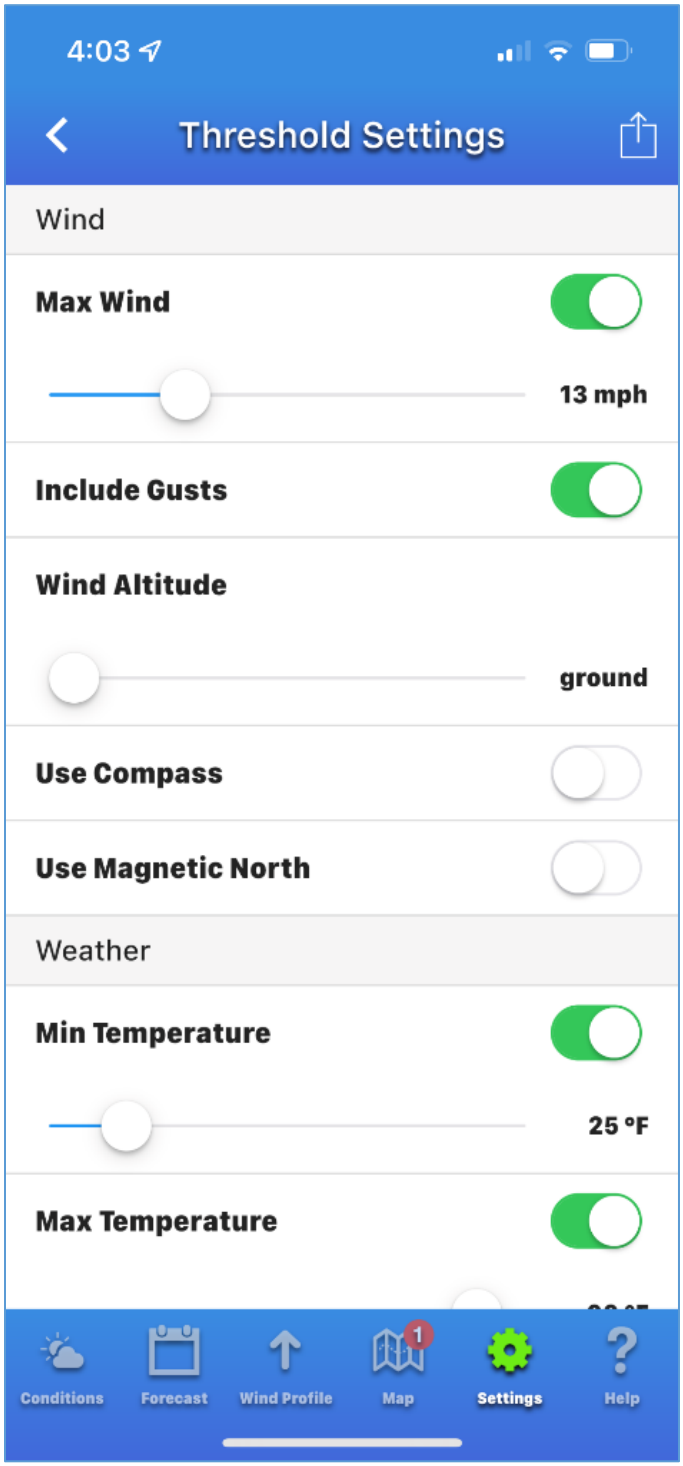


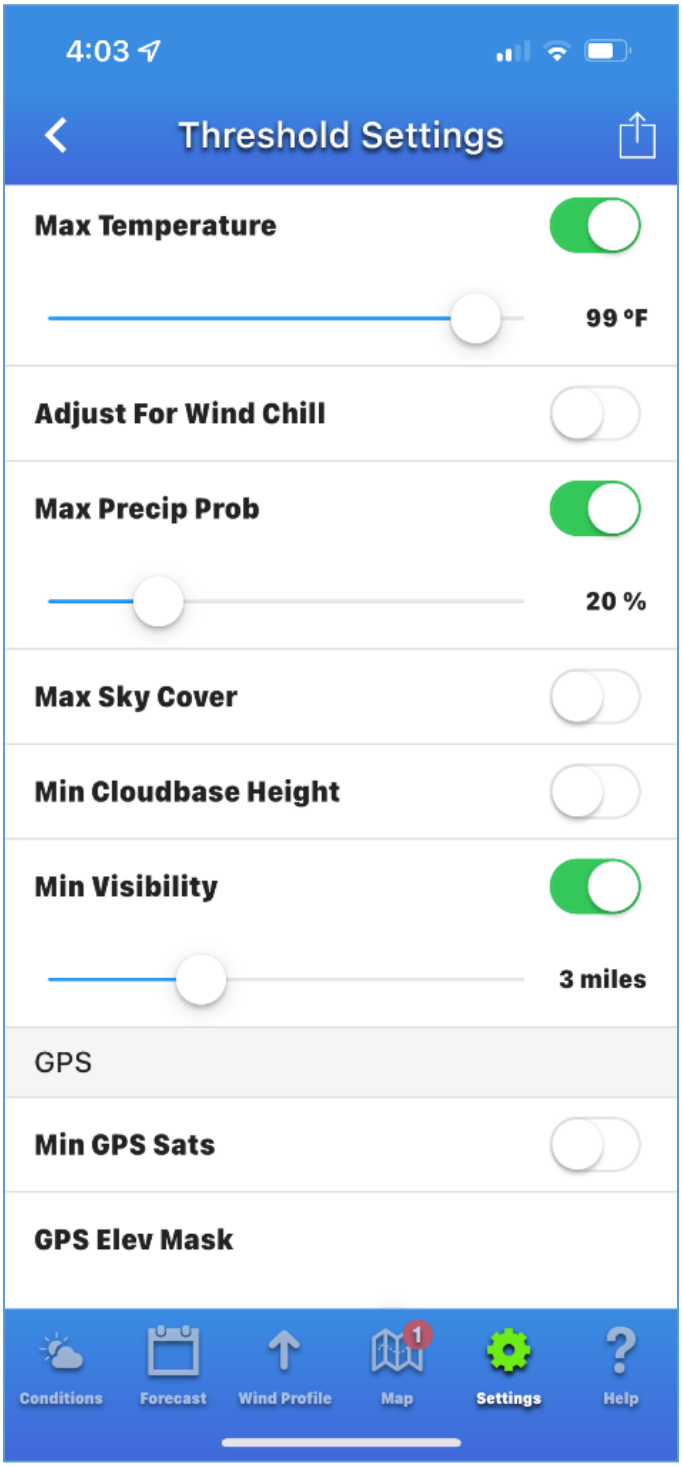


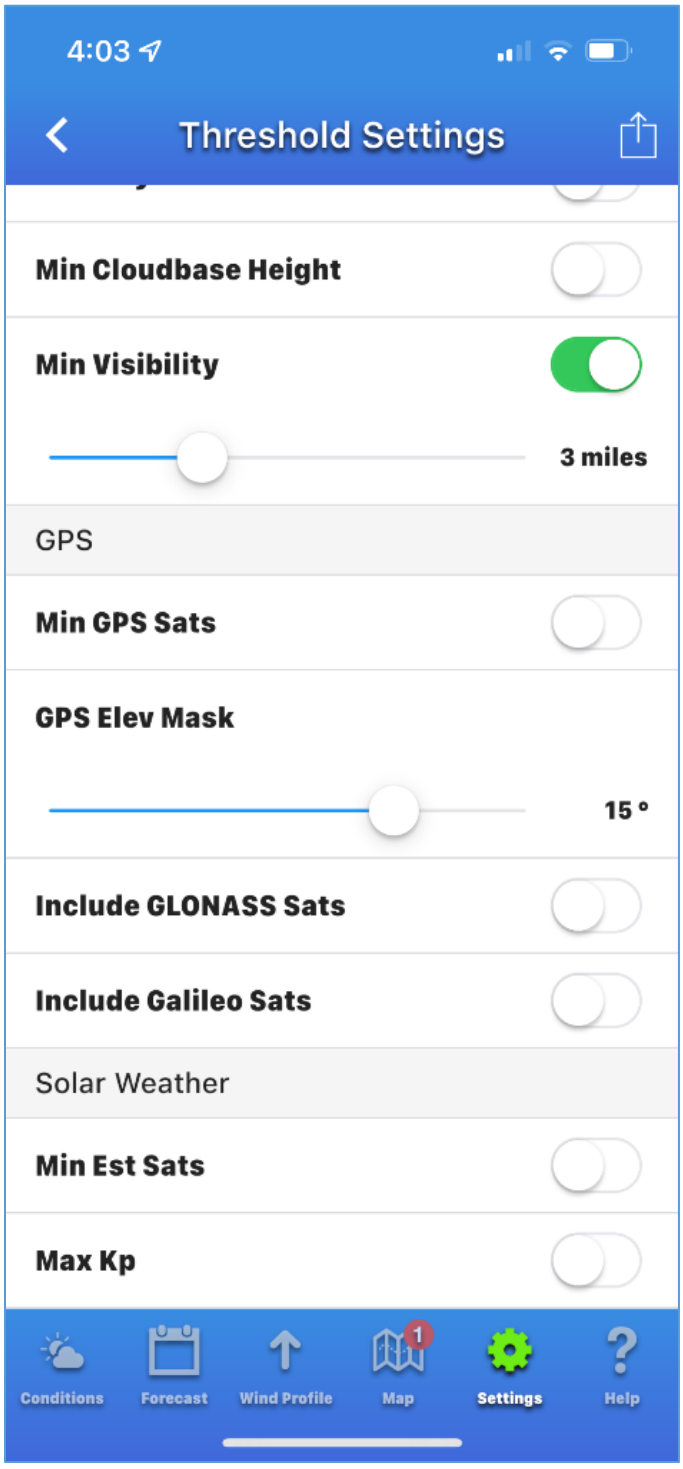
The **Settings screen** allows you a lot of control over the app, and it is also where you set your Threshold values for the Conditions screen.

The **Thresholds screen** is where you customize everything for the Conditions screen and it's Summary message:

As I think you'll see, this is a fantastic app for RC flyers! Give it a try!



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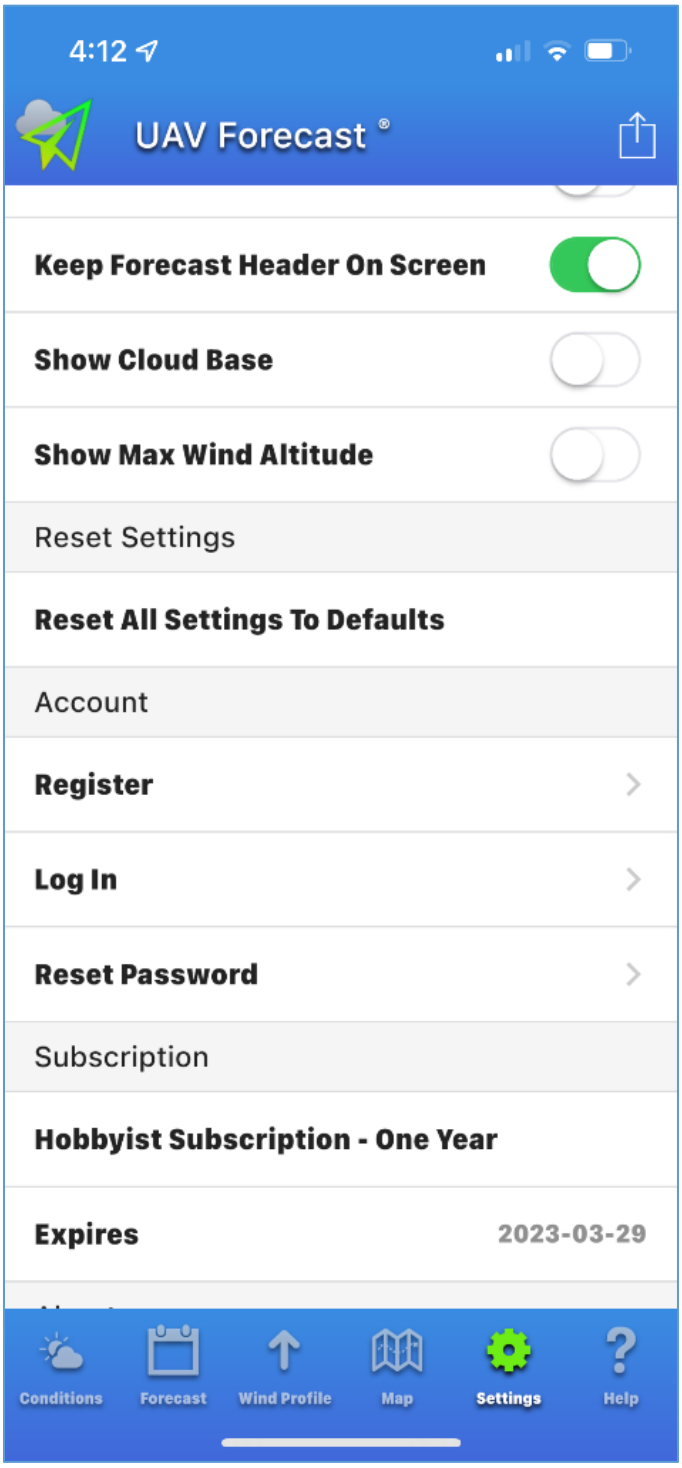
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UAV Forecast ®
Keep Forecast Header On Screen
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Account
Register
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Conditions
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Help

Wisk Aero, The Electric Air Taxi

Boeing sinks more money into electric air taxi project it's co-developing with Kitty Hawk

Submitted by Dave Harding

THE VERGE

Andrew J. Hawkins 1/24/2022

Wisk Aero, the electric air taxi startup, raised $450 million from Boeing in a new funding round that it claims will make it "one of the most well-funded [advanced air mobility] companies in the world."

n its announcement, Wisk highlights the fact that its "a privately-backed AAM leader," setting up a contrast with a slate of similar startups that have gone public in recent months by merging with special purpose acquisition companies, also known as SPACs or "blank check" companies. Wisk Aero was

formed in 2019 as a joint venture between Boeing and Kitty Hawk, the flying taxi company bankrolled by Google co-founder Larry Page.

Wisk says it will use the new funds to undertake a period of rapid growth, adding new employees to its current workforce of approximately 350 people and kicking off a manufacturing process that it says will result in a full-scale, commercially operational air taxi business within the next five years. Once that happens, the company predicts that it will conduct 14 million flights annually in around 20 major markets around the globe.

the company predicts that it will conduct 14 million flights annually.

Of course, all of this is contingent on the US Federal Aviation Administration and other government regulators giving Wisk the approval it needs to legally carry passengers. So far, the FAA has not certified any electric vertical takeoff and landing (eVTOL) aircraft for commercial operation. Experts have said that it can take a minimum of five years — and likely longer — for regulators to certify that these new types of aircraft are safe enough for passengers.

Electric air taxis, sometimes misidentified as “flying cars,” are essentially small helicopters without the noisy, polluting gas motors. A number of startups have emerged in recent years with prototype aircraft that are electric-powered, able

to carry a handful of passengers, and intended for short flights within a city or regionally. Analysts predict that the flying taxi market could grow to $150 billion in revenue by 2035.

Wisk hasn't let the lack of regulatory approval get in the way of its business dealings. In addition to the newest founding announcement, the company made a deal last year with helicopter tourism-turned-urban mobility company Blade to own and operate a fleet of 30 aircraft on its network. Wisk also has a signed deal with the government of New Zealand to conduct a flying taxi trial using its all-electric, self-flying aircraft Cora.

Its aim is for Cora to one day provide a flying taxi service that can reportedly be summoned with an app. The plan is for the vehicle to not have a pilot on board; instead, it will be flown mainly by autopilot systems, with supervision from a human pilot situated remotely.

Last year, Wisk accused rival eVTOL company Archer of stealing dozens of its design secrets, sparking a lawsuit and a subsequent federal investigation into the allegations.

THE INFLATABLE RUBBER AIRCRAFT

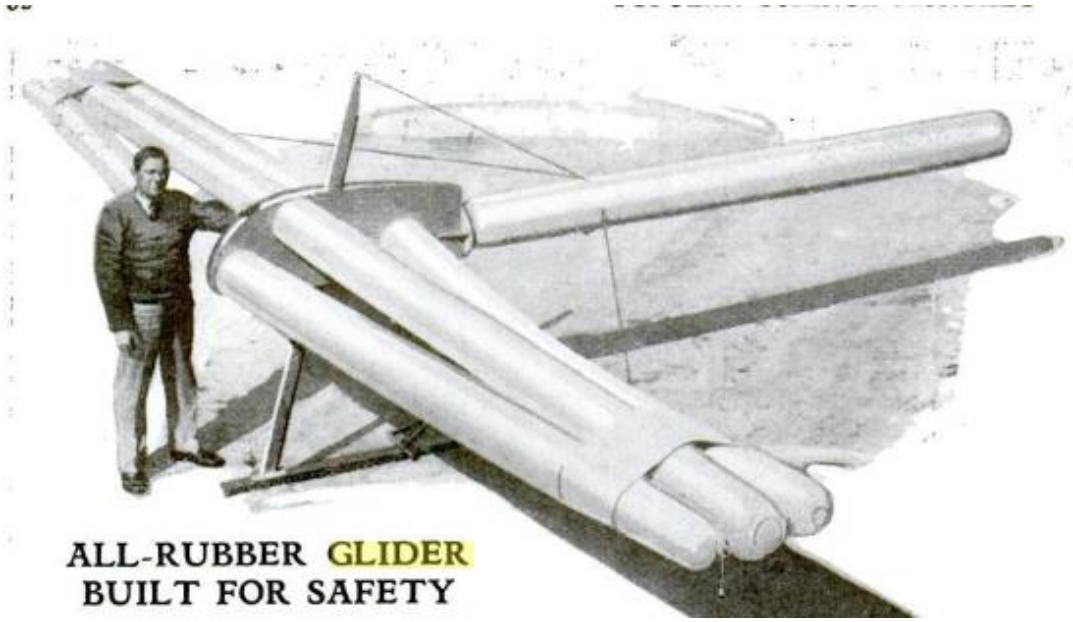
Submitted by Murray Wilson

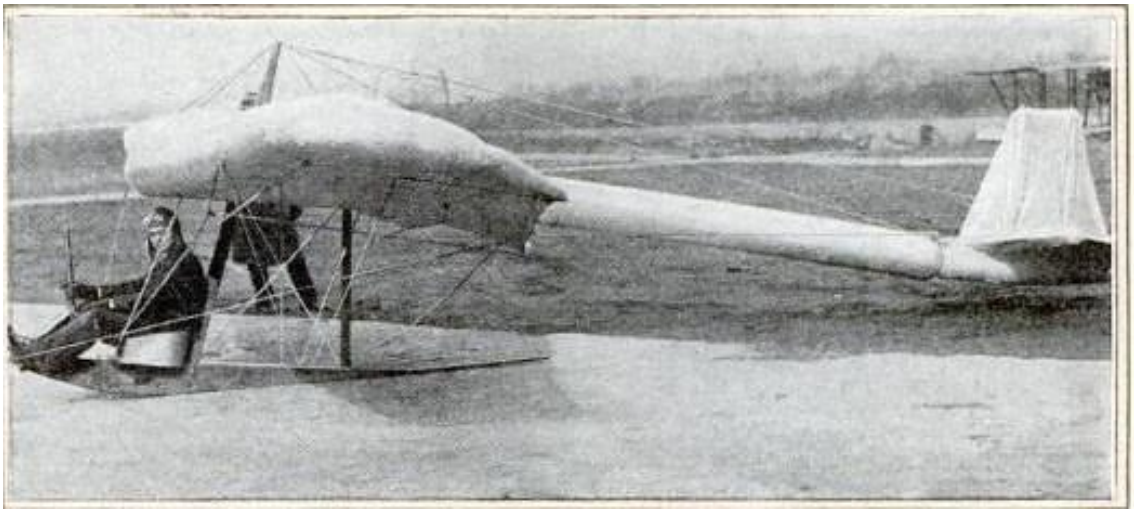
From: HISTORYNET

By **ERNEST STADVEC** 2/7/2020

Building a rubber airplane or glider that would safely bounce a few times in the event of a crash landing rather than disintegrate on contact—has intrigued aeronautical engineers for many years. The first known attempt to design, build and fly an inflatable rubber glide and then a powered rubber airplane came about after a fatal crash in a Brazilian jungle after World War I. The accident, which resulted in the death of his friend and partner, prompted **Taylor McDaniel** to think about building an airplane out of inflatable rubber tubes to protect the passengers and pilot in an accident.

Back in the United States, McDaniel worked on his idea for a number of years and finally received a patent for an inflated rubber tube glider that flew twice on January 4, 1931. After making a few control adjustments, an experienced glider pilot and friend of McDaniel's, Joseph Bergling, flew the glider four more times that same day





On January 11, McDaniel scheduled another test flight and press demonstration for newsreel companies, newspaper reporters and photographers. Towed by a truck, the glider reached an altitude of 100 feet before the pilot experienced control problems. He managed to land safely.

McDaniel wanted to cancel the demonstration and take the plane back to his shop to re-rig the control system but a photographer who had missed the landing insisted on one more attempt. This time the glider had reached about 80 feet when the pilot lost control. The right wing hit the ground in a near vertical position, collapsing it. When the nose hit next, the wing snapped back to its original configuration, leaving the glider intact. The test pilot suffered only a bruised right heel and a twisted left knee. Close examination of the point of impact revealed that only one wire had been broken in the crash, amounting to about 50 cents worth of damage.

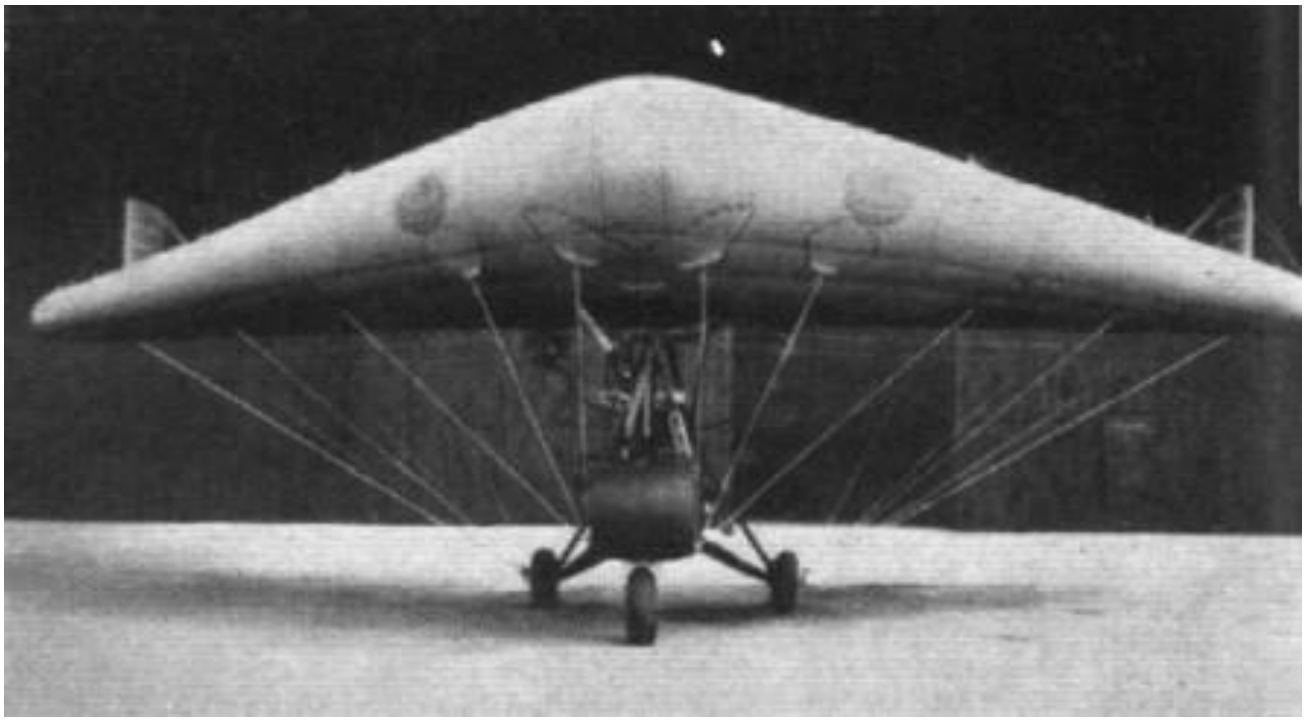
McDaniel's second construction effort was a bird shaped inflated rubber tube glider mostly put together from his first aircraft before he ran out of money. But when the Great Depression hit the United States in 1931 and 1932, paralyzing the aviation industry, it became next to impossible to raise money for further development. Taylor McDaniel died in 1952 at the age of 61, still convinced his idea for a rubber airplane was a sound concept.

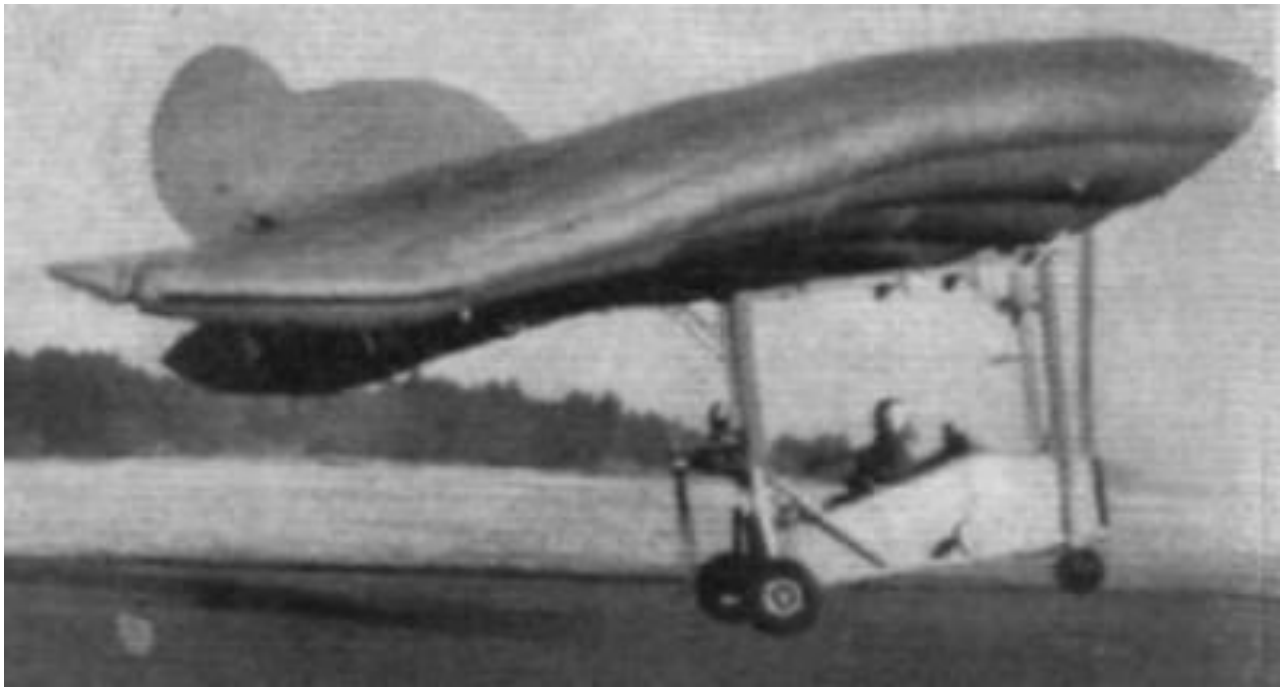
*****

In the Soviet Union, engineers designed, built and flew a glider constructed out of a light rubberized canvas to be used in ferrying supplies inexpensively into Siberia. One large tow plane would pull three loaded gliders to a destination, where they would be cut loose, land and unload. The gliders could then be deflated, packed into a suitcase measuring 39 by 39 by 19⅟2 inches and weighing only 169.4 pounds loaded, then flown back to be reused.

When the initial trial flights proved successful, the head of the project, P.I. Grachowsky, began planning an improved version. But little more is known about the outcome. It apparently never made it into published versions of Soviet military history.

In the early **1950s, the British** tried to create an aircraft that could be carried deflated aboard a submarine, in a truck or on a tank, occupy little space and be quickly inflatable for reconnaissance and rescue missions. Using a high-grade rubberized fabric similar to the material in life rafts, Britain's M.L. Aviation Company began flight-testing an unusual little plane at Farnborough in 1955. Designated the **M.L. Light Aircraft Mark 1**, it had a huge, rubber-coated fabric inflatable wing with a small, wooden boxlike fuselage slung beneath it, tricycle landing gear and a two-place cockpit. A rear-mounted 60-hp engine powered it.





The 40-foot wing had no internal bracing, relying instead on air pressure to maintain a stiff aerodynamic form. Test pilots reported that the little plane was actually easy to fly and handled well. It needed no more controls than those on the handlebars of a motorcycle. After a flight, the wing could be deflated, rolled up into a bag, packed into the small fuselage and towed away behind a vehicle. In spite of its military and civilian potential, however, the project never went past the early experimental stages.

Goodyear

Goodyear GA 33 Inflatoplane

The most successful variation of the inflatable rubber plane concept was the Inflatoplane, conceived, designed, built and flown by the **Goodyear Aircraft Corporation** in 1956 from the Goodyear Tire and Rubber Company's Wingfoot Lake Airship Base near Akron Ohio. Designated the **GA-33, the Inflatoplane** was built and flown in a little over 12 days.

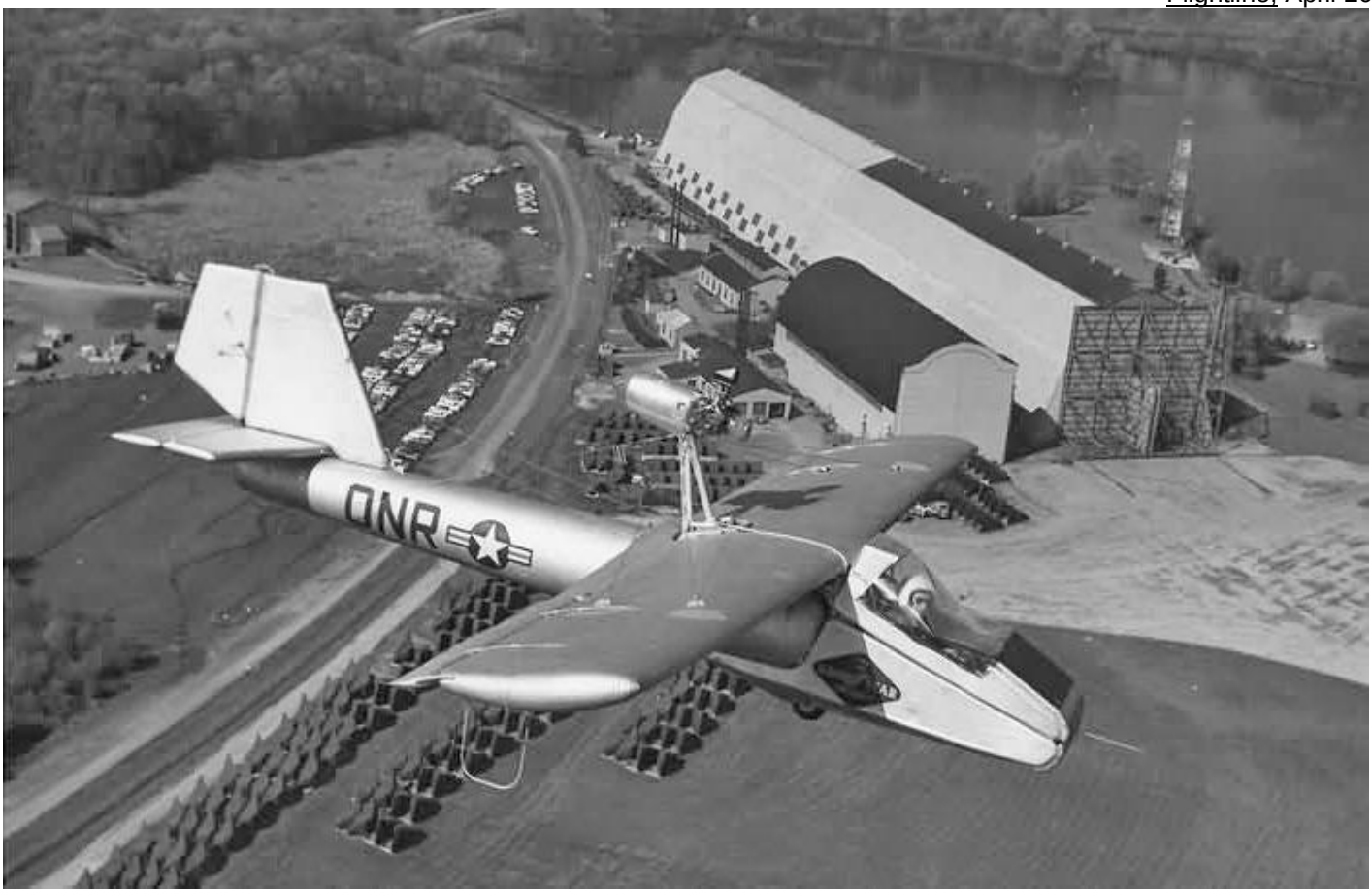
The wing, tail assembly and pilot's seat were constructed of a new rubberized Airmat fabric developed by Goodyear that consisted of joined layers of inflatable rubber-coated nylon fabric shaped by thousands of nylon threads that gave it one of the highest strength-to-weight ratios of any construction material. The fuselage was made of airship fabric with high-strength, fan-shaped patches of rubberized material providing attachments for struts and metal supports that connected the landing gear and the pilot's seat to the aircraft. A 40-hp engine mounted on top of the wing in a

conventional tractor configuration powered the GA-33. An engine-driven air compressor maintained the low air pressure needed to keep the airplane inflated and rigid.

After successful flight-testing of the GA-33, Goodyear developed a more advanced model designated the **GA-447** under the sponsorship of the Office of Naval Research. An extensive evaluation program of the new model followed, including wind tunnel testing at Langley Air Force Base in Virginia.

Goodyear GA-447

The test results were so impressive that Goodyear built 10 more Inflatoplanes under the sponsorship of the Army Transportation Corps and the Office of Naval Research. This new model was designated the **GA-468**. A 60-hp engine replaced the 40-hp version, giving the new model more takeoff power. In addition to improvements in the aircraft structure, a combination wheel, hydro and ski landing gear was developed and incorporated into the GA-468, enabling the Inflatoplane to operate off land, water and snow with no landing gear changes or modifications. The company also developed a parachute-drop pallet and container for the deflated Inflatoplane for use as an airdrop rescue vehicle for pilots downed in hostile territory.



Goodyear GA-468

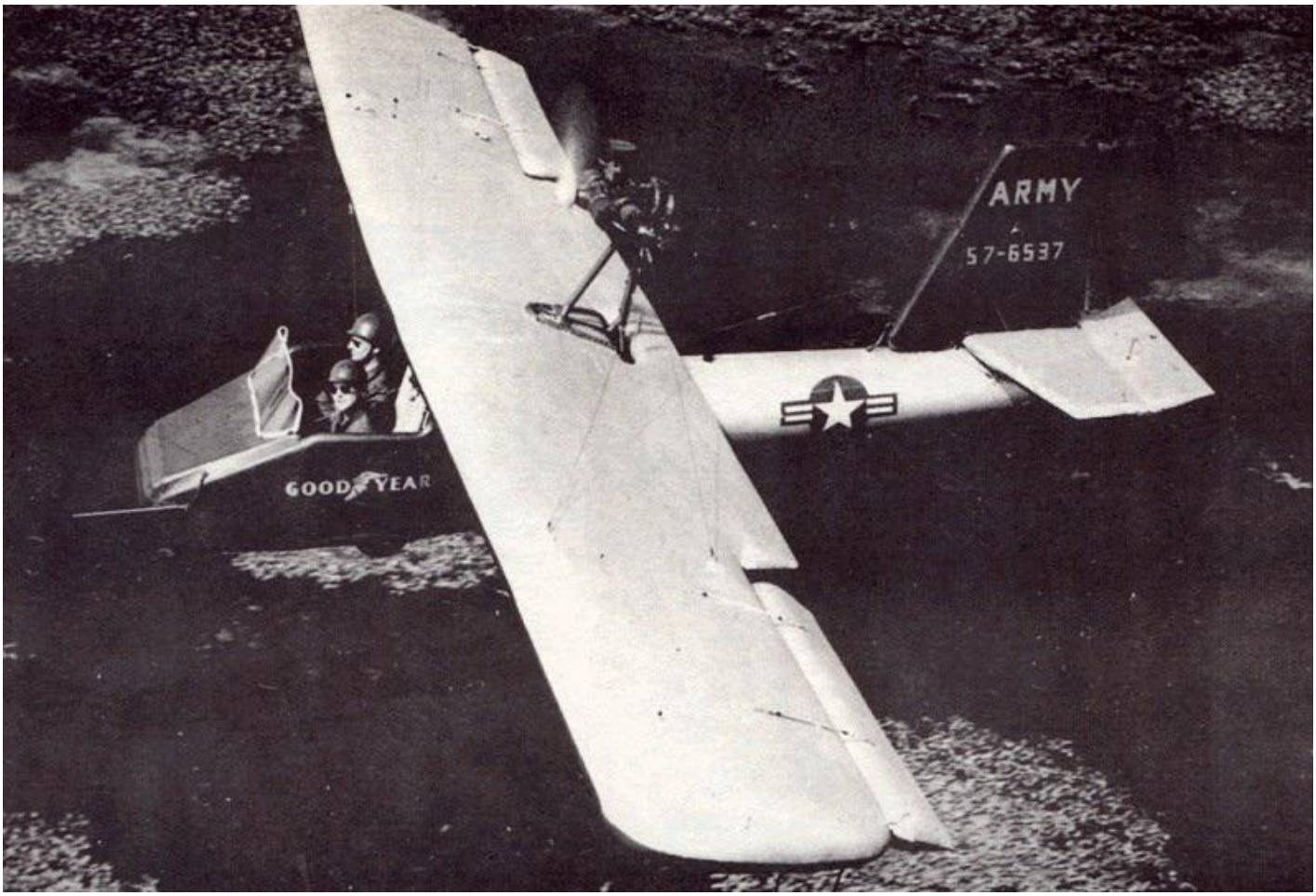
While evaluation continued on the GA-468s, the Army Transportation Corps began development on a two-place Inflatoplane. This last version, designated the **GA-466**, featured a 60-hp engine, as well as a 60-knot top speed and a 200 nautical mile range.

The Inflatoplane's primary mission remained serving as a one-or two-man rescue vehicle that could be dropped to downed pilots, broken out of its container, inflated and made airborne within six minutes. Other possible uses included airborne reconnaissance and support for ground operations. The development and test work proved promising, and in August 1959 Goodyear presented plans for a two place, more aerodynamically smooth Inflatoplane with a 100-hp engine, an enclosed cockpit and four fuel tanks slung under the wing.

In June 1959, an Army pilot making the final 35 minutes of a required flight put the Inflatoplane through violent maneuvers that were not called for in the program. In consequence, the overstressed wing bent up into the propeller, tearing a hole and releasing the air pressure. Since the inflated fuselage supported the engine mounts, the engine collapsed forward just as the pilot stood up to bail out. He never even managed to open his parachute.

After a number of planes were built, in the fall of 1959, Goodyear ceased production and canceled the project "forever," according to a company spokesman at the time. Goodyear no longer makes the Airmat fabric used in the construction of the Inflatoplane.

One Inflatoplane was donated to the Smithsonian in Washington, D.C., and another to the Franklin Museum in Philadelphia. The first GA-33 prototype Inflatoplane was donated to the Ohio Museum of Flight at the International Airport in Columbus, Ohio. How it got there is a bit of mystery, since the plane was supposed to have been taken to a landfill and buried. Instead, the driver made a detour to Barber Airport in Alliance, Ohio, where the little aircraft was apparently tucked in the back of a hangar until it was donated to the museum.The museum is now closed, and the GA-33 is currently in storage in the Columbus area.



Goodyear GA-466

Originally published in the September 2006 issue of *Aviation History.*

Click below for video reviews, with some flight footage, of these historic inflatable aircraft.

https://www.youtube.com/watch?v=oXBFwCDtGAE

https://youtu.be/GJ-4uWwQ5HA

DJI Mini 2

What does my new DJI Mini 2 tell us about the future of FAA technology?

By Larry Woodward

DJI is arguably a current leader in RTF consumer friendly quadcopters for recreational drone photography. The Mini 2 is their most recent product aimed at entry level hobbyists in the $500 price range. It is designed to be easy to fly right out of the box, with little or no experience, and is equipped with excellent HD video capability. It is consistently reviewed and rated as among the best choices for beginners in the price range.

This article is not intended as a product review of the Mini 2, there are plenty of lengthy reviews available on the internet. Or, follow this link for a full technical description from DJI: https://www.dji.com/mini-2/specs

What I found most interesting about my mini 2 is how well the company designed it to attract new beginner pilots. First they made it nearly fly itself while taking super quality photos and video. Second, they built in features that make the pilot's relationship with FAA almost seamless and largely automatic. I wonder if the later may be pointing us toward what we all can expect in the near future.

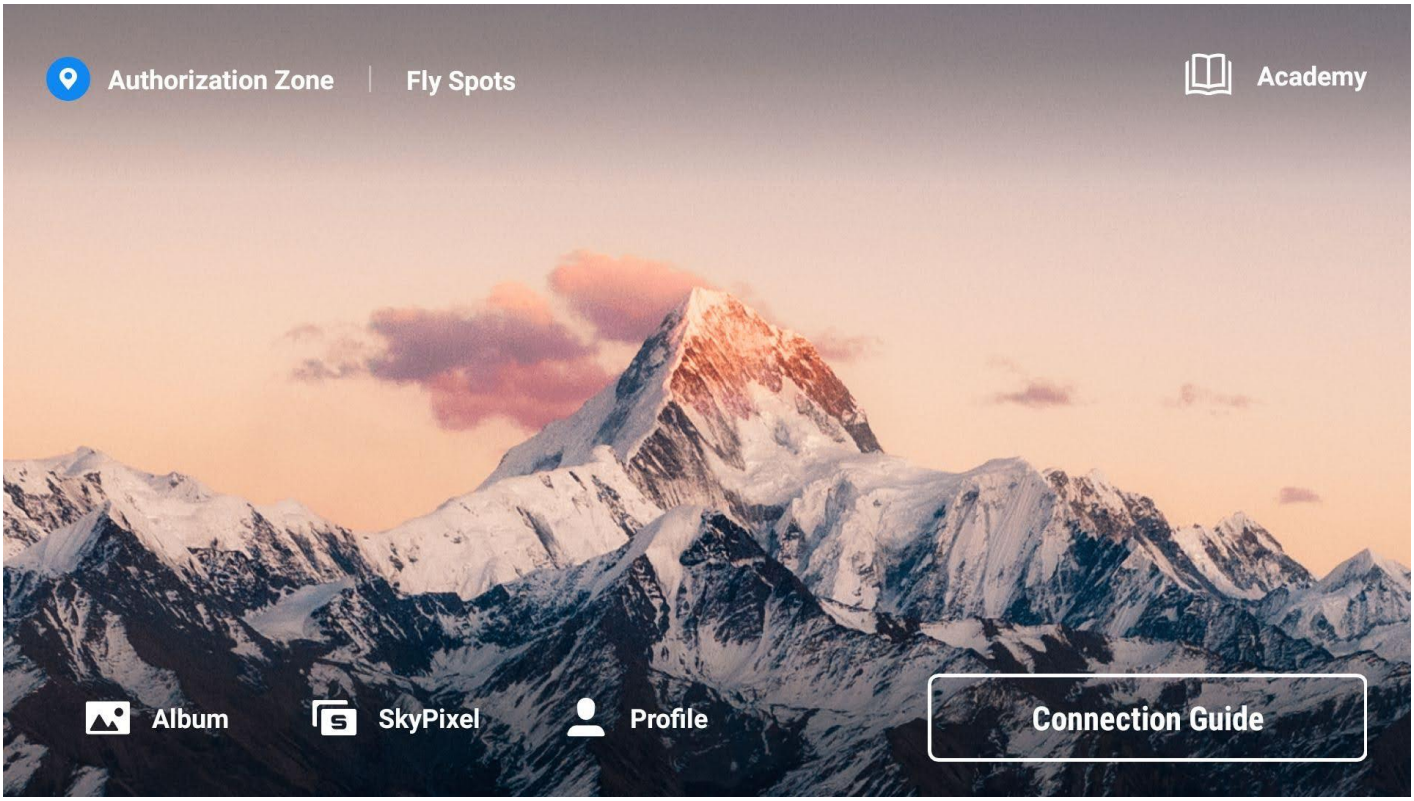
First, it is very small and light. Everything including controller, batteries and charger pack fits neatly into the included carry case, no larger than a lunch bag. The Mini 2 is clearly meant to travel and always be at hand. It uses a proprietary battery and "smart "charger system that is well designed and offers some level of confidence to those concerned about lipo safety.

The flight control systems are robust and maintain excellent stability and control with substantial range, altitude and wind tolerance. The system employs both GPS and optical recognition to allow for very precise navigation, especially regarding the Return to Home feature. From what I think is happening, if GPS is not available or lost for any reason, the optical system has "mapped" much of the close terrain from the initial takeoff and can navigate back to the landing zone by "remembering' the path. This may be why it is not recommended that the Mini 2 be flown over water or other flat clear surfaces without details. It also allows the camera to "lock" to a specific subject and then the drone will perform a number of preset video shot patterns such as a 360 circle flight around the subject.

The high definition camera and gimbal work very well to give steady and precise images. The gimbal can be set, however, for different flight situations to make the experience match the situation. For example for cinematic video the horizon is always kept level. But for an FPV flight there is the option to hold the horizontal view aligned with the aircraft for a more realistic "cockpit" experience.

The Mini 2 is a “Cell phone “drone where the controller has a holder to attach your cell phone and use the phone screen to display real time video from the aircraft. But, this is nothing like the typical cell phone drones I had owned before where the phone is connected to the aircraft via local Wifi. In this case the screen display function is really secondary to the role of the phone in managing the flight via a flight control app.

In order to fly the Mini 2 you must first open a proprietary DJI Fly app on your phone. This app is then connected to the controller and the aircraft. Throughout the entire flight, it would appear to me, this app is in contact with cloud based systems. It is tracking the flight real-time on navigational maps, recording flight data and communicating with FAA airspace control.



DJI Fly home screen

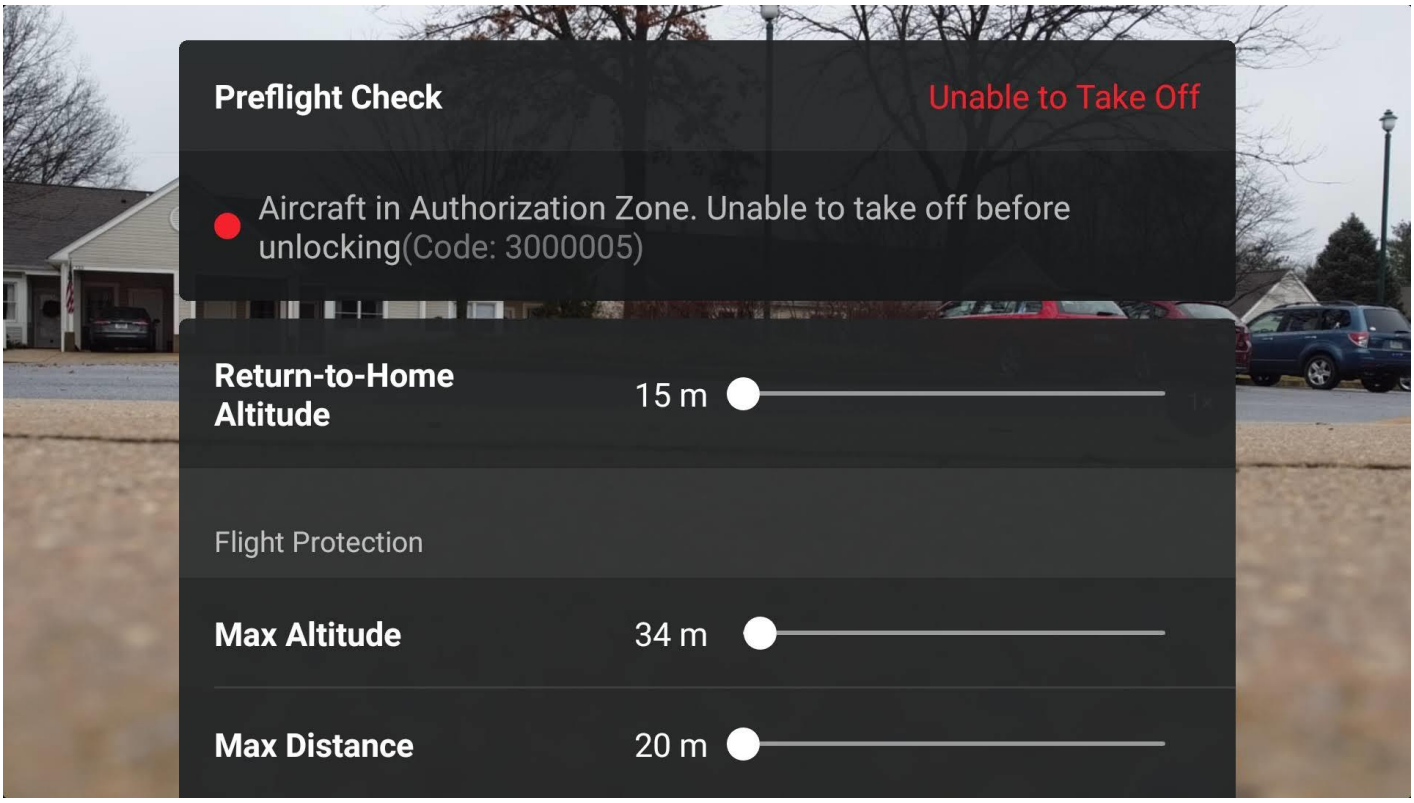
Here is how it works right now:

I opened the box for my new Mini 2 and began to read the very slim instructions. After charging the batteries, the first thing you need to do is register with DJI. This is not just a name and address for warrantee and repair type of registration. This is more like opening a Microsoft account. This is establishing an account through DJI that will connect you to this aircraft FOREVER. As far as I could see there is no way to ever drop this relationship, or at least you can't cancel your record. It is not clear how you could transfer/sell the drone to someone else. The drone would still be attached to your record. You cannot put the drone into any flight mode without creating the account.

Once the registration is complete the rest of set-up is very simple. There is nothing to assemble. The app takes you through a preflight procedure before every flight, including setting and checking safety features. You can watch a very short instructional video about making a first flight. Other than that, there is no instruction manual or helpful tips. Anything you want to know will have to come from Google search. Remember, this aircraft is designed to be idiot proof.

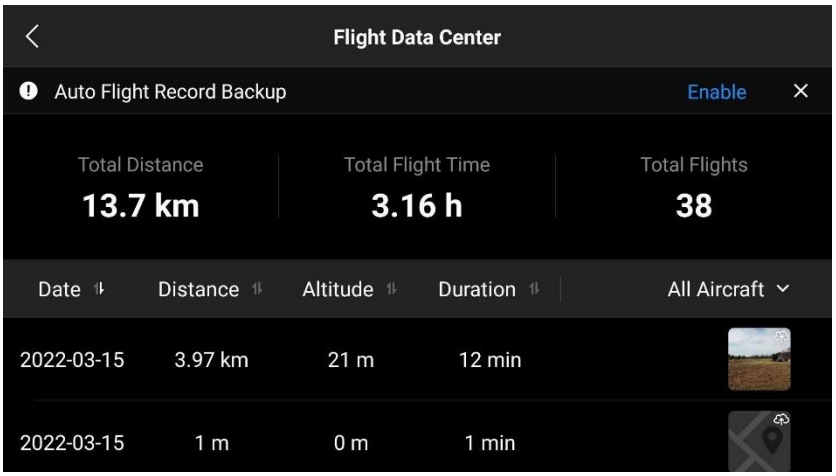
Actual first flights were great. As I have said, the controls are crisp and the aircraft is stable. Video and photos are fantastic. Among other real time data displayed on my screen is a small map showing my current takeoff location.

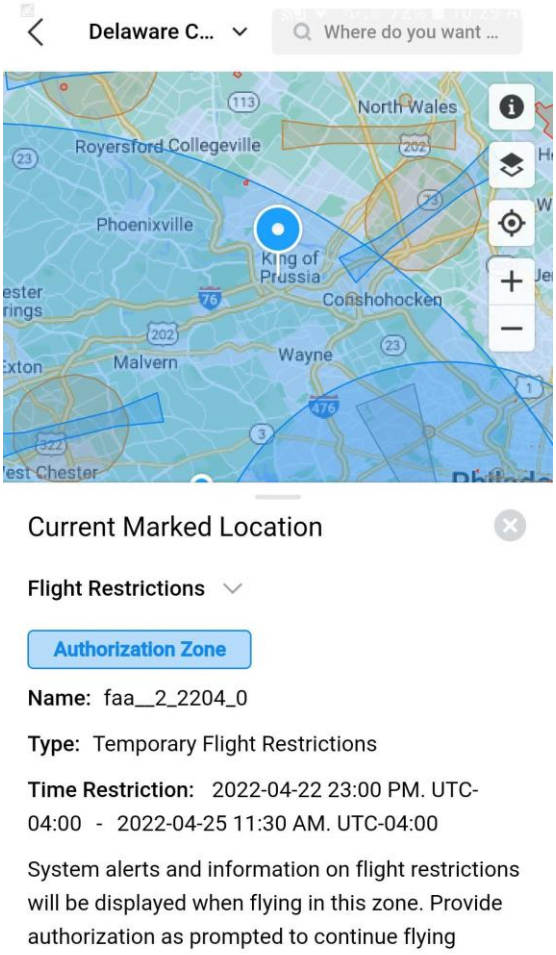
Fast forward to a weekend several weeks later and I am in my hanger trying to test the camera settings and when I go to turn on the drone I get a little red warning at the top of the flight screen, "Authorization Zone." After a little investigation I learn that it is telling me I do not have FAA clearance to fly because I am in a TFR. Zone. If I go deeper it shows my location on the control map with a detailed specification of the TFR.



The flight mode cannot be turned on unless I have an "unlocking" code, presumably from FAA. The next morning after the TFR has expired everything is fine. Essentially, my DJI Fly app is checking in with FAA and monitoring my location every time I start to fly.

When working my way through the menus on the app, I found my flight log in the Flight Data Center. Every flight made to date is logged in here.





Eventually, I had logged enough flight time in the bright sun that I knew I would need some sort of FPV goggles. I tried a third party light shield that snaps around he controller, but the small cell screen was just no match for the bright reflections. I started searching for a goggle set to use and found that there were none made. Even DJI's own brand goggles were not compatible with the Mini 2.

I looked at Virtual Reality (VR) goggles that are often a cheap substitute for FPV. None of these were compatible either. VR is typically a binocular system that requires the image signal to be split and projected twice, once for each eye. The VR lenses then bring the two images together in a 3D view. The normal procedure is for the VR software to receive the flight video signal and convert it to double images. However, the DJI Fly software is not compatible with any third party VR system.

At first I thought it was outrageous that DJI did not make a compatible set of FPV goggles for their own product. Eventually I realized they couldn't do this because the Mini 2, of all their products, is the only one that uses the cell phone not just as a display screen, but actually as an integrated part of the flight control system.

Eventually I found a couple of guys in Norway that are making an FPV goggle that uses a proprietary single lens system to view the cell phone screen. With this I can get a very high resolution view of the screen without needing to interfere with the control software. It works great. The only real drawback is that with the screen locked inside the goggles, I cannot use any of the touch screen functions. All the direct flight operations are done with the controller sticks and buttons. But, I have to remember to set all my flight and photo options before taking flight.

Although, the flight control is so reliable that I don't hesitate to put the aircraft into a controlled hover midflight, and then take the goggles off to make a change of settings.

OKAY RELAX!!! Yes it does sound a lot like Big Brother is watching. But, is that such a bad thing? Remember the target market for this aircraft is the untrained and misguided idiot that will buy a drone and then immediately go out and look for the most inappropriate flight opportunities he can think up. We know this is the group that FAA is most concerned about, not us. And we know this is the most important market for DJI, not us. It looks to me like we have an industry leader getting out in front of the problem. Looking forward I would wager the technology we see in this little toy looks very much like the technology we will be living with in the first four hundred feet of airspace for the foreseeable future.

A Moment in Flight:

Flight Video by Pedro Navarro

This season we can expect to see a lot more surprises from the Maestro. Elwyn field has never been better since it had a full buzz cut this spring. Pedro is likely to set yet another record this year after more than a thousand flight video files already. Who among us can bost that many flights. Let alone the video to prove it.

This issue's video selection features the Mini Radian and includes a new twist with air to air drone footage.

Editor

Click below to see this issue's Moment in Flight.

The Radian Dancing-Misirlou

Endnotes and Links

Early Propstoppers at Boeing inside the wind tunnel designed by Dave Bevan (far left) with Bruce Blake, unknown "Young guy, " Ringo Star (oops, I mean Dave Harding) and Mike Drozda. Order of the day was an indoor freeflight rubber power competition.

[Flying Superman EDF video]