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MODEL AVIATION
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COLUMNS

AMA NEWS

ON THE COVER

In this issue, Dave Scott instructs on making better landings. He shares insight on the general landing procedure with a focus on getting a feel for the best landing speed. Learn more starting on page 18.

A CARF Models F4U-1D Corsair is featured on the cover.

PHOTO BY JAY SMITH.

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WHAT'S NEXT?

By Chad Budreau, AMA Executive Director | chadb@modelaircraft.org

NOW THAT THE comment period for the Remote ID rule has ended, many members are asking, "What's next?" Things from the FAA might be quiet for a while, but don't misinterpret that to mean a lack of action. As you'll read in the following outline, we still have many years to go through this rulemaking process.

A rule begins with a need or request. A few years ago, national security entities began pressuring the FAA to remotely track and identify UAS. Soon after, commercial operators championed for Remote ID to enable UAS flights beyond visual line of sight and over people. The need for Remote ID was further reinforced by Congress.

To begin the Remote ID rulemaking process, the FAA engaged stakeholders through dialogue and committees. In 2017, the FAA established the Remote Identification and Tracking Aviation Rulemaking Committee (Remote ID ARC). AMA advocated for a vote on the committee and was selected, along with 73 other stakeholders, ranging from the Commercial Drone Alliance to the Ford Motor Company.

AMA argued that Remote ID should only apply to autonomous UAS capable of sustained navigation beyond the visual line of sight of the operator or spotter. AMA gained the support of many in the committee, yet some voting members of the Remote ID ARC remained steadfast that every UAS and model aircraft must comply with Remote ID.

After receiving the Remote ID ARC's recommendations, the FAA spent a year and a half drafting the proposed rule. On December 26, 2019, the FAA released its proposed Remote ID rule and attempted to strike a compromise accommodating both AMA's position and those wanting Remote ID requirements on all UAS.

As with most compromises, the proposed rule ended up making everyone unhappy. From AMA's position, the proposed Remote ID rule was overly complicated, expensive, and could potentially destroy our longstanding safe hobby.

After a proposed rule is released, agencies seek public input. AMA immediately mobilized members, lapsed members, clubs, hobby shops, manufacturers, and even the manned aircraft community to comment to the FAA citing the flaws in the proposed rule. This public comment period to shape the Remote ID rule ended March 2, 2020.

Thank you to all of the members and supporters who commented to the FAA. The FAA is currently analyzing all comments to shape the final rule. Some agencies have withdrawn a proposed rule in response to comments, but we anticipate some form of Remote ID will move forward as a rule. Should there be significant edits to the proposed rule, the FAA might again seek public comments.

Given the number of comments provided, the review and rule revision process could take a couple of years. Because of pressure from commerce, national security, and Congress, this timeline might be expedited. During this review period, the FAA will not provide significant updates.

Rest assured that AMA will continue to advocate against the overly burdensome Remote ID proposed rule. We will share our next advocacy steps in the coming weeks.

After a final rule is announced, there will be an implementation period. The FAA has acknowledged that implementation will take another two to three years. During this phase, AMA will continue to minimize the impact of Remote ID on members and the hobby.

Rulemaking is a lengthy process. We appreciate your support and patience. Continue to follow social media, email, www.modelaircraft.org/gov, and other channels for more information while we work through the multiyear process on behalf of the hobby.

Before I close, AMA's president, Rich Hanson, will be authoring this page in the next issue of the magazine. Rich and I will alternate providing updates to our members.

As always, be safe.

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PODCASTS

Jay Smith, Executive Editor | jays@modelaircraft.org

A PODCAST IS TYPICALLY a series of audio files—and possibly videos—that are available on the internet. Podcasts covering all types of hobbies and interests can be found online and can be a great place to learn more about a given topic.

Search for podcasts about our hobby and you are likely to find many that cover several different aspects of aeromodeling. In an effort to share content in ways outside of our magazines, websites, blogs, and emails, AMA launched the *AMA Podcast* in September 2019.

Matt Ruddick hosts the podcast and talks to *Model Aviation* contributors, industry professionals, notable modelers, and AMA staff members. I even found myself on the podcast! It was a change from interviewing others to be the one receiving the questions. I did turn the tables on Matt and asked him a few questions though!

Visit www.modelaircraft.org/podcast and you will find more than 20 episodes covering a broad range of topics and guests.

I asked Matt to contribute to this issue by sharing more about what podcasts are and some of the other podcasts that readers might find interesting. To learn more, be sure to turn to page 25.

In an effort to share content in ways outside of our magazines, websites, blogs, and emails, AMA launched the* AMA Podcast *in September 2019.

Correction: In the Control Line Combat column of the March 2020 issue of *Model Aviation*, it was reported that F2D Junior team member Sasha Nadien was from Pennsylvania and Ukraine. She is from Pennsylvania and is currently studying in London. *MA* regrets the error.

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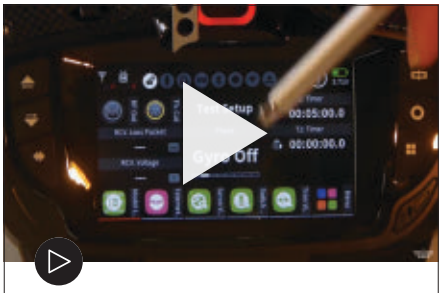


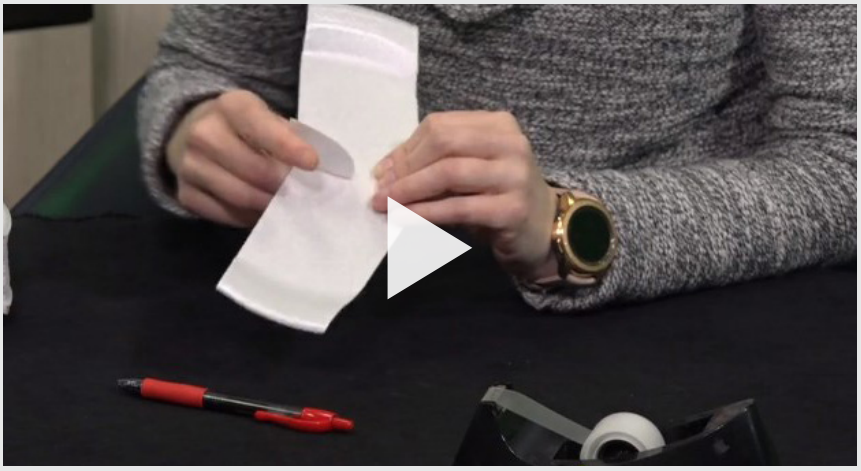
Graupner mz-16 Transmitter

Digital & Web: See the transmitter's features: https://www.youtube.com/watch?v=dwJd4aQLm84.

More from Joshua Bardwell

Web: Watch videos by new columnist Joshua Bardwell: www.youtube.com/joshuabardwell.

Learn how to build a glider



In AMA District III Vice President Mark Radcliff's column this month, he discusses taking materials to build Foam Plate Glider 9 (FPG9) aircraft to a school in West Virginia and helping students build and fly them.

On the February 7 episode of *Ask Claire*, host Claire Aldenhuysen explains how these inexpensive aircraft are constructed. You can watch the video at https://www.facebook.com/modelaircraftmuseum/videos/221985438819708/.

Here are some comments made by viewers:

Eric Kendall:
Plan your work and work your plan.

Ronnie Espolt:
These are excellent projects to engage young kids and parents at county fairs and air shows. I also use the FPG9 on first day of classes with older students. It engages them in a successful flight right away.

THANK YOU FOR MAKING YOUR VOICE HEARD

By Tyler Dobbs, Government Affairs director
tylerd@modelaircraft.org

I WANT TO THANK EVERYONE who took the opportunity to comment on the Notice of Proposed Rule Making (NPRM) for Remote ID. Please keep in mind that it will likely be months, or even years, before the FAA completes the comment process and publishes a final rule.

In the meantime, rest assured that AMA's work to shape the Remote ID rule will carry on. We will continue our meetings with Congress and ask that its members weigh in on our behalf because they are not bound by the FAA's March 2, 2020, comment deadline.

At some point during the next few months, AMA will likely ask its members to contact their senators and representatives regarding Remote ID. Please continue to monitor AMA's website, www.modelaircraft.org, and its social media outlets for future updates.

AMA Formal Letter to Secretary Elaine Chao

AMA sent U.S. Department of Transportation Secretary Elaine Chao a letter to address her statements regarding UAS and Remote ID. Secretary Chao failed to take the aeromodeling community into account in her World Economic Forum interview[1], and AMA felt that Secretary Chao needed to be aware of our community and the hobby in general.

1 Daniel Howley, "Elaine Chao describes people's biggest complaints about drones," Yahoo Finance, January 25,2020, https://finance.yahoo.com/news/elaine-chao-drone-complaints-135036104.html.

Please see the following letter:

February 12, 2020
Secretary Elaine L. Chao
U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, D.C. 20590

Dear Secretary Chao:

We write to you on behalf of the Academy of Model Aeronautics (AMA), the largest and oldest association of model aircraft enthusiasts in the U.S., to express our strong disagreement with your recent comment that the proposed rule for remote identification of unmanned aircraft systems (UAS) will be "tech neutral." In our opinion, this could not be further from the truth.

If the proposed Remote ID rule is implemented as is, it will be devastating to the model aviation hobbyist community—far more so than any other group. We understand that Remote ID may be helpful to keep the skies safe and secure with commercial or autonomous UAS. For years, we have advocated for an approach to Remote ID regulation that is simple, cost-effective and easy to comply with. This is especially important for the model aviation community, which has been operating safely in the airspace for more than eight decades and which supports thousands of jobs, businesses and STEM learning opportunities. Unfortunately, the FAA's proposed Remote ID rule is overly complicated, potentially expensive, difficult, and in many cases, impossible for modelers to comply with.

If implemented as is, the rule will be extraordinarily burdensome for the model aviation community and will disincentivize participation in the hobby. We have already seen a demonstrative drop in membership and participation in the hobby with the mere proposal of the Remote ID rule. While the proposal includes an option to comply with Remote ID by flying at FAA-recognized identification areas, the rule arbitrarily limits the number of identification areas and prohibits the establishment of new areas (after the initial 12-month period). In fact, the rule is expressly designed to phase out these identification areas over time, rather than treat them as a viable option for complying with Remote ID. FAA-recognized identification areas must be part of the long-term solution to Remote ID.

The proposal to change the current UAS registration rule and require model aircraft owners to register each of their model aircraft separately is unnecessary and constitutes an extreme overreach by the federal government. All model aircraft flown under AMA's community-based program remain within the visual line of sight of the operator, making it simple and straightforward to identify the pilot. If the proposal to register model aircraft individually goes into effect as is, AMA's 180,000 members would be forced to register about 1.62 million aircraft at a cost of $8.1 million, assuming the $5 per aircraft registration fee does not increase over time. This is a sizable investment of time and resources for the individual hobbyist and a substantial economic impact to the model aviation community. Again, we are deeply concerned the proposed rule on Remote ID could impost significant costs and unnecessarily restrict our operations.

We are asking your department and the FAA to review the guidance provided by the Remote ID Aviation Rulemaking Committee (ARC) to include emphasis that Remote ID must have a low burden and cost of compliance. In addition, the proposed rule completely disregards the recommendations by Work Group Two led by security members of the ARC and tasked with the applicability of Remote ID. The report clarifies that Remote ID should apply to UAS that have the ability to navigate without direct control of the pilot or can operate beyond 400 feet with a real-time remotely viewable sensor.

Please address the following concerns with the proposed rule:

- *First, the rule should provide community-based organizations (CBOs), like AMA, more flexibility to establish and maintain fixed flying sites that satisfy Remote ID compliance.*
- *Second, the rule should create a pathway for Remote ID compliance at AMA events and competitions, which do not take place at fixed flying sites and are conducted at a*

myriad of venues within our communities.

- *Third, the rule should account for situations where there is no internet connectivity, as many safe places to fly are in rural areas with little or no service.*
- *Fourth, the rule should revise the definition of amateur-built UAS to effectively delineate the categories of aircraft.*
- *Finally, the rule should not require modelers to register every aircraft individually.*

industry responsible for supporting businesses big and small and thousands of US jobs. We simply cannot afford to further harm the model aviation hobby with overly burdensome requirements. We urge you to carefully consider the impact Remote ID will have on the model aviation community. Modelers are passionate about our hobby, and equally concerned with keeping our skies safe and secure. There must be a way to achieve the FAA's goal for Remote ID and protect model aviation at the same time.

Model aviation is the natural precursor to careers in aviation, including commercial pilots, engineers and more–jobs which the U.S. desperately needs to fill.

We need your help to prevent the decline of model aviation industry, the many jobs that support it–and most importantly–the future pilots, engineers and aerospace experts. Model aviation is the natural precursor to careers in aviation, including commercial pilots, engineers and more–jobs which the US desperately needs to fill. Furthermore, model aviation supports a $1 billion hobby

Sincerely,
Rich Hanson
President, Academy of Model Aeronautics

Chad Budreau
Executive Director, Academy of Model Aeronautics

SWEET

Extreme Flight has been at the forefront of electric airframe and power system development since the introduction of brushless electric motors and lithium polymer battery technology to our hobby in the early 2000s. Having produced electric specific airframes ranging from 44 inches to 95 inches, we have found a particular range that in our opinion is the current "Sweet Spot" for electric flight. Powered by our powerful, reliable and efficient Torque 4016/500 Brushless Outrunner and a single 6S 3300-5000 mah lithium polymer battery, this range of aircraft delivers big plane flight performance

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New Products that are ***Worth a Closer Look***

FMS 850MM RANGER PNP

JON BARNES REVIEWED the Horizon Hobby FMS 850mm Ranger PNP. This is what he had to say:

The Ranger, available in three sizes, bears more than a passing resemblance to the ubiquitous, tricycle-gear-equipped Cessna 150/152 of general aviation fame. All three variants of the Ranger are distributed in North America by Horizon Hobby. The focus of this review is the FMS 850mm Ranger.

The model is a Plug-and-Play (PNP) kit. It comes out of the box with four 1.9-gram servos and a two-cell LiPo battery-based brushless electric power system preinstalled in the airframe. An impressively bright white, cowling-mounted, "always on" LED landing light stands out as a feature not typically included in a park flyer model of this size and class.

All of the control rods are assembled and in place with Z-bends at both ends of the control rods. To facilitate any adjustments of the control surface neutral positions, U-shaped bends are located near the midpoint of each control rod. The factory-installed power system includes a 2315-3850 Kv brushless outrunner motor, a JST-style connector-equipped 12-amp brushless ESC with an integral BEC, and a 6 x 3.5 propeller.

Completion of this model requires a four-channel receiver and a two-cell 800 to 900 mAh LiPo battery. One affordably priced receiver that pilots might wish to consider for use in this model is the recently released Spektrum AR410. Touted as a full-range sport receiver, the AR410 also boasts a conveniently compact form factor and weighs 1/4 ounce.

Assembling the 850mm Ranger can be completed at the field. A single fastener holds the one-piece wing in place on top of the fuselage. A spare fastener was included in my box. The plastic wing struts are preattached to the underside of the wing, and the other ends snap-lock into detents on the sides of the fuselage.

The steerable nose gear is installed at the factory, but pilots will need to mount and secure the wide-set main gear assembly to the underside of the Ranger using the included fasteners.

The battery bay is located on the underside of the Ranger, slightly aft of the nose gear. The battery hatch is magnetically retained at its front edge, with the aft edge featuring a foam tongue that indexes into the fuselage. The hatch magnet is held in place with a small piece of fiber tape. The battery bay can accept 2S battery packs larger in capacity than the recommended 800 mAh size pack, although those with too long of a form factor might be difficult to shoehorn into the available space.

Using an Eagle Tree eLogger, the brushless power system that was included with this model showed a maximum static reading of 75 watts at wide-open throttle. With an all-up-weight of 10 ounces (using an E-flite two-cell 800 mAh LiPo battery), this is 120 watts per pound of performance.

Pilots with a variety of skill levels will find that the Ranger offers a pleasing amount of power and performance. Takeoffs can be slow and scalelike or quick and aggressive. With the control throws cranked up, the Ranger will happily execute aileron rolls and loops. The latter will require judicious throttle use and a slight diving entry in order to retain enough energy to make it cleanly over the top.

Knife-edge flight is possible, although the model does pull aggressively toward the canopy. The limited amount of compensatory elevator that is required during inverted flight suggests that FMS has the battery placement and center of gravity optimally located. Using 2S 950 mAh LiPo battery packs, I was routinely able to achieve flight durations of 5 to 6 minutes.

This model's modest radio system and battery requirements, coupled with its high wing and tricycle-gear configuration, offer less-experienced pilots with fewer dollars to burn a nice semiscale, general aviation-based model that can easily be flown at a local park or ball field.

SOURCES:

Horizon Hobby
(800) 338-4639
www.horizonhobby.com

Eagle Tree Systems
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www.eagletreesystems.com

New Products from the **Modeler's Mall**

Raven @ $95-$165 + S&H from BMJR Models

Box 1210, Sharpes FL 32959; Tel.: (321) 537-1159; website: www.bmjrmodels.com

The Raven was designed in 2015 by Dave Platt as a high-thrust model. In the next four years, Dave built 12 Ravens in sizes ranging from 1/2A to 1100. Each had refinements and displayed similar flight performances.

The aircraft has an elliptical planform with geodesic ribs in the stabilizer and an undercambered wing. Even with its complex appearance and Dave's technique, the Raven is relatively easy to build and trim, and is a beautiful Free Flight model to watch fly.

Ravens have been built to be powered by .15 gas and 2.5cc diesel engines in the 18-ounce range. In 2019, a poll of the Florida Modelers Association was taken; the members and BMJR agreed that the most popular size to kit would be the 450 size, with a wingspan of 60 inches and a wing area of 450 square inches. Save money by purchasing a double kit.

WW2 Aircraft Profiles @ $19.95 + S&H from Old School Model Works

7414 Burton Dr., Liberty Township OH 45044; Tel.: (513) 755-7494; website: www.oldschoolmodels.com

Old School Model Works has combined 1/8-inch precision-cut, birch plywood with a printed backing to create unique artwork that looks great in any home, office, or hangar! The multilayered technique results in artwork that appears to "pop off" of the print with a 3D effect.

Specifications for each type of aircraft (wingspan, length, maximum speed, and engine details) are printed below its name. Each piece measures 11 x 14 inches and is mounted on a sturdy foamboard backer. Display the artwork as is, or frame it for an elegant way to brighten any room.

World War II profiles that are currently available include the Boeing B-17G Flying Fortress, Chance-Vought F-4U Corsair, Curtiss P-40 Warhawk, Gee Bee R-1 Sportster, North American F-86 Sabre, Vickers Supermarine Spitfire, and North American P-51D Mustang. Check the company's website for additional profiles.

EDGEtra ARF @ $331.24 + S&H from Sig Mfg. Co., Inc.

Box 520, 401 S. Front St., Montezuma IA 50171; Tel.: (641) 623-5154; website: www.sigmfg.com

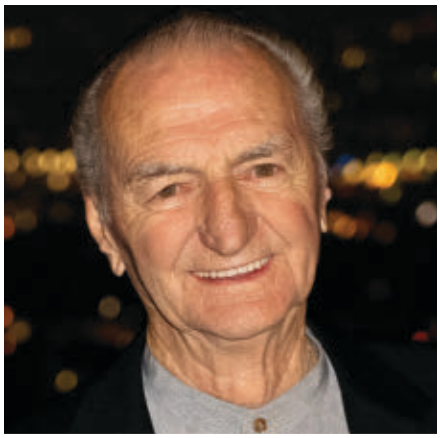
Two airframes consistently top the list of favorite models for 3D pilots, and now you can experience the best of both airplanes with the Sig EDGEtra EP ARF! This hybrid aircraft masterfully blends the fuselage of the Edge with the wing of an Extra.

This airplane offers an all-out 3D aerobatics thrill like you've never flown. The 60-inch wingspan model features a removable, magnetic hatch/canopy that makes battery changes quick and easy, ample room for an electric power setup, and surface-mounted aileron servos and ball links that make installation and setup easy.

The lightweight balsa and plywood construction creates a rigid airframe that flies well, while the painted fiberglass cowling and wheel pants are color matched to the UltraCote covering. Removable side-force generators add stability to knife-edge and 3D flight.

A complete hardware pack and illustrated assembly manual are included. A four-channel radio with four high-torque mini servos, brushless 600 to 1,200-watt motor, 75-amp ESC, and 4S 4,000 to 5,000 mAh LiPo battery pack are required.

RC PROPELLER MANUFACTURER DIES IN PLANE CRASH



AN AMA LIFE MEMBER who manufactured RC propellers was killed in a full-scale airplane crash in January. Joe Zingali, 84, of Torrance, California, passed away January 22 in Corona, California.

According to reports, Joe was in a single-engine Beechcraft Bonanza that crashed while attempting to take off from Corona Municipal Airport. The National Transportation Safety Board is investigating the accident, which killed three others onboard.

In his AMA History Project autobiography, Joe wrote that he started making propellers in 1974, with the encouragement of Irwin Ohlsson, of Ohlsson & Rice engines. His first propeller, the Zinger, led him to create J&Z Products. By 2002, the company had expanded to a large building in Harbor City, California, where it manufactured spinners, glow plugs, canopy glue, and roughly 3,000 propellers a day. The company closed in March 2016.

As a modeler, he joined the Beginners in Radio Drone (B.I.R.D.) chartered club in 1960 and later served as its president; helped establish a flying field in Carson, California; and conducted flying demonstrations and helped with aeromodeling projects at local schools.

In his autobiography, Joe also stated that he got his private pilot's license in 1957, and later his commercial and twin-engine instrument ratings.

Joe was preceded in death by his wife of 59 years, Geraldine Anne, and a daughter, Jozy Soderstrom. Survivors include three daughters, a son, 14 grandchildren, 18 great-grandchildren, and one great-great-grandchild.

AMA Thanks Its Lifetime Supporters!

The Academy of Model Aeronautics recently welcomed Life Members Members J.J. Hedrick, Farragut TN; Travis S. Stone, Neenah WI; Eric S. Barker, Camden WY; Darren L. Woolsey, Castle Dale UT; Syed Mehmood, Shreveport LA; and Fred W. Taylor, Coplay PA.

For information about becoming a Life Member, contact AMA Headquarters at (800) 435-9262.

—AMA Membership Department

REGISTER NOW FOR THE 2020 NATS

REGISTRATION IS NOW OPEN for the 2020 Indoor and Outdoor Nats. If you've never participated in the Nats, this might be your year to try it because the $50 basic registration fee for first-time participants is waived this year!

The Free Flight Indoor events will take place May 27-31 at the Round Valley Aerodrome, in Springerville, Arizona. All Outdoor Nats events will be held at the International Aeromodeling Center in Muncie, Indiana. The Outdoor Nats begin July 12 and run through August 5.

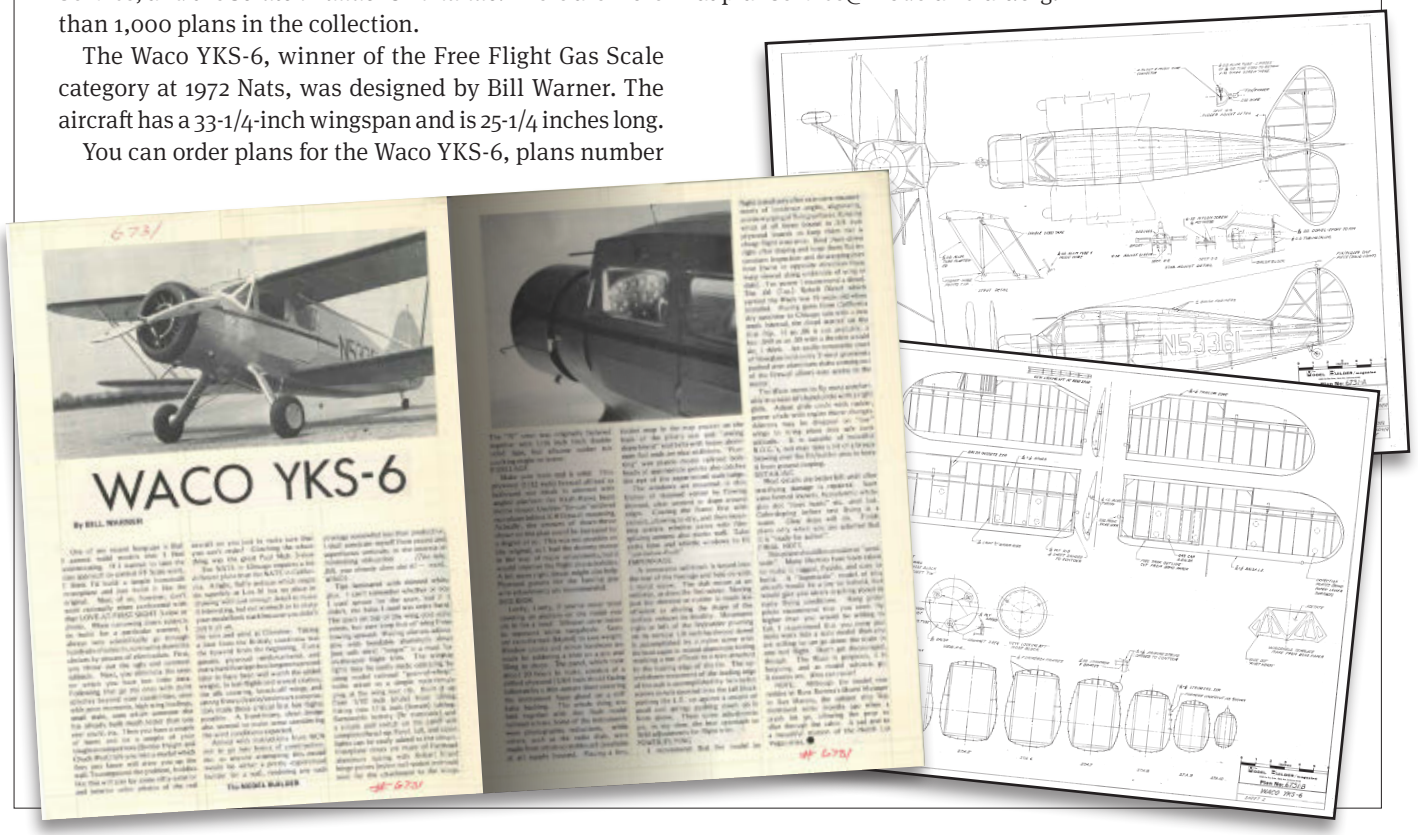
You can register and learn more about the Nats at modelaircraft.org/nats.

Build a 1972 Nats Winner

AMA PLANS SERVICE houses all plans formerly sold through *Model Builder* magazine, Bill Northrop's Plan Service, and the *Scratch Builder's Almanac*. There are more than 1,000 plans in the collection.

The Waco YKS-6, winner of the Free Flight Gas Scale category at 1972 Nats, was designed by Bill Warner. The aircraft has a 33-1/4-inch wingspan and is 25-1/4 inches long.

You can order plans for the Waco YKS-6, plans number 6731, for $18 plus shipping and handling by calling AMA Plans Service at (800) 435-9262, extension 507, or via email at planservice@modelaircraft.org.



MUSEUM ACQUIRES CONVAIR B-36

By Michael Smith, National Model Aviation Museum director

IN TODAY'S WORLD of model jets, 1/4- and 1/3-scale warbirds, and 30% or larger International Miniature Aerobatic Club (IMAC) competitive aircraft, we have become accustomed to seeing large model aircraft.

This was not always the case because these aircraft could only be built and flown after large and powerful engines became available.

In the late 1940s, James Pappas was unhappy with small aircraft and was already thinking big. He had built smaller aircraft before he went into the U.S. Army. Upon his return, he thought, "It seemed sort of silly to be building little ones." He converted his mother's attic into his workshop and, without the modern conveniences of copy machines and computers, went about designing and building aircraft.

James' first project was a B-29 with a 16-foot wingspan, followed by a 1/2-scale Piper Cub, a Sikorsky helicopter, and an F-80 Shooting Star, among others. In 1952, he began his most ambitious project—reproducing the U.S. Air Force's newest strategic bomber at the time, the B-36.

The full-scale aircraft featured six pusher engines and four jet engines mounted in pods on each wingtip. James' model would match this and be built to 1/9 scale, resulting in an aircraft with a more than 26-foot wingspan. Scale features included working flaps, opening bomb bay doors, retractable landing gear, and a functional drogue chute.

After they were completed, James took his models to various contests and air shows in Indiana—impressing crowds and winning awards. In 1955, the B-36 was even used as the centerpiece decoration for the U.S. Air Force ROTC Ball in Indianapolis. At present, it is unclear if the B-36 was ever flown, although there is some belief that it was at least taxied at events and might have been flown in "ground effect," similar to the flight of the Hughes H-4 Hercules Spruce Goose.

Although we do not know what happened to James' other models, somehow the B-36 survived. It has gone through several owners, two of whom even envisioned the possibility of modernizing the aircraft and flying it again. Earlier this year, the current owner, Ed Crotty, decided to offer it to the National Model Aviation Museum and upon acceptance by the museum's steering committee, it was delivered to the museum.

Ed highlighted the history of the model on his Radio Control Hall of Fame website at www.rchalloffame.org/Exhibits/Exhibit41/index.html.

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*Photos by Thayer Syme

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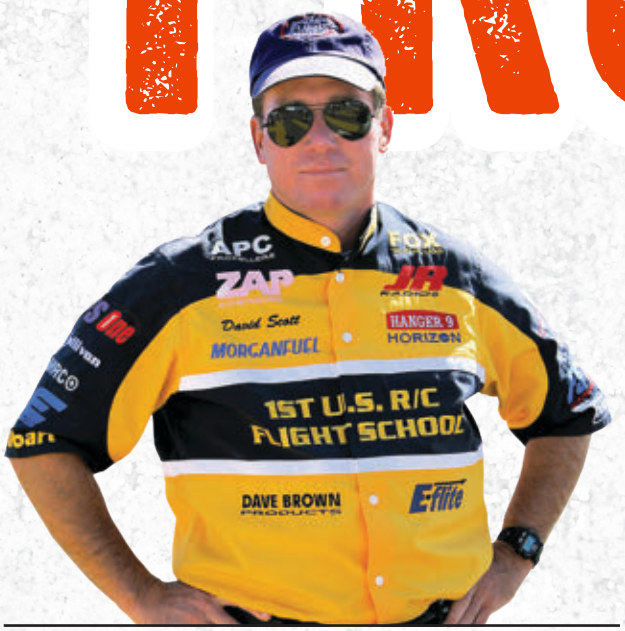


Dave Scott is a champion full-scale aerobatics competitor, air show pilot, aviation author, and he operates the 1st U.S. R/C Flight School. His manuals and articles feature the specialized training techniques that he has developed, instructing more than 1,700 RC pilots of all skill levels and setting up and test-flying more than 1,000 airplanes at his school. More information about Dave's books and his flight school can be found at www.rcflightschool.com.

CH

Getting a feel for the best landing speed

By Dave Scott
1usrcfs@gmail.com
Illustrations by the author
Photos by Jennifer Alderman and Matt Ruddick

There are a number of mistakes that most recreational RC pilots make that stem, in part, from rarely having a plan before flying. This article is aimed at addressing the two most common bad habits that end up leading to more damage during landing than any others. Indeed, most pilots will immediately experience improved landings if they can correct just one of these habits.

FINAL APPROACH

Bad Habit Number One: Diving Toward the Runway

The first bad habit is rooted in the way many pilots set up their landings when they learned to fly. It's the reason why no two landings ever go the same. Most pilots give little thought to flying a specific pattern to set up a landing. Instead, they loosely fly downwind, turn around, and try to line up and lose altitude before reaching the runway. Of course, novice pilots would be flying higher to stay safe, so when the decision is made to land, they are forced to let the nose drop appreciably during the base-leg turn in an effort to lose the excess altitude.

As a consequence of letting the nose drop during the final turn to landing, the airplane comes out of the turn carrying too much airspeed. Approaching the runway too fast can be seen at clubs across the country in the form of pilots having to perform multiple go-arounds because they can't get the airplane on the ground without flying or rolling off of the end the runway.

It's then common to see the mounting frustration and concerns about fuel or batteries running low, causing pilots to try to force the airplane onto the ground at the higher airspeed with the elevator. Even the best fliers in the country would have a hard time trying to touch down smoothly when carrying too much speed because the tiniest imperfection during the flare will lead to a balloon, a major bounce, gear damage, or worse (usually followed by blaming the manufacturer for not making the gear or airplane strong enough).

Similarly, we've likely all heard pilots complain about high-lift airplanes tending to "float," and yet, unless they figured out a way to switch off gravity, a slow-flying trainer should be easier to land in a short distance than a faster airplane! Of course, the reason for floating is not the airplane, but letting the nose drop too much and building up excess speed.

Flying too high on the downwind leg and the resulting preoccupation with trying to lose the excess altitude is also the primary reason why pilots struggle to line up with the runway centerline, often ending up needing to make last-minute corrections followed by a poor flare.

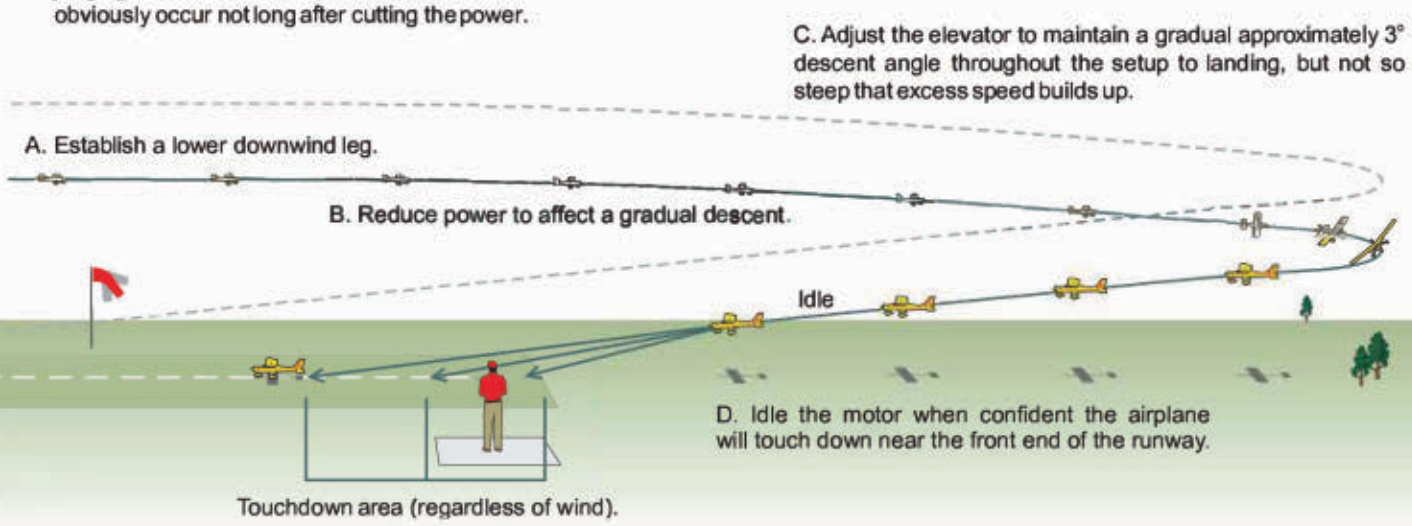
Conversely, if a pilot is less consumed with trying to get the airplane down, he or she will be able to focus more on his or her surroundings and judge whether the airplane is lined up, thereby making the flare to landing much easier. You've probably noticed how much slower things seem to happen and how much easier it is to land when the airplane arrives over the runway perfectly lined up!

An essential key to setting up better landings is paying attention to flying a lower downwind leg in advance of the turn to final, allowing you to focus on positioning and coming out of the turn perfectly lined up with the runway. The combination of a good lineup and not fighting to lose altitude will afford you more time to think about when to idle the motor to affect a touchdown near the front end of the runway (see Figure 1).

It's standard practice and acceptable to let the airplane descend slightly before, during, and after the turn, but to avoid building up excess speed, don't let the nose drop more than a few degrees. If the airplane is not coming down at a sufficient rate to touch down near the front end of the runway rather than dropping

FIGURE 1

A lower downwind leg and throttle reduction before the final turn sets up a lower approach. A lower approach takes the guesswork out of judging when to idle the motor because the touchdown will obviously occur not long after cutting the power.



the nose more, a proficient pilot will reduce power to affect a steeper descent without building up excess airspeed.

If turning lower to the ground is something that you're not comfortable with, it would be wise to acquire a more forgiving airplane and work on your fundamental turning technique. Remember, the airplane doesn't know what its altitude is, so if you can perform a reasonably level turn at altitude, you should be able to repeat it closer to the ground.

Bad Habit Number Two: Approaching Too Fast

The next common landing mistake occurs because pilots are repeatedly warned to "keep up your flying speed during the landing to avoid stalling," or, "don't let the airplane get too slow on approach to landing." Because these warnings usually come from people who have let a model slow down too much and crash, the recipients of this advice usually take it to heart. The $64 million question is, "How do you tell what the right approach speed is," or, "How do you tell when the model is getting too slow?"

Because of varying wind speed and directions, differences between airplanes, weight, and even the effect temperature has on airplane performance, there is no consistent answer, and you won't be able to tell by looking at the airplane. For example, when flying into a strong headwind, an airplane can have plenty of flying speed, and yet appear too slow, prompting a pilot to unnecessarily add more power and subsequently struggle to get the airplane down.

It's quite common for pilots to stall during landing and blame the crash on a gust of wind rather than a stall because they believe the airplane "had plenty of speed," when in fact they were landing downwind. Of course, if you always flew the same model in the same conditions (e.g., early mornings in calm wind), you could learn what the proper approach speed looks like, but for most of us, that's not the real world.

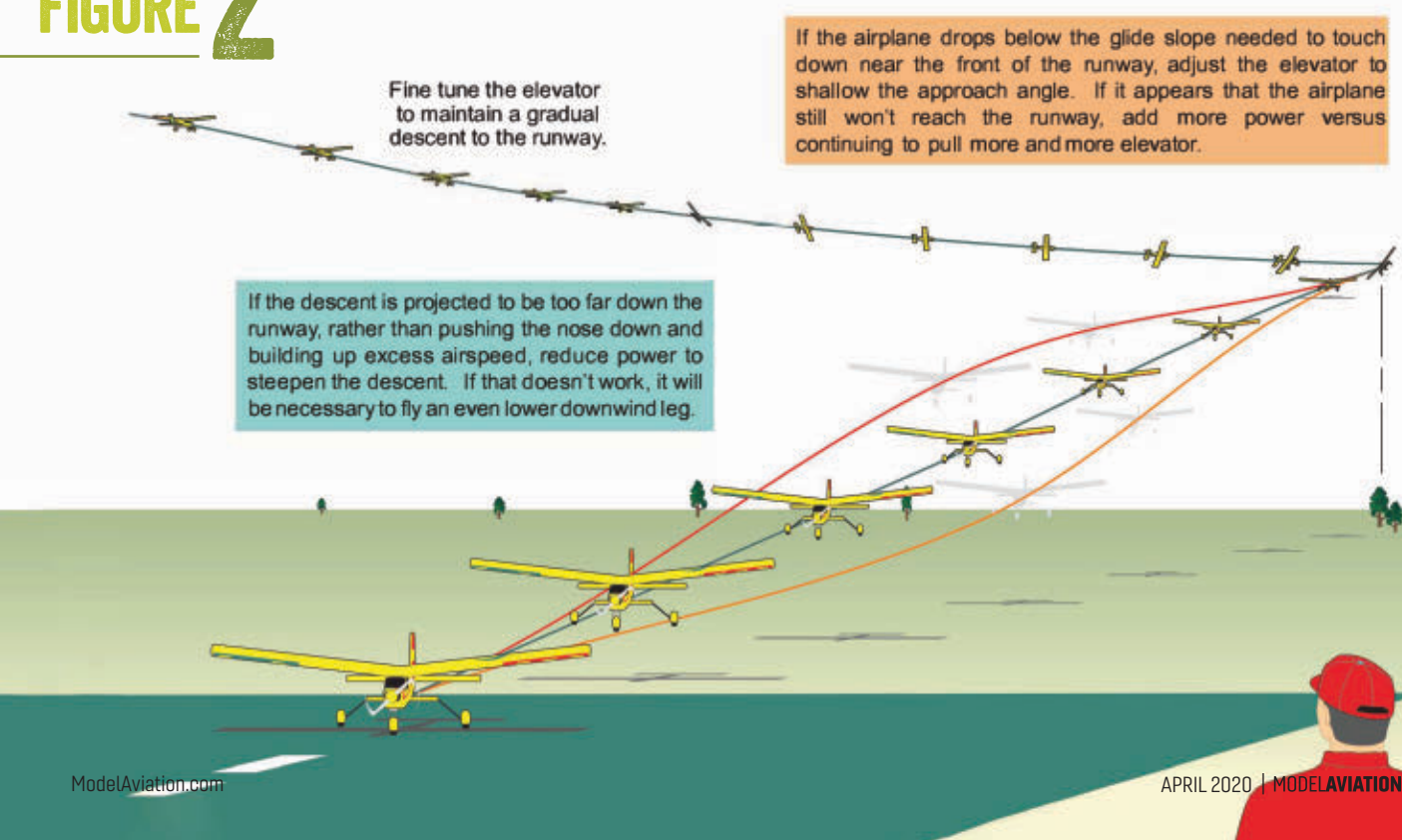
In light of the unknown, many pilots will tend to err on coming in for a landing with extra speed, especially when flying a new airplane, or after being told that it is safer to land with more speed anytime there's appreciable wind. Again, instead of being safer, carrying extra speed makes the landing exponentially more difficult and less forgiving, and, even if the airplane does touch down smoothly, the odds are greater that it will still carry off the end of the runway!

I have seen countless landing mishaps when concerns about rolling off the end of the runway became more important to the pilot than touching down smoothly. The reality is that far more landing gear are torn out each year because of carrying too much speed than because of getting too slow.

As all full-scale pilots are taught, it is preferable for the airplane to touch down at the slowest, safest possible airspeed. Not only does a slower approach shorten how much runway is used, it lessens abuse on the airframe and minimizes any bouncing if the touchdown is less than smooth.

As a rule, the elite pilots who make landing look easy use the same general landing procedure regardless of airplane type or wind (see Figure 2). First, establish a lower downwind to make it easier to control the

FIGURE 2



eventual touchdown location. A throttle reduction is made on the downwind leg to begin a gradual descent while typically holding in and adjusting a small amount of up-elevator throughout the landing setup to manage a gradual (approximately 3°) descent. When you're confident that the airplane will make the runway, reduce the power.

How do you judge whether the airplane is becoming too slow when you can't judge the model's true airspeed by looking at it? The answer is that no matter what type of airplane you're flying or what the wind is doing, the best way to determine whether the airplane has enough flying speed or is getting slow is by "feel."

As most of you know, a wing will start to stall (lose lift) when the angle-of-attack becomes too steep relative to the flight path and, consequently, the airflow over the wing becomes turbulent. Typically, a high angle-of-attack stall is preceded by the pilot inputting more up-elevator in an effort to keep a slow or steep turn from descending too quickly or to extend a glide.

Stalls are nearly always preceded by the pilot pulling increasing amounts of elevator. Regardless of how slow or fast the airplane appears, if you ever find yourself having to add more and more elevator in a turn or on final approach, and you are urged to keep pulling more, don't! You are likely on the verge of stalling and need to reduce elevator and/or add power to increase airspeed and keep from spinning into the ground.

On the other hand, if you're not holding in any up-elevator throughout the landing setup, or sense the need to push forward elevator to steepen the descent, you can be certain that the airplane is flying too fast.

Space does not permit going into all of the details, but some might be interested to know that many of the loss-of-control mishaps that occur during landings are often attributed to getting too slow and/or gusts of wind, are actually caused by adverse yaw (e.g., the inherent opposite yaw that occurs during aileron deflections).

As a rule, adverse yaw becomes more pronounced at lower airspeeds and higher angles of attack, especially when the airplane features a high-lift, flat-bottom airfoil wing. Because of this, many pilots who encounter control problems during landing and think that they need to land faster, actually need to mix (aileron-rudder) or learn to coordinate some rudder with their aileron inputs to prevent adverse yaw.

With that stated, the single best thing that pilots can do to mitigate these problems is so simple that it's often overlooked. That is, instead of trying to guess at what speed to land, take the airplane up to a safe altitude and slow it down until it stalls. It's always a thrill to test-fly a student's new airplane and watch his or her nervous expression change to optimism and confidence when the airplane displays milder-than-expected stall characteristics and remains fairly controllable, even with full up-elevator held in.

Conversely, another model might display a sharp tip-stall tendency and a subsequent rapid loss of altitude until the elevator is reduced. Although that might not sound comforting, it reduces the fear of the unknown and thereby adds to the owner's confidence to at least know what he or she is dealing with before attempting a landing.

The notable exception to the standard approach procedures that are described applies to anyone flying a lightweight park flyer or foamie. Because extremely lightweight airplanes have less inertia, completely shutting off the power during a landing can result in the loss of nearly all forward momentum, resulting in a loss of control because of the lack of airflow over the control surfaces. You should, of course, test this at a higher altitude before attempting a landing.

As a rule, lightweight models often require the throttle to remain above idle nearly all the way to the ground while using the elevator to control the descent rate. This technique is specific to landing lightweight airplanes (and high-speed jets) and you'll have to switch to the previously described landing setup when transitioning to more conventional airplanes.

Happy landings!

RC PODCASTING

Aviation for your ears

By Matt Ruddick
Photos provided by the author
mattr@modelaircraft.org

What's a podcast? Sixteen years after podcasting went mainstream, I still hear that question asked from time to time. I usually answer by describing it as a radio talk show that you can listen to whenever or wherever you'd like.

You can listen through apps on your mobile device, the web browser on your computer, and even the smart speaker you have in your living room can be a conduit for a podcast. Services such as Apple Podcasts, Spotify, and Stitcher provide easy ways to subscribe to the shows you like so that you never miss an episode and you can listen on your own terms.

Podcasts are a great way to be entertained, inspired, captivated, or educated about any topic you can imagine. What makes them great is that the most obscure of topics is likely represented. Would you like to hear a show about knitting? The *Knit Picks* is the show for you! Can't wait for your next Dungeons and Dragons session? Listen to *Critical Role* to stay satiated.

What that means is that, like those hobbies, model aviation is also represented in the world of podcasting, and it's possible you didn't even know it! I want to showcase just a few of the great RC podcasts that are out there.

AMA Podcast

I would be remiss if I didn't begin with AMA's own show, *AMA Podcast*. Although still a young show (our first episode was released in September 2019), *AMA Podcast* has already become a well-received source for up-to-date information from the AMA to its members.

Interviews with top names in the hobby such as Joe Scully, Mason Hutchison, and Joe Bok, as well as in-depth interviews with FAA officials and AMA administration, make *AMA Podcast* a can't-miss show, and one that I certainly hope that its listeners find valuable.

The *AMA Podcast* has a weekly release schedule and episodes average 30 to 45 minutes.

01

01. The *RC Roundtable* interviewing during the 2019 AMA Expo. *RC Roundtable* is a biweekly show with episodes that range from 60 to 90 minutes.

02. *AMA Podcast* host Matt Ruddick (R) attended the 2019 EXPO. *AMA Podcast* has a weekly release schedule. Episodes run approximately 30 to 45 minutes on average.

BK RC Podcast

For helicopter enthusiasts, there are few names that garner as much respect at the flightline as Bert Kammerer and Kyle Stacy, and they're sharing their insights into the hobby on the *BK RC Podcast*.

Their show includes interviews with notable personalities, news from the model helicopter world, instructional topics, and their views on the state of the hobby in general. One episode featured an in-depth conversation about nitro-powered helis and how they fit into the current hobby landscape. The conversations are candid, raw, and insightful, and similar to what you might overhear during nightly cookouts at the International Radio Controlled Helicopter Association Jamboree.

The *BK RC Podcast* is usually released weekly, although there can occasionally be some longer breaks. Episodes average between 60 and 90 minutes.

RC Afterhours

RC Afterhours is a polished show hosted by André Rousseau. What stands out about this particular show is how it features incredibly in-depth interviews with industry professionals. Representatives from Horizon Hobby, Flite Test, and Motion RC have been part of the show during its run, which is unique as of the time of this writing.

André's interview style is disarming and leads to some great discussions about new products coming to the market, and some of the inner workings at some of the hobby's most well-known institutions. Additionally, for those who like a visual element to their podcast, the *RC Afterhours* show live streams the interviews on YouTube as well.

The *RC Afterhours* has a biweekly release schedule and episodes range from 60 minutes to more than 2 hours.

RC Roundtable

Terry Dunn, Lee Ray, and Fitz Walker are three friends who are lifelong modelers. In their podcast, *RC Roundtable*, you truly feel as though you're hanging out with them at the club field on a Sunday afternoon.

Although they occasionally have a guest on the show, the magic is when it's just the three of them chatting about what they have on their benches at that moment, and talking about what they want to build next. Thanks to the diverse interests of the hosts, the *RC Roundtable* often covers topics from scratch-building balsa, to foamie ARFs, to RC boats and cars.

This show also covers the tough topics thoughtfully and with integrity. Last fall, the group released an episode interviewing the candidates for AMA president, allowing each to lay out his platform and vision for the future of the hobby. No topic is off limits for these three friends.

The *RC Roundtable* is biweekly, with episodes that range from 60 to 90 minutes.

The world of podcasting offers a wealth of opportunity to learn and be informed about the latest trends and happenings around our hobby. Not only do I encourage you to check out the podcasts mentioned in this article but look around and maybe you'll find one that offers what you want in a show.

Listen to it on your daily commute, play it while you're in the workshop building your next warbird, or maybe you just might decide to start your own show for others to enjoy.

SOURCES:

Apple Podcasts
https://apps.apple.com

Spotify
www.spotify.com

Stitcher
www.stitcher.com

AMA Podcast
www.modelaircraft.org/podcast

BK RC Podcast
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McGRAW

SUPER COUPON

Customer Rating

20 GALLON 135 PSI OIL-LUBE AIR COMPRESSOR

- Air delivery: 4.0 SCFM @ 90 PSI

NOW $174.99

~~$199.99~~

COMPARE TO PORTER-CABLE $249.99 MODEL: 118903799

SAVE $75

ITEM 56241/64857 shown

12863512

LIMIT 1 - Coupon valid through 5/25/20*

Apache

SUPER COUPON

ULTRA-LIGHT, CRUSH PROOF WEATHER-RESISTANT LOCKABLE CASE

MODEL 2800

Customer Rating

- 11-7/8" L
  9" W
  5-5/16" H

Case contents and locks not included.

SAVE $215

COMPARE TO PELICAN $237.63 MODEL: 1400

~~$27.99~~

NOW $21.99

ITEM 63926/64551 shown

13492932

LIMIT 3 - Coupon valid through 5/25/20*

PITTSBURGH®

SUPER COUPON

18 PIECE SAE AND METRIC T-HANDLE BALL END HEX KEY SET

LIFETIME WARRANTY

Customer Rating

NOW $12.99

COMPARE TO HUSKY $32.10 MODEL: HTHKSM14PCN

SAVE 59%

~~$16.99~~

ITEM 63167/62476/63166/96645 shown

12877322

LIMIT 4 - Coupon valid through 5/25/20*

PITTSBURGH AUTOMOTIVE

SUPER COUPON

1250 LB. VEHICLE POSITIONING DOLLY

- Fits up to 32" x 9" tires

Customer Rating

COMPARE TO SUMMIT RACING $149.99 MODEL: SUM-918045

SAVE $85

~~$89.99~~

NOW $64.99

ITEM 62234/61917 shown

12877496

LIMIT 4 - Coupon valid through 5/25/20*

STORE HOUSE

SUPER COUPON

20 BIN PARTS STORAGE CASE

NOW $5.99

~~$8.99~~

COMPARE TO STANLEY $19.14 MODEL: 014725R

SAVE 68%

Customer Rating

Hardware sold separately.

ITEM 62778/93928 shown

12882303

LIMIT 4 - Coupon valid through 5/25/20*

CENTRAL MACHINERY

SUPER COUPON

Customer Rating

4" x 36" BELT/ 6" DISC SANDER

NOW $64.79

~~$77.99~~

SAVE $84

COMPARE TO RYOBI $149 MODEL: BD4601G

ITEM 5154/64778/97181 shown

12884074

LIMIT 1 - Coupon valid through 5/25/20*

PITTSBURGH AUTOMOTIVE

SUPER COUPON

PNEUMATIC ADJUSTABLE ROLLER SEAT

- 300 lb. capacity

Customer Rating

NOW $19.99

~~$26.99~~

SAVE 71%

COMPARE TO DURALAST $69.99 MODEL: TR6201C

ITEM 61160/63456/46319 shown

12893200

LIMIT 3 - Coupon valid through 5/25/20*

COVERPRO™

SUPER COUPON

10 FT. x 17 FT. PORTABLE GARAGE

Customer Rating

NOW $169.99

COMPARE TO SHELTER LOGIC $290.75 MODEL: 76377

SAVE $120

~~$199.99~~

ITEM 62859/63055/62860 shown

12897219

LIMIT 1 - Coupon valid through 5/25/20*

Bauer

SUPER COUPON

Customer Rating

5" DEEP CUT VARIABLE SPEED BAND SAW

NOW $99.99

~~$134.99~~

Blade sold separately.

COMPARE TO DEWALT $269.96 MODEL: DWM120

SAVE $169

ITEM 64194/63763 63444 shown

12904888

LIMIT 2 - Coupon valid through 5/25/20*

SUPER COUPON

Customer Rating

10" PNEUMATIC TIRE

NOW $3.99

~~$6.99~~

SAVE 50%

COMPARE TO FARM & RANCH $8.09 MODEL: FR1055

ITEM 69385/62388/62409/62698/30900 shown

12905377

LIMIT 5 - Coupon valid through 5/25/20*

FRANKLIN

SUPER COUPON

OSHA/ ANSI COMPLIANT

17 FT. TYPE IA MULTI-TASK LADDER

- Versatile - 24 configurations
- Safe + Secure + Stable
- Super Strong - Holds 300 lbs.
- Weighs 34 lbs.

~~$139.99~~

NOW $109.99

COMPARE TO LITTLE GIANT $298.99 MODEL: XE M17

SAVE $189

Customer Rating

ITEM 63419/67646/62514/63418/63417 shown

12910826

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U.S. GENERAL BIGGER · STRONGER · MORE STABLE SERIES 2 — SUPER COUPON

44" x 22" DOUBLE BANK ROLLER CABINETS

Customer Rating ★★★★★

- 14,000 cu. in. of storage
- 2600 lb. capacity
- Heavy duty 5" casters (2 fixed/2 swivel)

YOUR CHOICE OF 6 COLORS $449.99 ~~$499.99~~

SAVE $2,285

COMPARE TO SNAP-ON MODEL: KRA4813FPBO $2,735

12916264

LIMIT 1 - Coupon valid through 5/25/20*

Item 64446, 64956, 64955, 64954, 64443, 64133

Quantum — SUPER COUPON

588 LUMEN TACTICAL FLASHLIGHT

Customer Rating ★★★★★

SAVE 83%

ITEM 64799/63934 shown

NOW $9.99

COMPARE TO STREAMLIGHT MODEL: PROTAC 1L $59.99

~~$14.99~~

12916736

LIMIT 5 - Coupon valid through 5/25/20*

PITTSBURGH AUTOMOTIVE — SUPER COUPON

1 TON CAPACITY FOLDABLE SHOP CRANE

Customer Rating ★★★★½

- Boom extends from 34" to 45"
- Crane height adjusts from 69-5/8" to 82"

NOW $139.99

SAVE $90

~~$189.99~~

COMPARE TO GOPLUS MODEL: GP-1D1040150 $229.99

ITEM 69512
61858 shown

12925276

LIMIT 1 - Coupon valid through 5/25/20*

HaulMaster — SUPER COUPON

18" WORKING PLATFORM STEP STOOL

Customer Rating ★★★★★

- 350 lb. capacity

NOW $19.99

SAVE 50%

~~$29.99~~

COMPARE TO NEOCRAFT MODEL: 60635 $39.99

ITEM 62515/66911 shown

12926607

LIMIT 4 - Coupon valid through 5/25/20*

CENTRAL PNEUMATIC — SUPER COUPON

3 GALLON, 100 PSI OIL-FREE AIR COMPRESSORS

- Air delivery: 0.6 CFM @ 90 PSI

$59.99

YOUR CHOICE $39.99

HOT DOG
ITEM 69269
97080 shown

PANCAKE
ITEM 61615/60637
95275 shown

Customer Rating ★★★★½

COMPARE TO PORTER-CABLE MODEL: PCFP02003 $98.62

SAVE 59%

13001511

LIMIT 2 - Coupon valid through 5/25/20*

UNION SAFE COMPANY — SUPER COUPON — Customer Rating ★★★★★

FIRE RATED AND WATERPROOF DOCUMENT SAFE

~~$49.99~~

NOW $44.99

COMPARE TO FIREKING MODEL: SS103 $89.87

SAVE 49%

Contents not included.

ITEM 64919

13007246

LIMIT 2 - Coupon valid through 5/25/20*

CENTRAL PNEUMATIC — SUPER COUPON

20 OZ. GRAVITY FEED AIR SPRAY GUN

Customer Rating ★★★★½

- 1.4mm tip included

NOW $9.99

SAVE 80%

~~$15.99~~

COMPARE TO HUSKY MODEL: H4840GHVSG $49.98

ITEM 67181/62300/47016 shown

13104675

LIMIT 4 - Coupon valid through 5/25/20*

CHICAGO ELECTRIC POWER TOOLS — SUPER COUPON

10", 15 AMP BENCHTOP TABLE SAW

Customer Rating ★★★★½

NOW $114.99

~~$144.99~~

COMPARE TO RYOBI MODEL: RTS22 $229

Stand sold separately.

SAVE $114

ITEM 45804/63117/64459/63118 shown

13032174

LIMIT 1 - Coupon valid through 5/25/20*

HaulMaster — SUPER COUPON

3/8" x 14 FT., GRADE 43 TOWING CHAIN

Customer Rating ★★★★★

- 5400 lb. capacity

NOW $19.99

~~$39.99~~

COMPARE TO MIBRO MODEL: 426920 $64.99

SAVE 69%

ITEM 40462/60658/97711 shown

13034854

LIMIT 4 - Coupon valid through 5/25/20*

AMES INSTRUMENTS — SUPER COUPON

12:1 INFRARED LASER THERMOMETER

Customer Rating ★★★★★

NOW $17.99

~~$26.99~~

COMPARE TO GENERAL TOOLS MODEL: IRT657 $49.83

SAVE 63%

ITEM 64310/64626/63985 shown

13036068

LIMIT 3 - Coupon valid through 5/25/20*

JUPITER — SUPER COUPON — Customer Rating ★★★★½

1500 WATT CONTINUOUS/ 3000 WATT PEAK POWER INVERTER

NOW $99.99

~~$129.99~~

COMPARE TO TRAVELLER MODEL: 107055899 $164.99

SAVE $65

ITEM 63427/63432 shown

13042335

LIMIT 2 - Coupon valid through 5/25/20*

SUPER COUPON

4 OUTLET POWER STRIP

Customer Rating ★★★★½

NOW $2.99

~~$3.99~~

COMPARE TO ONE POWER MODEL: PS401 $8.99

SAVE 66%

ITEM 62495/62505/62497/91334 shown

13060520

LIMIT 4 - Coupon valid through 5/25/20*

CHICAGO ELECTRIC POWER TOOLS — SUPER COUPON

VARIABLE SPEED MULTI-TOOL

Customer Rating ★★★★½

NOW $24.99

~~$34.99~~

COMPARE TO DREMEL MODEL: MM20-02H $79

Accessories included.

SAVE 68%

ITEM 63113/67537/63111 shown

13064643

LIMIT 3 - Coupon valid through 5/25/20*

CENTRAL MACHINERY — SUPER COUPON

20 TON SHOP PRESS

Customer Rating ★★★★½

NOW $149.99

~~$189.99~~

- Extreme heavy duty steel construction

COMPARE TO STRONGWAY MODEL: 46260 $379.99

SAVE $230

ITEM 32879/60603 shown

13066530

LIMIT 1 - Coupon valid through 5/25/20*

SUPER COUPON

SUPER GLUE - PACK OF 3

Customer Rating ★★★★½

NOW 99¢

~~$1.69~~

COMPARE TO GORILLA MODEL: 78001 $3.98

SAVE 75%

ITEM 42367

13070210

LIMIT 5 - Coupon valid through 5/25/20*

CHICAGO ELECTRIC WELDING — SUPER COUPON

ADJUSTABLE STEEL WELDING TABLE

Customer Rating ★★★★½

NOW $54.99

~~$69.99~~

COMPARE TO STRONG HAND TOOLS MODEL: TS3020 $139.99

SAVE $85

ITEM 63069/61369 shown

13072385

LIMIT 2 - Coupon valid through 5/25/20*

PITTSBURGH — SUPER COUPON

9 PIECE, 1/4", 3/8" AND 1/2" DRIVE WOBBLE SOCKET EXTENSION SET

LIFETIME WARRANTY

Customer Rating ★★★★½

SAVE 56%

NOW $9.99

~~$14.99~~

COMPARE TO KLUTCH MODEL: 40033 $22.99

ITEM 61278/67971 shown

13072436

LIMIT 4 - Coupon valid through 5/25/20*

BUNKER HILL SECURITY — SUPER COUPON

WIRELESS SECURITY ALERT SYSTEM

Customer Rating ★★★★½

NOW $9.99

~~$14.99~~

COMPARE TO FIRST ALERT MODEL: SFA600 $32.99

SAVE 69%

ITEM 61910/62447/93068 shown

13083935

LIMIT 5 - Coupon valid through 5/25/20*

CENTRAL PNEUMATIC — SUPER COUPON

3/8" x 50 FT. RETRACTABLE AIR HOSE REEL

Customer Rating ★★★★½

NOW $59.99

~~$79.99~~

COMPARE TO KOBALT MODEL: SGY-AIR184 $99

SAVE $39

ITEM 69265/62344/64685/93897 shown

13098191

LIMIT 1 - Coupon valid through 5/25/20*

PITTSBURGH SERIES 2
#1 SELLING JACKS IN AMERICA

SUPER COUPON

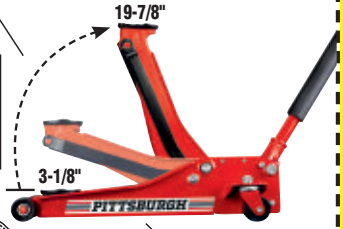
RE-ENGINEERED FOR GREATER PERFORMANCE

3 TON LOW PROFILE STEEL FLOOR JACK

With Rapid Pump® Technology

- Weighs 78 lbs.

Customer Rating



Extra-low profile clearance

NOW $99.99

SAVE $90

COMPARE TO TEQ CORRECT $189.99 MODEL: T830018Z

$109.99

ITEM 56618/56619/56620/56617 shown

AMERICAN SOCIETY OF MECHANICAL ENGINEERS ASME PASE COMPLIANT

13186843

LIMIT 2 - Coupon valid through 5/25/20*

CENTRAL MACHINERY

SUPER COUPON

8", 5 SPEED BENCHTOP DRILL PRESS

SAVE 31%

NOW $54.99

$69.99

COMPARE TO WEN $79.97 MODEL: 4208

Customer Rating

ITEM 38119/62520/60238 shown

13191328

LIMIT 1 - Coupon valid through 5/25/20*

PREDATOR

SUPER COUPON

Customer Rating

2000 WATT SUPER QUIET INVERTER GENERATOR

- 12 hour run time

NOW $449.99

$499.99

SAVE $559

COMPARE TO HONDA $1,009 MODEL: EU2000i

ITEM 62523

13191354

LIMIT 1 - Coupon valid through 5/25/20*

WARRIOR

SUPER COUPON

18V LITHIUM-ION 3/8" DRILL/DRIVER KIT

Customer Rating

$37.99

NOW $27.99

COMPARE TO RYOBI $74 MODEL: P1810

SAVE 62%

ITEM 64118

13192370

LIMIT 5 - Coupon valid through 5/25/20*

Apache MODEL 1800

SUPER COUPON

ULTRA-LIGHT, CRUSH-PROOF, WEATHER-RESISTANT LOCKABLE CASE

- 8-1/8" L
  5-5/8" W
  3-3/4" H

Customer Rating

NOW $9.99

SAVE 74%

$12.99

COMPARE TO PELICAN $39.95 MODEL: 1150

ITEM 64550 63518 shown

Case contents and locks not included.

13494143

LIMIT 4 - Coupon valid through 5/25/20*

THUNDERBOLT MAGNUM solar

SUPER COUPON

100 WATT SOLAR PANEL KIT

Customer Rating

2X MORE POWER

SAVE $142

NOW $149.99

$189.99

COMPARE TO WINDYNATION $292.44 MODEL: SOK-100WP-P30L

ITEM 64335/63585 shown

13201462

LIMIT 1 - Coupon valid through 5/25/20*

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drill master

SUPER COUPON

80 PIECE ROTARY TOOL KIT

SAVE 69%

Customer Rating

NOW $6.99

$9.99

COMPARE TO PROFESSIONAL WOODWORKER $22.76 MODEL: 51832

ITEM 63235/63292/97626 shown

13201644

LIMIT 4 - Coupon valid through 5/25/20*

Haul Master

SUPER COUPON

TRIPLE BALL TRAILER HITCH

Customer Rating

NOW $19.99

$31.99

COMPARE TO REESE TOWPOWER $59.99 MODEL: 10117799

SAVE 66%

ITEM 64311/64286 shown

13211475

LIMIT 4 - Coupon valid through 5/25/20*

PITTSBURGH AUTOMOTIVE

SUPER COUPON

300 LB. CAPACITY ATV/LAWN MOWER LIFT

NOW $74.99

$99.99

SAVE $46

Customer Rating

COMPARE TO MAX LOAD $121.47 MODEL: 38028

ITEM 60395/62325/62493/61523 shown

13219471

LIMIT 2 - Coupon valid through 5/25/20*

PITTSBURGH

SUPER COUPON

4" RATCHETING BAR CLAMP/SPREADER

LIFETIME WARRANTY

Customer Rating

SAVE 84%

NOW 99¢

$1.99

COMPARE TO IRWIN $6.49 MODEL: 1964747

ITEM 46805/62242/68974 shown

13233711

LIMIT 4 - Coupon valid through 5/25/20*

PORTLAND

SUPER COUPON

14" ELECTRIC CHAINSAW

Customer Rating

NOW $39.99

$49.99

SAVE 50%

COMPARE TO CRAFTSMAN $80.74 MODEL: 071-45247

ITEM 64498/64497 shown

13239819

LIMIT 2 - Coupon valid through 5/25/20*

Kenway

SUPER COUPON

12 VOLT LED MAGNETIC TOWING LIGHT KIT

Customer Rating

NOW $22.99

$34.99

COMPARE TO BLAZER $42.65 MODEL: C7300

SAVE 46%

ITEM 64282

13242938

LIMIT 2 - Coupon valid through 5/25/20*

SUPER COUPON

.50 CAL METAL AMMO CAN

Customer Rating

NOW $10.99

$13.99

COMPARE TO GAME WINNER $24.99 MODEL: FSGWHE1030

SAVE 56%

ITEM 63750 56810/63181 shown

13248542

LIMIT 4 - Coupon valid through 5/25/20*

BADLAND

SUPER COUPON

Customer Rating

2500 LB. ELECTRIC WINCH WITH WIRELESS REMOTE CONTROL

- Weighs 14.3 lbs.
- 11-1/8" L x 4-1/2" H

SAVE $140

NOW $49.99

$69.99

COMPARE TO SUPERWINCH $189.99 MODEL: 1125220

ITEM 61258/61297/63476/61840 shown

13262390

LIMIT 2 - Coupon valid through 5/25/20*

PITTSBURGH AUTOMOTIVE

SUPER COUPON

4" MAGNETIC PARTS HOLDER

Customer Rating

NOW $1.29

$2.99

SAVE 78%

Hardware sold separately.

COMPARE TO TITAN $5.99 MODEL: 11194

ITEM 62535/90566 shown

13262840

LIMIT 4 - Coupon valid through 5/25/20*

WARRIOR

SUPER COUPON

4-1/2" CUT-OFF WHEELS FOR METAL - PACK OF 10

Customer Rating

NOW $5.99

$8.35

COMPARE TO DIABLO $19.97 MODEL: DBD045063710F

SAVE 70%

ITEM 61195/45430 shown

13269978

LIMIT 5 - Coupon valid through 5/25/20*

ADMIRAL

SUPER COUPON

Customer Rating

12" DUAL-BEVEL SLIDING COMPOUND MITER SAW WITH LED AND LASER GUIDE

NOW $179

$199.99

COMPARE TO RYOBI $269 MODEL: TSS120L

SAVE $90

ITEM 64686

13272519

LIMIT 1 - Coupon valid through 5/25/20*

SUPER COUPON

SOLAR ROPE LIGHT

- 16 ft. of white LEDs

NOW $7.99

$12.99

SAVE 75%

COMPARE TO HAMPTON BAY $32.97 MODEL: 84130

Customer Rating

ITEM 63941/62533/64625/68353 shown

13273106

LIMIT 4 - Coupon valid through 5/25/20*

ARMSTRONG

SUPER COUPON

TILTING FLAT PANEL TV MOUNT

- 176 lb. capacity

Customer Rating

NOW $14.99

$26.99

SAVE $85

COMPARE TO ROCKETFISH $99.99 MODEL: RF-TVMLPT03

ITEM 64355 64356 shown

13279986

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The Wright Stuff

Bill of materials and tools

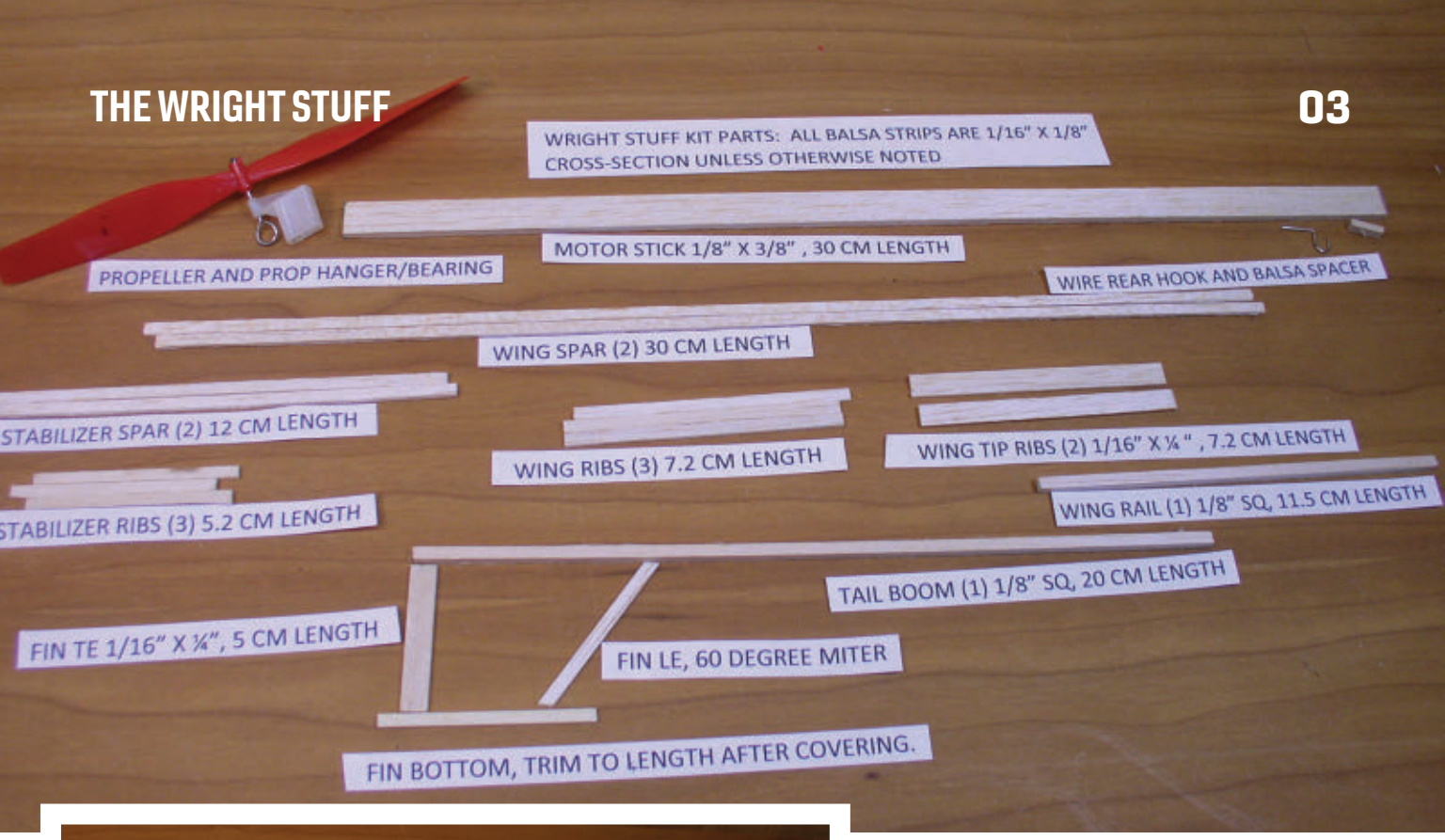
- Balsa wood strips (usually come in 36-inch lengths)
  - (2) 1/16 x 1/8
  - (1) 1/16 x 1/4
  - (1) 1/8 x 3/8
- (1) Gift-wrap tissue
- Superglue
- Glue stick
- Straight pins
- Modeling clay (for ballast and center of gravity adjustment)
- Masking tape
- Waxed paper
- Propeller and hangar assembly
- Single-edge razor blades
- 1/16-inch wide rubber strip (FAI Model Supply)
- Scissors

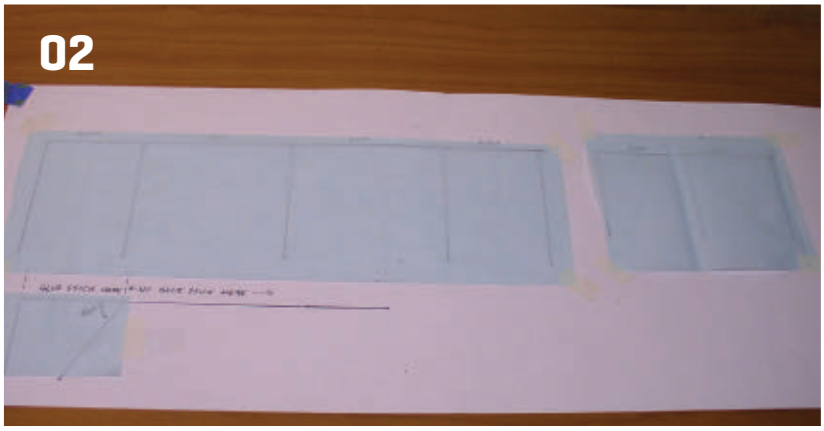
Build the Illinois Science Olympiad FF model

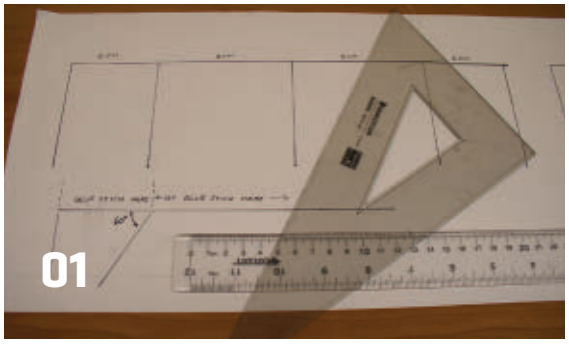
By Chuck Markos
Photos by the author
cmarkf1@gmail.com

The inspiration for this airplane is many people's favorite starting kit: the famous Delta Dart. Taking advice from Henry David Thoreau to "simplify, simplify," basic changes to the Delta Dart design were made.

The most significant change in the model was to move away from Delta Dart-style dihedral and wing-mounting procedures. Additionally, most flying surfaces are rectangular, so cutting balsa wood sticks at precise angles is unnecessary. Simplification is made possible by the availability of adhesives that did not exist when the original Delta Dart was first conceived. The construction method is to attach balsa wood to the covering in roughly the same way as a Delta Dart is constructed.







The design meets 2020 Science Olympiad specifications for the Wright Stuff event. It was used for building sessions at a Coaches' Clinic sponsored by the Illinois Science Olympiad in November 2019.

Specific goals were established for the application. Rules included no special tools, no building boards that would accept pins, no potentially toxic spray adhesives, and no special materials. All of the materials, with perhaps the exception of a propeller, can be found at hobby dealers, craft shops, office supply stores, party stores, or hardware shops.

The prototype, shown in one of the photos, was a stable flier. It successfully flew in clockwise circles or counterclockwise circles, which provided bonus scoring. If the model is not intended for Science Olympiad competition, the propeller does not need to be reduced from the 14-cm (5.5 inches) diameter to 8 cm.

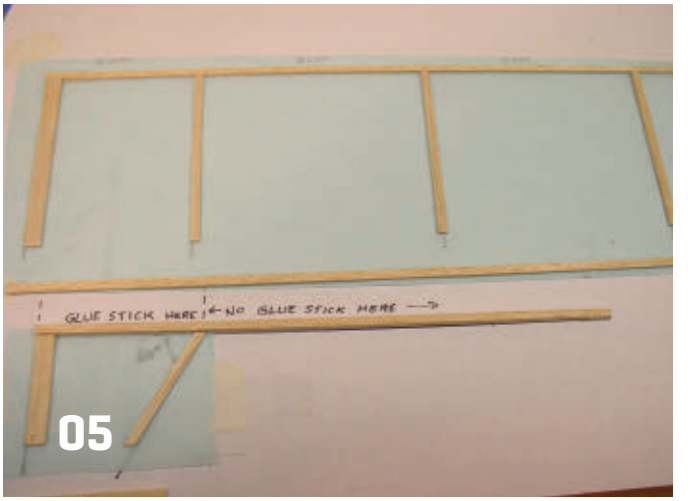
The prototype required 1.5 grams of ballast to bring it to the 8-gram competition specification. Without those two specifications, the airplane might be capable of 60-plus-second flights indoors.

Construction

Construction starts with simple plans—not plans in the ordinary sense of the word for building a model aircraft—but a guide to make sure that prefabricated parts end up in the correct place. Photos 01 and 02 show the wing and tail end of the fuselage and the stabilizer. A felt-tipped pen, straightedge ruler, and a drafting triangle can be used. The plans are on two sheets of 8.5 x 11-inch paper joined along the short edge to form an 8.5 x 22-inch sheet.

The wing diagram shows the location of balsa wood for the aircraft's leading edge (LE), ribs, and stabilizer. The fin diagram is a trapezoid that shows the location for a tailboom, as well as three balsa wood parts for its LE, trailing edge (TE), and bottom edge.

To speed things up at the Coaches' Clinic, where time was limited, all of the pieces were prefabricated to the correct dimensions except for the fin bottom that is trimmed to size after construction (Photo 03). Much use is made of 1/8 x 1/16 wood strips similar to what are used on the Delta Dart.



The airplane is built on top of its covering material. In this case, it is gift-wrap tissue (Photo 02). It is best to use a lighter tissue color so that the underlying diagram remains visible. The plans are taped to a flat surface at four corners.

Use masking tape to attach the tissue to the plans. Each balsa component is coated with a glue stick on its wide side then placed on a line of the tissue-covered plans (Photo 04). A felt-tipped pen is used to identify which side of the balsa is coated with glue.

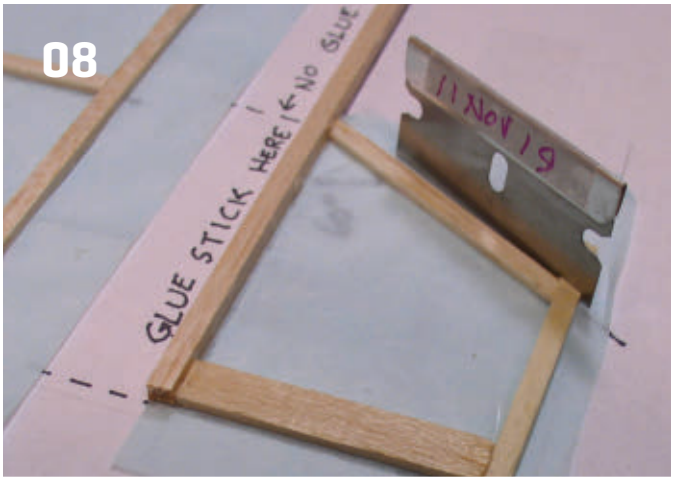
After the wing's LE is in place, ribs are added using a glue stick. The best procedure is to place a rib end against the LE with no space in between. When this step is completed, the structure is in a "comb" configuration. All of the ribs are glued in place before the TE is added, again with no visible space between the rib end and the TE. Gluing the ribs to the edges will come later.

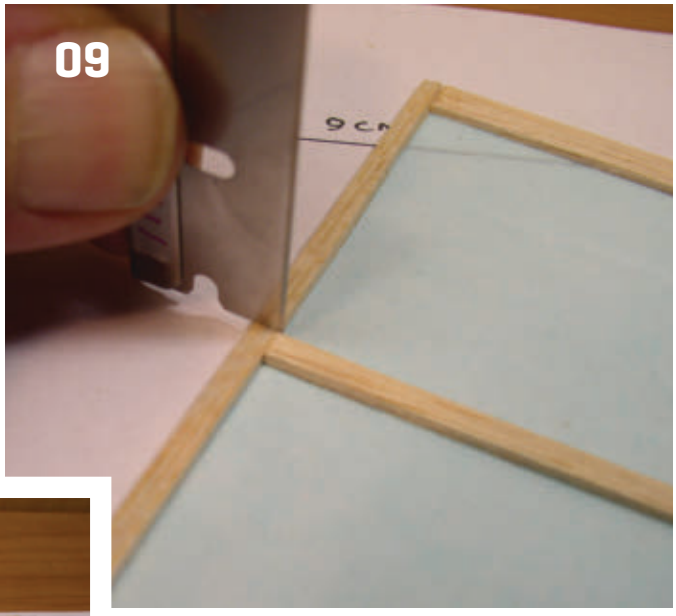
For the fin and tailboom, no glue is used on the forward part of the tailboom. The fin's wide TE will allow the addition of a moveable rudder to help adjust the flight circle direction. It was made from 1/16 x 1/4-inch balsa glued to two short lengths of #24 copper wire hinges.

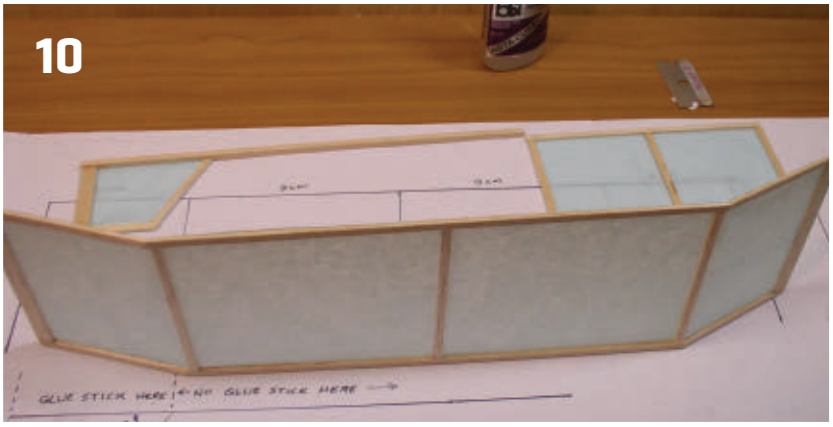
The structures are shown in a "ladder" configuration after all of the pieces have been attached with a glue stick. Other locations will be glued later. Just a small drop of glue will do (Photo 06). Avoid large drops that could seep through the covering and stick your construction to the plans. Place a thin sheet of plastic between the tissue and plans before gluing to avoid that.

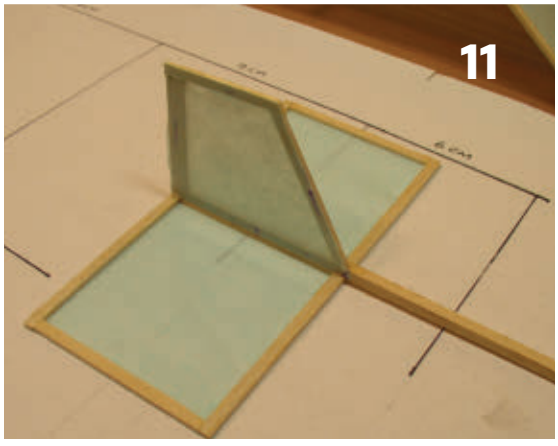
Use a scrap of balsa wood to help force the superglue into the joint immediately after the drop is placed (Photo 07). Waiting will allow the glue to set before it is spread. Cut away excess balsa from the fin tip. Try not to cut into the work surface (Photo 08). A partial cut, followed by breaking away the unneeded part, works well.

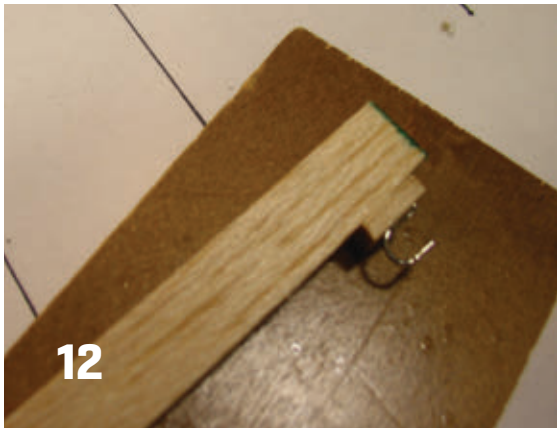
As tape from the corners of the tissue is removed, hold the balsa structures down to avoid damage. Carefully remove all three structures from the plans











in case any adhesions might have occurred. Cut away excess tissue with a new, sharp razor blade while holding the structure away from the work surface.

Trim away tissue starting in the middle of a section and not from the ends. Hold the structure with one hand and insert a corner of the blade into the tissue where it meets the balsa wood. Hold the blade at a 45° angle and draw it immediately adjacent to the balsa wood to trim away tissue.

If you feel any resistance, it means that your blade is cutting into wood. Stop before you go too far. After the blade travels to the end, put it aside. Grip the structure at its opposite end, reinsert the blade at the location where the previous cut started, and draw to the other end.

All paper has a grain direction that can be determined by how it tears. It will tear in a reasonably straight direction with the grain but will travel sideways when tearing against the grain. The supplied tissue for this project was chosen so that its grain travels in the long direction of each part. It is also easier to razor-trim the tissue going with the grain than it is going against the grain. When going against the grain, it is best to use a sawing motion when moving the blade through the tissue.

Use the dull edge of a razor blade to crush a dent (Photo 09) at four places into the wing edge that is adjacent to a rib at its outer side (closest to the wingtip). Bend the wingtips up by gently breaking the LE and TE at the crushed locations. Hold the wing with your finger and thumb from both hands on either side of each dent while bending.

The covering is finally on top as you work (Photo 10). Up until now, all of the work has been done on the bottom side of the wing. Support the wing center with two blocks of 3/4-inch wood. Use another block to hold the wing on the two blocks. Wingtips are held

flat on the work surface with another block at each tip.

Glue the broken joint and adjacent rib with superglue. A dusting of baking soda will accelerate the curing process. Excess baking soda can be blown away.

The wing rail is glued to the center of the wing only at the juncture of the rib to the LE and TE. Make sure the overlapping rail is equal for both sides. It will be used to hold the wing to the fuselage with masking tape. Glue the tailboom and fin to the bottom side of the stabilizer at the juncture of the stabilizer's center rib and the LE and TE. Finally, all of the junctures of ribs and edges have been glued together!

The rear hook and spacer block are assembled on the fuselage (Photo 12). There are tiny holes in both the spacer block and the rear of the fuselage to accept the hook wire that was fabricated from a straight pin. The hole in the end of the fuselage has been marked.

Put some glue into any gaps and quickly push the assembly together before the glue cures. Add more glue wherever the wire meets the wood. The tailboom contains the fin and stabilizer and is glued onto the fuselage.

If the full-size propeller is to be cut to an 8-cm diameter, the propeller blade is marked to show where to cut it (Photo 13). A pair of scissors can be used.

To attach the wing, use two pieces of 5- to 6-cm lengths of masking tape. Attach the tape to waxed paper to split it in half (Photo 14). Start the tape on the fuselage as shown. Place the wing rail on the fuselage next to the tape. Wrap the tape tightly around the rail and fuselage. Repeat for the front of the wing.

To adjust the wing incidence, remove the tape from either end to insert a shim between the wing rail and the fuselage. Use fresh tape to rewrap it (Photo 15). If the airplane dives or does not gain altitude, the shim goes in front. To correct a stall, the shim goes in back. Shims can be made from various thicknesses of cardboard.

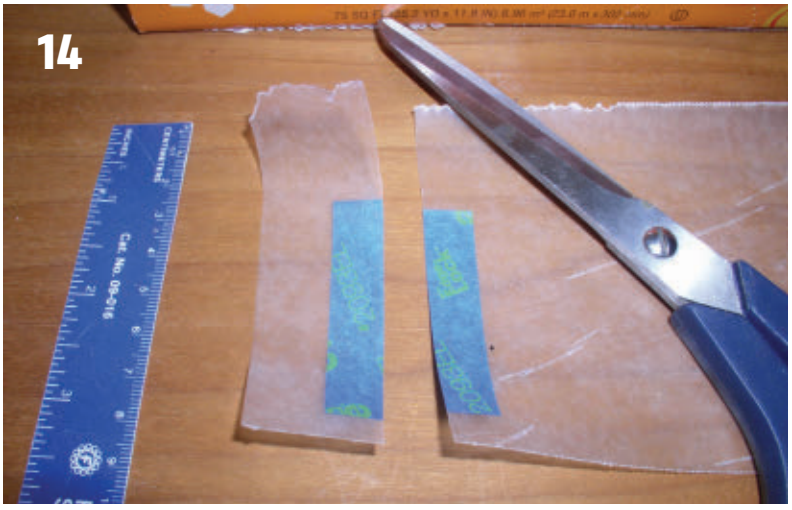
Flying the Model

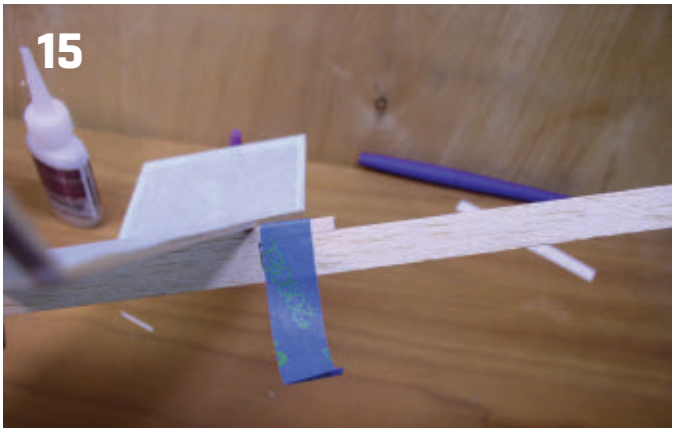
To fly this airplane, you need a room that is roughly the size of a school gym. Make sure the HVAC fans are turned off. Power is obtained from a rubber strip tied into a loop. For an 8-cm diameter propeller, use FAI Model Supply 1/16-inch rubber strip; for a 14-cm propeller, use 3/32-inch rubber.

It's always best to lubricate the motor before winding it. Spray the inside of a plastic bag with silicon oil then lubricate the rubber inside the bag so that your hands stay clean. Many brands of silicon oil can be found in big box stores such as Home Depot, Menards, and Lowe's.

A good winder and propeller are available in the AMA Alpha kit that is sold by AMA.

Additional information regarding building and flying Wright Stuff model airplanes can be found at the address listed in "Sources." Of special interest is an article that describes using grocery-store plastic bags as covering using water-soluble contact cement.





SOURCES:

Science Olympiad/Wright Stuff
www.soinc.org/wright-stuff-c

FAI Model Supply
(440) 930-2114
www.faimodelsupply.com

AMA Alpha
(800) 435-9262
https://shop.modelaircraft.org/shop/Toys/7

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Spektrum Smart technology gives us access to a wealth of data when using Spektrum Smart batteries, such as chemistry type, cycle count, charge rate, error log, and more. Programming options allow you to custom-tailor the Smart LiPo battery to your needs.

WATCH A VIDEO ONLINE!

Access additional content by visiting www.ModelAviation.com/bonuscontent.

KNOW MORE ABOUT YOUR BATTERIES

Spektrum Smart Technology

By Jay Smith | jays@modelaircraft.org
Photos by the author

WHEN THINKING ABOUT what is classified as a "smart" device, likely a modern cellphone is what comes to mind for most people. However, TVs, microwaves, refrigerators, and other devices that can connect to the internet or other networks are also given that designation. Some feel that being connected doesn't necessarily mean a device is "smart," but it must also provide some type of useable benefit.

As someone who has adopted smart products at home, such as speakers, smoke detectors, and a thermostat, I was excited and eager to learn more about Spektrum Smart technology that would allow me access to more information about the batteries and the devices to which they are connected.

LiPo batteries with Spektrum Smart technology have an installed microchip on every battery that feeds information through a data cable in the new IC3 and IC5 connectors. These batteries store unique data such as the chemistry type, cycle count, charge rate, error log, and more.

Most intriguing to me was the Smart Discharge feature on the batteries. LiPo batteries will perform better if kept at a storage charge when not in use. Leaving LiPos fully charged for an extended period of time will increase resistance and reduce capacity.

When programmed with a Spektrum Smart Charger, Smart Batteries will automatically discharge to your predetermined storage voltage when they are left to rest for a time period that you choose, between 12 and 240 hours. Although it is a low discharge current of approximately 100 mAh, this unique feature results in longer battery life expectancy and better performance throughout the life of the pack.

At A Glance

S1500 DC Smart Charger Specifications

Battery balance connector: JST-XH
Battery temperature monitoring: Yes (temperature sensor included)
Battery type: 1S to 6S LiPo, LiFe, LiHv; 1C to 16C NiMH, NiCd, Pb
Circuit breaker: Yes
Cooling method: Fan
Display: 2.4-inch 320 x 320 IPS LCD
Height: 1.9 inch
Input voltage: 8 to 30 volts
Integrated balancing: Yes (internal balancer and external adapter)
Length: 3.7 inches
Low-input voltage protection: Yes
Material: Plastic case
Maximum charge rate: 26.1 volts, 20 amps
Model memory: Smart ID
Output connector: IC3 (compatible with EC3)
Over-current protection: Yes
PC connectivity: Yes (USB, external adapter required)
PC required: No
Peak detection: Yes
Reverse polarity protection: Yes
Safety timer: Yes
Selectable charge rate: Yes (incremental [0.1-amp increments])
Short-circuit protection: Yes
Software updates: Yes (via USB port)
Thermal protection: Yes
Type: DC-powered Smart Battery charger
Weight: 8.5 ounces
Width: 3.8 inches
Price: $119.99

Another simple but exciting feature about the Smart Batteries is that the orange IC3/IC5 connectors are much easier to unplug than the older blue EC3/EC5 connectors. In my testing, my thumbs and index fingers have been much happier with connecting—and especially disconnecting—the new batteries.

S1500 DC Smart Charger

I selected the S1500 Smart Charger because it was the most powerful charger at 500 watts, and I wanted the ability to charge my 6S 5,000 mAh batteries at 1C or above. It is important to point out that although the charger is marketed to quickly charge large, high-capacity, high-cell-count batteries, an adapter to connect batteries with IC5 or EC5 connectors is not included and needs to be purchased separately (Adapter: IC3 Battery/IC5 Device SPMXCA507).

The adapter that is pictured connects the batteries with IC5 or EC5 connectors, such as this 6S 5,000 mAh battery. It is not included with the charger or cell checker and needs to be purchased separately.

Spektrum Smart chargers and the cell checker are compatible with the blue EC3 connectors found on older E-flite batteries.

LiPo batteries with Spektrum Smart technology have an installed microchip on every battery that feeds information through a data cable to the new IC3 and IC5 connectors.

Included in the box you will find the Spektrum S1500 DC Smart charger, an IC3/banana power supply cable, and a product manual. This DC-only charger allows it to provide a higher wattage, so to use the charger you will also need a power supply.

This capable charger takes up a small footprint and incorporates the balance and battery connections directly on the side of the unit; no banana plugs or balance boards are used.

Navigating the charger is done using the scroll wheel that is similar to an iPod for those who are familiar. It works reasonably well but is not as smooth as an iPod. Slide your finger clockwise around the touch menu scroll wheel to scroll down a menu

The Spektrum S1500 charger takes up a small footprint but provides a lot of information about the connected battery, especially if it is a Spektrum Smart battery.

When charging, discharging, or using the storage mode, you can always see individual cell voltages on the main screen.

The Smart Checker provides information about the number of cycles and events such as over-discharge and overheating. It also adjusts Smart battery settings such as the auto-storage timer and preset charge current with Spektrum Smart batteries.

list. Slide your finger counterclockwise to scroll up a menu list. Press and release the menu button to select a menu item. While on the home screen, a short press of the menu button enters the task settings, and a long press enters the system settings.

When connecting a battery, the options are Charge, Discharge, and Storage. Based upon the information provided by the battery, either from the balance port or the Spektrum Smart technology, the charger will set the basic parameters for the battery that is connected. The user can easily edit or change those settings. As an example, when charging my 6S 5,000 mAh LiPo battery, I set the charge rate at 1C.

The System Settings menu provides the ability to tailor some options, such as Backlight (automatic, low, medium, or high), Volume (off, low, middle, or high), Touch Sensitivity (set as low or high), and Completion Tone (select single tone or repeating). You also have the ability to select a language.

I have used the S1500 charger with a few different batteries, including those made by other manufacturers, without issue. The charger was even able to balance a 6S pack that had three cells lower than the rest because I had used a lighting system. This was after another charger was unable to bring all of the cells into balance.

The S1500 charger packs several useful features, including a USB port, software update port, safety timer, protection against heat, reverse polarity, short circuit, over-current, and low-input voltage. When combined with a Spektrum Smart battery, this charger really shines by providing much more data than is typically available with a conventional charger.

Smart 30-Amp Power Supply

The Spektrum SPMXC10201 power supply connects to a 100- to 240-volt AC outlet and provides consistent DC power at 12 to 18 volts for chargers at up to 30

When plugging in the balance plug on the left side of the cell checker, you will want the red wire facing down and the balance plug should be connected at the top of the balance port closest to the IC3 connector.

At A Glance

Smart 30-Amp 540-Watt Power Supply Specifications

Type-switching DC power supply
Input voltage AC: 100 to 240 volt
Input AC frequency: 50 to 60 Hz
Input fuse: 10 amps
Output voltage: 12 to 18 volts DC +/- 0.5 volts
USB supply: (Two) 5 volt (1 amp total)
Maximum current: 30 amps at 540 watts (total)
Output display voltage and current
Overload protection: ≤ 31 amps, 500 MS
Output voltage ripple: < 150 megavolts
Power efficiency: 89%
Over-temperature protection: <65°C (0-104°F)
Cooling: Two automatic fans
Output connectors: (Two pair) bullet/banana plug sockets
Weight: 3.57 pounds
Price: $109.99

At A Glance

Spektrum XBC100 Smart Battery Checker and Servo Driver Specifications

Battery balance connector: Included for testing LiPo batteries
Battery temperature monitoring: Yes
Battery type: 1S to 8S lithium; 1- to 10-cell NiCd/NiMH
Balancing cell accuracy: <0.005 volts
Connector type: IC3
LCD: Yes
Servos: Also tests servos without having to connect a radio and receiver
Voltage: +/-0.005 volts at 4.2-volts measurement accuracy
Voltage range: 5 to 36 volts
Price: $39.99

A dial on the front controls the adjustable power output from 12 to 18 volts. The LCD display clearly indicates output voltage and current, making adjustment precise.

amps continuous (up to 540 watts).

The power supply has two main output ports that power dual DC chargers. It also incorporates two 5-volt USB ports. A dial on the front controls the adjustable power output from 12 to 18 volts. The LCD display clearly indicates output voltage and current, making the adjustment precise.

I appreciate that the power supply incorporates a power switch and the all-metal design promotes rapid cooling. The fan only needs to run occasionally. For safety, the power supply features protection against over-temperature, overloading, and short circuits.

The Smart 30A Power Supply pairs nicely with the Spektrum Smart Charger and I will likely be adding a second smart charger when flying season begins.

XBC100 Smart Battery Checker

The XBC100 works much like other battery checkers when using non-smart batteries. Connecting a Smart Battery really unlocks its potential by offering a simple-to-use battery checker that provides all of the integrated parameters such as over-discharge and overheating. Smart Battery settings such as auto-storage timer and preset charge current can also be adjusted.

After unboxing the cell checker and installing the included screen protector and lanyard, I read the included manual. I was curious about the proper way to connect the balance plug on a non-smart battery to the checker and observe proper polarity. To my surprise, no illustration or information is provided beyond using the balance connector when connecting a conventional LiPo battery to the XBC100. Connecting the main (non-Smart Battery) connector to the battery checker will display the full pack voltage.

When plugging in the balance plug on the left side of the cell checker, you will want the red wire facing down. The balance plug should be connected at the top of the balance port closest to the IC3 connector. My first attempt had the plug inserted the correct way, but I connected it to the bottom part of the balance port on the checker. There was no ill effect other than the checker not working properly until I moved my connection to the top of the port.

When connecting a Spektrum Smart Battery, you will use the IC3 main battery connector. If you are using larger cell-count batteries that have the IC5 connector, you will need to purchase an adapter to connect the battery (adapter: IC3 battery/IC5 device SPMXCA507).

Press and hold the menu button when connecting a Smart Battery to the battery checker to enter the system settings for the battery. Smart Battery menu options include Auto Storage, which defines how long the battery waits before initiating the auto-storage function. Storage Voltage defines the storage voltage that the battery will set for auto storage. Charge Voltage defines the maximum allowable voltage. Exception Record allows you to check the record of over-charge, over-discharge, and over-temperature. Back exits the menu.

Integrated Servo Tester

A handy feature that is built into the XBC100 Smart Battery Checker is a helpful PWM-out port that is facilitated to be used as a servo tester. This allows you to check control ranges on any modern servo or ESC. Users can test for binding and current draw right from the checker; no special inline meter is required.

After you have connected your servo, simply select Auto CW/CCW. This option is used to cycle the servo, which sweeps back and forth through the full servo travel. As it goes through the full range of motion, watch the LED screen to monitor the current. You can also manually adjust the servos output if you desire.

Qualcomm 3.0 USB Charge Port

Although this feature is unlikely to be used often in a home setting, it can be quite helpful when you are at the field without easy access to electricity. Just plug in a charged battery and hit start USB Charging. The XBC100 becomes a fast-charging power bank ready to keep your Spektrum Smart transmitter and mobile devices charged. It supports Qualcomm QC 2.0/3.0 and is compatible with BC1.2 and Apple devices. The maximum output is 12 volts/2 amps.

The Spektrum XBC100 Smart Battery Checker and Servo Driver packs a lot of useful features into this small device. Like all of the Spektrum Smart products, the checker provides a lot of functionality, but connecting a Smart battery is when it really shines.

The power supply has two main output ports with the ability to power dual DC chargers. It also incorporates two 5-volt USB ports.

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01. The top left of the transmitter has two digital trim buttons, a dial, two 3-position switches, and two 2-position switches with a momentary third position setting.

02. The top right of the transmitter has three 3-position switches, two digital trim buttons, a dial, and a 2-position switch. There are also two dials available on the front of the radio to the left of these.

03. This is a front view of the radio with the model screen displayed and folding antenna extended.

A QUALITY RADIO AT A REASONABLE PRICE

Graupner mz-16 2.4 GHz HoTT Transmitter

By Greg Gimlick | maelectrics@gimlick.com
Photos by the author

GRAUPNER HAS BEEN a leading name in radios for years. It was once considered to be primarily a European radio, where it garnered a large market share, but it's been established in the US for a long time and its market share is growing.

Recent changes within the Graupner line include true channel designations, dual radio frequency (RF), an MP3 module, Bluetooth, Wi-Fi, and a host of other features. The gorgeous, big, color touch screen was reason enough to attract me.

The mz-16 is a full-featured, high-end radio that is available to regular modelers at less than high-end prices. It certainly isn't inexpensive but compared with others on the market with similar features, it's in line and comes with the Graupner reputation of quality and service.

A true 16-channel transmitter and a line of telemetry capable receivers, some incorporating flight controllers, brings a professional-level radio with features that seem to go on forever.

First Impressions

I was kind of like a kid at Christmas waiting for the delivery driver to bring my new radio. I had been following the press release information about the mz-16 and jumped on the newest version when it was available. It arrived solidly packed in a foam box to protect it, and everything was included to get going—even a real, printed manual! Oh, how I love a real, printed manual!

I pulled the radio from the box and immediately had to try the gimbals. I had heard some complaints that they weren't hall-effect gimbals, but since one of the best radio gimbals I ever used wasn't hall effect, that didn't influence my buying decision. I was right not to be concerned because these machined, aluminum, quad-bearing gimbals feel great! They are smooth, with no discernable lack of centering or stumbles, through the full range of motion.

The sticks are easily adjustable for length, and tensions are modified by screws in the back without needing to open the radio. The grip and balance

felt good to me although it's heavier than my other radio. A preinstalled neck strap balancer bracket rotates to the side for easy access to the power switch. Nicely done.

I'm a neck strap user, so I connected the included strap and checked it for balance. It was good for me. I spent some time getting the feel of the stick and switch positions.

My hands are large and I found everything comfortable with the regularly used switches in easy reach. Varying lengths and feel made them easy to differentiate by touch.

I plugged the radio in to charge while I sat down with the manual for some quality time. The battery is a 1S 4,000 mAh LiPo that should provide good run time, but there is plenty of room in the battery compartment if a larger one is desired.

Widgets, Decks, and HoTT

Terminology often trips us up as we look at one radio or another. Manufacturers try to distinguish themselves from the crowd by labeling their features in a unique way. It can be confusing at first, but with a little explanation, things become clear.

I can't emphasize enough to look at the professional tutorial videos by Graupner. These are extremely well done, and time spent watching them while you wait for your radio to arrive will be time well spent. I felt like I knew the radio by the time it got here. The videos also familiarize you with the terminology.

- HoTT stands for Hopping Telemetry Transmission. It uses frequency-hopping spread spectrum technology (FHSS) and incorporates real-time telemetry. Keep in mind that this is not compatible with any other radio claiming to use FHSS protocol.
- Decks: Think of decks as screens. Each model has six decks that can be assigned to either individual models or globally. In other words, you have six screens to customize however you want.
- Widgets: Each deck displays presentation blocks filled by information or actions. These can be selected and arranged to suit you. They can vary by size when you define how many presentation blocks each one occupies. Timers can occupy enough blocks to be easily visible at a glance; others can use fewer blocks if the information doesn't need to stand out. You can designate one to be receiver voltage from telemetry and even customize it to change colors when it drops below a certain level. This is real-time information at a glance.

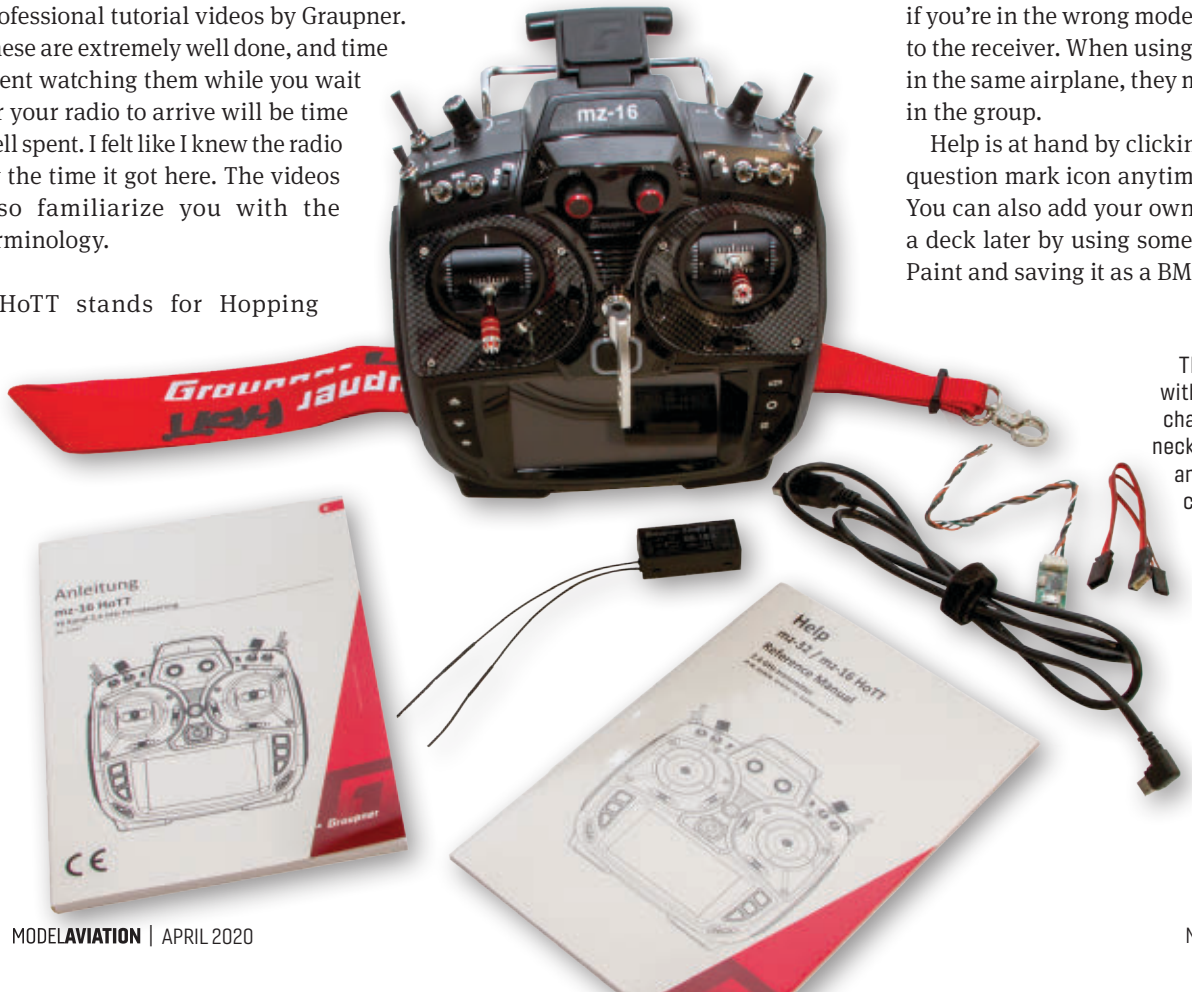
You can design your decks and widgets for each individual application or have a custom layout for each model. I've adjusted mine as I got used to the radio and how I want them for various models. There is a great Graupner tutorial on editing widgets and decks.

First Time Out of the Box

When you first unbox your radio, it will take you through a logical sequence of items to define according to your country, language, etc. This is a quick process, but an important one because you'll define your default measurements, temperature scale, voice language, stick mode, etc. These will be global unless you define something different for a particular model or group type.

The mz-16 can bind two receivers for any model. That allows up to 16 total channels, and each is user definable. Binding can be by group or global. If you globally bind receivers, be aware that they will respond to any model chosen, so there is no guarantee if you have the wrong model selected, the receiver will ignore it. I recommend binding each receiver to the individual model (group) you'll be using, so if you're in the wrong model, it won't talk to the receiver. When using two receivers in the same airplane, they must be bound in the group.

Help is at hand by clicking on the little question mark icon anytime you need it. You can also add your own help notes to a deck later by using something such as Paint and saving it as a BMP image.



The mz-16 arrives with two manuals, a charge/USB cord, a neck strap, receiver, and a USB adapter cord for updates.

Customize Your Programming

As you set up a model, you'll find there are the usual stock templates available and default decks with widgets generally used by most people. From there it's an open slate if you want to define custom decks and widgets. You could conceivably have a different set of decks and widgets for every model you program. After I determine which widgets I depend on and define the deck, I use them for multiple setups.

Switches can be defined to do whatever you want them to do. Servo assignments can also be freely assigned. Do you love flight modes (phases)? You have multiple modes you can define for each model. Take a look at the list of things you can define to suit your needs:

- Eight selectable flight modes
- Eight wing types, six delta-wing types (total 14), and three tail types
- Multiengine control (four)
- Six user-designable widgets dashboards (model specific or global)
- Text to speech with voice data file editor
- Five phase-dependent assignable trim settings and five trim types
- Four phase-dependent configurable timers (Start/Stop, Lap, Lap Trigger, Lap Toggle)
- Four phase-dependent quad rate and exponential settings
- 12 phase-dependent multipoint user mixers
- Four dual-differential cross mixers
- Three-channel sequencers
- Three-channel ring limiters
- 16 user-assignable digital switches
- Six assignable combination switches
- Eight assignable logical switches
- Eight assignable control switches
- Four snap roll mixes
- Eight wing and tail mixes and crow/butterfly function
- Nine user-assignable and configurable system-voice notifications
- Eight user-assignable and configurable voice notifications
- 12 user-assignable and configurable control voice notifications
- Eight sensor-activated switches
- Eight user-assignable and configurable voice notifications

If you can't find the combination of things you want, you're not looking! In fact, you can go so far as to define a flight mode that will have functions activate only when a certain combination of switches is in defined positions.

If you're a helicopter flier or just prefer adjustable throttle curves over a linear mode, you're in luck. You aren't bound by a standard five-point curve if you don't want; you can add points to the curve for your throttle or pitch by simply tapping on the line where you want another point. Awesome!

Bonus Features

I consider these bonuses because they are either personal preferences or option modules added for specific reasons. The MP3 module allows you to practice to whatever music you're choreographing a routine to without the need for a big sound system. Just use the radio to play the music.

For selfish reasons, I chose to get the optional Bluetooth module. I have significant hearing loss and wear hearing aids. With the Bluetooth module, I can pipe the voice responses directly to my hearing aids and not turn the volume up so loud that it disturbs other fliers on the flightline.

This will work with any Bluetooth headphones or earbuds. I can still hear everything going on around me, but the subtle voice commands from the radio are also easily heard and nobody else has to listen to them.

Volume control can be assigned to one of the sliders or knobs and adjusted anytime while flying. This is far better than having to go into some menu to find a way to adjust the sound. Voice commands can also be edited and defined as needed.

Controlling functions can be defined to an abundance of options using 5 x 3 position switches, 2 x 3 position/toggle switches, a 1 x 2 position switch, four proportional knobs, 2 x lever controls, and eight assignable digital buttons.

Updates can be done via Wi-Fi or through the USB connection on the back using your computer. When connected to the computer, it acts like a mass storage device and you can access a wealth of information from the radio.

External modules for Crossfire, etc. are connected to the port on the back of the radio and further defined within the programming for the appropriate system.

At A Glance

Specifications

Band: 2.4000 to 2.4835 GHz dual RF
Channels: 16
Frame rate: 10ms or 20ms
Model memory: 999
Modes: Selectable 1 through 4
Modulation: FHSS
Display: 4.3-inch TFT color and touch screen
Range: Full (5,000 meters)
Rate positions: Three position
Receiver: GR-18 nine-channel receiver and flight controller
Resolution: 4096 pixels
SD card: 16 GB internal SD card
Telemetry: Integrated
Bluetooth: Optional accessory ($49.99)
Wi-Fi: Built in
Transmitter battery: 4.2-volt, 4,000 mAh LiPo
Trainer function: Wireless or wired
Firmware upgrade: WLAN, USB terminal
Weight: 39 ounces
Dimensions: 7.68 x 2.56 x 8.27 inches
Price: $749.99

Pluses

- Incredible color touch screen.
- Extensive programmability and customization.
- Tech support with a phone call.
- Help files readily available on every deck (screen).
- Wi-Fi and Bluetooth capability.
- All of the stick adjustments can be done without opening the radio.

Minuses

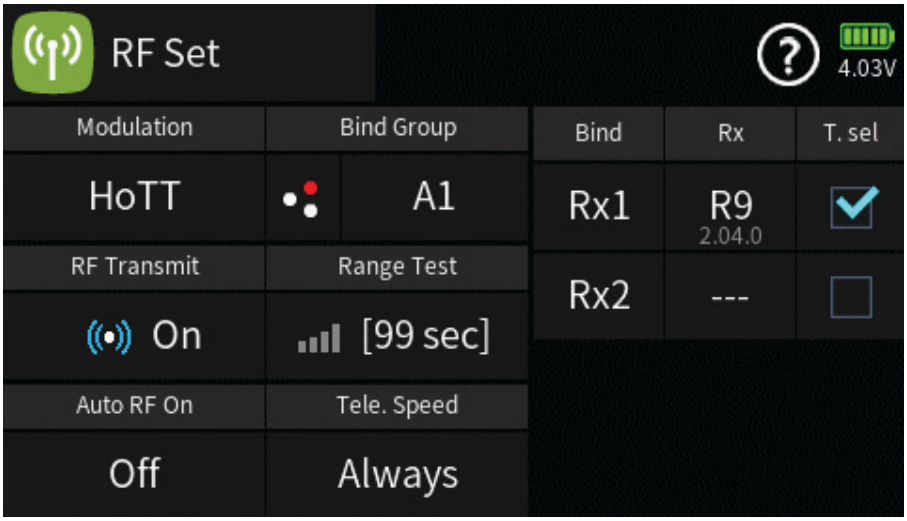
- Receivers don't all bind with the same method.
- Gyro setup can be confusing.

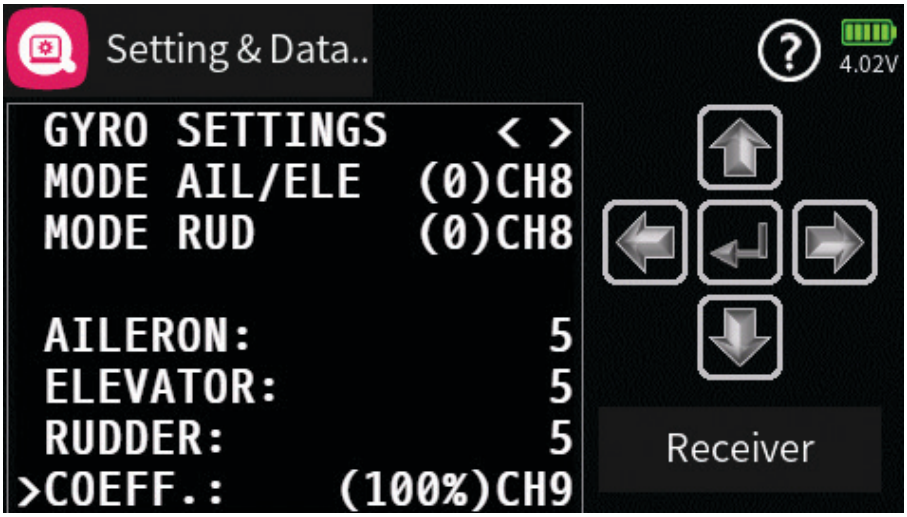
Manufacturer/Distributor

Graupner
(855) 572-4746
www.graupnerusa.com

The back of the radio has battery access, a USB port along with an access panel for the headphones, and com, data, and DSC ports.

The battery is a single 4,000 mAh LiPo cell. A 9,000 mAh pack is an option.





Top: this is the basic menu where most users will make standard adjustments. Selecting a tab on the right side of the screen will bring up other menus for special functions. Center: the binding deck shows how many receivers are bound for that model and which group they are assigned to. Clicking the "range check" widget will put it in that mode for 99 seconds. RF defaults can also be changed here for each model. Bottom: the final gyro settings are done in the Special Settings menu and can be confusing. Help is available online and through the help screens.

Conclusion

I'm a happy camper. Choosing a new radio is always a nerve-racking affair, but this choice has worked out well. I stumbled a few times with programming a gyro, called tech support at Graupner USA, and Doug talked me through the process in a few seconds. There is great help online and an active user community that is willing to tackle any problems you might bump into.

The radio is heavier than the one I was used to, but I find it comfortable. The extensive range of programmability is fantastic, although somewhat intimidating at first. I highly recommend that you watch the Graupner tutorials before you begin using the radio. I felt familiar with the radio before it even arrived because of them. With reasonably priced receiver/gyro combinations and great technical support, combined with Graupner's reputation for quality, I think I made the right choice.

The GTS is available in a number of schemes and Elite Aerosports will even work with you on custom schemes. The author chose the eye-catching green and black scheme that pops against most backgrounds.

A SPORT JET DESIGNED FOR DURABILITY AND PERFORMANCE

Elite Aerosports Havoc GTS

By Andrew Griffith | barracudahockey@aol.com
Photos by the author and as noted

AFTER GREAT SUCCESS with my turbine Harlock RC Viper (November 2018 *Model Aviation*), I decided it was time to add something larger to my fleet. I prefer the look and detail of a scale jet, but for this project, I wanted to pursue the relative simplicity of a sport jet. I had been on the lookout for something that caught my eye and there actually seems to be a growing number of choices in the size and price range I was considering.

Introduced in late 2015, the Elite Aerosports Havoc took the 2016 Florida Jets event by storm. There were several there, and they clearly were built for extreme flying and to hold up to a lot of hard, heavy G-style flying. They also are huge, sporting a 3.5-meter (134-inch) fuselage that requires a bus or moving van to transport it and a small pit crew to assemble it.

Not long afterward came the Havoc SS, a slightly more modest 2.5-meter (101-inch) aircraft, but still quite large. What I wanted was a scaled-down version of the Havoc that would still perform but would fit in my truck and not blow my budget.

I started exploring other options in the 85- to 100-newton turbine sizes that would be easy for one person to handle and fly at my home field, which features some challenging geography for larger airframes.

Late in 2018, I found out that the Havoc GTS was about to hit the market. The GTS is the smallest of the Havoc series of composite, turbine-powered jets. It operates with a 70- to 100-newton turbine, has large flaps, which helps with landings at my home field, and will fit in an SUV. Actually, the smallest Havoc is the Horizon Hobby E-flite Havoc Xe electric ducted-fan jet, but it's neither composite nor intended as a turbine.

My assumption was that the GTS would be popular both with owners of the larger Havocs who wanted something smaller for regular flying as well as people such as myself who wanted a "big" jet without getting a monster. I was correct because despite getting my preorder in a few weeks after Elite Aerosports started taking build orders, it was nearly six months before I received my airframe.

The Havoc is popular and built and painted to order. I knew what to expect, and the wait was

agonizing, but Elite Aerosports regularly updated me on the progress.

Although the purchase price isn't inexpensive, it includes several items that must be sourced and purchased separately. Electron Retracts electric landing gear are renowned as some of the best in the business, and the landing gear and electric brakes are included. Also included is a double-wall, stainless steel exhaust pipe from JTS Hobby and a 3-liter carbon-fiber fuel tank.

Several options available from Elite Aerosports include a full JTS Hobby wiring harness, monster ball links, titanium linkage rods, and Revoc wing bags made to match the scheme you choose. The company even offers the option to provide custom build services to hand you a turnkey model that is ready to fly.

While I waited for the GTS to arrive, I started gathering the components that I needed. I contacted AeroPanda, discussed the aircraft with Manny Rodriguez, and purchased a Jet Central Turbines Hornet engine. The 85-newton Hornet comes with both a foreign object damage screen and a 3S LiFe battery. To ensure bubble-free fuel delivery to the turbine, I ordered a Flight Composite Technology (FCT) air trap.

Du-Bro monster ball links and a set of Hangar 9 titanium turnbuckle-style pushrods were ordered from Elite Aerosports to ensure the strong and slop-free control linkage installation that is so important on a 150-mph jet. New, machined servo arms from Northwest RC rounded out the hardware package.

The radio system consists of a PowerBox CORE radio and a pair of PBR-9D receivers. A PowerBox Mercury SRS will handle the power distribution and integrated gyro duties. A GPS module provides telemetry and adjusts the gyro gain on the fly so that more gain is being used at slower speeds.

Three MKS HV747 servos were used on the rudder and elevator halves. MKS HV9930 servos were used for the flaps and ailerons and an MKS HBL550 servo was used for the nose wheel steering. All of the servos are fed through the Mercury SRS by a pair of PowerBox receiver batteries.

I also purchased a premade wiring harness from JT Hobbies. This includes a single-point multiplug for both wing halves. All of the extensions for the wings and tail are already sized and crimped using heavy-duty PowerBox wire.

Construction

The Havoc GTS shipped in a single large container. It took me nearly an hour to extricate all of the parts, which were well secured. The first thing that struck me was the outstanding finish. The GTS is painted in the mold and can be ordered in several stock color schemes or customized. A large bag of parts includes the control horns and other hardware that is required to finish assembly.

The GTS arrived without an assembly manual, which will put a few people off, but other than the center of gravity (CG) and suggested control throws, which are available in a variety of places online, building a sport jet just isn't as complicated as it might seem. Part of that is because of the high level of prefabrication done at the factory. Several steps, including gluing the formers in place and hinging the control surfaces, are already completed.

After thinking through which components would be in the way of others, I used the following construction sequence. The wing was tackled first then I set it aside and assembled the fuselage from tail to nose.

The HBL9930 servos fit perfectly in the servo pockets in the wing so I installed them with RTL servo screws, prethreading the holes and hardening the threads with Zap thin CA glue. The Electron Retracts landing gear were likewise a drop-in fit and installed in the same manner.

The double-sided control horns are G-10 fiberglass. I scuff sanded them until the sheen was removed from the gluing area, cleaned them with alcohol, and installed them with DigiPoxy 100S. The JT Hobbies wiring harness is connected to the wing servos and the main gear is then routed to the appropriate exit hole.

The small HV747 servos pack a whopping 200 ounces of torque using a high-voltage power system. Like the 550s, they fit perfectly into the pockets that were provided in the elevators and rudder. The servos and control horns were installed in identical fashion as the wing.

I put power to the radio system and made sure everything was centered. All of the Du-Bro 4-40 monster links and the Hangar 9 turnbuckle pushrod were installed at this time. The turnbuckle pushrods are easy to adjust, and the surfaces centered perfectly with little subtrim.

Here is where some planning is required or you might end up removing and reinstalling components. First, the wiring harness for the tail servos is routed and secured. The pipe is then installed using RTL Fasteners servo screws. Some sanding is required at the pipe exit area to open it up a bit, but no major surgery is needed.

With the pipe installed, the turbine is mounted and the wiring harness installed. The carbon-fiber fuel tank provided in the kit is a thing of beauty, and its 3-liter size will provide plenty of flight time for turbines, even those on the largest end of the

With his new Core radio, new Jet Central Hornet turbine, and a new jet Havoc GTS, the author was more than a little nervous while getting ready for the maiden flight. Adam Strong photo.

There's a lot going on in a turbine jet. The PowerBox Mercury with a pair of receivers and dual 2,500 mAh Lithium-ion batteries provide power and receiver redundancy. The GPS input to the Mercury adjusts the gyro gain based on speed to add more gain when the GTS slows down and the surfaces are less effective.

Strictly Scale has vinyl templates for all of the Havoc jets that allow precise cutting of the nose gear cutout.

recommended range. I fabricated a small tray to mount the FCT air trap, and the plumbing for the turbine was completed.

One step that needs to be done carefully is cutting out the bottom of the fuselage where the nose wheel strut extends. This is where a manual with a template would come in handy. Fortunately, Sean McHale of Strictly Scale produces a vinyl template with low-tack adhesive that is similar to a vinyl paint mask. The template is a great solution for a perfect cutout.

The Electron Retracts nose gear was installed, and the steering servo was mounted. The servo attaches to the gear leg so that the pushrod is a direct connection to the steering arm, resulting in no slop in the steering linkage.

Bringing everything together is a PowerBox Mercury SRS and GPS module. When paired with a CORE radio, a plethora of telemetry data is available, such as signal quality, voltage from each battery, speed, altitude data, and more. A robust power distribution system is a great idea when dealing with the current load of eight high-voltage digital servos, and the Mercury is up to the task. The switch, Mercury configuration screen, and turbine ECU were located in the nose area, but no batteries were yet installed.

A Xicoy precision computer balancer that will locate the CG to within a fraction of an inch was used. The flight and turbine batteries were located so that no additional weight was needed to achieve a perfect balance. You can move stuff around and the balancer will immediately report changes until you're satisfied.

Rates were assigned and exponential was added based on personal experience and from reading reports online from others

At A Glance

Specifications

Model type: Sport turbine jet
Skill level: Advanced
Wingspan: 67 inches
Wing area: 953 square inches
Wing loading: 60 ounces
Airfoil: Symmetrical
Length: 79 inches
Weight: 24 to 27 pounds
Power system: 70- to 100-newton turbine
Radio: Full range, 10 channels with eight servos
Construction: Full composite Airex/fiberglass
Covering/finish: Painted-in-the-mold composite
Price: $4,195

Test-Model Details

Motor used: Jet Central Hornet 85-newton turbine
Receiver battery used: Two PowerBox Powerpak 2.5 2,500 mAh Lithium-ion
Turbine ECU battery: 2,500 mAh Jet Central LiFe (included with turbine)
Radio system: PowerBox CORE; PowerBox Mercury SRS; MKS servos
Ready-to-fly weight: 26 pounds dry, 31 pounds fully fueled
Wing loading: 62.8 ounces per square foot
Cube loading: 24.4
Flight duration: 10 minutes

Pluses

- Impressive composite construction.
- Extremely aerobatic sport jet.
- Slick-looking finish that's highly visible in bright green.
- Purchase price includes carbon-fiber tank, double-wall tailpipe, and Electron Retracts landing gear.

Minuses

- No manual provided.

Manufacturer/Distributor

Elite Aerosports
(954) 444-8809
www.eliteaerosports.com

The Havoc is locked in during final approach with the proper power setting. The Electron Retracts landing gear are extremely robust.

who were already flying the GTS. The wait for the airframe to arrive was nothing compared with the three weeks between when the GTS was complete and when the weather cooperated for a weekend test flight!

Flying

It was a gorgeous, breezy day when I assembled the GTS for its test flight. Field assembly is easy with only two wing bolts and two multiconnectors at the wing root. After priming the fuel line and double-checking everything three times, I fired up the Jet Central Hornet.

When the startup was complete and the ECU handed over throttle control, I did a quick taxi test, adjusted the nose wheel steering, and made a few high-speed runs to verify that the Electron Retracts brakes had the correct stopping power without locking up and the GTS was stopping straight. With the checklist complete, I pointed the nose into the wind, took a deep breath, and smoothly advanced the throttle to full.

The GTS tracked straight and took off. When the gear and flaps retracted, it accelerated quickly. I backed off to half throttle and set up to make a few trim passes and burn off the jitters. I tested control response in all three rates that I had set up and I needed to do some tweaking to the rates and exponential, but I was in the ballpark.

Roll rates were exhilarating, and stops were crisp. For sport flying, I'll probably back the mid-rate aileron off a bit. In high rate, the GTS rolls like a fiend. Tracking through loops, Immelmanns, and Split-S maneuvers was spot on. When I had a poor entry, I had a poor maneuver; when I had a good entry, the GTS held the line perfectly.

The GTS excels in knife-edge flight because the rudder is very effective. Slight pulling to the bottom occurs but it can be corrected on the fly or mixed out with a bit of up-elevator.

Having seen the GTS prototype flying at Florida Jets, I knew it could take anything I could throw at it, so I tried a couple of positive and negative snaps at low-to-moderate airspeed. The GTS stopped the roll almost immediately when I released the controls and kept right on flying.

The large flaps and frontal surface area slow the Havoc GTS down quickly when bringing back the power. When setting up for landing, it's imperative that you properly manage sink rate with the throttle. I noted some wobble as it slowed down, so I maintained a bit of extra power on final approach and the aircraft settled right in. The Electron brakes are very effective.

The big Havoc slows down to roughly walking speed when it lands, but don't make the mistake of trying that with the GTS because it needs some speed and lands more like a typical sport jet than the larger Havocs.

Conclusion

The Elite Aerosports Havoc series is amazing and the GTS, although the smallest of the three, is still a substantial aircraft. These are some of the strongest jets on the market, and I've seen the GTS do amazing stuff in the hands of a gifted pilot. I'm looking forward to getting a lot of flights on the GTS and expanding my own personal flight envelope while exploring the limits of its robust airframe.

The high-end components, such as the CORE, PowerBox system, and the Jet Central turbine meant that I had a high degree of confidence in success. None of the components I chose for my build disappointed me.

The author has flown the Havoc often since the initial review flights. Although the Jet Central Hornet is a fine engine, he will probably step up to the Rabbit (100-newton) to get extra power for little additional cost. AeroPanda has been a great resource for his first venture into Jet Central motors.

SOURCES:

Strictly Scale
sean@strictlyscale.com
www.strictlyscale.com

PowerBox Systems
(904) 330-0145
https://powerboxsystems.com

Zap
www.zapglue.com

Xicoy Electronica
www.facebook.com/XicoyElectronica
www.xicoy.com

Electron Retracts
www.electronretracts.com

Du-Bro
(800) 848-9411
www.dubro.com

Jet Central/AeroPanda
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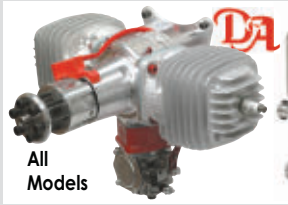

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One-of-a-Kind Pattern Airplane

Nick Ziegler's (Moline, Illinois; email: a100dork3@yahoo.com) brother, Jeff, custom-built this one-of-a-kind aircraft from a Goldberg Super Chipmunk fuselage and a Great Planes Dirty Birdy wing, making it into a one-off Pattern airplane.

The fuselage is 9 inches longer overall, with the stabilizer moved back 4 inches. It features a taller turtledeck for more side area, and the fin and bigger rudder were lowered into the back of the fuselage with a dorsal fin below. E-flite electric retracts were moved to the tail-dragger landing gear location. Jeff painted the fabric covering.

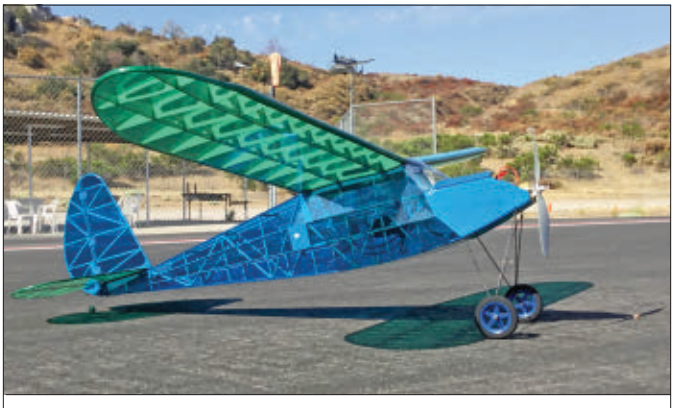
The airplane is fast and flies like it's on rails, "yet [it] still looks almost like a stock Super Chipmunk," Nick wrote.

Introduction F5J 2.9-Meter Sailplane

Helen, the youngest granddaughter of Jeff Hughes (St. Joseph, Michigan; email: jefferyghughes@gmail.com) holds his Introduction F5J 2.9-meter sailplane. The laser-cut kit from Gruener-CNC was purchased from Hoellein in Germany.

Jeff noted that it was an easy build, but it took longer to cover it than to build it! He uses a Spektrum DX7 with a Lemon RX receiver that has built-in altitude and telemetry. The servos are from Futaba, and the motor and ESC are by Turnigy. It weighs 32 ounces with the battery.

"It flies easy and thermals on very light lift," he wrote.



Quaker Flash

Ken Lawrence (El Cajon, California; email: mkaway@cox.net) built this Quaker Flash from Pat Tritle plans. Spanning 55 inches, it weighs only 17.5 ounces with the battery!

Covered in transparent UltraCote, the Quaker Flash uses a RimFire 400 motor for power, with a Castle Creations Talon 25 ESC and a Venom 3S 950 mAh LiPo battery. All of the radio gear is from Tactic. Ken uses a SafeStart system from Dave's RC Electronics.

When Ken submitted this in August 2019, he noted that the "maiden flight will happen when the next calm morning comes!"

Comedian

Mark Warning's (Oshkosh, Wisconsin; email: aeroncamark@gmail.com) Comedian was plans-built from an article in the July 1976 *Model Aviation*. It was started in February 1992 then shelved for many years before he completed it in March 2019.

Powered by an O.S. .61FX engine, the Comedian is guided by a Futaba radio and covered in MonoKote. The empty weight is 7 pounds, 7 ounces.

The photo was taken at Pioneer Airport in Oshkosh, Wisconsin, one week after EAA AirVenture 2019. "As you can see, Snoopy is a happy camper ... "

Cherokee 11

The Cherokee 11 that Gino Pastori (Millinton, Michigan; email ginopastori23@gmail.com) scratch-built took several years. "I always seemed to put this project on the back burner, but I finally finished this sailplane and am very pleased with the result," he wrote.

The Cherokee 11 plans are by David Smith, but the color scheme is Gino's own design. He used all Graupner radio equipment and stated that the aircraft flies well and is easy to fly. He flies it at the Frankenmuth Aeromodelers field in Birch Run, Michigan.

de Havilland D.H.82 Tiger Moth

Jay Wiley (Brunswick, Maine; email: jaywiley6@gmail.com) bought his Arizona Models 1/4-scale de Havilland D.H.82 Tiger Moth kit at a swap meet. "The kit had been sitting in a barn for a long time, and mice had found the fuselage to be quite cozy," he noted.

Jay re-covered it with a combination of yellow Solartex and silver MonoKote, and Callie Graphics reproduced the registration numbers for the sides and wings. The Mike Reeves Tiger Moth instrument panels and compasses get a lot of attention at the field.

Power is by a Saito 150 four-stroke glow engine. "It's a fun plane to fly, but it takes about 15 minutes to put together with all the bolts and cables," Jay wrote. The photo was taken by Joe Gilbert.

Uproar

Richard Maraldo (New Hanover, Pennsylvania; email: vrmaraldo@verizon.net) submitted a photo of himself and his Tower Hobbies Uproar after its 1,000th flight.

The airplane was scratch-built from plans and modified for electric power. The radio is a Tower Hobbies System 3000 six-channel, while servos are Tower Hobbies TS-10s. Power is by a HobbyKing Turnigy 3542 1,100 Kv motor, HobbyKing Plush 40 ESC, APC 11 x 7 propeller, and three-cell 4,000 mAh LiPo batteries.

Richard, a member of the Swamp Creek RC Modelers, wrote that except for the propeller and batteries, nothing has changed on the Uproar in the 1,000 flights.

Hangar 9 P-47 Razorback

Joshua Orchard's (Frederick, Maryland; email: willsonman@gmail.com) Hangar 9 P-47 Razorback build was what he called an "exercise in making something special by demonstrating what can be done with an ARF."

The P-47 features 3D-printed parts that he designed and has made freely available on Thingiverse (www.thingiverse.com/thing:3456633). The aircraft includes many custom details that give life to the model on the ground and in the air.

Joshua stated that it's a joy to fly. "Building is my passion and being able to share it with others is the reward." Documentation of the build specifics, including a three-part series on how to cover a model with aluminum, is on Joshua's YouTube channel at www.youtube.com/joshuaorchard. The photo is courtesy of Jeff Poole.

Interested in sharing your handiwork? Visit *www.ModelAviation.com* for submission guidelines.

Boeing 314 Clipper

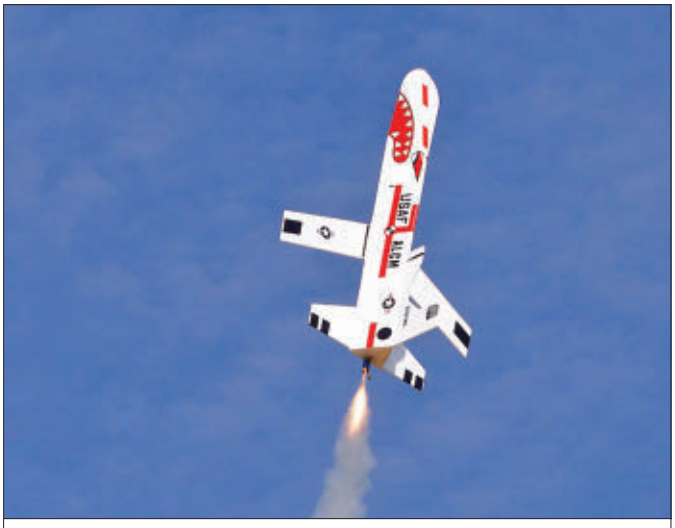
Daryl Dunkelberger's (Elk Grove, California; email: daryl.dunkelberger@gmail.com) Park Scale Models Boeing 314 Clipper has a 90-inch wingspan and is powered by four E-flite Park 450 motors, four Castle Creations Talon 35 ESCs, and two 3S 3,300 mAh LiPo batteries.

At 7.5 pounds, Daryl wrote that it flies extremely scalelike.

Stand-Off Scale Ju 88

Moses Huang's (Sunnyvale, California; email: mhaeng@att.net) Stand-Off Scale Ju 88 was built from a Balsa USA Dornier Do 217 kit.

The twin tail rudders on the 47-inch wingspan model were modified to a single tail, while the front nose was modified to look more like a Ju 88. The spray-on camouflage finish is wave-pattern "Wallenmuster" Tamiya paint with airbrushed wave squiggles, and the covering is lightweight MonoKote. Power is provided by twin 140-watt outrunner motors and a single three-cell 2,200 mAh LiPo battery. The airplane's all-up weight is 44 ounces. Moses vacuum-formed the cockpit canopy and nose cone parts.



Boeing ALCM AGM-86A Rocket

The RC rocket glider that Frank Burke (Hillsboro, Oregon; email: frank.burke@intel.com) submitted is his own scratch-built design of a Boeing ALCM AGM-86A.

Constructed of 6 mm and 3 mm Depron foam, the rocket is 60 inches long, has a 36-inch wingspan, and weighs 26 ounces ready to fly. It uses Aerotech 29 mm composite rocket motors and the full-flying tail surfaces supply pitch-and-roll control.

Lockheed YO-3A Quitestar

The Lockheed YO-3A Quitestar that Carroll Jernigan (London, Tennessee; email: carrolljrngn@aol.com) built is from a Park Flyer Plastics short kit. With a 78-inch wingspan, it weighs slightly less than 3 pounds.

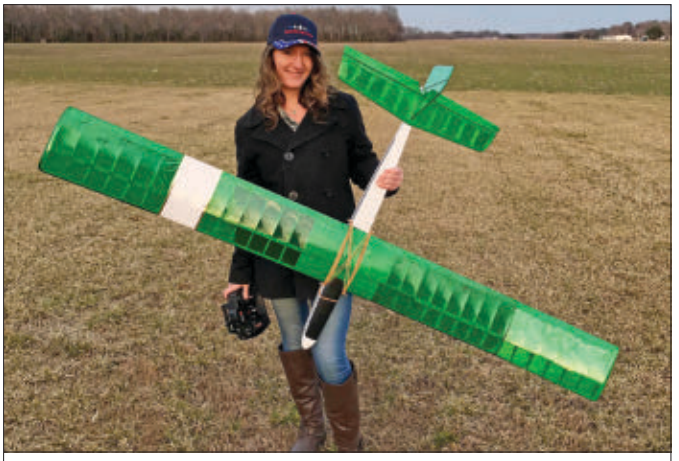
The YO-3A is powered with a Horizon Hobby Park 480 motor using a 3S 2,100 mAh LiPo battery. The control surface servos are from ParkZone, while the gear servos are Turnigy.

Carroll mentioned that it took 51 weeks from the box to the air, with a lot of help from Keith Sparks at Park Flyer Plastics.

Waco YKS-6

Steve Graham's (Parkton, Maryland; email: 944pilot@qis.net) 1/4-scale Waco YKS-6 was scratch-built from Mammoth Plans using traditional balsa and plywood construction methods. Weighing 24 pounds dry, with one-piece top and bottom wings spanning 100 and 77 inches respectively, it is powered by a DLE-60 gas engine. Flight controls are via a Futaba 14SG radio.

Steve was inspired by the October 1994 *Model Aviation* cover and the aircraft's Civil Air Patrol history. "It looks realistic in the air, exhibits scalelike flight performance at half power, and has no bad habits." The photo was taken by Ken Lucas.



Craft Air Stepp Two

Gretta Thorwarth (Federalsburg, Maryland; email: pa12gretta@gmail.com) sent in a photo of her Craft Air Stepp Two glider that she completed in February 2019. "[It is] somewhat of a Gentle Lady lookalike from the mid-1980s," she wrote.

Gretta's boyfriend built a Gentle Lady at approximately the same time as she built the Stepp Two, and they raced to finish both airplanes in time for a glider meet. The Gentle Lady won the completion contest, and the Stepp Two missed the event, but Gretta finished it a couple of months later.

Cessna 421 Golden Eagle

Randy Manns (San Diego, California; email: roddraym@gmail.com) modified a 2007 ZD Fly Cessna 421 in a color scheme similar to the vintage Royal Hawaiian Service Cessna 401s that flew passengers between the Hawaiian Islands from 1963 to 1986.

The 63-inch wingspan Cessna 421 is 54.2 inches long. Randy upgraded it to be powered with two Leopard 3536 1,100 Kv motors and two ZTW 50-amp ESCs, adding a set of Oleo landing struts for the main and nose gear. It flies on one Admiral 4S 60C 5,000 mAh LiPo battery.

Fokker D7

Steven M. Bornhoeft's (R, East Moline, Illinois; email: jedi@mchsi.com) 1/4-scale Fokker D7 was built by his dad, Steven K. Bornhoeft, from a Balsa USA kit. It features a custom-printed lozenge pattern on the wing, with the fuselage covered and painted. An Ace's of Iron pilot bust and Williams Brothers gun kits were also added.

The Balsa USA D7 is powered with a 35cc EME gas engine and Hitec servos with a Spektrum 6 receiver. The father and son duo fly at the Erie RC Club in Erie, Illinois.

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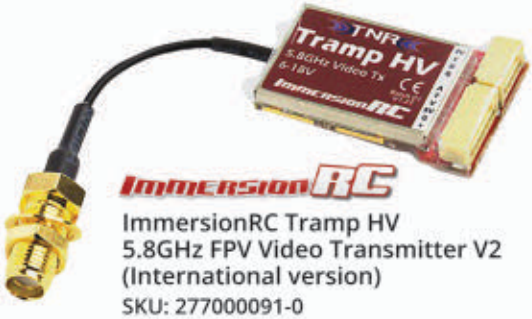

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This 1937 Custom Cavalier was kitted by Berkeley. With a 108-inch wingspan, it was so big that Dick Fischer (L) and Jim Bierbauer opted to build it as a team. A Forster 99 engine powers it.

MODEL HISTORY RECAP

By Bob Angel | samrcflier@verizon.net

I BEGAN WRITING this column at the end of 2019, when the media traditionally recaps events of the past year. I am following suit, except I'll take a stab at briefly reviewing some of the history of model building from early in the 20th century. Keep in mind that all of the individuals who are mentioned have much more extensive accomplishments and résumés than these quick snapshots allow.

You should also remember that the listed "first" accomplishments and dates can be iffy because more than one person often works on the same new idea, but the one getting recognition might just be the person with the best publicist. I'll prefix a few dates with "circa" or an approximate date.

1903: The Wright brothers' well-publicized first manned flight gave model building a boost in participation.

Circa 1905-1930: Along with gliders, rubber-powered models (mostly twin-engine pushers) were flown regularly. Early model engines were in the experimental stage, but they were heavy and low powered, making them unsuitable for use by the average modeler.

1905: Engine development included engines that were intended for motorcycles, automobiles, aircraft, and models. Design ideas—and even complete engines—were often repurposed from one vehicle to another during this time. Glen Curtiss designed a three-wheeled "cycle/car" called the Wind Wagon, which was pushed by a large propeller that was powered by a motorcycle engine. He's said to have used Ray Arden's lightweight spark coils for ignition.

1907: Ray Arden flew his first engine-powered model.

1927: Charles Lindbergh's transoceanic flight gave model building its most significant boost. Many of the biographies in the AMA Model Aviation Hall of Fame begin by recognizing that historic event as the initial inspiration for building models.

1928: The inaugural Wakefield competition took place in the outskirts of London.

1929: This year saw the beginning of the Great Depression, which lasted approximately 10 years. During that time, model supply industry sales reportedly survived better than most other forms of merchandising. It was assumed to be because people had more time on their hands and model building was a relatively inexpensive pastime.

Circa 1930s: Pylon model designs became popular during this decade.

1933: Vernon Boehle's single-motor tractor design eclipsed the twin-pusher models at the Nats, bringing an abrupt shift of direction in rubber-powered model design. Despite the good performance of Vernon's aircraft, Max Bassett's gas-powered aircraft, in turn, eclipsed rubber-powered airplanes.

1933: Using engines produced by his friend Bill Brown, Max Bassett won all three outdoor events at the Nats as practical gasoline engines began appearing. This led to the separation of "gassies" from rubber power. Compressed-air power was also being used and was separated by the rules as an "other-than-rubber" power source.

1933: The Texaco Oil Company sponsored a nice trophy for the longest engine-powered flight using limited fuel. The Texaco event continues to this day as a favorite among Old-Timer (OT) fliers, with little change from the original rules.

1934: Irwin Ohlsson built his first two engines. The first Ohlsson engine, the Ohlsson Miniature, was introduced to the market in 1936. The first Ohlsson .23 came onto the market in 1940.

1935: Gordon Light won the prestigious Wakefield competition for the US. He also made the US Wakefield team for five years from 1932 through 1936.

1935: Brothers Bob and Jim Cahill popularized the use of folding propellers for rubber-powered aircraft.

1936: Ben Shereshaw designed the Cavalier, which was kitted by Berkeley.

1937: Carl Goldberg brought his impressive 10-foot wingspan Valkyrie to the Detroit Nats. It took second place behind Max Bassett's flight of more than 1 hour, 10 minutes. Chet Lanzo won the inaugural RC event that was included in that Nats. Walt and Bill Good won the RC category the next three years, followed by Jim Walker in 1941.

1937: Oba St. Clair flew the first Control Line (CL) flights before Jim Walker. However, Oba didn't patent the invention, while Jim Walker did.

1938: Kit manufacturer Joe Ott devised the Ott-O-Former construction method that was used to produce kits through World War II.

1939: Ray Arden always sought to develop lightweight engines to power smaller models. His first introduction of the Mighty Atom .097 engine was followed by a couple of improved versions and the Arden .09 and .19 series, along with a lightweight, self-contained ignition package.

1939: Dick Korda won the Wakefield trophy for the US with a new record of 43 minutes, 15 seconds.

OLD-TIMERS

Circa 1940s: CL flying shifted from predominately clockwise rotation (as viewed from above) to counterclockwise.

1941: This year saw the start of WW II, which put a damper on modeling activities. Much of our modeling history is expressed in terms of "prewar" and "postwar." Skills that were learned through model building were a great part of the success in winning WW II, especially when it came to inventing and mass producing weaponry.

1942: Dick McCoy built his first engine. The McCoy .60 dominated tether car competition and CL Speed for years. It is still one of the most powerful engines used in OT competition.

1943: Engine designer Bill Brown was still active and marketed CO_2 motors in single-cylinder and twin-cylinder versions.

1946: Francis Reynolds was the first person known to successfully fly a CL aircraft inverted.

1946: The *New York Daily Mirror* sponsored a flying fair that was probably the most heavily attended contest ever, with nearly 1,500 competitors and an estimated 150,000 spectators.

1946: Leon Shulman marketed the Drone Diesel engine, which became popular among CL fliers.

1947: Ray Arden introduced glow plugs, first selling them himself at a contest.

1948: Duke Fox introduced his popular Fox .35 CL glow engine.

1950: George Aldrich designed the Nobler, an all-time favorite CL Stunt model.

1950: Matt Kania designed another CL favorite, the Ringmaster.

1950s: You could buy a "Deezil" (diesel) engine for a mere $2.95 (plus 25¢ shipping and handling).

1954: Dale Kirn set a couple of CL Speed records while introducing monoline controls.

1960: I introduced the Uni-Flow fuel tank, which solved the problem of the engine fuel mixture going lean as the fuel level depleted. The article appeared in the 1960 *Air Trails Model Annual* and was described in the October 2016 *Model Aviation* "Old-Timers" column.

1962: John Pond, a lifetime promoter of model flying and competition, was one of the founders of the Society of Antique Modelers (SAM). In 1964, he established and directed the first OT competition that was flown in the AMA Nats. He was also one of the founders of the Model Engine Collectors Association (MECA), which has a goal to collect, preserve, and restore early engines and their history.

1969: AMA member Neil Armstrong commanded Apollo 11 and was the first person to set foot on the moon.

1973: A bit off of the subject, but heavy rains in California allowed a fellow to teach his pet koi fish to fetch the newspaper.

1989: The inaugural Vintage Stunt Championships (VSC) for vintage CL models was held at the Whittier Narrows Model Airplane Field in Southern California. It was moved to Tucson, Arizona, the following year where, as of 2020, it's been held since.

Grant Carson shows the simplicity of early twin-pusher construction. Despite flying backward (pointy end first), it produced a reliable and stable-flying model. Photo by Dorman Crawford.

Jon Poco exhibits his immaculate and patriotic sailplane at the 2019 Southwest Regionals held in Arizona.

SOURCES:

DigitekBooks (early model magazines)
www.digitekbooks.com

Roland Friestad
cardinal.eng@grics.net

AMA Model Aviation Hall of Fame
www.modelaircraft.org/museum/history-recognition/ama-model-aviation-hall-fame

SAM
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VALUABLE BUILDING TIPS

By Pat Tritle | patscustommodels@gmail.com

WINTER IS IN full bloom as I dive into this month's column. Cold, wet, and windy have been the order of the day, so my workbench is definitely earning its keep. But before I jump into a couple of new things, I need to clear up a discrepancy from my December 2019 column.

The Quaker Flash was built by Ken Lawrence, and I wanted to be sure that credit is ultimately given where credit is due. My apologies for the mix up.

Building Tips

I wanted to pass on a couple of tips that might be of some value. In the past, I've discussed how waxed paper has somehow changed and that it doesn't prevent parts from sticking to the plans as well as it once did.

Here's a terrific solution: parchment paper. Although slightly heftier than waxed paper and not quite as transparent, it still works great, and I haven't found any glue yet that will stick to it. The two sides of the parchment paper are different because one side is slightly slicker than the other and works best to reject the glue, but both sides do better than waxed paper.

While framing, it's not uncommon to frequently have to replace X-Acto knife blades. The last time I ordered #11 blades, I noticed that they were not only becoming harder to find, but that the price was also going up like a rocket.

I happened to stumble across a knife-sharpening tool from Edjer Company. The tool comes with jigs for both the #1 and #11 X-Acto handles, two diamond sharpening stones, and lubrication for the stones. It takes a little practice to get a good edge on a blade, but I find that if they are sharpened frequently during the building process, the edge stays nice and sharp and the life of

Nail clippers make it easy to trim servo arms or to remove the unused segments. The clippers provide a clean, straight cut with minimal effort.

the blade is dramatically extended.

When the building is done and it's time to install the servos, you need a good way to shorten or trim off the servo arms. There are a lot of ways to accomplish that. Side cutters work, but they leave the edge ragged and in need of trimming.

X-Acto knives also work, but they are slightly awkward. For a quick, clean, and accurate cut, nothing beats nail clippers to either shorten the arm or remove the unused arms. The cut is clean and straight and ready to go quickly.

Projects From Our Modeling Friends

First up is Gary Schubert. Gary is not only an accomplished Scale modeler, but he is also a fan of vintage models and Old-Timers. This time, Gary has dropped in with his Minnie Mambo, which was originally offered as a Sterling kit. There are still a few vintage kits out there, but the model can also be built using plans that are available as a free download from the Outerzone website.

The Mambo is powered with a Suppo 2208 outrunner motor with a 10-amp ESC, an APC 10-6E propeller, and a 2S 800 mAh LiPo battery. Guidance is by way of a pair of 6-gram servos to actuate the rudder and the left half of the elevator. The 10.6-ounce model is covered with the now-extinct Microlite and is reported to "fly like a trainer."

Next up is Michael Myers, who knows that I have a real soft spot for a Cub. He has stepped up with a beautiful example of this venerable old icon of early aviation.

Michael built his 60-inch wingspan J-3 Cub from a Manzano Laser Works short kit. The Polyspan covering was applied with Sig Styx-It heat-activated covering

Edjer Company makes a handy knife sharpener to renew the dull edges of X-Acto knife blades. By frequently sharpening the blades, they last much longer and provide cleaner cuts.

Michael Myers built his J-3 Cub from a Manzano Laser Works short kit then added several scalelike details and a pilot to make a convincing rendition of the venerable old Cub.

Gary Schubert built his 36-inch wingspan Minnie Mambo for electric power and three-channel RC. The plastic tarp makes takeoffs and landings easier for smaller models when only a grass runway is available.

adhesive and sealed with three coats of Sig nitrate dope. The color is two air-brushed coats of Sunset Glow latex house paint.

The decals were printed onto Testors decal paper, and the lightning bolt was cut from vinyl trim sheet. A Turnigy 1,000 Kv outrunner motor with an APC 11 x 5.5E propeller and a 2S LiPo battery supply power.

The scale details highlight the Cub. Exhaust stacks were made from Milliput epoxy putty, which works similar to clay. When it's dry, it carves and sands like wood. The functional cabin door latch operates much like the full-scale aircraft, with a sliding wire-keeper in a tube. There's also a catch to keep the upper door section open for easy battery access. The bungee covers on the landing gear were carved from bottle corks and covered with heat-shrink tubing.

The highlight of the whole thing is the pilot. The lack of a pilot in a scale model aircraft is the biggest detractor from scale appearance in the air and, admittedly, I'm as guilty as the next person in that regard. In this case, Michael really nailed it with a pilot printed from a photo on the internet that was set up with a swing-away mount to make it easy to access the battery through the cabin door.

Between the details, the pilot, and the fact that the airplane weighs a scant 29 ounces, the little J-3 not only looks scale, but also flies in a scalelike manner. It just doesn't get any better than that.

And with that, I'm going to have to call it a day. I hope the building tips come in handy and make modeling even more enjoyable. I would also like to thank Gary and Michael and offer a hearty well done to both.

Until next time, enjoy the building season, and do keep the good stuff coming.

SOURCES:

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tomj@manzanolaser.com
www.manzanolaser.com

Edjer Company
www.edjer.com

Outerzone
admin@outerzone.co.uk
www.outerzone.co.uk

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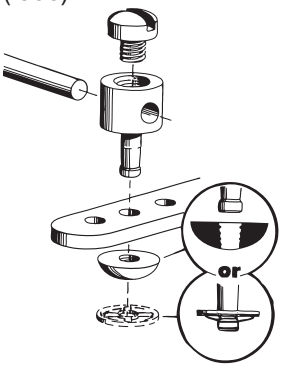

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The author's 126-inch Phoenix Westland Lysander uses 12S LiPo battery power.

I FLY BIG AIRPLANES, SO I CAN'T FLY ELECTRICS

By Greg Gimlick | maelectrics@gimlick.com

I'M AMAZED EVERY TIME I hear that statement, and I hear it often! A power system is a means to an end—nothing more. It doesn't matter whether you use gas, glow, or electric power. It's a choice and that's the way it should be, but make the choice for the right reasons, not from misconceptions. If you like gas, fly gas. The same goes for glow or electric power. Choose the path that you enjoy.

They Don't Fly Long Enough

That statement is usually the follow-up comment to the first one. I urge you to time some flights the next time you're at the flying field. I think you'll be surprised.

I asked one of my clubmates how long he flew and he said, "10 minutes or a bit more." He was surprised that after timing several of his flights, he barely made 7 minutes, and many flights were less. Most people overestimate the duration. My tests have shown average electric-powered flights of approximately 6 to 8 minutes. The days of 4-minute electric flights are long behind us, but the misconception lives on.

My Phoenix Westland Lysander
Wingspan: 126 inches
Wing area: 1,464 square inches
Length: 74.8 inches
Motor used: RimFire 50cc brushless outrunner motor (later a RimFire 65cc)
ESC used: Castle Creations Phoenix Ice2 HV 160-amp brushless

The RC Guys Cessna 188 AgWagon runs on 12S power, spans 97 inches, and weighs 18 pounds.

John Kauk's 86.5-inch wingspan Top Flite Corsair on 12S with an AXi motor. Photo by Jim Ryan.

Battery: Two Revolectrix Go-Pack Graphene Oxide 70C 6S 5,000 mAh LiPos
Propeller: Fiala 22 x 12 electric
Ready-to-fly weight: 26 pounds, 10 ounces
Wing loading: 41.9 ounces per square foot

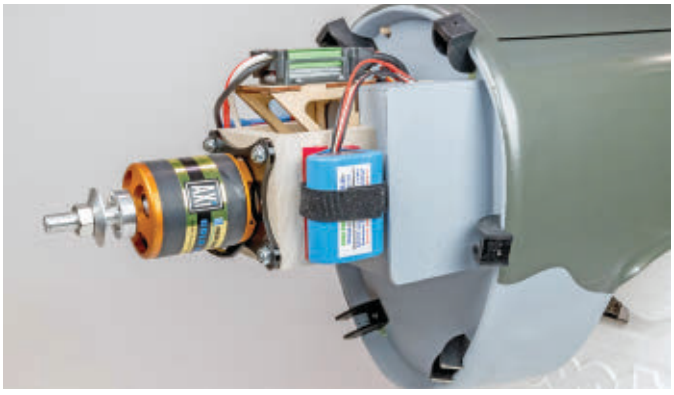
My initial flights with this setup garnered consistent 6- to 7-minute flights, with power left to do a go-around. I changed to a lower Kv motor, larger propeller, and 7,000 mAh LiPos to increase that to 10 minutes. The airplane flies beautifully and certainly qualifies as "big."

John Kauk's Airplanes

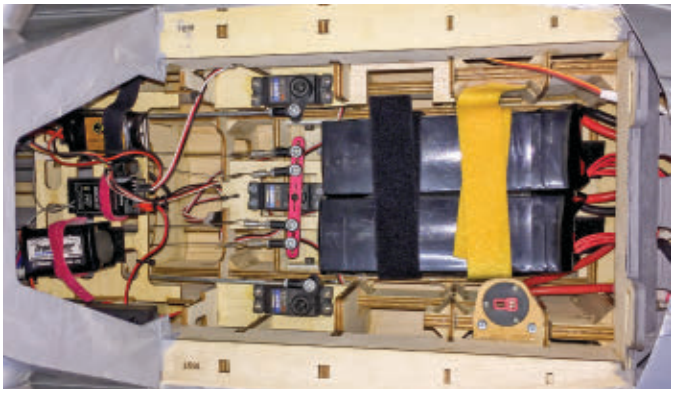
John is the former electrics columnist for *Model Airplane News* and knows a thing or three about big airplanes. With a Giant Scale background before moving to electrics, he's well-versed on that genre and has settled in on a standard power package that works well for most of his large airplanes and keeps things simple.

Top Flite Corsair
Wingspan: 86.5 inches
Wing area: 1,376 square inches
Length: 70 inches
Weight: 23 pounds

John's 85-inch Top Flite P-47 uses the same proven system as his other airplane.



John has perfected the neat and tidy installation of his big power systems with an AXi motor, Castle Creations HV 120-amp ESC, and a NoBS A123 receiver battery pack.



There is a lot of room inside the author's Lysander for a 12S battery pack, arming plug system, receiver pack, a backup receiver power module, and all of the servos.

Top Flite P-47
Wingspan: 85 inches
Wing area: 1,329 square inches
Length: 75 inches
Weight: 26-1/2 pounds

Each airplane uses an AXi 5345/18 (171 Kv) motor with a Fiala Propellers 25 x 12 propeller, a Castle Creations Edge HV 120-amp ESC, and a 12S 5,000 mAh LiPo battery. His P-51 Mustang will use the same system. Why mess with success?

Maximize Your Battery Choice

John and I both utilize 12S as our battery choice on the aircraft described. The same goes with my AgWagon. These are all 6S packs that are wired in series to make charging and maintenance easy. It also provides a ready supply of 6S batteries for smaller airplanes. Here's an example:

Phoenix J-3 Cub
Wingspan: 90.5 inches
Wing area: 1,219 square inches
Length: 60.6 inches
Motor: RimFire 1.20 brushless outrunner
ESC: Castle Creations Edge HV 120-amp brushless
Battery: FlightPower FP70 6S 70C 22.2-volt 5,500 mAh LiPo
Propeller: APC 17 x 8 electric
Ready-to-fly weight: 14 pounds, 5 ounces
Wing loading: 27.1 ounces per square foot
Flight duration: 10 to 12 minutes

I think you'll agree that a 90-inch Cub is a good-size airplane. It happily flies on a single 6S LiPo pack. I also have a Hangar 9 F6F 64-inch Hellcat, Great Planes 72-inch Sequence 1.20, and a Eurofighter EDF that utilize those same 6S packs.

Wrapping Up

The bottom line is that you should choose the power system you want and enjoy the hobby, but do so with the right information. If you decide to go big with electrics, choose a combination similar to what John and I did to get the most out of your valuable battery inventory.

I like the 6S/12S choice, but some pilots choose 5S/10S systems for their Giant Scale aircraft. I think the 6S/12S option gives us the widest latitude of modeling subjects.

Enjoy!

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A private airport in New Hampshire is WRC's second flying site. The club members are finalizing flying guidelines before they fly there.

QUESTIONS, CONCERNS, AND STAYING INVOLVED

By Jennifer Reynolds | jensunshine3@gmail.com

IN MY FEBRUARY 2020 COLUMN, I mentioned that in 2019, I became the secretary of my club, the Winnipesaukee Radio Controllers (WRC) in New Hampshire. We obtained a second flying field that will likely be enjoyed by members who live closer to the new location; however, we didn't initially know that we'd end up with this particular field. It ultimately became—and continues to be—a significant learning experience for those who don't fly RC. It also highlights the need to remain educated about the happenings in our hobby.

A landfill first caught our eyes as a potential flying field. After some conversations with the individuals who work there, a few WRC members and I joined to make a presentation to town officials. During the presentation, we explained who we were as a club, our history, our pilots' longstanding flying experiences, the hobby, and most of all, we emphasized safety. We were asked to present more details in the form of a formal proposal.

To move forward with that process, we notified the nearby private airport. That's when things changed.

The airport owner outright offered the use of his space for the club to fly. With an asphalt runway and more space, we took him up on his offer and we're now insured at that site. We politely withdrew our request from the landfill officials.

During the initial presentation to the town officials, we were met with several questions. I've highlighted some of them here because they serve as reminders for when we interact with people who don't fly RC. Sure, it's familiar territory to us, but to those who don't fly, "How loud are they?" is

Part of the WRC's initial presentation to town officials included a collage of various aspects of flight. For people who are unfamiliar with the hobby, visuals can be helpful.

an understandable question. In addition to gaining insight into other people's RC thoughts and questions, it also reinforced the importance of staying on top of what's happening in our hobby.

So, first things first.

Sound: One Common Question

One person was extremely concerned that nearby residents would find the noise of our airplanes bothersome. My immediate response was twofold.

Many of our pilots fly electric-powered airplanes, and I assured her that they make more of a gentle whirring sound. (I feel that semantics are important. "Sound" instead of "noise" is a more appropriate word.)

Second, I mentioned that at any given time, only a handful of pilots from our club are flying, and even at that, not all are in the air at the same time. Coupled with flights only lasting a few minutes at most, I tried to explain that sound wouldn't be a major issue.

Safety: Will Airplanes Fly Over People?

The fact that not all of our pilots fly at once also addressed safety concerns. Officials were curious as to whether we'd be flying over residents who were coming to the dumpster area, which is located behind the pilots' backs.

We reinforced that all members are

---------- Forwarded message ---------
From: **Senator Maggie Hassan** <Donotreply@hassan.senate.gov>
Date: Fri, Oct 18, 2019, 10:19 AM
Subject: Thank you for your message
To: <jensunshine3@gmail.com>

Thank you for contacting my office.

Please accept this note as confirmation that my office has received your message and will be reviewing it shortly. I appreciate that you took the time to contact me about this issue. Should your message require a response, I appreciate your patience while my staff and I work to provide you with a timely reply.

Thank you again for contacting me and please do not hesitate to reach out to my office with your ideas or if I can be of further assistance.

With every good wish,

Maggie Hassan
U.S. Senator

*This is an unattended mailbox. Please direct any correspondence to https://www.hassan.senate.gov/content/contact-senator

Important Note, if your message is a request for assistance in dealing with a government agency or matter please submit your request through the help page of my website in order to ensure prompt service.

The author was pleased to receive an email from Senator Maggie Hassan's office. Although generic, it acknowledged receipt, and she felt good about sharing her thoughts on behalf of the RC community.

insured by AMA; our pilots have been flying for years and are skilled operators; and the pilots would be standing in a manner so that the flights are opposite of where residents use the dumpsters (the field—not the residents—would be in front of us).

This again emphasizes that these questions will always exist. It's necessary for us to remain patient when we are speaking with those who aren't any more familiar with our hobby than we are with theirs.

Questions that seem to be a given for us are often ones that are foreign to those who don't fly. At the same time, their questions remind us to remain cognizant of important basics, such as safety, so that we can continually check ourselves. Are we truly staying within the flight boundaries at our fields? Do you always fly with a spotter?

The Importance of Staying in the Know

In addition to being aware of such common questions and rules, it's also beneficial to stay on top of the happenings that are rapidly developing.

The resources that are available to us are always at our fingertips. Email addresses to contributing *Model Aviation* writers are published in the magazine, and all kinds of contact information exists on the AMA website. Your questions and comments are always a phone call, email, or link away, whether it's about setting up an event or a second flying field.

I Fly AMA

If you're on Facebook, check out the I Fly AMA group page. Simply click the "join" button and enter your AMA number. In no time, you'll be connected to pilots of all kinds, participating in conversations that range from people sharing memories of their first airplane to questions about changing hobby regulations.

Reach Out to Government Representatives

I'm sure that most of you were encouraged to reach out to government representatives regarding FAA's possible reduction of flights to 400 feet in uncontrolled airspace. We know by now that such a change could impact certain events and, in turn, create a social and economic loss within the hobby.

At the AMA's helpful suggestion a few months back, I emailed government officials about this. It took less than 10 minutes to email US Senators Maggie Hassan and Jeanne Shaheen, as well as New Hampshire's Congressman Pappas. AMA members were sent emails with form letters, so all we had to do was cut and paste them into an email, add our relevant information, and send them to these individuals.

My point is that change is a constant. There will always be questions about our hobby, whether it's from a curious neighbor who is watching us load up our cars with airplanes or from town officials and beyond. It's up to us to welcome their comments and always remind them that it is a safe, community-building hobby that is appreciated by many who enjoy flight, camaraderie, and fun.

At the same time, it's necessary for us to remain steadfast in our knowledge about the changes that are potentially impacting RC flight and, when necessary, to take a stand. Write a letter. Send an email. Sign a petition. The resources to do so are always right at our fingertips.

SOURCES:

I Fly AMA Facebook Group
www.facebook.com/groups/iflyama

AMA Headquarters Staff
www.modelaircraft.org/about-ama/ama-organization/headquarters-staff

AMA Executive Council
www.modelaircraft.org/contact-executive-council

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This is the author's home where it's currently legal to fly. Can this be designated as an FRIA?

DRONE RACING AT AN AMA FIELD?

By Joshua Bardwell
joshuabardwell@fpvknowitall.com

I ORIGINALLY PLANNED to introduce myself in my first column then the FAA released its Notice of Proposed Rulemaking (NPRM) for Remote Identification of Unmanned Aircraft Systems (Remote ID), and I knew there wasn't any time to waste.

In brief, here's who I am. I make content about FPV and multirotors. It's mostly educational, with some product reviews and a little entertainment. I started making videos in 2014. Today, I have more than 140,000 subscribers. I made this my full-time job in January 2018, and I haven't gone broke yet, so I guess I'm doing something right.

Everyone who's flown an RC aircraft knows how thrilling it is. It's a good thing because otherwise, many of us never would have come back after our first crash and the totaled airplane that we spent hours building.

Building eventually becomes its own reward, and the hobby teaches us so many more skills and values than just how to bang the sticks without crashing, such as patience, persistence, precision, and planning. (I didn't plan for those all to start with a P. It just worked out that way!)

As a teacher, I want to help people get to the "joy of flying" experience as quickly (and safely) as possible—not by removing obstacles but by teaching how to overcome them. Every obstacle is an opportunity for learning, but not every obstacle carries a valuable lesson.

Remote ID imposes additional obstacles for beginners. Too many obstacles make people give up because they don't have the mental stamina, time, or money to overcome them. When that happens, our hobby shrinks, and we are less able to defend our ability to enjoy it.

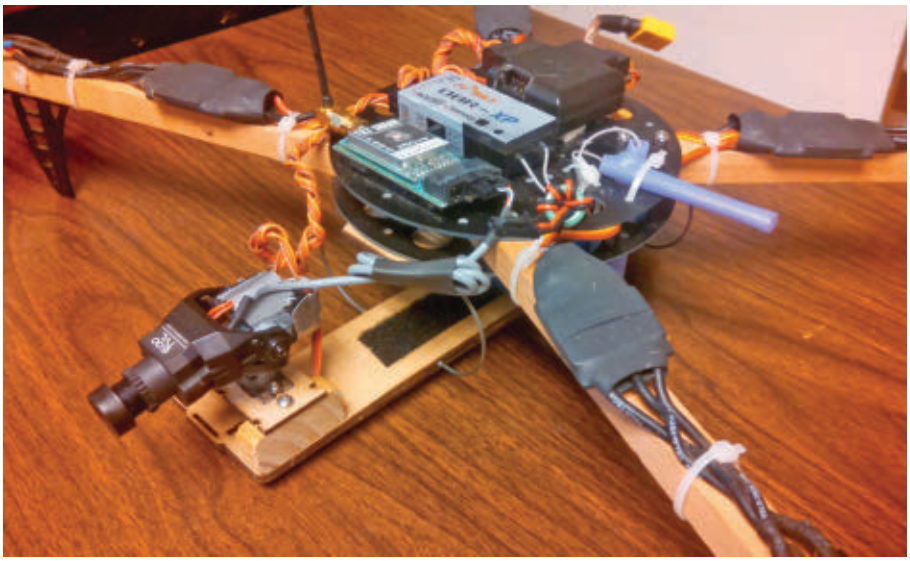
Here are a few of the ways that Remote ID will affect people who participate in RC flight. (The most up-to-date information about Remote ID can be found on the AMA Government Relations blog; the link is listed in "Sources.")

- Three years after the law goes into effect, all RC aircraft that weigh more than 250 grams and are sold within the US must have Remote ID capability—not "all multirotors," not "all drones," but *all RC aircraft*, including traditional model airplanes such as the ones many AMA members fly.
- The "flying site" exemption that the AMA has vigorously defended is threatened by the proposed rule. Under the proposed rule, RC aircraft without Remote ID capability would be allowed to fly in "FAA Recognized Identification Areas" (FRIAs). It's expected that existing AMA flying sites would be recognized as FRIAs. But the ability to register new FRIAs would go away after 12 months, so places to fly without Remote ID would eventually cease to exist as fields close down or change locations. Anyone who does not live within accessible distance of a FRIA would not be able to fly aircraft without Remote ID capability.
- Remote ID capability cannot easily be retrofitted onto many existing model aircraft, such as by adding an aftermarket transponder unit. The rule requires that the FAA certify manufacturers' methods of compliance with Remote ID. Only kits from certified manufacturers would be compliant with the new rule.
- Homebuilt aircraft made from noncertified parts would not be compliant with Remote ID requirements. Noncompliant aircraft could fly at FRIAs until all of the FRIAs eventually disappear, and only Remote ID-capable aircraft would then be allowed to fly.

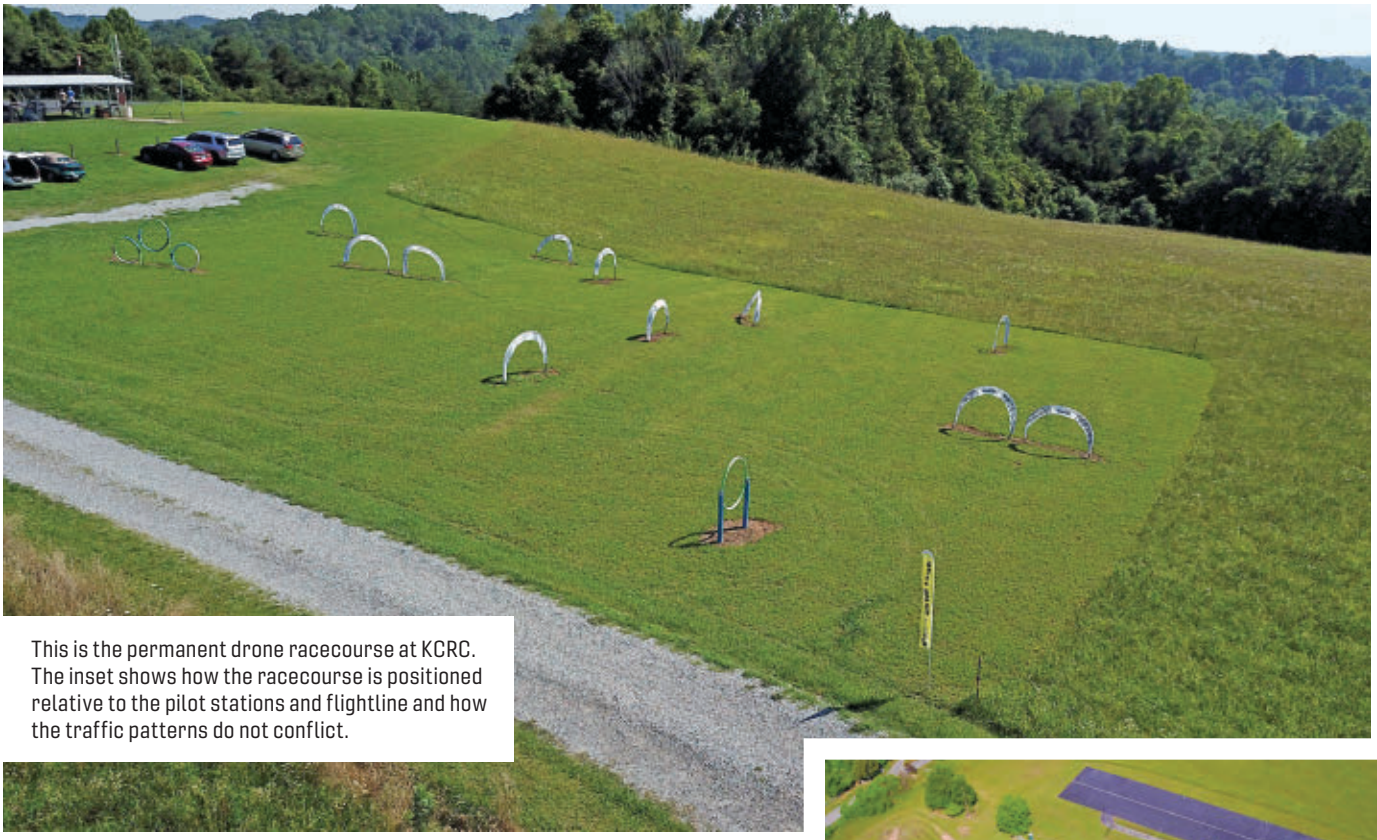
The FAA's plans for Remote ID surprised people. Shock turned to anger, and anger was expressed as infighting. Some drone pilots accused the AMA of only fighting for traditional flying fields. Some traditional modeling enthusiasts blamed the irresponsible actions of drone pilots for bringing down the regulatory hammer.

Approximately 15 minutes from my house is the Knox County Radio Control (KCRC) flying field near Knoxville, Tennessee. It's located on a hill above a park where I flew my quadcopter when I was first learning. I saw the airplanes in the sky and thought, "Cool. Those guys are doing their thing over there. I'm doing my thing over here." It never occurred to me that I might be welcome there.

I later helped start the Knoxville MultiGP drone racing chapter. We would set up courses in isolated areas of a park and race



Before his first multirotor, shown here, the author flew fixed-wing foamies.



This is the permanent drone racecourse at KCRC. The inset shows how the racecourse is positioned relative to the pilot stations and flightline and how the traffic patterns do not conflict.

on the weekends. But sometimes the park was too busy, or the area we wanted to use was occupied.

That all changed when KCRC invited our MultiGP chapter to set up a racetrack at its flying site. This turned into a win for everyone. Drone racers now have a permanent course that they can use to practice without worrying about dog walkers and joggers.

KCRC was able to show the local government increased use of its facility, which helped forestall a possible plan to reallocate the property as something besides a flying field. The drone racing course is set up a safe distance from the traditional flightline, and events are scheduled to avoid conflicts between the willy-nilly flying of the multirotors and the oval pattern of the airplanes.

KCRC President Edward Dumas said, "Over the last several years, the leadership of KCRC in Knoxville has decided to promote FPV flying at our field by building a drone racecourse that includes permanent gates that our members can use anytime they want. The impetus came from the realization that there are several world-class drone racing folks in our local area [who] literally had no permanent drone-flying facilities within easy reach of their homes.

"After talking to Evan and Kevin Turner in early 2019, the KCRC Executive Committee realized the potentially large number of new members that KCRC could attract to its ranks if it had a permanent drone racing track for its members to use. We had our first successful drone race later that fall. The drone track has been a success for our club so far and we expect to host several more races in the coming year."

For more information, visit the KCRC website, listed in "Sources."

The Remote ID NPRM clearly shows that the FAA intends to regulate all RC aircraft equally. It makes no distinction between "traditional model aircraft" and "drones." It also makes no distinction between aircraft flown line of sight or via FPV. All must conform to the rule.

Because the FAA won't distinguish between us when it regulates, we must also not distinguish between ourselves when we fight that regulation. Finger-pointing and infighting between RC flight enthusiasts has to stop.

This means that drone pilots should join the AMA, even if they seldom fly at an AMA field. It also means that AMA clubs should find ways to welcome drone and FPV pilots, although the flight characteristics of multirotors are incompatible with the typical flight patterns used at traditional AMA fields.

To quote Benjamin Franklin, "We must, indeed, all hang together or, most assuredly, we shall all hang separately."

SOURCES:

AMA Government Relations Blog
https://bit.ly/2R5I4Vm

KCRC
www.kcrctn.com

MultiGP
www.multigp.com

Joshua Bardwell's YouTube channel
www.youtube.com/joshuabardwell

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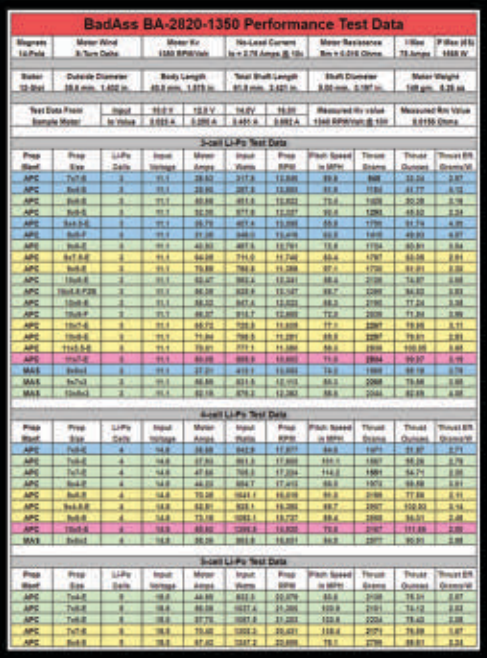
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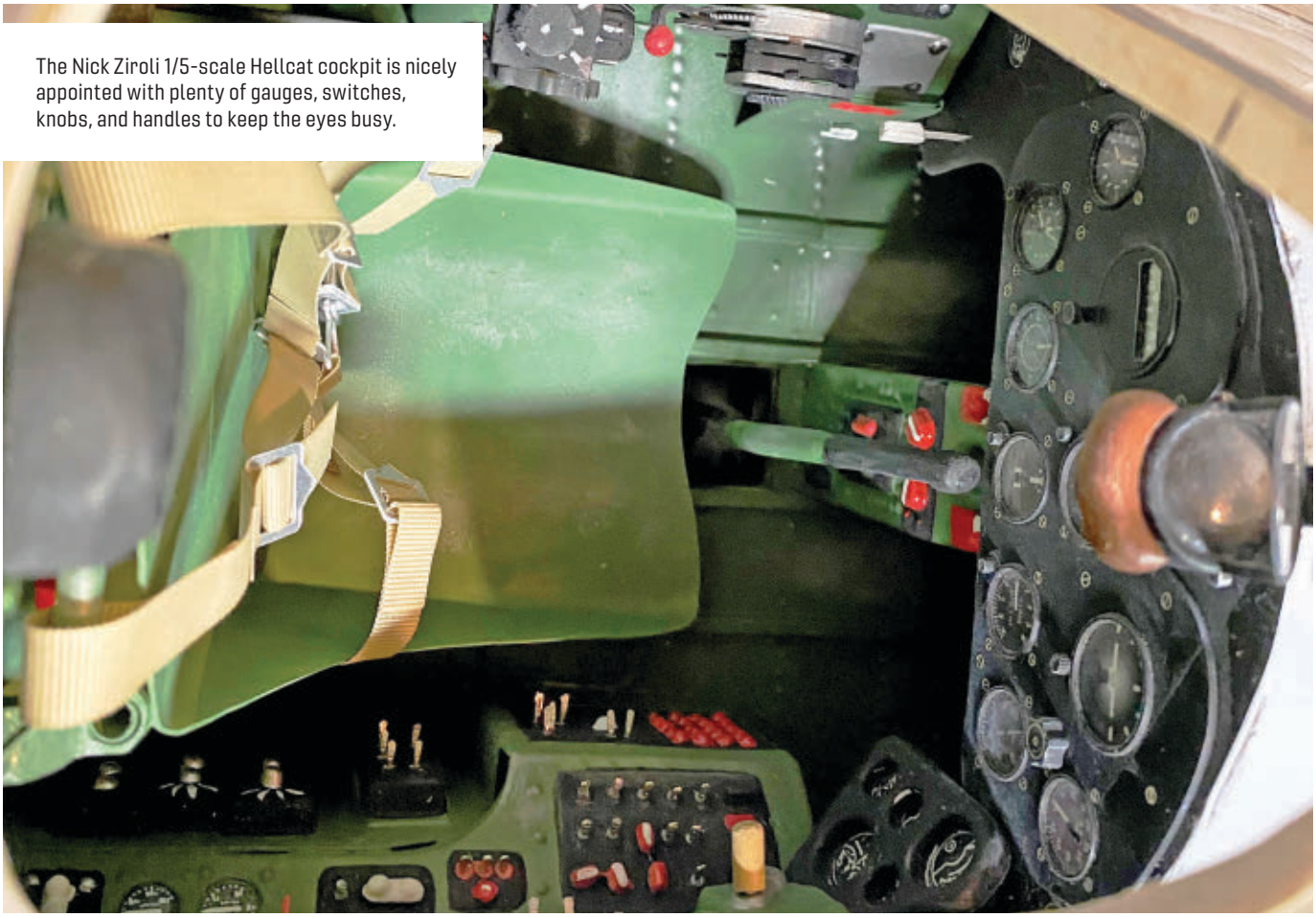
Come see all the BadAss Power System products in booth 260 & 261 at the Toledo Show, April 3rd, 4th and 5th, 2020



The Nick Ziroli 1/5-scale Hellcat cockpit is nicely appointed with plenty of gauges, switches, knobs, and handles to keep the eyes busy.

TOLEDO SHOW: R/C MODEL EXPO

By Sal Calvagna | rcgiants@optonline.net

WELCOME BACK. Spring is just around the corner, and with that stated, you should add the 66th annual Weak Signals Toledo Show: R/C Model Expo to this year's list of "must-attend" events. It will be held April 3-5 at the SeaGate Convention Centre in Toledo, Ohio.

Ladies and gentlemen, this is the largest RC trade show in the country. Because both the AMA Expo East and AMA Expo West shows are now in the history books, it is important that we support the Toledo Show. For more information, visit the show's website, listed in "Sources."

Scale Details

Because RC Giant Scale models are large and offer so much for the eyes to see, they lend themselves nicely to scale details. Models in 1/5-, 1/4-, and 1/3-scale sizes need more "detail" to bring out realistic appearances. You can add as much or as little as you like, but adding something always helps.

Here are some examples of details that can be added to a larger model aircraft.

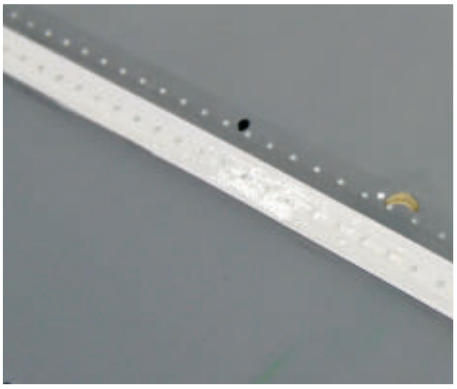
- Cockpits. Every manned aircraft has one. They can be as simple as the early types were, or as complex as World War II- and later-era aircraft.
- Pictured in this column is a nicely detailed cockpit in a 1/5-scale Nick Ziroli Giant Scale Plans Grumman Hellcat. The basic cockpit kit came from Dynamic Balsa; however, the builder decided to use a 3D-printed instrument panel, gunsight, and throttle quadrant from Chad Veich at CWVeich Models. There is plenty for the eyes to see, and the added detail is certainly welcome.

- Rivets. On aircraft of this type, there seem to be a zillion rivets. It can be tortuous to add them one at a time.
- Companies such as Red5 Designs make it much easier to add the rivet detail in the size that you need. They can print rivet tape in 1/6 scale and up and also make double rivet lines. All that is required is your favorite type of water-soluble glue, such as RC56 canopy glue or super tacky glue, and you can be on your way to accurate sizing and spacing with laser-straight installation.
- Hatches, panels, fasteners, covers, etc. These are examples of other details that you can add in addition to rivets and a fully accessorized cockpit. Of course, instead of making your own from different materials, there are companies such as Mirce Models that can make them for you.

Pictured are some of the complete set details that can be ordered from Mirce. They are the right size and shape and add the extra realism fidelity that you desire.

If you need to make other parts for your current project, products such as Creality's line of 3D printers make it easy and within the grasp of an average modeler. For approximately $200, you can buy your own 3D printer.

You can design your own parts using CAD software or visit one of the many websites where parts have already



Above: Rivet tape is installed and ready for glue. A light bead of glue and a quick swipe to fill the holes, and you're ready to remove the tape to reveal an even line of rivets. Right: One set of rivets dries while the next is ready to have the tape removed.

been designed. The parts programs can be downloaded at no cost. Websites such as Thingaverse, STLFinder, Cults 3D, and R/C Scale Builder might already have what you need. You can quickly upload a program and push the start button on your 3D printer. It's that easy!

A 3D printer is just another tool in the modeler's arsenal that can make the quest for scale fidelity a reality.

That's all for now. Remember to support the Toledo Weak Signals RC Club and attend the Toledo Show. I hope to see you there.

SOURCES:

Toledo Show: R/C Model Expo
www.toledoshow.com

Dynamic Balsa
(815) 856-2272
www.dbalsa.com

CWVeich Models
(623) 694-4089
www.cwvmodels.com/index.html

Red5 Designs
(516) 353-8860
www.red5designs.com

Mirce Models
mirce.rc@gmail.com
www.nsmodelers.rs

Creality 3D
service@creality3d.shop
www.creality3d.shop

Thingaverse
www.thingaverse.com

STLFinder
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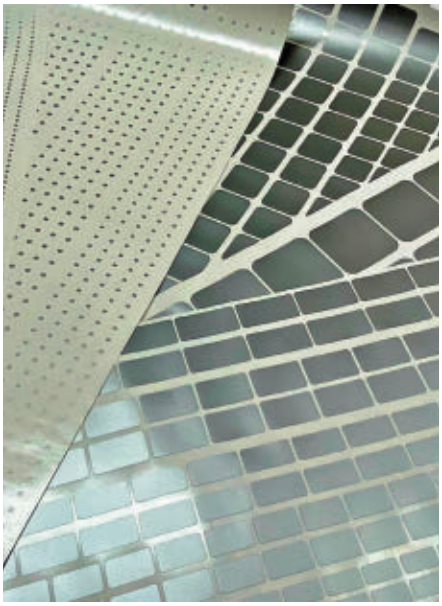
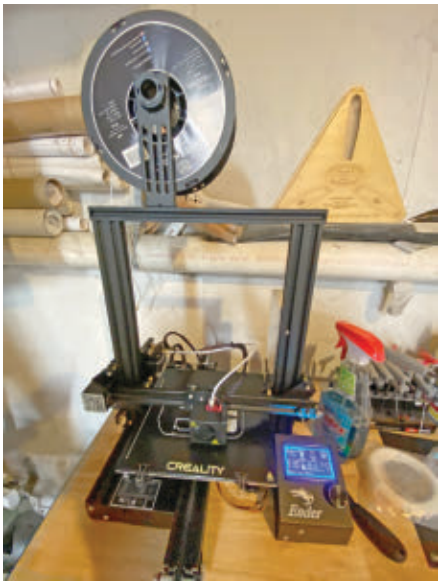
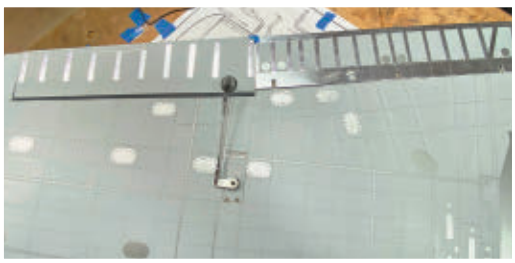


Generic fasteners and panels that are available from Mirce Models are shown in myriad sizes.



The Creality Ender 3D printer is available for approximately $200. Now it's easier than ever to create your own parts.



Above: The Hellcat's fuselage and wing center section are shown with the Mirce Models detail set added. Right: The Hellcat wing's lower skin has the Mirce Models detail set added.

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Winter flying is fun, but you have to dress for it. When the author landed after a 1-hour flight, the wing's leading edge was covered with ice. Photo by the late John Raley.

SLOPE SAFETY

By Ken Hawkins | slopemaster33@gmail.com

SLOPE SOARING CAN expose us to environments and potential hazards that are not usually encountered by other model aircraft activities. Different parts of the country can present their own unique challenges. This month, I want to discuss safety, with a specific emphasis on Slope Soaring.

It is common for Slope Soaring flying sites to be located in remote areas, sometimes with little to no cellphone coverage. It is essential that you let a friend or family member know where you are going and approximately when you will be returning home, or at least be in an area with cellphone service so that you can check in with a quick text to let him or her know that you are okay.

There are a few slope sites at which I will only fly if I am able to go with a friend. They are remote, without cellphone service. Something as simple as a flat tire or a dead car battery would be a challenge at best. A sprained ankle while trying to retrieve a glider off of a steep rock face or a snake bite would be even more serious.

Glider Retrieval

Retrieving a glider down a smooth, grassy slope can be physically exertive for most of us. We all have different levels of physical capabilities. Be mindful of your fellow Slope Soaring friends and assist them when needed, even if they don't ask. Glider retrievals on a steep, rocky slope face require a team effort and extreme caution.

Terrain

If you are planning to fly at a slope site that requires off-road driving, you

must have a vehicle with adequate ground clearance and, most importantly, good tires as well as a spare tire. In the West, it's not uncommon to encounter sharp, tire-eating rocks on the trails. Use caution when driving over tall, dry grass because the vehicle's exhaust system could potentially start a grass fire.

Weather

Strong wind often preludes severe weather, especially in the Midwest. It's important to keep an eye on the sky. If the blue sky is being replaced by dark cumulus clouds, it's time to pack it in, no matter how good the lift is. The last place you want to be is standing on the highest point for miles when the rain, hail, and lightning start.

It is said that lightning can strike 10 to 15 miles from the center of a storm. The bottom line is to pay attention to the forecast and have an escape plan if the weather goes south.

Sheer cliffs provide an exhilarating experience with vertical lift but require extreme caution. It is best to use a glider that won't make you too upset if you lose it.

This fire started at the base of the hill and quickly traveled up the slope with help from the wind.

Dress for the Occasion

Warm, bright, sunny days with the perfect wind are great, but don't forget to pack and use a hat, sunglasses, and sunscreen. It doesn't take long to get a serious sunburn while staring up into the sky, even when flying in the winter.

It's a good idea to carry extra clothing, or at least a jacket. The day might start out warm, but the temperature can quickly drop if the sun hides behind the clouds—especially in higher elevations and drier desert climates.

It's not uncommon for me to start the day in a windbreaker and end the day in a winter jacket with gloves and a wool hat. If the lift is good, you don't want to have to end your day early because you're cold.

Good, quality eyewear and footwear are important. Not only does eyewear protect your eyes from UV light, it also protects them from the wind and dust debris. In extremely windy conditions, it's a good idea to wear goggles or wraparound sunglasses.

Footwear requirements will depend on the slope environment. Wearing sneakers might be fine at a site with soft green grass, but boots or hiking shoes—preferably leather—should be worn when flying at desert buttes with rocks, sagebrush, and cheat grass. I wear leather, calf-high boots, whether its summer or winter, so that I'm prepared if I have to retrieve my glider from a hostile area.

Winter can provide excellent flying with strong and steady wind. The key to flying in freezing temperatures is proper winter gear.

Ensuring that you don't have any exposed skin is important because of the windchill. I prefer wool, a lot of layers, and a down winter coat.

Fire Danger

In the West, fire is a serious concern. I have seen grass fires in the desert spread quickly, especially going up a hill. Although lithium batteries have gained popularity in the hobby because of their light weight and power capacity, they can explode and start fires.

Recently, a local pilot's lithium-powered electric glider burst into flames after a hard landing. The pilot was able to contain the fire but only after it burned a large area. Luckily, he had a shovel and a blanket, but he sustained serious burns on his legs from stomping the fire out. Keep in mind that if you are responsible for starting a fire on public land, there could be substantial legal and financial ramifications.

Bugs and Snakes

In some areas, ticks and mosquitos can be a problem. It is important to remember that they might carry infectious diseases such as Lyme disease (ticks) and West Nile virus (mosquitoes). Always carry a can of bug repellant in your vehicle.

Rattlesnakes are common in the West. Be vigilant when you are retrieving gliders on rock faces and in areas of brush.

Paragliders and Hang Gliders

Paraglider pilots prefer 10 to 15 mph wind and hang glider pilots prefer 15 to 25 mph wind. Depending on the situation, you might be able to continue flying, but you will need to choose a flight path that is well clear of and below them. Do not attempt to fly above them! We do not have the depth perception to do so safely.

This rattlesnake was observed at a Slope Soaring flying site last summer. Always be on the lookout when you're in rattlesnake country. The photo was taken by a local hang glider pilot.

Remember, they have the right of way and can't maneuver as quickly as we can. Always use a spotter to ensure that you know where they are at all times. If the slope becomes too crowded, land. It's not worth the risk of a midair.

Final Thoughts

Bring plenty of water, snacks, and a basic first-aid kit. If you host guests at your slope site, be mindful of their safety and do not leave them alone. Guests will not have the same level of environmental awareness that you do.

To My Readers

I am sorry to announce that I have decided to resign from my position as the "RC Slope Soaring" columnist for *Model Aviation*. This is because of a new position with my employer that requires a significant amount of travel.

I will be forever grateful and honored that I had the opportunity to share my passion for Slope Soaring and write for *Model Aviation*, although it was only for a short time. Aeromodeling has been a central part of my life for the last 45 years. I have met many wonderful people whom I call friends.

I wish all of you the very best, and may your lift always be epic.

SOURCES:

League of Silent Flight (LSF)
www.silentflight.org

A vehicle with good tires and ground clearance is essential for driving off-road in rocky terrain.

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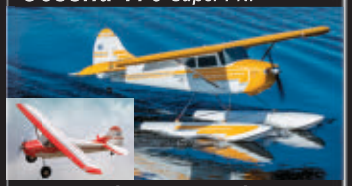

Wingspan: 86.7 in.
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When flying at a higher altitude, the perspective of an airplane being in a wings-level state will appear different compared with when the same aircraft is flown at a lower altitude.

ORIENTATION AND PERSPECTIVE

By John Glezellis | jglezellis@gmail.com

IF YOU HAVE FOLLOWED my columns throughout the years, you likely know that I am a firm believer that success as an RC Scale Aerobatics competitor hinges on more than being a competent pilot. You must also comprehend the rules by which you will be judged and understand proper aircraft building, mechanics, and programming fundamentals so that your flying and the aircraft's performance are consistent.

Throughout this column, I will examine one area tied to flying ability and certain judging criteria. In short, the main topic will revolve around perspective.

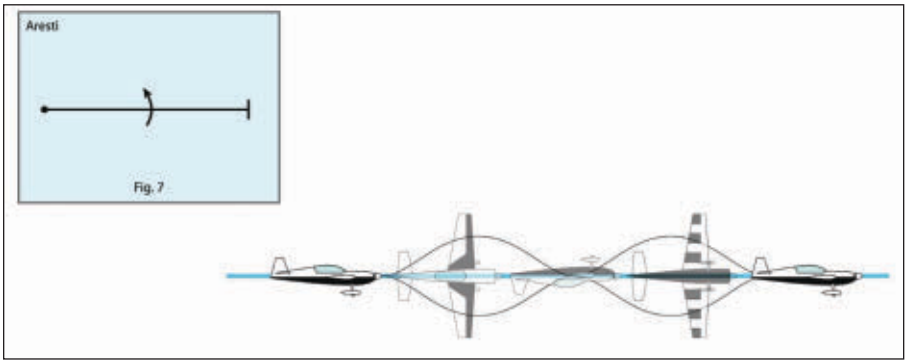
There is no doubt that the orientation of the aircraft can sometimes be challenging for an RC pilot. Given the size of our models and the distances at which they are flown, it is easy to make an error of a few degrees throughout a figure.

What's important to highlight is that the issue exists when a pilot believes that the wing of his or her airplane is level, yet he or she is penalized for any bank angle of the wing in the roll axis. Point deductions will accumulate quickly if you are unaware that the orientation of the aircraft is incorrect!

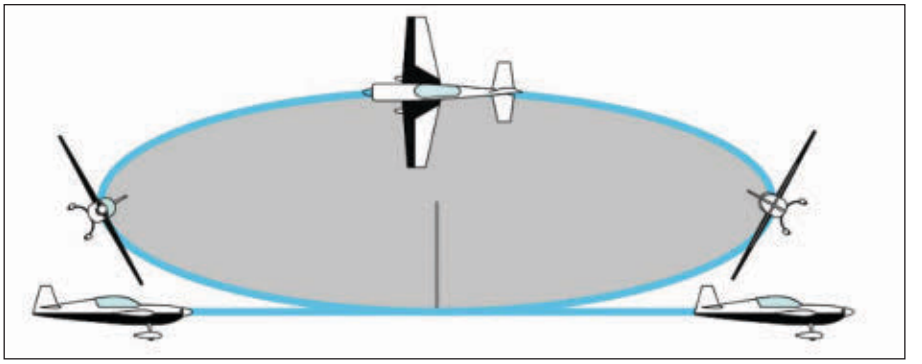
Let's begin!

Exploring the Basics

Before we get started, please note that this column assumes you have a properly trimmed aircraft. If you find it difficult to maintain a wings-level state or feel that the aircraft tends to yaw without any commanded input, take a moment to see if the trimming process was done properly. In the past,



Even a simple roll has many areas where downgrades can exist. Remember that the wing must be level for a certain time period before and after the roll.



The 360° turn is challenging because the orientation and distance of the model are constantly changing relative to the pilot. During these instances, it can become difficult to ensure that the wing remains at a defined bank with no deviation.

I've covered some trimming fundamentals with respect to thrust angles, finding the right center of gravity, corrective mixes (such as rudder-to-aileron and rudder-to-elevator mixes to correct undesired knife-edge tendencies), and so forth.

When I began flying RC Aerobatics in the early 1990s, my father and I attended numerous judging clinics to become familiar with the criteria that was required for each figure. I also began attending various competitions and noticed that some judges would make a note on the scoresheet claiming that the wing was not level for a given maneuver, a figure was not positioned properly, etc.

It is always beneficial to discuss your flight with the judges—and fellow pilots—for feedback. One judge recommended that I perform a practice exercise where I completed passes parallel to the runway with simple turnaround figures. The goal was to have the model remain at the same offset distance from the runway, as well as the same altitude for every pass.

When you are proficient with that, take this exercise a step further by performing a pass at your base altitude. At the end of the aerobatic space, perform an Immelmann to exit at a higher altitude. Focus on the bank angle of the wing and the distance of the model relative to the runway. Perform a Split-S maneuver and repeat the entire cycle until it is perfected.

Altitude differences are important because an airplane that is level at altitude will look different compared with when it is much lower at the base altitude. In fact, I have taken these exercises to the extent that I have had a caller walk out to an access road perpendicular to the runway and stand at the same distance of where my model was flying. He observed the distance and called my spotter to tell us if the wing of my model was level or if I had drifted in distance.

With time, you will know exactly how the model should look to be wings-level at all altitudes and orientations. If you are having difficulty seeing whether your wing is level, look at your airplane's color scheme. Highly visible wingtip colors, such as white, might prove beneficial at greater distances.

Let's Talk Examples!

Maneuver seven of the 2020 Basic Known maneuvers is a roll. Although this might appear as a simple figure, it takes time to master. For example, the roll must begin and end with the wing at a level state. The perspective of how the model appears at altitude is different compared with when it is lower. The roll rate must also remain the same, must contain a defined horizontal line before and after the figure (to show the start and end of the maneuver), and it must be wind corrected.

Wind-corrected maneuvers require the flight path to be perfectly parallel to the runway. If there is a crosswind blowing in, you will need to "lean" the airplane's nose

out slightly so that it tracks parallel to the runway. Too often, you might see that a pilot slightly banks the aircraft when there is a heavy crosswind, but remember, this is a downgrade!

Maneuver four is a 360° turn that begins and ends on a wings-level horizontal line. The aircraft must establish the bank angle before initiating the turn, roll rates must be the same, and the bank angle must remain constant, which can be a challenge because the distance and general orientation of the aircraft differ throughout the entire figure.

Similar to the roll, the turn is to be wind corrected, so remember that when it is viewed from above, the 360° turn will be a perfect circle. Wind correction cannot be performed by visibly changing the bank angle or there will be penalties!

Programming Techniques

If you find that you can easily tell the orientation of your airplane but you are having difficulty because your model is quick to respond to your control inputs, I recommend that you examine how much control surface deflection you have, specifically for the ailerons, in addition to the exponential amount. For figures such as the roll and aerobatic turn, I will not have a condition that has more than the following:

	Position 1
· Aileron deflection/exponential	20°/+35% exponential
· Elevator deflection/exponential	12°/+20% exponential
· Rudder deflection/exponential	35°/+50% exponential

If you are unfamiliar with exponential, it changes the response curve of the servos relative to the stick position. To further illustrate this, you can make the servo movement more or less sensitive around neutral on the rudder, aileron, elevator, and throttle. Spektrum radios use positive exponential values, whereas Futaba systems use negative values to soften the feel of a given command. Consult the instruction manual provided with your system before using exponential.

Final Thoughts

In closing, you should now be aware of the importance behind proper positioning practices and the consequences that could exist. Whenever you are flying a routine, take your time with every maneuver, focus on each element, observe the aircraft, and listen to any critiques from your spotter, fellow competitors, and judges.

Always remember to enjoy each competition and the friendships that you make, whether you are at a local event or at your local flying field!

Until next time, fly hard!

SOURCES:

International Miniature Aerobatic Club (IMAC)
www.mini-iac.org

Futaba USA
(256) 461-9399
www.futabausa.com

Spektrum
(800) 338-4639
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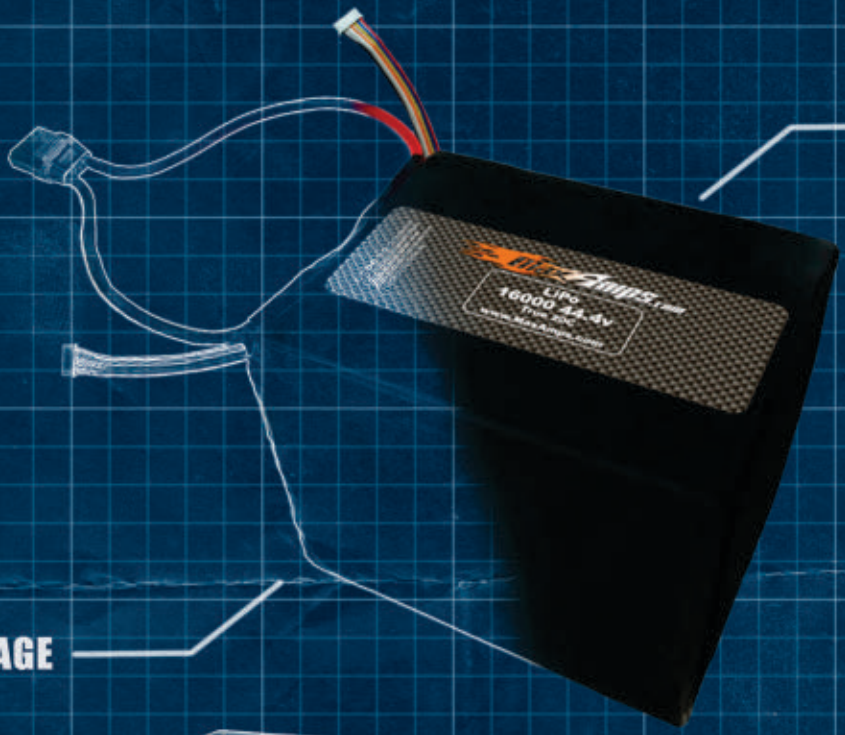

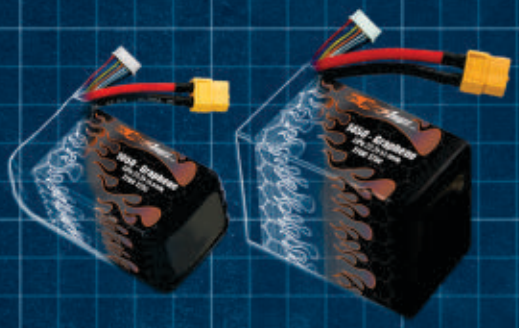

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This is the first of Steven Daly's F2 CL World Championships airplanes. It is nearly completed and ready for finishing.

TRAVELING TO EVENTS

By Joe Daly | stunt38060@gmail.com

TRAVELING TO CONTESTS that are far away has become harder because of airline baggage restrictions. At one time, if you were traveling to a world championship event in another country, you could build a one-piece airplane and ship it there. Of course, you would have to build a good box to protect your beauty!

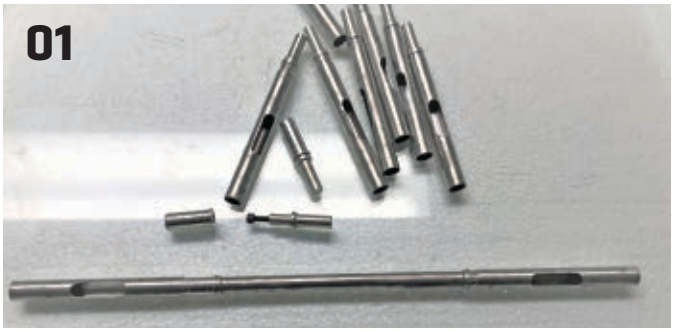
Now, shipping a large box such as that is no longer practical or cost effective, and many airlines also have size limitations on baggage or charge oversize fees. You generally have to fit your airplane into a 62-inch perimeter box. An example would be 38 x 7 x 17 inches, meaning that at least the wing halves and the tail would have to be detachable.

In this article, I will show one of the methods of how to build a take-apart airplane. My son, Steven, and I are building two take-apart airplanes for the 2020 FAI F2 World Championships for Control Line (CL) Model Aircraft that will be held August 10-15 in Włocławek, Poland.

As you can imagine, in researching a take-apart airplane, there are many ways to do it. After looking at a few systems, we decided to try two. For the first box, we settled on Tom Morris' system. The second airplane will have a Dallas Hanna system, which I will cover in a future column.

We went with the Tom Morris system (Photo 01) on the first aircraft because we already had a foam wing that Steven is using for his 2020 airplane, and we hadn't yet joined the halves! We felt that we could easily use Tom's system on that wing without having to start over.

You need to know the fuselage width where the wing attaches to be able to figure out how long to cut the tubes. One of the nice things about Tom's system



Tom Morris supplied the take-apart hardware.

The wing take-apart hardware was encased in hard balsa then tied together with 1/8-inch vertical-grain balsa. It was then epoxied into the foam wing and sheeting.

is that it is adjustable and doesn't have to be ordered to size. He also sends good instructions with pictures on how to put the system together.

After you have determined how long the tubes need to be, you can start to install them in the wing. Before putting it in the wing, we encased the wing hardware in hard balsa (Photo 02). All of the take-apart hardware was glued together using J-B Weld.

It is important to roughen all of the aluminum for better gluing surfaces. Because it was a foam wing, we were able to use foam cradles to align the take-apart hardware and the wing (Photo 03). After that was done, it was on to build the fuselage and install the tubes.

We utilized 1/8-inch plywood to hold in the front tubes and to use as a bellcrank mount (Photo 04). We put 1/32-inch plywood on the inside of the fuselage side to support the tubes from side to side.

The author used cradles to align the wing panels and temporary braces to hold them in place while the epoxy dried.

Aligning the wing to the fuselage was accomplished by turning the fuselage upside down and using the top of the side as a reference. We bolted the wing in and checked the alignment with reference—exactly as you would do on a one-piece airplane.

Next was the tail, which also needs to be removable! This was accomplished by using four 2-56 bolts that are held in place on the stabilizer using maple inserts (Photo 05). It was attached to a plywood mount in the tail of the fuselage. The back of the fuselage separates right after the stabilizer mount to easily remove the pushrod from the elevator horn (Photo 06).

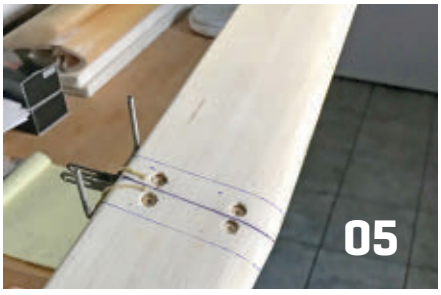
It was not difficult to build this take-apart airplane (see the lead photo). It required a lot of thought, laying out the parts, and taking many measurements to ensure that we were able to build the airplane straight.

The good news is that there are quite a few people who have built take-apart aircraft, so you just have to ask! Any of them will be willing to share and send pictures.

Spring Is Around the Corner

With spring right around the corner, it's time to get out and start flying and practicing for the upcoming contest season. Speaking of contests, it is important for all of us to support our local contests.

To hold the tube in place in the fuselage and as a bellcrank mount, 1/8-inch plywood was used.



Shown are the four maple inserts in the stabilizer that the 2-56 bolts go through to hold the stabilizer to the fuselage.

The stabilizer is bolted to the fuselage, rudder, and the back of the fuselage.

They are what makes CL Aerobatics great. These contests are opportunities to compete, see friends, and even get coaching from your fellow fliers.

One thing I can tell you is that everyone is willing to help. All you have to do is ask!

SOURCES:

Precision Aerobatics Model Pilots Association (PAMPA)
www.pampacl.org

2020 FAI F2 World Championships for CL Model Aircraft
www.cl-f2abcd-wchs2020.pl

RCGroups.com

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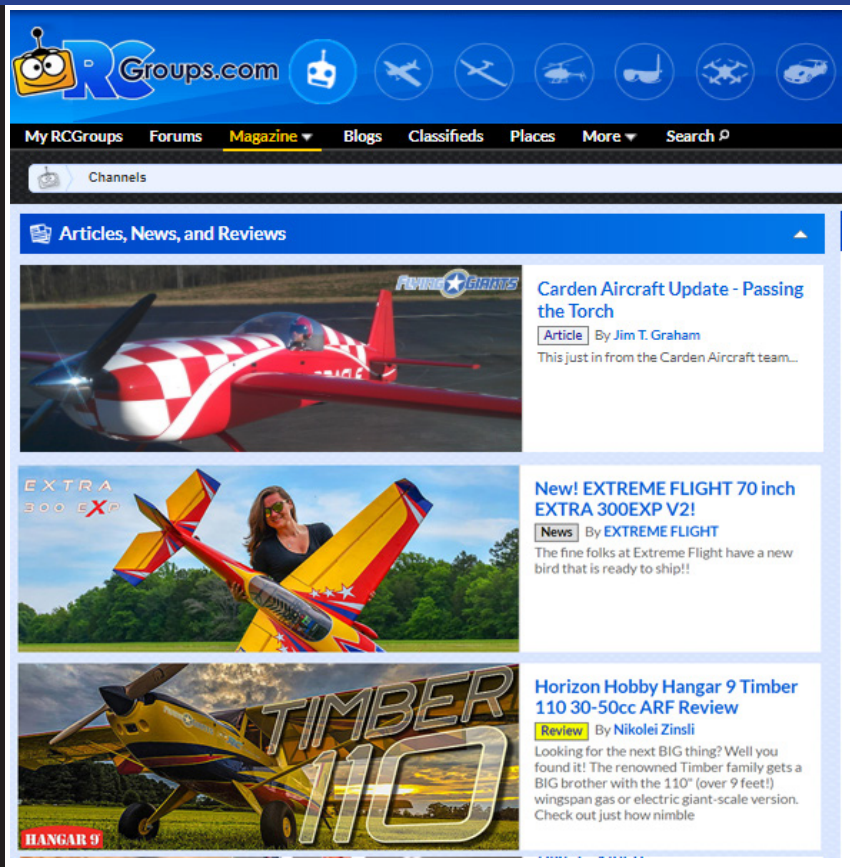

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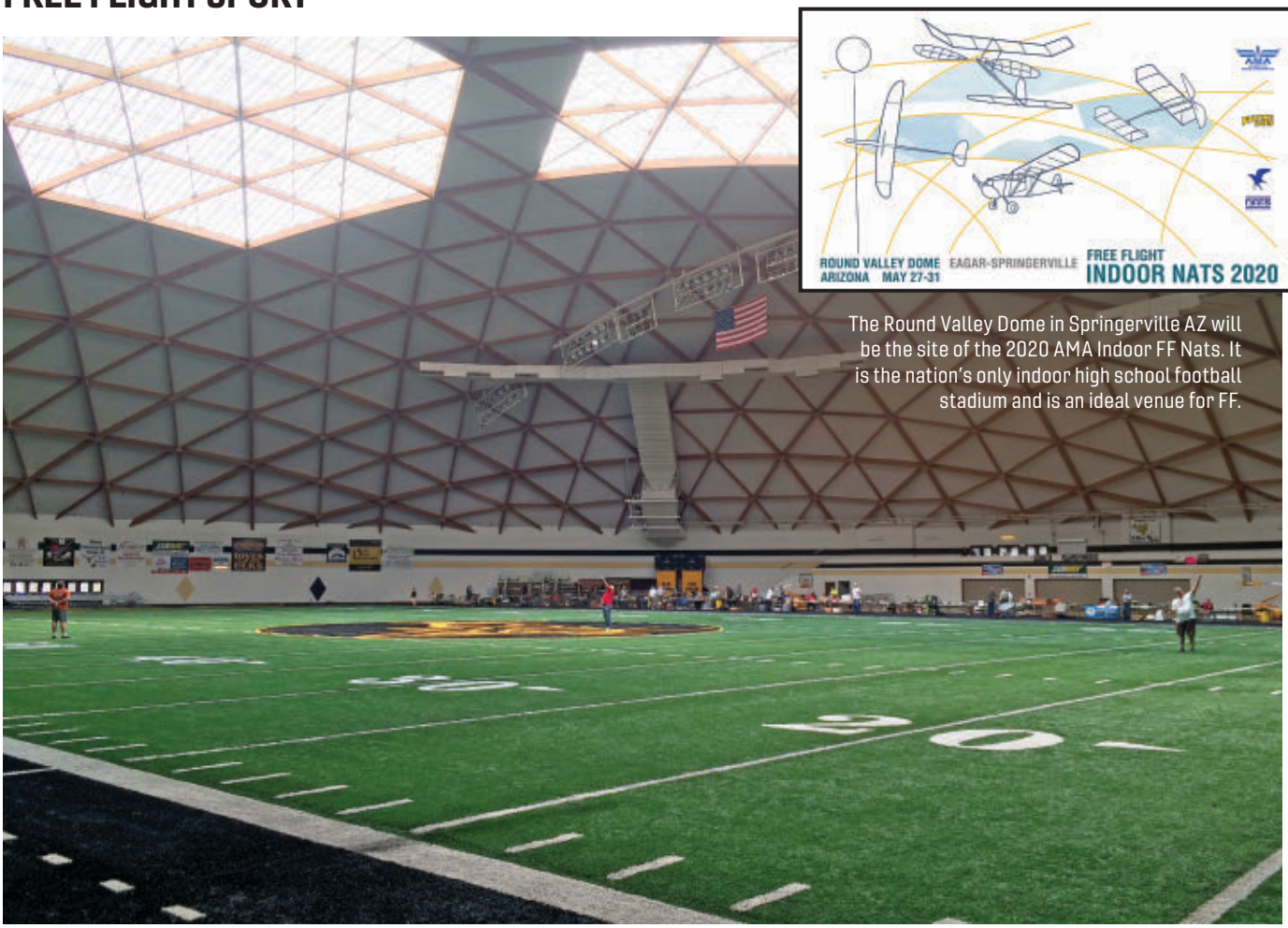

The Round Valley Dome in Springerville AZ will be the site of the 2020 AMA Indoor FF Nats. It is the nation's only indoor high school football stadium and is an ideal venue for FF.

SIXTEEN-INCH AIRCRAFT

By Don DeLoach | ddeloach@comcast.net

THE SWEET SPOT for balsa-and-tissue, rubber-powered Free Flight (FF) aircraft is between 16 inches and 30 inches in wingspan. This size of model has enough wing area to fly efficiently, yet it's not so large or heavy that it breaks when it crashes. Fortunately, many kits and plans exist for 16-inch airplanes.

One of the best ways to get started in 16-inch airplane classes is with Flying Aces Club (FAC) events. A nice-flying airplane, and the easiest to build for FAC events, is the classic Phantom Flash ROG (rise-off-ground).

Phantoms were wildly popular kits in the 1930s. This single-surface, 16-inch wingspan stick model is covered with tissue and weighs approximately 5 grams. A good Phantom will fly 1 to 2 minutes in an average 25-foot school gym with its relatively small 6-inch propeller. FAC rules require it to be built according to the plans and with a minimum 5-gram weight, which is within range for almost anyone.

No-Cal Scale is another 16-inch FAC class that is perfect for beginners and intermediate fliers. These covered Profile Scale models are also single surface and have 16-inch wingspans. There are many kit choices, particularly from Volaré Products, and there are more than a dozen plans with printed tissue files on Paul and Ralph Bradley's Model Airplane Hangout website.

No-Cals are wonderful sport aircraft that are capable of amazing performance if they are built and trimmed well. Regular FAC No-Cal competition does not have a propeller limitation or a minimum weight, so experts

have changed the event drastically. It's not uncommon to see sub-3-gram No-Cals with 10- to 12-inch propellers.

In other areas of the country (including this year's AMA Indoor Nats venue in Springerville, Arizona), a couple of No-Cal mass launches are being held for World War II combat and 1930s race airplanes. This specialized, more reasonable rule set requires a 6.2-gram minimum weight and a 7-inch maximum propeller diameter.

Dime Scale is another 16-inch wingspan FAC class that's loads of fun. These 3D scale models are based on the lightweight, simple 10¢ Comet and Megow kits of the 1930s. They're easy to scratch build from the hundreds of plans

Rich Adams (L) and Dohrman Crawford are shown during the 2019 AMA Indoor FF Nats, held at the Round Valley Dome.

Some of the competitors in the 2019 AMA Indoor FF Nats included (L-R, standing): George Nunez, Rich Adams, Jonathan Nunez, and Bob Hodes; (front): Henry Towes.

Tom Norell shows his neatly decorated Phantom Flash.

David Aronstein's Mr. Smoothie No-Cal airplane was built from plans published in the NFFS newsletter.

that are available. There are also quite a few great kits available from Volaré Products, Easy Built Models, and Hummingbird Model Products.

Dime Scale is important to comprehend, though. These aren't precision scale models—they're more like bare-minimum scale models that are 1/16-inch square, with single spar wings and sparse details.

A-6 is an AMA Indoor FF Duration event that is for the lightest of the 16-inch airplanes. Rules stipulate a 30-square-inch wing, 6-inch motorstick, 6-inch flat-blade propeller, and 1.2-gram minimum weight. The basic structure must be 1/16-inch square, and sheet wood must be 1/32 inch.

A-6 is a terrific introduction to Indoor Duration flying. If built down to 1.2 grams, the models are capable of 5-plus minutes in a small gym. Lots of plans are available through *Indoor News and Views* and the National Free Flight Society (NFFS) websites. J&H Aerospace has also recently released a nice kit.

Indoor Nats

The AMA Indoor FF Nats will return to the enormous Round Valley Dome in Springerville, Arizona, May 27-31, 2020. The Round Valley Dome is a wonderful geodesic, wooden dome that is 104 feet at the peak and approximately 400 feet in diameter.

Three large skylights provide plenty of natural light, and the high desert climate (7,000 feet) in early summer results in delightful, shirt-sleeve temperatures inside the dome. The towns of Eagar and Springerville serve as twin hosts and have reasonably priced motels, friendly people, and excellent restaurants.

There will be five days of flying at this year's event, including the full spectrum of AMA, FAI, NFFS, and FAC events.

The nearby White Mountains are an excellent family vacation destination that features hiking, fishing, hunting, and more. Join us!

SOURCES:

NFFS
www.freeflight.org

Volaré Products
(269) 420-9477
www.volareproducts.com

J&H Aerospace
www.jhaerospace.com

Easy Built Models
(334) 358-5184
www.easybuiltmodels.com

FAC
www.flyingacesclub.com

Indoor News and Views
www.indoornewsandviews.com

Springerville-Eagar Chamber of Commerce
www.springervilleeagarchamber.com

AMA Nats
www.modelaircraft.org/nats

Paul and Ralph Bradley's Model Airplane Hangout
www.parmodels.com

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FOUNDATION NEARLY REACHES ITS GOAL

THE AMA FOUNDATION is proud to share with its supporters that nearly $293,000 was raised for AMA programs in 2019. Thank you to every person who contributed to this cause. Because of you and your support as a member and/or an AMA Foundation supporter, 2019 was prosperous. Thank you for supporting model aviation and for your passion for the hobby.

Help support the AMA now and in the future with a gift to the AMA Foundation Endowment Fund. This fund will be used for continued growth of AMA's benevolent programming.

amafoundation.modelaircraft.org/endowment

In honor and in memory of ...

Southwest Area Park Modelers - MD - $100 - Foundation General Fund, in memory of Andy Kane

Money Matters

MAKE TIME TO DO THE WORK NEEDED

By Keith Sessions, Chief Financial Officer | keithsessions@hotmail.com

As I write this, we have closed the books on 2019 and are looking forward to 2020. 2019 was a challenging year to say the least. When planning in 2018, we felt it could be a transitional year. We found hurdles on the revenue side and expense side, but we were able to make adjustments, which helped the bottom line. Although we still ended with a deficit, the number was much less than it could have been.

On the revenue side, traditional dues revenue was less than in previous years. The initial membership decline found support at approximately 111,000 adult members. This was down roughly 5,000 members overall. In addition, the sales of print advertising were down as companies reduced marketing budgets or explored other avenues. This trend is becoming common in today's digital world as evidenced by the large number of now-defunct magazines and newspapers. Digital advertising helps, but it is unable to fully replace the print advertising revenue from even a few years ago.

On the expense side, we worked again to make the organization leaner. This has taken place for many years. Several contracts were renegotiated as they came up for renewal.

We are at the point where reduction of expenses impacts the members. The staff at AMA Headquarters was reduced in the fall. They are an extremely hard-working group of people who now must find how to do even more with less.

As many of you are already aware, AMA Expo West and AMA Expo East will not be held going forward. These events were historically break-even events at best, but in the last few years have lost money. The last two years in particular have seen substantial losses which can no longer be absorbed. This again points to a change from traditional information streams to digital streams.

Although we have a fantastic safety record, 2019 saw a slightly higher expense for legal fees and claims. 2020 should be back to a low number.

Finally, government relations expenses were higher than expected. Several years ago, this number was zero, but it has now become an annual expense.

For 2020, the revenue side is expected to hold roughly the same as in 2019. We could experience a reduction in members with testing and increased government oversight. Advertising revenue is expected to be higher, as a new team was put in place late 2018 and is fully engaged. Some members will notice an increase in fees, especially if they use the International Aeromodeling Center in Muncie, Indiana, for events.

Even with the increase, we are still able to provide services to members at well below market price. As the year progresses, we will make changes as needed.

A bright side for members is that dues have remained the same. The adjustment made a few years ago was the first one in 13 years. Low inflation has helped keep dues stable.

Aside from the financials, I would like to take this opportunity to thank all of the countless volunteers who help this organization with their time, efforts, and financial support. If you read the comments on social media, you might think that the AMA is expected to be this giant conglomerate, capable of granting the desires of the members with a wave of its all-powerful wand. The truth is that we are an organization of volunteers trying our best to preserve model aviation. We have a small paid staff that works tirelessly to keep the wheels on the bus.

When you see someone who feels that the AMA is failing, ask that person what he or she has done to help. It takes thousands of hours of work off of the flying field to battle the FAA, large corporations, and governments. The volunteers all have busy lives with work and family, but they find a way to make time to do the work needed for our community.

NOMINATIONS DUE FOR AMA EXECUTIVE VICE PRESIDENT AND VICE PRESIDENTS IN DISTRICTS III, VII, AND XI

Nominations for AMA executive vice president and vice presidents in Districts III, VII, and XI are due at the Headquarters of the Academy of Model Aeronautics by June 26, 2020. Any AMA Adult member may submit a nomination.

To be eligible to discharge the duties of AMA executive vice president, a nominee must be a Leader Member of the AMA and must previously have served as a member of the Executive Council or associate vice president or as a Contest Board member for at least one (1) year.

To be eligible to discharge the duties of AMA vice president, a nominee must be a Leader Member of the AMA and must reside in the district.

(Nominees and nominators will be notified by HQ confirming receipt of nomination. If confirmation is not received within two weeks after you have sent your document, contact Joyce Hager at [765] 287-1256, extension 200.)

A letter of acceptance and a résumé of professional qualifications and model aviation experience from the nominee must be on file at AMA Headquarters by July 11, 2020, 15 days prior to the published meeting.

Nominating Procedure Document
Relating to Article IX

Candidate Guidelines:

(a) No person may nominate himself/herself for office.

(b) No person shall simultaneously hold two positions on the Executive Council. In the event a person holding an office is elected or selected to a second position on the Executive Council, that person must choose which of the two positions he/she will continue, such decision to be made within 48 hours of the announcement of the selection, or else the person so affected will be deemed to have selected to remain in the first office held.

(c) Incumbent is automatically placed on the ballot, provided that he/she has been properly nominated and accepted, except that a 3/4 vote against may withhold the incumbent's name from the ballot (see Bylaws, Article IX, Section 2).

(d) All nominations must be received at AMA Headquarters thirty (30) days prior to the convening of the Nominating Committee Meeting. All information must be submitted by electronic means.

(e) Candidate must be a legal resident of the district in which the election is being held; this does not apply to the office of the President or Executive Vice President.

(f) Candidate must be a current AMA member with Leader Member status (other qualifications apply to the office of the President and Executive Vice President, Article IX, section 3).

(g) No person elected to and serving as an active member of the Executive Council shall be paid for any regular column or article in *Model Aviation* magazine. Exception may be made for such articles as the coverage of special events provided prior arrangement was made for said article. Articles and columns printed in the "AMA News" section are not paid contributions. No paid columns may be submitted after the individual has been placed on the ballot.

Candidate Acceptance:

All correspondence must be submitted electronically to AMA HQ Muncie IN. Failure to meet all requirements, will disqualify said nominee.

(A) A letter of acceptance by the candidate and his or her résumé must be electronically submitted 15 days prior to the meeting. Included should be professional qualifications and model aviation experience, along with the items listed below.

1. Management experience.
2. Financial background.
3. Insurance employment and/or expertise.
4. Legal background.
5. Technical background, including areas of aeronautics, electronics (especially in radio frequency propagation and usage), acoustics (as related to noise studies and analysis), and other areas of engineering.
6. Aeromodeling background must be noted. The individual will be required, if elected to national office, to deal with questions related to all areas of aeromodeling and should have a broad-based background.

(B) Campaign statements must be received at AMA Headquarters 10 days prior to the Nominating Committee meeting. Campaign statements will not be read by any person until it is determined who will be placed on the ballot.

(C) Each candidate is allowed one AMA-financed campaign email push, which will occur simultaneously for each race. It will consist of a maximum of 750 words (a URL will be considered one word) and one current head shot photo if desired. The content of the email push is due to the AMA HQ 10 days after the nominating committee has determined the ballot. The content of the email must be sent electronically so that it can be cut and pasted by staff to eliminate error. The email will be sent 20 days after the nominating committee has set the ballot.

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District I

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

AMA member Pete Bozzo sent us the following report about the presentation of one of the highest honors that an AMA member can receive.

"On Saturday, November 30, 2019, at the New England Air Museum in Windsor Locks, Connecticut, AMA District 1 Vice President Andy Argenio honored and presented the prestigious AMA Model Aviation Hall of Fame Award posthumously to AMA member Irving W. Chappell, known to many as Bud. Bud was selected to receive the award for his lifelong significant and outstanding contributions to promoting and advancing model aviation as a worthwhile enjoyable recreational hobby for youth and adult members and increasing the sport's prestige and stature.

"Accepting the award for Bud was his grandson, Scott Copeland, along with members of Bud's family. Also present for this occasion were Associate Vice Presidents (AVPs) Tom Rocheleau, Steve Brehm, and Ron and Joan Liska, as well as Pete Bozzo who sponsored Bud for induction into the AMA Model Aviation Hall of Fame.

"Bud's interest in model airplanes began at age 6. He became an avid builder, flier, and model airplane designer, having published many popular designs, plans, and construction articles in numerous magazines. His best-known plans and builds were for the Britten Norman Islander, Consolidated PBY-2 Catalina, and the Martin China Clipper. To view plans and a construction article, visit https://outerzone.co.uk/plan_details.asp?ID=5917.

"Bud was featured in two AMA promotional videos. The most notable is titled *A Plane, a Place, a Perfect Day*. He had multiple sport and Scale wins from 1970 through the 1980s. As a full-scale pilot he owned a 1947 Ercoupe and an Alon Aircoupe. Bud enjoyed the hobby with his family and at AMA clubs until his passing in 2016 at the age of 88."

Thank you, Pete, for this great report. Also thank you to AMA member James Fieweger, for providing all of us with a fabulous tour of the New England Air Museum and its reconstruction facility.

Pictured above are most of Bud Chappell's wonderful family and several friends at the presentation of the AMA Model Aviation Hall of Fame Award.

Pictured are AMA members Ron and Joan Liska (AVP), Tom Rocheleau (AVP), Scott Copeland who is Bud Chappell's grandson, Andy Argenio (DVP), Steve Brehm (AVP) and Pete Bozzo who nominated Bud Chappell.

District II

New Jersey, New York, Europe

For those who've been in the hobby for any length of time, we've come to understand there are different rewarding aspects of the hobby. For some, it's pure flying; for others, it's things such as competition, education, or technical achievements. But whether we realize it or not, the social aspect of working together or meeting with modeling friends is a unique time when we share information and learn from each other.

The most successful clubs are those that support the social component of club activities. One such activity is a club swap meet or auction. These nonflying activities bring a different dimension to your club's activities, and they draw in modelers from surrounding clubs that could potentially join your club.

On Saturday, February 1, 2020, I attended the ninth annual ATOMS RC'ers Swap Meet and Auction in Hillsborough, New Jersey. The event has always been a sellout, due in no small part to good organization and good advertising. Advance table sales are brisk and a large number of attendees fill the Hillsborough Town Meeting complex.

Virtually every member of the club works at the swap meet to help ensure that the event runs smoothly.

A nice Typhoon at the ATOMS Swap Meet.

This P-51 was also seen at the ATOMS event.

Whatever you need, you'll probably find it at the ATOMS Swap Meet.

On February 15, 2020, the Radio Control Club of Rochester (RCCR) held its annual Swap Meet at Our Mother of Sorrows Church in Rochester, New York. RCCR is a highly involved club that conducts two meetings each month. In addition to its annual swap meet, RCCR sponsors several AMA sanctioned events each year. The club also sponsors displays of models at shopping malls, hosts the club's annual Banquet and Roast, and holds several picnics during the year.

Left and below: There were lots of great choices at the RCCR event.

Consider what your club can do as an added activity to get modelers together and provide a fun event.

Remember, it's not about what you fly, it's about the friends you make.

II

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District III

Ohio, Pennsylvania, West Virginia

Last summer, I was contacted by Secondary Curriculum Coordinator Grant Spencer of the Harrison County Schools, in Clarksburg, West Virginia. He asked if I would participate in a STEAM program called Sparking the Aerospace Fire. The event would have 25 students and teachers from five middle schools in the county.

I called my friend, Ed Waske, a modeler and the owner of a full-scale aviation repair facility in the area, to see if he could help and he said he would be glad to. The goal of this event was to educate the students of the tremendous career potential available today in aviation.

I contacted AMA Education Director Kyle Jaracz for advice on how to proceed. We decided that the Foam Plate Glider 9 (FPG9) would be the best project. In addition, I created a PowerPoint presentation that helped teach basic aerodynamics and explained how model aviation has encouraged famous aviators such as astronaut Neil Armstrong, Burt Rutan, and others.

The students and teachers are test-flying their gliders. Lots of fun!

Hayden Pitts, of South Harrison Middle School, won an AMA Alpha for the longest glider flight.

Class began with a PowerPoint presentation about model aviation, jobs in aviation, basic aerodynamics, and a question-and-answer session.

Ed Waske, AMA member and aviation business owner (L), explains weight and balance to a student and a teacher.

Ed brought one of his employees, Mike Gray, to speak to the students about the career opportunities in aviation. Ed and I brought several models and utilized them to explain lift, drag, the controls, etc.

After the initial PowerPoint presentation and a brief question-and-answer session, it was time to have some fun building and flying the gliders. The FPG9 is one of the simplest, easiest, least expensive, and most productive aviation learning tools available to teach students how an airplane flies. They only require some tape to assemble and a penny for nose weight.

After several minutes of assembly, the students test-flew their gliders in the room. The FPG9 has elevons and a rudder so it can be trimmed to fly straight, circle, climb, etc. We helped the students trim their airplanes to fly and then held a little competition to see whose aircraft would glide the farthest. It was fun to listen and see the students' satisfaction knowing they had made an airplane that flies.

Next, we went outside on the school property and I flew a small RC foamie and a drone to educate the students about the rules of flying. After flying, the school had a pizza lunch for everyone.

The future of aviation, whether it is model or full scale, will be the students who are in our schools today. Model aviation can have a significant impact on the future of aviation. As AMA members and model aviation experts, it is important that we help educate the students of today for the future of aviation.

If your club would like to do a similar project for a school, contact Kyle at kylej@modelaircraft.org for further information.

Until next month, fly safely, fly AMA.

District IV

Delaware, District of Columbia, Maryland, North Carolina, Virginia

In addition to being our District IV Government Relations associate vice president (AVP), Ray Stinchcomb likes to get around to our district clubs and fields, not specifically for an event but for pleasure flying and enjoying our many diverse clubs. Ray will highlight and bring us periodical reports on these clubs.

This month's "On the Road With Ray" is courtesy of Ray and AVP Nic Burhans.

On June 22, the Fauquier Aero Recreation Modelers (FARM) held its annual Summer Float Fly. As usual, co-contest directors (CDs) Bill Towne and Nic Burhans did an excellent job of running a first-class event. Lake Ritchie, in Fauquier County, Virginia, is an outstanding venue for float flying. There were 37 pilots from Virginia, Maryland, Washington D.C., Pennsylvania, and North Carolina participating in the all-day event. Family, friends, and drop-ins also came and watched the day's operations.

Although the wind was higher than desired, from 8:30 a.m. until early afternoon, there were airplanes and boats on the lake almost continuously. FARM Rescue was provided for all shapes and forms of boats and aircraft that had problems becoming a submarine. All enjoyed the quiet, unobstructed, and spacious layout of private Lake Ritchie and its great pavilion. The FARM Summer Float Fly was a huge, enjoyable, success for all of the participants, families, and watchers.

FARM also holds a Fall Float Fly each year. Both of these are annual events for the FARM club. Come out and join the fun. For more information about the FARM club, visit its website at www.farmclubrc.com.

Quiet and spacious Lake Ritchie was the venue for the FARM Summer Float Fly.

FARM Summer Float Fly.

CD Harold Chadsey reported on the 2020 Northern Virginia RC (NVRC) Annual Snow Fly.

There are multiple NVRC fun-flys held throughout the year, including our annual NVRC Snow Fly, which was held on January 25, 2020, at our Lorton field and was open to all airplanes with landing gear and a rudder. This year's event had good weather in the 50s, but followed a night of heavy rain.

The field was extremely wet with a series of small ponds that slowed the airplanes with wheels and the grass was just long enough and wet enough for those with skies and floats. This made airplanes approximately equal for the takeoff distance and landing distance measurement events. Other events included time to perform a series of loops, rolls, and spins, and how close an airplane first touched down after reaching a designated line.

We had seven registered fliers with only one airplane casualty. (You are not supposed to try to squeeze out one last spin within 30 feet of the ground and not expect to have a recovery problem.) All pilots went away with something, and fun was had by all. For more information about NVRC, visit the club's website at www.1nvrc.com.

These were this year's NVRC Annual Snow Fly participants.

Go fly and have fun safely.

IV

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District V

Alabama, Florida, Georgia, Mississippi, Puerto Rico, South Carolina, Tennessee, US Virgin Islands

Congratulations and welcome to our new contest directors (CDs) and event managers (EMs)! They are CD David Churchill from Mableton, Georgia; CD Russell Russitano, from Florence, South Carolina; and EM Sven Jensen of Gibsonton, Florida. Thanks for stepping up and helping out!

Associate Vice President (AVP) Bill Barbee and I attended the Toys for Tots fundraiser at the Heath Green Sky Ranch. Bill shared the following:

What a great day it was in December. The sky was clear at the Sky Ranch with a light breeze, and the temperature was in the 60s—perfect weather for a fly-in! We had 40 pilots flying all types of aircraft for nearly 300 spectators who turned out for this giving event, and did they ever give. At last count we had more than 750 toys for the Georgia State Patrol's Toys for Tots, and we're still counting.

Many activities went on. Electric-, gas-, and turbine-powered aircraft took to the air to the delight of the many people who turned out. This was the first time for me where the CD had to control not only RC aircraft but also full-scale airplanes. Nine full-scale aircraft joined us and coordinating their landings and takeoffs was a full-time job! In addition to the fixed-wing aircraft, the Georgia State Patrol and local Med-Evac unit both had helicopters on static display.

Attendees were treated to a tandem flyby and aerial precision flying by Sean Heath and Gene Long in their Piper Warrior and Piper Cherokee 180. Tom Goss did some smoke flybys in his paramotor.

A band played as the afternoon turned into evening and then at dark there was a spectacular fireworks display. Three tethered hot air balloons floated passengers up and away for a bird's-eye view of the Sky Ranch.

Plans are already underway for this year's event, so if you have not been to the Sky Ranch, you owe it to yourself to make this part of your bucket list.

I agree that it was a memorable event and the Sky Ranch is a world-class field located in our district with a 2,000-foot runway, helicopter area, float-flying ponds, even an off-road track for RC cars and trucks. All of this, along with power, camper hookups, and bathrooms, and historic Savannah is only a short drive away.

The Rocket City RC Club will hold a District V fly-in April 17-19, 2020, in Huntsville, Alabama. Check the AMA event listings or visit www.rocketcityrc.com for more information.

That's it this month. Fly a lot and fly safely!

Stuff I love to see! I met these great people at the Cape Coral R/Sea Hawks Warbird fly-in. Three generations of Hauges—Cody (L), Mike, and Brian—are all pilots. Cody won first place in the Fun Scale Novice Class at the recent Cape Coral Classic Scale contest run by Mike Barbee.

One of the turbine jets attending the Toys for Tots event was this Sky Master 2.6m Viper with a Jet Central Rhino turbine flown by Chris Campos from Columbus GA.

Standing in front of a flatbed trailer that was filled with donations for Toys for Tots are (L-R) AirEvac pilot Robert Rayner, flight nurse Jennifer Morgan, flight medic Ken Herrin Jr., Santa Claus and his Georgia State Patrol security detail, CD and AVP Bill Barbee, and Sky Ranch owners Doc Green and Sean Heath.

District VI

Kentucky, Illinois, Indiana, Missouri

This month's first submission is from Rafeek Besheer of the Midwest Sundowners in Crown Point, Indiana.

This year's Chilly Fly and Swap event is the fourth one organized at the Sparta Dome by the Midwest Sundowners. The enormous 120,000-square-foot inflatable dome has a grass turf overflight area with a 70-foot ceiling.

Paul Vandenburgh offered a demonstration to guests as they walked in the dome. The half-time show included blue F-22s in a demolition derby-style demo as well as flying wings (six at a time). Tom Lustig and Scott Brownwell flew effortless and intricate maneuvers. (I cannot understand how their fingers work!)

The swap event had a variety of airplanes and essentials. Sundowners Vice President Bob Jackson sold raffle tickets for an Extreme Flight ARF Vanquish, won by Stan Zolodz III. Notice the smile on Stan's face as he holds his prize presented by club president Tim Klein.

A video of the event, composed by 3D Dave, is on YouTube at https://youtu.be/JH9WzbIPzq8. Check us out at www.midwestsundowners.com.

Leo Rodriguez, AMA District VI associate vice president, reported on the Air Supremacy Over Goshen event, held at the Goshen Municipal Airport in Goshen, Indiana. The 2019 air show, with 112 pilots from 11 states and more than 250 scale aircraft, exceeded the founders' expectations.

Pilots from as far as Arizona, Canada, and Florida attended the show. The airport and several local businesses did their parts to make Air Supremacy a resounding success.

"Each year, we introduce something innovative to attract new pilots," said Chuck Hamilton. An objective is to "have Air Supremacy and Scale aircraft recognized as a legitimate segment of the aviation community. Everyone associated with Goshen Municipal Airport is testimony that we are achieving this goal." The event has demonstrated consistent growth.

Air Supremacy Over Goshen 2020, will be held July 16-18. The complete story can be found on www.flygoshen.com.

Dale Arvin reported on youth building. AMA, in conjunction with Horizon Hobby and Sig Mfg., has put together a package consisting of a 40-size trainer airplane kit, electric motor, batteries, a charger, a Spektrum radio, and all of the building materials and tools required to build and fly the airplane.

The package is offered to EAA chapters for a fraction of the original cost then EAA partners with an area AMA club to assist Young Eagles in building and flying the airplane.

The River City RC Flyers in Louisville, Kentucky, is one of the AMA clubs helping with a project. The first building session was on January 11, 2020. Five club members and 13 students attended.

The 2-hour sessions take place every other Saturday and the young people really enjoy the building. The instructors show them what to do and the kids do the building.

The first session was building the wing, which was nearly completed in the allotted time. The airplane should be ready to fly in roughly four months.

Remember, to see your club in the magazine, send me a submission of your club's event from this past year!

Email me at AMADistrictVI.modelaircraft.org with the word "magazine" in the subject line and attach some pictures!

Don't forget to introduce someone to model aviation!

VI

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ADDITIONAL PHOTOS CAN BE SEEN ONLINE.

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District VII

Iowa, Michigan, Minnesota, Wisconsin

It's official! Spring is in the house! Time to blow off the dust and get rid of the rust. Now that we're in April, there's good weather and that extra hour of daylight, so what are you waiting for? It's been a long winter.

Trust me when I say that the regulatory issues, we've been faced with has worn on me, just as it has on you. Today's advice is get out there, burn some holes in the sky, and have some fun. Forgive me for not mentioning this earlier, but thanks to all who submitted comments to the FAA on the agency's latest NPRM.

Regardless of the outcome, it's critical that we all take a stand and have our voices heard. Standing by and doing nothing is never a good option.

The following text and photos come to us courtesy of the Iron Range Radio Control Club way up North in Minnesota. Thank you for telling us a little bit about your club.

Enjoy the read.

The Iron Range Radio Control Club (IRRCC) in northern Minnesota was started in approximately 1978. The pilots are from areas around the Iron Range. The club's first fun-fly was held in 1981 at the old Jacobson field in Wolf, Minnesota. It's now a sawmill.

We had five flying fields in the past with the Thunderbird field in use the longest. Cliffs Mining Company owns the property. We have a fun-fly in August every year with food and a raffle so the rent and taxes can be paid to United Taconite. On July 18, 2020, will be the 11th annual barbecue that the club puts on for the residents and staff of Waterview Woods nursing facility in Eveleth, Minnesota, and Waterview Pines in Virginia, Minnesota.

My uncle, Lou, was in the Eveleth care center. I saw a list of bus trips that they get to go on. I talked to the bus driver, Vicky. She agreed to try one time at the field. I bought the food and loaded up the grill. Everyone had a good time. Some residents asked if this could happen again next year. Vicky said to "keep us in mind next year."

This barbecue is still going strong. Last year's fun-fly was August 13. The residents had a great time and won some of the prizes. This year, Waterview Woods residents will be at the barbecue and Waterview Pines will be at the fun-fly. The club receives donations from Walmart.

The club held its first float fly at Little Sand Lake on June 4, 2011. We now have two float flies during the summer—the first one in June, the second in September. The IRRCC also participates in the Land of the Loon Parade in June. There are some youngsters in the club.

A third facility, New Journey Residents in Biwabik, Minnesota, has also shown interest in bringing residents to the barbecue.

Take a kid flying!

District VIII

Arkansas, Louisiana, New Mexico, Oklahoma, Texas

It's April 2020! Get out and fly! We are updating our AMA District VIII website. Check https://amadist8.com for the latest information.

Wichita Falls RC club safety director, William Perry (L), and Mark Nielson, USAF T-38 instructor from North Dakota.

2019 Nats Control Line (CL) Combat participants, Andy and Jan Mears, Bob and Arlene Mears, both couples from Lubbock TX, with Alan Deveuve from Fort Worth TX.

James and Twyla Whitby attended the Richardson Radio Control Club Swap Meet in 2019.

The Heart of Texas Miniature Aircraft Club's Jet Fly was attended by Robert Bernal, David Elizondo, and pilot Lynn Hinch.

Chris Dunin, David Yannessa, and Austin and Lee Ray attended the Space City RC Pearl Harbor Day event.

Tommy Gardner is the vice president of the Chisholm Trail RC Squadron in Duncan OK.

The spark-plug of the month is Charlie Campbell, president of the Angelo RC club for the last eight years. He flies Free Flight, CL, gliders, Scale, scratch-built aircraft, and ARFs using electric, glow, and gas. He and his wife, Anna, have three daughters and they are active in the club. Charlie believes in "paying it forward." Another good guy from District VIII.

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District IX

Colorado, Kansas, Nebraska, North Dakota, South Dakota, Wyoming

This year, the annual Jeffco Aeromod'lers Auction fell on the same day as the winter AMA Executive Council meeting, so instead of being able to take part, I spent the day on a dial-in call as your District IX representative.

Bud Glass, Jeffco president, put together a short summary of this event that has been part of the club's history for, by my count, 45 years. Here is his account of the event.

"The auction is changing as time goes on, but we still showed roughly 425 consigned items to sell. In the past few years, we've allowed sellers to put a buy-it-now price on an item and, in many cases, about 75 this year, the buyer has negotiated a sale before it comes to the auction block. This saves a lot of auctioneer time.

"One other observation from this year was there seemed to be many more quality items than in past years. That certainly helps us on the bottom line since this is a major fundraiser."

My District IX associate vice presidents and I have set up a conference call approximately once a month to keep everyone up to date on the current and evolving issues, especially on the frontlines of our struggles in Washington, D.C. This also makes it easier for them to pass this information locally and less travel is required to hold regional meetings to disseminate information. We will still host a few of these leadership meetings because we have a lot of takers.

The first for 2020 was in Longmont, Colorado, at the St. Vrain Valley Schools Innovation Center. Jake Marshall, our local contact, set us up in the Canyon, which is the central meeting area in this amazing STEM school. Roughly 25 officers from Colorado clubs attended.

The big topic was the evolving Notice of Proposed Rule Making from the FAA, which will obviously affect the way we continue in this hobby. The meeting covers AMA insurance, programs, and grants available to clubs, and the International Aeromodeling Center in Muncie, Indiana. We finish the meeting every year with a roundtable discussion about getting and keeping members. It is amazing how creative and successful many of our clubs are in this important area.

I also took the opportunity to roll out the new District IX Lift Challenge. We will accept entries through the summer and winners will be announced in the fall. The challenge is to see how much weight you can carry aloft with an E-flite UMX Timber. There are two categories: stock and modified. Entries are submitted as videos. First prize is a new Timber and a $75 gift certificate to the AMA Store.

Download a complete set of rules from the link on the District IX Facebook page at www.facebook.com/District9.

Above: Jeffco member Johny Wolf helps out a young man interested in one of the 425 items for sale at the Jeffco Auction.

Below: LAMA President Ken Davis and Arvada Associated Modelers President Joe Pirrozoli discuss an issue at the Colorado leadership meeting.

District X

Arizona, California, Guam, Hawaii, Nevada, Utah

This month, I'll continue with some of my favorite photos from the second annual District X Fly-In that was held in Las Vegas, but first I want to remind you that our third annual District X Fly-In is coming up May 1-3, 2020, at Bennet Field in Las Vegas. Please go to www.ama10.org to register and find out more information.

We moved the District X Fly-In to May so that we could free up the fall for a second big event in the district. Since the AMA has decided not to continue with AMA Expo West, I have decided that we will take this lemon and make lemonade. I am announcing a new event we're calling AMA Expo West 2.0. This will be a flying and buying event at the San Gabriel Valley Radio Control League and Knights of the Round Circle fields in Whittier, California. This is smack in the middle of our Southern California modeling action.

I'm looking to create a new event that AMA members can attend and at which they can fly and see vendors' goods. We'll have RC and CL flying and as many vendors as would like to show their wares. This event will be held November 6-8. We'll have more information to come, so please stay tuned.

I want to thank Las Vegas Associate Vice President Gil Terzo for his hard work in organizing the second annual District X Fly-In and all of the wonderful modelers who pitched in to make it such a success.

Until next month, I wish you all happy landings.

Keith Hedge, of Las Vegas, has a unique Percival Provost model.

Rick Stradford, of North Las Vegas, loves flying his Zephyr V-70.

Keith and Teri Johnson, of North Las Vegas, with their Piper Cherokee and AT-6.

An event such as this can't be run without volunteers. Dave Scott (L) and Dennis Darrin keep their eyes on the flightline. They are both members of the Las Vegas Radio Control Club.

Keith Hedge, who is a member of the Propnuts club, makes a low pass with his 1934 Bücker Bü 180 Student.

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District XI

Alaska, Idaho, Montana, Oregon, Washington

Hi all! Flying season for our district should be going when you read this. I hope everyone is finishing their builds and getting out to fly.

I had a busy month in January. I was in Muncie, Indiana; at the NW Model Hobby Expo in Monroe, Washington; and I attended a meeting with the Lower Columbia RC Society in Astoria, Oregon. I like to visit flying fields when I travel. I'm sharing a picture of the field in Astoria. The area gets a lot of rain in the winter months, but the members say the parking lot and runway stay usable and they are out there flying.

Associate Vice President Joe Miller wrote:

When was the last time you shook the hand of the online retailer selling you a new airplane? When did you last speak with one about what you did as kids, or show him or her a model you finally finished?

Don't get me wrong; it is great to have everything at our fingertips. Want that airplane, train, or automobile? Just push a button. In a few days we have a new something at our doorstep. What is missing is the one thing that has bound our hobby together for decades: the hobby shop.

This is more than a brick-and-mortar building. It is years of knowledge, sharing, and interacting with someone you know and trust. One of my favorite hobby shops is Trump's Hobbies in Corvallis, Oregon.

Jim Trump and Jim DeBoer are modelers and extremely knowledgeable in hobby lore. When you enter, you are greeted by aircraft of every type. When you look around the store, you see everything you could want, all at your fingertips.

With this come, people who are friendly and willing to help with whatever you are building, fixing, or dreaming about. You also can meet fellow modelers and build relationships that only enhance your love of the hobby. Did you know, you can also have them order that new whatever and get the best of both worlds?

Our Control Line (CL) coordinator, Mike Hazel, provided an update.

The 49th annual Northwest Control Line Regional Championships will take place on May 22-24 at the Roseburg, Oregon, airport. CL enthusiasts from the entire West Coast come to compete at this traditional meet that features the largest selection of CL events anywhere but the Nats.

Everyone is invited to come and watch the action, which will include world-class aerobatic flying, jet speed airplanes, scale models, combat flying, and much more. Additional information can be found at www.flyinglines.org.

Remember, the AMA Northwest Jamboree is coming in June! We are planning on an even bigger and better event this year. Visit www.amanwjamboree.com for more information.

That's all for this month. Keep building and flying!

AMA ENROLLMENT FORM

SIGNING UP ONLINE IS EASY, VISIT WWW.MODELAIRCRAFT.ORG/JOINAMA TODAY!

1. Contact Information

First Name & Initial | Last Name

Mailing Address | Apt.#

City | State | Zip Code | Phone

Date of Birth: | Email: | ☐ New Member ☐ Renewal | AMA # (Renewals only - leave blank if unknown)

2. Select Membership Type

		One-Year	Two-Year	
Adult	• Adults 19 or over as of July 1, 2020. • Includes subscription to *Model Aviation* magazine.	☐ **Adult $75.00**	☐ **Adult $140.00**	**Membership option amt:**
Senior	• Adults 65 or over as of July 1, 2020. • Includes subscription to *Model Aviation* magazine.	☐ **Senior $65.00**	☐ **Senior $120.00**	
Park Pilot	• Adults 19 or over as of July 1, 2020. • Includes subscription to *Park Pilot* magazine. Park Pilot membership is for aircraft 2 pounds or less that fly below 60 mph and does not include voting rights or competitive priviledges. Park Pilot membership insurance benefits are limited to $500,000 of liability coverage.	☐ **Park Pilot $38.00**	☐ **Park Pilot $70.00**	**Membership option amt:**

Support the AMA Foundation

General Fund	AMA Site Development	Club Support	Scholarship Fund	Museum Patron Program	Donation Total:
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3. Payment

☐ Check ☐ Visa ☐ Mastercard ☐ Discover Card No. _____ - _____ - _____ - _____Exp: _____

All membership benefits begin on the day a properly completed form and correct dues payment is received at AMA Headquarters. If a magazine is included with the membership, it begins with the first issue available for the year after a correct current form and payment are received. Membership rates and insurance limits are those in effect at the time of printing. Actual cost of dues and amount of insurance coverage are subject to change. Any such changes will be noted at the time of membership processing so they may be accepted or not. If I am involved in any claim or suit I will not sue the AMA, Inc. I understand that this does not affect my liability insurance coverage. "I agree to comply with the AMA Safety Programming."

Total:

$_____

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Mail completed form to:
AMA 5161 E. Memorial Dr. Muncie IN 47302

Signature : _____

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ACADEMY OF MODEL AERONAUTICS NATIONAL MODEL AIRCRAFT SAFETY CODE

Effective January 1, 2018

A model aircraft is a non-human-carrying device capable of sustained flight within visual line of sight of the pilot or spotter(s). It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and related AMA guidelines, any additional rules specific to the flying site, as well as all applicable laws and regulations.

As an AMA member I agree:

- I will not fly a model aircraft in a careless or reckless manner.
- I will not interfere with and will yield the right of way to all human-carrying aircraft using AMA's See and Avoid Guidance and a spotter when appropriate.
- I will not operate any model aircraft while I am under the influence of alcohol or any drug that could adversely affect my ability to safely control the model.
- I will avoid flying directly over unprotected people, moving vehicles, and occupied structures.
- I will fly Free Flight (FF) and Control Line (CL) models in compliance with AMA's safety programming.
- I will maintain visual contact of an RC model aircraft without enhancement other than corrective lenses prescribed to me. When using an advanced flight system, such as an autopilot, or flying First-Person View (FPV), I will comply with AMA's Advanced Flight System programming.
- I will only fly models weighing more than 55 pounds, including fuel, if certified through AMA's Large Model Airplane Program.
- I will only fly a turbine-powered model aircraft in compliance with AMA's Gas Turbine Program.
- I will not fly a powered model outdoors closer than 25 feet to any individual, except for myself or my helper(s) located at the flightline, unless I am taking off and landing, or as otherwise provided in AMA's Competition Regulation.
- I will use an established safety line to separate all model aircraft operations from spectators and bystanders.

For a complete copy of AMA's safety programming handbook, please visit: **www.modelaircraft.org/files/100.pdf.**

Education Through Aviation

EDUCATIONAL OPPORTUNITIES

By Kyle Jaracz, Education director | kylej@modelaircraft.org

Greetings all!

I'm excited to update you on where the AMA Education department is currently devoting its time and energy.

We lean on our volunteers to reach out and create educational opportunities for students across the country. One of the ways we are equipping our volunteers and their efforts is by continuing to develop training modules, partnerships, and information that is easy to share and customize independently.

For instance, we will be releasing a heavy-lift challenge shortly. We're sharing the rules, some informational presentations, and generally equipping groups across the country to find success in this activity. It's geared toward local groups challenging each other and can be easily modified to fit whatever agreed upon airframe makes sense for you and your teams.

In some areas a FliteTest foamboard model will be preferred. In others, an off-the-shelf AeroScout or UMX Timber will fit the bill. Whichever aircraft your group chooses to center a contest around, utilizing the well-established AMA Safety Program and the guidelines set forth in this heavy-lift challenge will lead to success.

In the case of a national contest, we will use a specific airframe each year to ensure a baseline for the competition. The goal is to create learning opportunities that will engage youth in grades kindergarten through 12 and beyond, offering an educational stepping-stone approach.

Camp AMA

Another task that is absorbing much of our current focus is Camp AMA. This year's camp is going to be unlike any other. We will focus on a plethora of STEAM-centered educational challenges every morning and ensure that we have plenty of flying time each afternoon and evening with the students. The following examples are just some of the fun activities being planned.

There will be a kit-bash twin fuselage challenge mentored by Mason Hutchison of Scaled Composites and supported by Multiplex. We'll rent an indoor facility and have a day's worth of Tiny Whoop-style FPV, supported by NewBeeDrone and the Drones in School competition. We'll visit the Purdue Polytechnic Institute to see how model aviation has inspired Pete Bitar in his Part 107 and manned flight innovations.

We'll also have fun open flying in the afternoons with the chance to polish students' flight skills with the help of world-class instructors. And what camp would be complete without a pool party?

All of these activities and more will take place at the International Aeromodeling Center this summer. Camp will be held June 7-13, 2020, for kids ages 13-17. There are some openings still available, as well as scholarships offered! Please contact education@modelaircraft.org for more information. Spots are expected to fill fast, so don't delay!

In closing, I want to let you know that the Education column won't run as often as it has previously. In an effort to reduce the page count in the magazine, we are adjusting the frequency of this column to every third month. Of course, this doesn't mean that you can't reach out to get the latest information!

The AMA sends out member and hobbyist communications across a variety of media channels. In them, you'll often find information about the Education department, and what we're working on. You can check out this content by visiting our main website, www.modelaircraft.org, and selecting Media & Resources.

On any of our website pages, you can scroll to the bottom of the screen and access our social media channels where you can get current information. And you can always email me directly at kylej@modelaircraft.org.

I hope to see you at the flying field!

Flying Site Assistance

COMPETITION RULES PROPOSALS

By Tony Stillman, Safety & Flying Site Assistance | fsac@modelaircraft.org

Competition Rules Proposals

The AMA Competition Regulations Board accepts rules change proposals from AMA members to change rules for existing AMA competition events. This change process is part of a two-year cycle that includes a timetable for proposals to be sent in by AMA members and presented to the appropriate AMA Contest Board for review and vote. Those proposals that pass the vote are then incorporated into the Competition Regulations.

These proposals were accepted until March 15, 2020. Now is the time to review all of the proposals that have been submitted. You can find a listing of submitted proposals on the AMA website by hovering your mouse over the Events heading on the main page, then select Rules Proposals from the blue box.

Proposals are organized by event type, so click on the event type you are interested in. This will take you to a page where each proposal for that specific event is listed. You can click on the proposal to read it in detail. It is important for all AMA members who are participating in these events to review the proposals and comment to your district's Contest Board member. You can find the Contest Board listing in the same area, under the Events heading.

Changes at AMA Headquarters

After 10 years of serving AMA members and clubs as AMA's Flying Site Assistance Coordinator, that duty is going to become part of the Clubs department here at AMA Headquarters. Ilona Maine is the director of that department, and because that department already works with clubs and flying sites, it makes sense that this duty should fall to it. I am sure that I will be somewhat involved in assisting them during this transition period.

I have enjoyed helping clubs and members find, secure, and retain flying sites throughout these many years! I have spoken with many of you and provided ideas and concepts to help you better enjoy the hobby through your flying site.

I trust that the help I have provided has contributed to your clubs obtaining and retaining your flying sites. I also know that Ilona and her department will continue to improve AMA's Flying Site Assistance program into the future!

Another reason that this needed to move to the Clubs department is because I am taking on the additional duty of Safety director, as well as continuing in the position of Technical director.

I trust that the help I have provided has contributed to your clubs obtaining and retaining your flying sites.

AMA will need to continue to develop awareness of our Safety Program and long history of safe operations by our members and clubs within the FAA. I will be supporting our Government Affairs department in this effort. I look forward to this new challenge!

Time to go fly!

SANCTIONED EVENT CALENDAR

FLYING

April

ALABAMA

04/4/2020 - 04/5/2020 - Prattville, AL (C) SPA SEASON OPENER. Site: County Rd 21 S. Mr Jamie D Strong CD/EM PH: (334)612-1152. Email: jstrong49923@gmail.com. Visit: fcflyers.com. Sponsor: FOUNTAIN CITY FLYERS.

04/17/2020 - 04/19/2020 - Huntsville, AL (C) DISTRICT 5 FUN FLY. Site: 4100 Leeman Ferry Rd SW Capt Trey Wilbourn Field @ Huntsville Landfill. Mr Alvin C Blair CD/EM PH: (269)277-0879. Email: alkainblair99@yahoo.com. Visit: rocketcityrc.com. Sponsor: ROCKET CITY RADIO CONTROLLERS.

04/24/2020 - 04/26/2020 - Huntsville, AL (C) 4TH ANNUAL STEVE HELMS FUN FLY. Site: 401 Chase Rd NE. Mr Ken Abbott CD/EM PH: (931)302-0518. Email: coptrdr2@msn.com. Visit: www.huntsvilleheliflyers.org. Sponsor: HUNTSVILLE HELI FLYERS.

ALASKA

04/17/2020 - Wasilla, AK (C) SPRING INDOOR SCALE COMPETITION. Site: 2788 N Seward Meridian Pkwy Teeland Middle School. Mr Donald E Myers CD/EM PH: (907)242-3915. Email: don.m.2013@gmail.com. Sponsor: ALASKA RADIO CONTROL SOCIETY and TEELAND RC FLYERS.

ARIZONA

04/11/2020 - Mesa, AZ (C) TAKING FLIGHT 2020. Site: Levee Drive Superstition Airpark. Mr Paul Kaup CD/EM PH: (708)359-5289. Email: prkaup@gmail.com. Visit: https://sites.google.com/site/rftstars7/taking-flight-april-18-19-2020. Sponsor: ARIZONA MODEL AVIATORS.

CALIFORNIA

04/4/2020 - 04/5/2020 - Ione, CA (A) GOLD COUNTRY COMBAT DUEL. Site: Michigan Bar Road Spiva Field. Mr William P Letchworth III CD/EM PH: (510)708-5322. Email: leenkimberly@yahoo.com. Visit: goldcountryflyers.com. Sponsor: GOLD COUNTRY FLYERS.

04/4/2020 - 04/5/2020 - Silverado, CA (A) 2020 ORANGE COUNTY PATTERN CHALLENGE. Site: 5305 Santiago Canyon Rd Bob Swenson Memorial Field. Mr Stephen E Hannah CD/EM PH: 714-996-1714. Email: stevehannah@yahoo.com. Visit: flyocma.com. Sponsor: THE MODEL AIRCRAFT ASSOCIATION.

04/4/2020 - Oakdale, CA (A) OAKDALE EF1 AND T-34 PYLON RACE. Site: 8400 Eastman Rd Ward Hendricks Field. Mr Joseph A Delateur CD/EM PH: (408)738-3117. Email: joe.delateur@gmail.com. Visit: www.rcflyersunlimited.com. Sponsor: RC FLYERS UNLIMITED INC.

04/4/2020 - 04/5/2020 - South El Monte, CA (AA) BILL NUSZ SPEED & HERB STOCKTON RACING MEMORIAL. Site: 750 S Santa Anita Ave Whittier Narrows Recreation Area. Mr Joe A Brownlee CD/EM PH: (714)393-1940. Email: jallenbrownlee@gmail.com. Sponsor: CL SPEED FLYERS OF SOUTHERN CA.

04/4/2020 - 04/5/2020 - Hemet, CA (AA) HEMET 2020 IMAC. Site: 6601 Simpson Rd Hemet Model Masters Airpark - Simpson Field. Mr Jacques R Telles CD/EM PH: 602-319-8161. Email: jacquestelles@hotmail.com. Visit: hemetmodelmasters.net. Sponsor: HEMET MODEL MASTERS.

04/18/2020 - 04/19/2020 - Lost Hills, CA (AA) SAN VALEERS ANNUAL. Site: Holloway Rd North of Paso Robles Lost Hills Model Airfield. Mr Norman Furutani CD/EM PH: (310)323-1943. Email: norginf@gmail.com. Visit: www.lhffmaa.com. Sponsor: SAN VALEERS MODEL AIRPLANE CLUB.

04/18/2020 - 04/19/2020 - Salinas, CA (AA) SALINAS IMAC. Site: 24200 Chualar Dump Rd. Mr Joseph J Derenzi CD/EM PH: (650)455-2352. Email: imacflyer@aol.com. Visit: salinasareamodelers.org. Sponsor: SALINAS AREA MODELERS.

04/18/2020 - Hesperia, CA (C) RCPRO WARBIRD RACE. Site: 6963 Arrowhead Lake Rd Victor Valley RC Park. Mr William T Yates Sr. CD/EM PH: (760)552-5509. Email: still4given@yahoo.com. Visit: vvrcf.org. Sponsor: VICTOR VALLEY R/C FLYERS.

04/19/2020 - Perris, CA (AMA) ORBITEERS MONTHLY. Site: 26075 San Jacinto Ave Taibi Field. Mr Michael Pykelny CD/EM PH: (858)748-6235. Email: mpykelny@hotmail.com. Visit: www.sandiegoorbiteers.com. Sponsor: SAN DIEGO ORBITEERS.

04/24/2020 - 04/26/2020 - Turlock, CA (C) 5TH ANNUAL TURLOCK ROTOR RALLY. Site: 519 E Greenway Ave Turlock Airpark. Mr David J Bettencourt CD/EM PH: (209)620-7512. Email: yakyak55@charter.net. Visit: turlock rc club. com. Sponsor: TURLOCK RC CLUB.

04/25/2020 - 04/26/2020 - South El Monte, CA (C) BOB PALMER MEMORIAL. Site: 750 S Santa Anita Ave Whittier Narrows Recreation Area. Mr John O Wright CD/EM PH: (562)881-7386. Email: jowrightpe@hotmail.com. Sponsor: KNIGHTS OF THE ROUND CIRCLE.

CONNECTICUT

04/19/2020 - Glastonbury, CT (AA) SPRING FLING INDOOR CONTEST. Site: 330 Hubbard St Glastonbury High School. Mr John D Koptonak CD/EM PH: (860)434-1029. Email: gliderguider@comcast.net.

FLORIDA

04/3/2020 - Fort Pierce, FL (C) SUNDANCERS ANNUAL BIG BIRD EVENT. Site: 7901 Germany Canal Rd. Mr John Martorano CD/EM Email: threecjohnny@yahoo.com. Visit: sundancersrc.org. Sponsor: SUN DANCERS RC CLUB.

04/4/2020 - Dunnellon, FL (C) 20TH ANNUAL BIG BIRD FLYIN. Site: 11729 Bridges Rd Rainbow RC Airpark. Dr Ralph W Rogers III CD/EM PH: (352)220-3363. Email: rcdoc35@gmail.com. Visit: tricountyrcclub.homestead.com. Sponsor: TRI-COUNTY RC CLUB.

04/11/2020 - Riverview, FL (C) JET JOCKEY JAMBOREE. Site: 12705 Balm Boyette Rd Triple Creek RC Field. Dr Malcolm R Greenberg CD/EM PH: (989)798-0536. Email: mirogflyer@aol.com. Visit: triplecreekrc.com. Sponsor: TRIPLE CREEK RC.

04/11/2020 - Cape Coral, FL (C) CAPE ELECTRIC FUN FLY. Site: 1030 NW 28th St Seahawks Air Park. Mr. Joseph B Dolliver CD/EM PH: (239)218-2677. Email: joe33914@gmail.com. Visit: rseahawks.org. Sponsor: CAPE CORAL R/SEA HAWKS.

04/14/2020 - 04/15/2020 - Palm Bay, FL (AA) FMA SPRING FLING. Site: 2190 Sapodilla Rd SW. Mr Duncan McBride CD/EM PH: (239)437-0065. Email: n319dm@gmail.com. Sponsor: FLORIDA MODELERS ASSOCIATION.

04/18/2020 - Ocala, FL (C) SPRING FLING. Site: 1020 SE 110th St. Mr Jesse C Hinds CD/EM PH: (727)243-3928. Email: jesse@packetcity.com. Visit: www.ocalaflyingmodelclub.com. Sponsor: OCALA FLYING MODEL CLUB.

04/18/2020 - 04/19/2020 - Archer, FL (C) WARBIRDS IN THE SUN. Site: NE 130th Ave at Rice Farm. Mr Thomas R Rice Jr. CD/EM PH: (813)557-2251. Email: tom.rice.aero@gmail.com. Visit: flyinggatorsrc.com. Sponsor: FLYING GATORS INC.

04/24/2020 - 04/26/2020 - Jacksonville, FL (AA) FIRST COAST IMAC CONTEST. Site: 3461 Lannie Rd. Mr Peter A Jackson CD/EM PH: (954)205-5077. Email: ppajack@aol.com. Sponsor: GATEWAY RC CLUB.

04/25/2020 - 04/26/2020 - Ocala, FL (AA) OCALA SUN PATTERN CONTEST. Site: 1020 SE 110th St. Mr Peter S Ferguson CD/EM PH: (321)271-0240. Email: pferg30@gmail.com. Visit: ocalamodelflyingclub.com.

04/25/2020 - Sarasota, FL (C) AIR FAIR 2020. Site: 8750 Bee Ridge Rd Sarasota County Park. Mr John Hall CD/EM PH: 941-704-9375. Email: rcpilot@verizon.net. Visit: sarasotarc.com. Sponsor: SARASOTA RC SQUADRON.

04/25/2020 - Land O Lakes, FL (C) FUN-FLY-IN. Site: 22500 State Rd 52 BCF Area 52 Flying Field @ Conner Preserve. Mr Peter C Rundel CD/EM PH: (813)802-8970. Email: pete@therundels.com. Sponsor: BAY CITY FLYERS, INC.

04/25/2020 - Jacksonville, FL (C) JAX RC SPRING FUN FLY. Site: 11405 Island Dr. Mr Mitch Robbins CD/EM PH: (704)661-1799. Email: wmrobbins@bellsouth.net. Visit: http://jaxrc.com. Sponsor: RC CLUB OF JACKSONVILLE.

04/29/2020 - 05/3/2020 - Lakeland, FL (BRST) TOP GUN. Site: 4999 Air Show Rd Paradise Field. Mr Frank Tiano CD/EM PH: (863)607-6611. Email: frank@franktiano.com. Visit: www.franktiano.com. Sponsor: IMPERIAL RC CLUB INC.

GEORGIA

04/18/2020 - Dunwoody, GA (A) APRIL INDOOR. Site: 1978 Mt Vernon Rd Saint Luke's Presbyterian Church. Mr William D Gowen CD/EM PH: 404-218-0906. Email: wdgowen@gmail.com. Visit: thermalthumbers.com. Sponsor: THERMAL THUMBERS OF METRO ATLANTA.

04/26/2020 - Whitesburg, GA (AMA) APRIL FOOLS. Site: 1487 Black Dirt Rd NGTurf Sod Farm. Mr Frederick K Hube CD/EM PH: (770) 886-0104. Email: fhube@bellsouth.net. Visit: www.thermalthumbers.com. Sponsor: THERMAL THUMBERS OF METRO ATLANTA.

04/27/2020 - 05/2/2020 - Andersonville, GA (C) SOUTHEAST ELECTRIC FLIGHT FESTIVAL. Site: 428 Neil Hodges Rd. Mr Ernest A Schlumberger CD/EM PH: (678)458-4773. Email: eschlumber@aol.com. Visit: seffweek.com. Sponsor: FAYETTE FLYERS.

04/28/2020 - Columbus, GA (C) THE AEROVIRONMENT NANO DRONE EXHIBITION FOR THE NATIONAL DEFENSE INDUSTRIAL ASSOCIATION AT THE LOFT. Site: 1032 Broadway The Loft Restaurant. Mr David M Roberts CD/EM PH: (678)642-3023. Email: david@rich3d.com. Visit: www.ndia.org/events/2020/4/27/2020-ndia-joint-armaments-and-robotics.

INDIANA

04/24/2020 - 04/26/2020 - Muncie, IN (C) PYLON RACING SCHOOL (PRS). Site: 5161 E Memorial Dr International Aeromodeling Center. Mr Tom Melsheimer CD/EM PH: (440)488-4743. Email: tommelsh@gmail.com.

KANSAS

04/18/2020 - 04/19/2020 - Cedar Vale, KS (AA) INAUGURAL SOUTH CENTRAL KANSAS AEROBATIC CHALLENGE. Site: 100 Sale Barn Rd Cedar Vale RC Airfield. Mr Christopher R Shockley CD/EM PH: (620)783-5237. Email: shockleyc@cvs285.org. Visit: www.mini-iac.org/event-details/pid/966. Sponsor: CEDAR VALE FLYING SPARTANS.

04/25/2020 - Newton, KS (C) HCRCC ANNIVERSARY FUN-FLY. Site: 314 N East Lake Rd. Mr Joseph L Owen CD/EM PH: (316)282-2470. Email: joe.owen.04@gmail.com. Visit: www.facebook.com/harvey-county-radio-control-club-450705639020344. Sponsor: Harvey County Radio Control Club.

LOUISIANA

04/4/2020 - 04/5/2020 - Denham Spgs, LA (AA) ALLAN PERRET MEMORIAL STUNT CHAMPIONSHIPS. Site: 1710 Vincent Rd South Park. Mr Perry A Rose CD/EM PH: 225 369 2964. Email: prose02@snet.net. Sponsor: BATON ROUGE BI-LINERS MAA.

04/4/2020 - Berwick, LA (C) WARPS SPRING FLY-IN. Site: 122 Landfill Ln Pedro Hernandez Field. Mr Pete Lawton CD/EM PH: (985)385-1960. Email: lawton.pete@yahoo.com. Visit: warpsrcclub.com.

04/25/2020 - 04/26/2020 - Shreveport, LA (AA) 6TH ANNUAL SHREVEPORT IMAC CHALLENGE. Site: 6825 Hwy 71 N North Ridge Air Park. Dr Cambize Shahrdar CD/EM PH: 318-716-8218. Email: cshahrdar@yahoo.com. Visit: sharkrc.org. Sponsor:

SHREVEPORT AREA RADIO KONTROL SOCIETY.

MARYLAND
04/25/2020 - 04/26/2020 - Hagerstown, MD (A) 2020 PEGASUS FMAC IMAC CLASSIC. Site: 19880 Old Forge Rd. Mr Bradley Davy CD/EM PH: bdavy92960@msn.com. Email: bdavy92960@msn.com. Visit: pegasusrc.com. Sponsor: FREDERICK MODEL AIRCRAFT CLUB and PEGASUS RC AIRPLANE CLUB.

MASSACHUSETTS
04/5/2020 - Georgetown, MA (A) STEALTH SQUADRON 4TH INDOOR WINTER CONTEST. Site: 68 Elm St Penn Brook School. Mr Stephen Evans CD/EM Email: ideagarden@comcast.net. Visit: stealthsquadron-fac49.com. Sponsor: MERRIMACK VALLEY AIR-ISTOCRATS.

MISSISSIPPI
04/23/2020 - 04/25/2020 - Raymond, MS (C) MISSISSIPPI AFTERBURNER. Site: 4100 Airport Rd John Bell Williams Airport. Mr Vernon D Montgomery CD/EM PH: (601)955-3826. Email: vernonms@gmail.com. Visit: mississippi.org. Sponsor: MISSISSIPPI JETS.

NORTH CAROLINA
04/4/2020 - Kinston, NC (C) KINSTON AERO-MODELERS SPRING FLY IN. Site: 207 Airport Rd. Mr Robert E McGaughy CD/EM PH: (252)315-9100. Email: rmcgaughy@embarqmail.com. Visit: coastalplanes.com. Sponsor: KINSTON AERO-MODELERS.

04/4/2020 - Winston Salem, NC (C) 10TH ANNUAL SKY KING E-FEST. Site: 2301 W Clemmonsville Rd Hobby Park. Mr Vance W Jones CD/EM PH: (336)831-7565. Email: jonesv2723@att.net. Visit: http://hprc.almostliveradio.net/. Sponsor: HOBBY PARK RCERS.

04/11/2020 - Tabor City, NC (C) 7TH ANNUAL BREAST CANCER FLY IN. Site: 548 Narrow End Rd. Mr David C Williams CD/EM PH: 910-395-5930. Email: davecw@ec.rr.com. Visit: southeasternmodelers.com. Sponsor: SOUTHEASTERN MODELERS FLYING CLUB.

04/18/2020 - Wade, NC (CRST) SPRING WARBIRD. Site: 2900 Hayfield Rd. Kent Porter CD/EM PH: 919-538-6811. Email: kent@porterscales.com. Visit: piedmontaeromodelers.club. Sponsor: PIEDMONT AEROMODELERS.

04/25/2020 - Monroe, NC (A) 2ND ANNUAL SPRING JET RALLY. Site: 8501 Morgan Mill Rd McCracken Aerodrome. Mr W Scott Gantt CD/EM PH: (704)564-0716. Email: scott.gantt@usi.com. Visit: charlotteaeromodelers.org. Sponsor: CHARLOTTE AEROMODELERS INC.

04/25/2020 - Lumberton, NC (C) MT ELIM RC CLUB. Site: 13799 North Carolina Highway. Mr Jack D Johnson CD/EM PH: (910)374-3460. Email: toothmanjack@nc.rr.com. Sponsor: MT ELIM RC CLUB.

04/25/2020 - Elm City, NC (C) TAD DIETRICK MEMORIAL FLY IN. Site: 7475 White Bridge Rd Town Creek Field. Mr A B Gentry Jr. CD/EM PH: 252-343-3961. Email: wn4z462@centurylink.net. Visit: tarheelrcflyers.org. Sponsor: TARHEEL R/C FLYERS.

OHIO
04/25/2020 - 04/26/2020 - Kent, OH (A) 2020 KENT STATE INDOOR FF CONTEST. Site: 2227 Summit St, Kent State Field House. Mr John D Kagan CD/EM PH: (440)503-1433. Email: john_kagan@hotmail.com. Visit: www.facebook.com/events/484305275528123.

OREGON
04/4/2020 - Albany, OR (AMA) INDOOR RECORD TRIAL. Site: 1500 NW Oak Grove Dr Oak Grove Elementary School. Mr George S Gilbert CD/EM PH: (541)971-9549. Email: gsg97322@gmail.com. Sponsor: WILLAMETTE MODELERS CLUB INC.

PENNSYLVANIA
04/18/2020 - Barnesville, PA (C) 2020 LIGHTS OVER TUSCARORA. Site: 70 Foothill St Tuscarora State Park. Mr Kyle P Snyder CD/EM PH: (484)464-1320. Email: kyle.snyder17960@gmail.com. Visit: https://tuscararcflyingclub.com. Sponsor: TUSCARORA RC CLUB.

SOUTH CAROLINA
04/4/2020 - Neeses, SC (CRST) THE STEVE FOGLE MEMORIAL INVITATIONAL. Site: 324 Co Rd OC - 2208 Carolina Fresh Farms. Mr Steve M Livingston CD/EM PH: (803)315-6975. Email: silver@sc.rr.com.

04/18/2020 - Swansea, SC (C) LARKS SPRING FLY IN. Site: 1347 State Rd S-32-45 Pelion Field. Mr Walter H Senour CD/EM PH: (912)223-0201. Email: wsenour@gmail.com. Visit: https://www.larksrc.com. Sponsor: LEXINGTON AIRCRAFT RADIO KONTROL SOCIETY LARKS.

04/18/2020 - York, SC (C) SPRING FUN FLY. Site: 240 Langrum Branch Rd. Mr Dennis Haynes CD/EM PH: (803)372-1206. Email: denniswpb@gmail.com. Visit: www.yorkcountyflyers.com. Sponsor: YORK COUNTY FLYERS INC.

04/24/2020 - 04/25/2020 - Rembert, SC (C) SOD BUSTERS WARBIRD INVASION. Site: 8840 Camden Hwy Modern Turf Sod Farm. Mr Forest K Morris CD/EM PH: (770)375-5102. Email: scalenut@bellsouth.net. Visit: www.facebook.com/carolina-sod-busters-263051937048906. Sponsor: CAROLINA SOD BUSTERS.

04/25/2020 - 04/26/2020 - Aynor, SC (AA) 24TH ANNUAL GRAND STRAND PATTERN CLASSIC. Site: 2729-2731 Staples Rd. Mr Marvin F Marozas CD/EM PH: (843)546-8954. Email: mfmarozas@hotmail.com. Sponsor: RC WINGS OVER S.C.

04/25/2020 - Campobello, SC (C) CAMPOBELLO FLYERS SPRING FLY IN. Site: 1475 Roddy Rd. Mr Robert M Babb CD/EM PH: (864)804-0035. Email: cyclenutus@yahoo.com. Visit: campobelloflyers.com. Sponsor: CAMPOBELLO FLYERS RC CLUB.

TENNESSEE
04/25/2020 - Tullahoma, TN (C) FLY AWAY CANCER. Site: 2912 Northshore Rd. Mr Bill R Crawford CD/EM PH: (615)969-9288. Email: coffeeairfoilerscd@gmail.com. Visit: coffeeairfoilers.com. Sponsor: COFFEE AIRFOILERS.

TEXAS
04/3/2020 - 04/5/2020 - Gainesville, TX (AAA) 12TH ANNUAL GAINESVILLE TEXAS FREE FLIGHT / TEXAS FAC SCALE CHAMPIONSHIP CONTEST. Site: 2300 Airport Rd Gainesville Municipal Airport. Mike Fedor CD/EM PH: (817)480-4825. Email: mmfedor@aol.com. Sponsor: TEXAS CLOUD CLIMBERS and LONE STAR SQUADRON.

04/4/2020 - 04/5/2020 - Hempstead, TX (C) HIGH WING HOEDOWN. Site: 13917 FM 1887 Bomber Field. Mr Woody B Lee CD/EM PH: (832)794-3370. Email: woody.lee123@gmail.com. Visit: bomberfieldusa.com. Sponsor: BOMBER FIELD USA.

04/11/2020 - Alvin, TX (C) 30TH ANNUAL BIG BIRD FLY IN. Site: 2444 CR 180. Mr Fred W Daniels CD/EM PH: 281-488-8371. Email: fdaniels51@sbcglobal.net. Visit: alvinrc.club. Sponsor: ALVIN RC MODELERS ASSN.

04/11/2020 - Princeton, TX (C) RICHARDSON RADIO CONTROL CLUB 4TH ANNUAL BIG BIRD, WAR BIRD, ANY BIRD FUN FLY EVENT. Site: 6556 Farm to Market Road 546 Bratonia Park. Mr Harold J Walsh II CD/EM PH: (972)-358-9206. Email: altavista1956@gmail.com. Visit: www.rrcc.org. Sponsor: RICHARDSON RC CLUB.

04/17/2020 - 04/19/2020 - Schertz, TX (C) SPRING FLOAT FLY 2020. Site: 999 Texas 1604 Loop Martinez Dam. Mr Robert A Jones CD/EM PH: (210)789-4425. Email: rivercityrc@satx.rr.com. Sponsor: RIVER CITY RADIO CONTROL.

04/18/2020 - 04/19/2020 - Georgetown, TX (AA) TEXAS REPUBLIC CLASSIC PATTERN CONTEST. Site: 655 County Road 141. Mr Rene Grebe CD/EM PH: 626-991-0842. Email: renegrebe39@gmail.com. Visit: gamarc.org. Sponsor: GEORGETOWN AERO MODELERS ASSN.

04/18/2020 - Grand Prairie, TX (BRST) 7TH ANNUAL SPA AEROBATIC CONVENTION. Site: 2701 Seeton Rd Low Branch Park. Mr Franklyne Cox CD/EM PH: (972)339-8537. Email: countilaw@yahoo.com. Visit: www.goldentrianglerc.org. Sponsor: GOLDEN TRIANGLE RC CLUB.

04/18/2020 - Crosby, TX (C) PROPNUTS ANNUAL FLEA MARKET & FLY IN. Site: 3802 Wolcek Rd. Mr Taswall G Crowson CD/EM PH: (281)474-9531. Email: tcrowson@flash.net. Visit: www.propnuts.com. Sponsor: PROP NUTS RC CLUB-2.

04/23/2020 - 04/26/2020 - Texarkana, TX (C) TEXARKANA RC FLY IN. Site: Corps Rd 1. Mr Gary Strickland CD/EM PH: (903)278-5703. Email: garystric@gmail.com. Visit: www.trcfc.org. Sponsor: TEXARKANA RC FLYING CLUB.

04/23/2020 - 04/26/2020 - Thorndale, TX (C) HELI'S OVER APACHE PASS. Site: 9119 N FM 908. Mr Kenny Sierra CD/EM PH: (210)240-3547. Email: ks42k@aol.com. Visit: https://apachepassrc.com/home/events/helis-over-apache-pass. Sponsor: FLY APACHE PASS RC.

04/24/2020 - 04/26/2020 - Dallas, TX (AA) DMAA SPRING WARM-UP GENE HEMPEL MEMORIAL. Site: 12200 Garland Rd Samuell-Garland Park. Mr Patrick E Hempel CD/EM PH: (972)841-8766. Email: ptrckhem@aol.com. Visit: www.damm-1902.org. Sponsor: DALLAS MODEL AIRCRAFT ASSN.

04/24/2020 - 04/26/2020 - Sherman, TX (C) 3RD ANNUAL TEXAS TWISTE. Site: 734 Logston Rd Pete Darter Flying Field. Mr Robert L Heaton CD/EM PH: (580)565-2324. Email: robertheaton59@icloud.com. Visit: texomarc.org. Sponsor: TEXOMA RC MODELERS.

04/25/2020 - Beaumont, TX (C) SPRING FUN FLY. Site: 6300 Folsom Dr. Mr Charles C Nowell CD/EM PH: (281)546-8132. Email: blazenowell@aol.com. Visit: brcc.club. Sponsor: BEAUMONT RC CLUB.

04/25/2020 - Waco, TX (C) HOTMAC CLUB 40/EF-1. Site: 3400 Overflow Rd Speegleville Park. Mr Steve D Blackwell CD/EM PH: (254)716-5270. Email: ssmwb1@yahoo.com. Visit: hotmac.org. Sponsor: HEART OF TEXAS MINIATURE AIRCRAFT CLUB.

04/25/2020 - Houston, TX (C) WARBIRDS OVER JSC. Site: 2101 Nasa Pkwy. Mr Michael R Laible CD/EM PH: 713/542-0987. Email: mrlaible@sbcglobal.net. Visit: jscrcc.com. Sponsor: JOHNSON SPACE CENTER R/C CLUB.

VIRGINIA
04/18/2020 - Palmyra, VA (C) BINGLER MEMORIAL FLY IN. Site: 11176 W River Rd. Mr William G Sykes CD/EM PH: (434)825-5435. Email: bsykes1461@gmail.com. Visit: www.forcfc.org. Sponsor: FLUVANNA COUNTY RC FLYING CLUB.

04/29/2020 - 05/3/2020 - Spotsylvania, VA (C) 11TH ANNUAL HELI SPRING FLING. Site: 6900 Jefferson Davis Hwy Robbie Campbell Memorial Airfield. Mr Kasey Campbell CD/EM PH: (540)623-0214. Email: yesak007@gmail.com. Visit: fredericksburgrc.com. Sponsor: FREDERICKSBURG AREA RC CLUB.

WISCONSIN
04/25/2020 - 04/26/2020 - Green Bay, WI (A) TUNDRA TERROR XXIII. Site: 4430 County Rd N. Mr William C Drumm III CD/EM PH: 920-428-0323. Email: midair72@hotmail.com. Visit: gbmac.com. Sponsor: GREEN BAY MODEL AIRPLANE CLUB.

WASHINGTON
04/24/2020 - 04/26/2020 - Zillah, WA (C) SPA SEASON OPENER. Site: 2513 Cheyne Rd Ben's Strip. Mr Ryan Siebol CD/EM PH: (509)930-8132. Email: fordfnatic@gmail.com. Visit: yvam.net. Sponsor: YAKIMA VALLEY AEROMODELERS.

May

ALABAMA
05/2/2020 - Fort Payne, AL (C) SOUTHERN FRIED ELECTRAFLY. Site: 23rd St SE Jacoway Field. Mr Glenn H Bond CD/EM PH: (404)502-0933. Email: glennhb007@gmail.com. Visit: www.dekalbrcflyers.com. Sponsor: DEKALB RC FLYERS.

05/30/2020 - Fort Payne, AL (C) WARBIRDS OVER FORT PAYNE. Site: 23rd St SE Jacoway Field. Mr Glenn H Bond CD/EM PH: (404)502-0933. Email: glennhb007@gmail.com. Visit: www.dekalbrcflyers.com. Sponsor: DEKALB RC FLYERS.

ARIZONA
05/1/2020 - 05/3/2020 - Sedona, AZ (C) MAY-FLY 2020. Site: FS 761b Rd. Mr Hal Jordan CD/EM PH: 928.634.1616. Email: jordan_hw@yahoo.com. Visit: camodelers.com. Sponsor: CENTRAL ARIZONA MODELERS INC.

SANCTIONED EVENT CALENDAR

05/15/2020 - 05/17/2020 - Glendale, AZ (C) WINGS FOR ST. JUDE. Site: West Model Way AMPS Field. Mr Michael A Niehaus CD/EM PH: (269)993-8384. Email: wingsoverarizona@gmail.com. Visit: www.wingsaz.com. Sponsor: ONE EIGHTH AIR FORCE.

ARKANSAS

05/2/2020 - 05/3/2020 - El Dorado, AR (AA) JOHN GUNN OPEN INVITATIONAL STUNT CONTEST. Site: 736 Industrial Rd Kenneth Makepeach Field. Mr Jason W Cunningham CD/EM PH: (870)226-6509. Email: jcunningham50@hotmail.com. Sponsor: MODEL AVIATORS OF S. ARKANSAS.

05/22/2020 - 05/23/2020 - N Little Rock, AR (C) MARCS FAMILY FUN FLY AND WARBIRDS. Site: 3211 Central Airport Rd Bishop Field. Mr Stanley E Kopreski CD/EM PH: (501)539-3656. Email: skopreski@msn.com. Visit: www.themarcs.org. Sponsor: MARCS.

05/23/2020 - 05/24/2020 - El Dorado, AR (A) NORTHWEST SPRING PATTERN OPENER. Site: 742 Industrial Rd. Mr William W Bowen CD/EM PH: C509-222-4262. Email: paternjock@aol.com. Visit: tcrcm.org. Sponsor: TRI CITY RC MODELERS.

CALIFORNIA

05/1/2020 - 05/3/2020 - Sacramento, CA (AAA) NORTHERN CALIFORNIA FREE FLIGHT CHAMPIONSHIP. Site: 1 Co Rd E2 Waegell Field. Mr William H Vanderbeek CD/EM PH: 408-472-0274. Email: billvanderbeek@yahoo.com. Visit: oaklandclouddusters.org. Sponsor: OAKLAND CLOUD DUSTERS.

05/2/2020 - 05/3/2020 - Oakdale, CA (AA) OAKDALE IMAC. Site: 8400 Eastman Rd Ward Hendricks Field. Mr Mark L Huntley CD/EM PH: (916) 529-1279. Email: mark@huntleyfamily.net. Visit: www.rcflyersunlimited.com. Sponsor: RC FLYERS UNLIMITED INC.

05/3/2020 - Chino, CA (DEMO) CAL-POLY UAV EDUCATIONAL WORKSHOP. Site: 17602-17698 Cucamonga Ave Prado Field. Mr Stephen A Parola CD/EM PH: 951 532-3034. Email: saparola@verizon.net. Visit: pvmac.com. Sponsor: POMONA VALLEY MODEL AIRPLANE CLUB INC.

05/13/2020 - 05/17/2020 - Wheatland, CA (C) CAMP FAR WEST SEAPLANE EVENT. Site: 9300 McCourtney Rd Camp Far West Lake. Mr John L Sorenson CD/EM PH: 916-216-0384. Email: sorensonjohn7@gmail.com. Visit: amosrc.com. Sponsor: ASSOC MODELERS OF SACRAMENTO AMOS.

05/14/2020 - 05/16/2020 - Reedley, CA (C) KINGS CANYON JET RALLY. Site: 1751 S Alta Ave PEG Field. Mr David C Fusinato CD/EM PH: 559)940-3283. Email: nfwdave@engineer.com. Visit: http://clovisrc.club. Sponsor: CLOVIS AREA MODELERS.

05/15/2020 - 05/17/2020 - Visalia, CA (C) 2020 CVRC SPRING AEROTOW. Site: 8400 Avenue 320. Mr James T Johnson CD/EM PH: (559)694-1526. Email: james.tjohnson@live.com. Visit: https://cvrcsoaring.wordpress.com. Sponsor: CENTRAL VALLEY RC SOARING CLUB.

05/15/2020 - 05/17/2020 - Fallbrook, CA (C) 2020 SAN DIEGO HELI FUN FLY. Site: Pankey Rd Johnson Field. Mr Christopher A Wilson CD/EM PH: (760)415-3833. Email: chris.tricopter@gmail.com. Visit: www.palomarrcflyers.com/events. Sponsor: PALOMAR RC FLYERS.

05/16/2020 - 05/17/2020 - Lost Hills, CA (AA) DUAL CLUBS FREE FLIGHT BONANZA. Site: Holloway Rd North of Paso Robles Lost Hills Model Airfield. Mr Don A Bartick CD/EM PH: (858)774-2941. Email: dbartick@4-warddesign.com. Sponsor: SAN DIEGO ORBITEERS.

05/16/2020 - 05/17/2020 - Davis, CA (AA) FRED BURGDORF MEMORIAL. Site: 43295 County Rd 29 Woodland/Davis Burgdorf Henson Field. Mr Robert Holik CD/EM PH: 530-661-0399. Email: apcprop@aol.com. Visit: wdarc.org. Sponsor: WOODLAND/DAVIS AEROMODELERS.

05/21/2020 - 05/24/2020 - Atwater, CA (C) 23RD/6TH ANNUAL GIANT SCALE FUN FLY. Site: 1900 Airdrome Entry Merced County Castle Airport. Mr Richard E Maida CD/EM PH: (831)265-7289. Email: mrcorsair@usa.net. Visit: centralcamodelflyers.club. Sponsor: CENTRAL CA MODEL FLYERS and TURLOCK RC CLUB.

05/24/2020 - Perris, CA (AMA) ORBITEERS MONTHLY. Site: 26075 San Jacinto Ave Taibi Field. Mr Michael Pykelny CD/EM PH: (858)748-6235. Email: mpykelny@hotmail.com. Visit: www.san diegoorbiteers. Sponsor: SAN DIEGO ORBITEERS.

COLORADO

05/16/2020 - Pueblo, CO (CRST) SKY CORRAL ELECTRIC FLY-IN. Site: Off of Woodleaf Dr. Col. Brad Dolliver Field. Mr John G Boren CD/EM PH: (719)924-8582. Email: borenjohn@comcast.net. Visit: skycorralrcclub.com. Sponsor: SKY CORRAL RC CLUB.

FLORIDA

05/12/2020 - 05/13/2020 - Palm Bay, FL (AA) REBEL RALLY. Site: 2190 Sapodilla Rd SW. Mr Duncan McBride CD/EM PH: (239)437-0065. Email: n319dm@gmail.com. Sponsor: FLORIDA MODELERS ASSOCIATION.

05/16/2020 - 05/17/2020 - Jacksonville, FL (C) JAX EDF MADNESS 3. Site: 3461 Lannie Rd Gateway RC Field. Mr Warren L Bio CD/EM PH: (808)4464111. Email: warrenbio@yahoo.com. Visit: www.gatewayrc.com facebook event "jax edf madness 3". Sponsor: GATEWAY RC CLUB.

GEORGIA

05/7/2020 - 05/10/2020 - Andersonville, GA (C) SOUTH EAST REGIONAL AEROTOW (SERA 2020). Site: 428 Neil Hodges Rd Hodges Field. Mr Marc Simmons CD/EM PH: (407)579-0087. Email: kd4jaz@gmail.com. Visit: scalesoaring.com.

05/17/2020 - Whitesburg, GA (AMA) MAY DAZE. Site: 1487 Black Dirt Rd NGTurf Sod Farm. Mr Dohrman G Crawford CD/EM PH: (770)698-8737. Email: tum25@bellsouth.net. Visit: www.thermalthumbers.com. Sponsor: THERMAL THUMBERS OF METRO ATLANTA.

05/23/2020 - Dunwoody, GA (A) MAY INDOOR. Site: 1978 Mt Vernon Rd Saint Luke's Presbyterian Church. Dr Joshua W Finn CD/EM PH: (842)-509-6692. Email: joshuawfinn@gmail.com. Sponsor: THERMAL THUMBERS OF METRO ATLANTA.

05/30/2020 - 05/31/2020 - Andersonville, GA (C) F3S JET PRECISION AEROBATICS CONTEST. Site: 428 Neil Hodges Rd Hodges Field. Mr Craig W Baker CD/EM PH: (706)833-6354. Email: psk560@yahoo.com. Visit: www.jetaerobatics.org.

IDAHO

05/16/2020 - 05/17/2020 - Kuna, ID (AA) BARKS IMAC CHALLANGE. Site: 2400 E Kuna Mora Rd. Mr Michael W Verzwyvelt CD/EM PH: (208)733-9213. Email: michael@bridgemail.com. Visit: www.barks.us/apex/f?p=185:home. Sponsor: BOISE AREA RK SOC BARKS.

ILLINOIS

05/30/2020 - 05/31/2020 - Crab Orchard Precinct, IL (C) THE DARRELL HONEY MEMORIAL SCALE FLY-IN. Site: Chaney Rd. Mr. Brandon M Stone CD/EM PH: (618)303-2388. Email: cerus98@yahoo.com. Visit: www.skysquires.com. Sponsor: SKY SQUIRES RC.

INDIANA

05/2/2020 - Morristown, IN (C) ALL ELECTRIC FLY IN AND TAILGATE SWAP MEET. Site: 9860 Blue River Rd Blue River Air Park. Mr Ted B Brindle CD/EM PH: (317)797-8502. Email: iflyrc5@comcast.net. Visit: indyrcmodelers.com. Sponsor: INDIANAPOLIS RC MODELERS.

05/15/2020 - 05/17/2020 - Muncie, IN (AA) CENTRAL INDIANA IMAC CHALLENGE. Site: 5161 E Memorial Dr International Aeromodeling Center. Mr Michael D Karnes CD/EM PH: (317)716-6220. Email: karnes1025@gmail.com. Visit: modelaircraft.org.

05/21/2020 - 05/25/2020 - Muncie, IN (C) MEMORIAL DAY IMPROMPTU FUN-FLY. Site: 5161 E Memorial Dr International Aeromodeling Center. Mr Daniel R Landis CD/EM PH: (217) 729-0003. Email: pttrnflier2003@yahoo.com. Visit: https://bit.ly/2tscwxy.

KANSAS

05/2/2020 - 05/3/2020 - Paola, KS (C) R/C BARNSTORMERS AEROBATICS FUN FLY. Site: Toe Rd at Hillsdale Reservoir. Mr Vicente "Vince" Bortone CD/EM PH: 913-449-5670. Email: vincebrc@gmail.com. Visit: http://rcbarnstormers.info. Sponsor: R/C BARNSTORMERS.

05/9/2020 - Lawrence, KS (C) JAYHAWK OPEN. Site: 952 E 1000 Rd. Mr Patrick A Deuser CD/EM PH: (785)766-9254. Email: pdeuser@hotmail.com. Visit: jayhawkmodelmasters.com. Sponsor: JAYHAWK MODEL MASTERS INC.

05/13/2020 - 05/17/2020 - Lucas, KS (C) MIDWEST SLOPE CHALLENGE. Site: Lucas Park Recreation Area Wilson Lake. Mr Mark Dennis CD/EM PH: 913-523-3391. Email: m-dennis@swbell.net. Visit: midwestslopechallenge.com. Sponsor: WINGS OVER WILSON SOARING CLUB.

05/30/2020 - 05/31/2020 - Paola, KS (AA) R/C BARNSTORMERS PATTERN CONTEST. Site: Toe Rd at Hillsdale Reservoir. Mr Vicente "Vince" Bortone CD/EM PH: (913)449-5670. Email: vincebrc@gmail.com. Visit: http://rcbarnstormers.info/index.php. Sponsor: R/C BARNSTORMERS.

05/30/2020 - Lawrence, KS (C) JAYHAWK ELECTRIC. Site: 952 E 1000 Rd. Mr Gary L Rauckman CD/EM PH: (785)423-2700. Email: rocketman200@juno.com. Visit: jayhawk electric. Sponsor: JAYHAWK MODEL MASTERS INC.

KENTUCKY

05/16/2020 - 05/17/2020 - Hebron, KY (AA) NORTHERN KENTUCKY PATTERN CHAMPIONSHIP. Site: 9062 River Rd. Mr David Johnstone CD/EM PH: 859.640-7467. Email: 911.davej@gmail.com. Visit: flyingcardinals.org. Sponsor: FLYING CARDINALS OF NORTHERN KY INC.

LOUISIANA

05/15/2020 - 05/16/2020 - Sulpher, LA (C) MAYDAY 2020. Site: 7036 Larksfield Rd Hinch Model Airpark. Mr Mark H Spies CD/EM PH: 713-469-2462. Email: markhspies@gmail.com. Visit: larksrc.org. Sponsor: LAKE AREA RADIO KONTROL SOCIETY.

05/22/2020 - 05/23/2020 - Monroe, LA (C) MAD DOG MEMORIAL WARBIRD CLASSIC. Site: 1440 Buckhorn Bend Loop Rd. Mr. Todd M Jackson Sr. CD/EM PH: (318)614-4232. Email: tmjacks@bellsouth.net. Visit: www.facebook.com/groups/467047790767927. Sponsor: BACK OF THE BEND FLYING CLUB.

MARYLAND

05/2/2020 - 05/3/2020 - Hollywood, MD (CRST) UAS4STEM REGIONAL COMPETITION. Site: 44550 Steer Horn Neck Rd Helwig Field. Mr Archie J Stafford CD/EM PH: (301)247-9298. Email: archis@modelaircraft.org. Sponsor: ACADEMY OF MODEL AERONAUTICS and PATUXENT AEROMODELERS.

MASSACHUSETTS

05/23/2020 - Hadley, MA (CRST) HCRC HELI-FEST 2020. Site: 21 Honey Pot Rd. Mr Michael J Shaw CD/EM PH: (413)330-1827. Email: mshaw.spfld@gmail.com. Visit: www.hampshirecountyrc.org. Sponsor: HAMPSHIRE COUNTY RCERS.

MICHIGAN

05/3/2020 - Pontiac, MI (AA) 2020 INDOOR FLING. Site: 867 South Blvd E Ultimate Soccer Arena. Mr Michael B Welshans CD/EM PH: (248)545-7601. Email: mbwelshans@aol.com. Sponsor: CLOUDBUSTERS MODEL AIRPLANE CL UB.

05/16/2020 - 05/17/2020 - Detroit, MI (AA) BIG ART ADAMISIN MEMORIAL CONTEST. Site: 21770 Joy Rd Rouge Park Winter Sports area. Mr Marcus P Warwashana CD/EM PH: (734)449-7355. Email: whellieman@gmail.com. Sponsor: STRATHMOOR MODEL CLUB OF DETROIT.

05/17/2020 - White Lake, MI (C) JOHNS JET JAMBOREE VIII. Site: 9480 White Lake Rd PMAC Field. Mr John Hoover CD/EM PH: 248-814-8359. Email: aspectav5429@yahoo.com. Visit: pmac.us. Sponsor: PONTIAC MINIATURE AIRCRAFT CLUB.

05/30/2020 - Quincy, MI (C) KEITH SHAW BIRTHDAY BASH FLY IN. Site: 320 Clizbe Rd. Mr David R Grife CD/EM PH: 517/279-8445. Email: grifesd@yahoo.com. Visit: www.theampeer.org. Sponsor: BALSA BUTCHERS.

MISSISSIPPI

05/16/2020 - 05/17/2020 - Jackson, MS (AA) 10TH ANNUAL MMRC IMAC

CHALLENGE. Site: 6765 Interstate 55 Jackson County Landfill. Mr Bobby L Folsom CD/EM PH: (601)415-4445. Email: bobbyleejr@bellsouth.net. Visit: mid ms rc club facebook home page. Sponsor: MID MISSISSIPPI R/C CLUB.

MISSOURI

05/16/2020 - 05/17/2020 - Fenton, MO (AA) MIDWEST SPEED CONTEST. Site: 265 Valley Park Rd Buder Park. Mr John R Moll CD/EM PH: (314)831-4001. Email: jl172@sbcglobal.net. Sponsor: LAFAYETTE ESQUADRILLE.

NEW MEXICO

05/15/2020 - 05/17/2020 - Farmington, NM (A) 2020 SAN JUAN ALL SCALE CLASSIC. Site: 1620 Ojo City of Farmington Model Park. Mr Timothy S Nobis CD/EM PH: (505)436-9584. Email: timxlr8r@msn.com. Visit: sjrcclub.org. Sponsor: SAN JUAN RADIO CONTROL CLUB.

NEW YORK

05/2/2020 - Brooklyn, NY (C) SEAVIEW ROTARY WINGS SPRING SPOOL UP 15TH ANNIVERSARY. Site: Calvert Vaux Park Greenway. Mr Eaton E Bryce CD/EM PH: (917)749-3125. Email: fastrcheli1@aol.com. Visit: flysrw.com. Sponsor: SEAVIEW ROTARY WINGS.

05/16/2020 - 05/17/2020 - New Hampton, NY (AA) HATSCHEK INTERNATIONAL CHALLENGE. Site: 337 County Rd 12 Barron Field. Mr David Acton CD/EM PH: (914)393-7491. Email: davidptacton@hotmail.com. Sponsor: BROOKLYN SKYSCRAPERS.

05/16/2020 - 05/17/2020 - Harpursville, NY (C) FLOAT FLY. Site: 1674 Colesville Rd Nathaniel Cole Park. Mr Brian R Tyler CD/EM PH: 607-427-8011. Email: flyinbri@echoes.net. Visit: modelersofbinghamton.com. Sponsor: MODELERS OF BINGHAMTON INC.

05/17/2020 - Wantagh, NY (C) NASSAU FLYERS ANNUAL HELICOPTER FLY-IN. Site: 3320 Merrick Rd Lufbery Aerodrome, Cedar Creek Park. Mr Stuart A Silverman CD/EM PH: (516)476-3194. Email: docstu5@msn.com. Visit: nassauflyersrc.com. Sponsor: NASSAU FLYERS/L.I. CONDORS RC CLUB INC.

NORTH CAROLINA

05/2/2020 - Huntersville, NC (A) MCLS HUNTERSVILLE CONTROL LINE FUN FLY. Site: 15401 Holbrooks Rd David B Waymer Aeromodeler Flying Field. Mr Will D Davis CD/EM PH: (704)860-1079. Email: willddavis@msn.com. Visit: mcls.wacama.com. Sponsor: METROLINA CONTROL LINE SOCIETY.

05/2/2020 - Sanford, NC (C) ANNUAL WARBIRDS OVER SANFOR. Site: 4500 Jefferson Davis Hwy. Mr Mark N Cline CD/EM PH: (919)776-9504. Email: clinesfly@windstream.net. Visit: facebook/sanfordmac. Sponsor: SANFORD MODEL AIRPLANE CLUB.

05/2/2020 - Statesville, NC (C) FUN FLY & TAILGATE SWAP MEET. Site: 222 John Long Rd. Mr James E Loftis, III CD/EM PH: (336)707-9893. Email: gsoav8r@bellsouth.net. Visit: www.statesvillemodelflyers.org. Sponsor: STATESVILLE FLIERS RC CLUB INC.

05/2/2020 - Bailey, NC (C) MEMORIAL FLY IN. Site: 10776 Simms Rd Simms Field, Wilson RC. Mr John Bage CD/EM PH: 919-576-3019. Email: johnbage@gmail.com. Visit: wilsonrc.org. Sponsor: WILSON RC MODELERS ASSN.

05/9/2020 - Randleman, NC (C) 3RD ANNUAL SPRING FLING-FLY WHAT YOU BRING-SWAP-N-SHOP. Site: 6252 Davis Country Rd. Mr Charles D Johnson CD/EM PH: (336)736-7640. Email: davidjohnson84@icloud.com. Visit: www.ccrcm.com. Sponsor: CENTRAL CAROLINA MODELERS.

05/16/2020 - 05/17/2020 - Monroe, NC (AA) MONROE PATTERN OPEN. Site: 8501 Morgan Mill Rd McCracken Aerodrome. Mr Timothy L Pritchett CD/EM PH: (864)871-1902. Email: tjpritchett@aol.com. Visit: www.charlotteaeromodelers.org. Sponsor: CHARLOTTE AEROMODELERS INC.

05/16/2020 - Huntersville, NC (C) FLYING ACES FUN FLY. Site: 15401 Holbrooks Rd David B Waymer Aeromodeler Flying Field. Mr Walter D Chanter III CD/EM PH: (503)708-4207. Email: tchanter1@msn.com. Visit: www.fapa.wacama.com. Sponsor: FLYING ACES PILOTS ASSOC.

05/17/2020 - Dunn, NC (C) FUN FLY AND SWAP MEET. Site: 2688 Red Hill Church Rd. Mr Daniel J Pazzuto, Jr CD/EM PH: 910-751-9406. Email: ncrcflyer@hotmail.com. Visit: harnett mini aero club. Sponsor: HARNETT MINI AERO CLUB.

05/20/2020 - 05/24/2020 - Wilson, NC (CRST) FIRST IN FLIGHT JET RALLY. Site: 4545 Airport Dr NW Wilson Industrial Air Center. Mr Lawrence E Lewis CD/EM PH: (919)215-3946. Email: rclarry@aol.com. Visit: firstinflightjets.com. Sponsor: FIRST IN FLIGHT JETS.

05/30/2020 - Mt Pleasant, NC (C) SMITH LAKE FLYERS SPRING EDF JET RALLY. Site: 6241 Smith Lake Rd Bernie Smith Aerodrome. Mr Gilbert M Cofer CD/EM PH: (704)791-2518. Email: gcofer@twc.com. Visit: smithlakeflyers.org. Sponsor: SMITH LAKE FLYERS.

OHIO

05/16/2020 - 05/17/2020 - Delphos, OH (A) BATTLE FOR BEAN TOWN. Site: 7651 Elida Rd. Mr Robert F Loescher CD/EM PH: (419)516-4473. Email: rcca621@gmail.com. Visit: larksclub.homestead.com/. Sponsor: LARKS.

05/20/2020 - 05/21/2020 - Germantown, OH (CRST) SPRING IS IN THE AIR SAM R/C CONTEST. Site: 10491 Carlisle Pike. Mr Dennis Sedlock CD/EM PH: (937)371-0534. Email: dsedlock5657@att.net. Sponsor: WESTERN OHIO RADIO KONTROL SOCIETY.

05/22/2020 - 05/23/2020 - North Bend, OH (C) 9TH ANNUAL IOK DAWN PATROL. Site: 10414 Miamiview Rd. Mr Tony Gronas CD/EM PH: 513-868-3279. Email: btgronas@zoomtown.com. Visit: airmaster.info. Sponsor: AIRMASTERS.

OKLAHOMA

05/29/2020 - 05/30/2020 - Lawton, OK (C) WARBIRDS OVER THE WICHITAS. Site: Cache Rd NW. Mr Robert P Mcfadden CD/EM PH: (580)481-0127. Email: birddogs002@gmail.com. Visit: www.lawtonareafunflyers.org. Sponsor: LAWTON AREA FUN FLYER SOCIETY.

OREGON

05/9/2020 - Turner, OR (C) WINTER BUILD CHALLENGE. Site: 9493 55th Ave SE. Mr Ted D Foster CD/EM PH: (503)930-9574. Email: tedo55@aol.com. Visit: salemrcpilots.com. Sponsor: SALEM R/C PILOTS ASSOC.

05/22/2020 - 05/24/2020 - Roseburg, OR (AAA) NORTHWEST CONTROL LINE REGIONALS. Site: 3896 NW Stewart Pkwy Roseburg Regional Airport. Mr Mike Hazel CD/EM PH: (503)871-1057. Email: zzclspeed@aol.com. Visit: flyinglines.org. Sponsor: NW REGIONALS MANAGEMENT ASSOC.

PENNSYLVANIA

05/16/2020 - 05/17/2020 - Centre Hall, PA (AA) STATE COLLEGE IMAC CHALLENGE. Site: 413 Airport Rd Centre Airpark. Mr Jon Guizar CD/EM PH: (570)263-0353. Email: jon@ncc-bridges.com. Visit: www.scrc-club.com. Sponsor: STATE COLLEGE RC CLUB.

05/30/2020 - Allison Park, PA (C) GYPSY MOTH FLIERS FUN FLY. Site: 422 Cedar Run Rd. Mr Anthony Hallo CD/EM PH: (724)953-9912. Email: tony.hallo365@gmail.com. Sponsor: GYPSY MOTH FLIERS.

RHODE ISLAND

05/30/2020 - 05/31/2020 - South Kingstown, RI (A) RISC RED ROOSTER F5J CONTEST. Site: 631 Usquepaugh Rd Covell Field. Maarten Broess CD/EM PH: (401)323-8145. Email: drmbroess@gmail.com. Visit: www.flyesl.org/contest.aspx?contestid=301. Sponsor: RHODE ISLAND SOARING CLUB.

SOUTH CAROLINA

05/9/2020 - 05/16/2020 - Woodruff, SC (C) JOE NALL WEEK. Site: 330 Mary Hanna Rd Triple Tree Aerodrome. Mr Michael J Gregory CD/EM PH: 864-313-6572. Email: mjoelgregory@gmail.com. Visit: tripletreeaerodrome.com. Sponsor: TRIPLE TREE AVIATORS C/O MIKE GREGORY.

05/15/2020 - 05/16/2020 - Woodruff, SC (AA) 2020 TRIPLE TREE STUNT CHAMPIONSHIP. Site: 330 Mary Hanna Rd Triple Tree Aerodrome. Mr Will D Davis CD/EM PH: (704)860-1079. Email: willddavis@msn.com. Visit: tripletreeaerodrome.com. Sponsor: METROLINA CONTROL LINE SOCIETY.

TENNESSEE

05/2/2020 - Knoxville, TN (C) HELI FUN FLY. Site: 4698 Luttrell Rd. Mr Aaron Blake CD/EM Email: aaron@aaronblake.com. Visit: http://volunteeraeromodelers.org. Sponsor: VOLUNTEER AERO MODELERS INC.

05/16/2020 - 05/17/2020 - Knoxville, TN (C) BEN OLIVER SPA PATTERN CLASSIC. Site: 3204 Williams Bend Rd Williams. Mr James L Russell CD/EM PH: (606)260-2258. Email: jameslelandrussell@gmail.com. Visit: seniorpattern.com. Sponsor: KNOX COUNTY RC SOCIETY.

05/22/2020 - 05/24/2020 - Arlington, TN (C) MEMPHIS PROP BUSTERS SPRING FUN FLY. Site: 3945 Inglewood Pl. Mr Dennis T Maras CD/EM PH: (817)871-4825. Email: travelingfools2004@yahoo.com. Visit: www.memphispropbusters.com. Sponsor: MEMPHIS PROP BUSTERS.

05/23/2020 - Georgetown, TN (C) WARBIRDS OVER CLEVELAND. Site: 1200 Francisco Road NW. Mr James Patterson CD/EM PH: (423)479-8449. Email: rusty2788@yahoo.com. Visit: https://bradleycountyrcclub.webs.com. Sponsor: BRADLEY COUNTY RADIO CONTROLLED MODEL AIRCRAFT CLUB.

05/30/2020 - Knoxville, TN (C) VAM SPRING FUN FLY. Site: 4698 Luttrell Rd. Mr Aaron Blake CD/EM Email: aaron@aaronblake.com. Visit: http://volunteeraeromodelers.org. Sponsor: VOLUNTEER AERO MODELERS INC.

TEXAS

05/1/2020 - 05/3/2020 - Katy, TX (AA) SPACE CITY 12TH ANNUAL PATTERN CONTEST. Site: 6332 Katy Hockley Rd. Mr John A Blackmon CD/EM PH: (281)351-9772. Email: john.blackmon@comcast.net. Visit: www.spacecityrc.com. Sponsor: SPACE CITY RC CLUB.

05/2/2020 - 05/3/2020 - El Paso, TX (AA) 3RD ANUAL SOUTH CENTRAL SOUTH WEST SMAKDOWN. Site: 6121 Stan Roberts Sr Ave Patriot Field. Guy Alon CD/EM PH: (954)397-4539. Email: alonguy2000@gmail.com. Visit: www.mini-iac.org/event-details/pid/1040. Sponsor: EL PASO RADIO CONTROLLERS.

05/2/2020 - Fort Worth, TX (C) WARBIRDS OVER LAKE BENBROOK. Site: 4300 Winscott Plover Rd Thunderbird Field at Mustang Park. Mr Ed Kettler CD/EM PH: (469)867-7981. Email: ed.kettler@gmail.com. Visit: fwthunderbirds.org. Sponsor: FORT WORTH THUNDERBIRDS R/C ASSOCIATION, INC.

05/2/2020 - Sherman, TX (C) TEXOMA RC ELECTRIC EXTRAVAGANZA 2020. Site: 734 Logston Rd Pete Darter Flying Field. Mr Joe E Denney CD/EM PH: (903)819-5843. Email: jed1d@yahoo.com. Visit: www.texomarc.org. Sponsor: TEXOMA RC MODELERS.

05/8/2020 - 05/9/2020 - Austin, TX (C) KEN WHITE SCALE & WARBIRD. Site: 8705 Lindell Ln Lester Field. Mr Dave E Begier CD/EM PH: (512)585-2918. Email: beag25@gmail.com. Sponsor: AUSTIN RC ASSOCIATION.

05/9/2020 - 05/10/2020 - Fort Worth, TX (AA) WES BLAIR TEXAS SCALE CHAMPIONSHIPS 2020. Site: 6903 Randol Mill Rd. Mr Lawrence R Harville CD/EM PH: (817)781-9615. Email: lawharv@yahoo.com. Visit: flygsw.org. Sponsor: GREATER SW AERO MODELERS INC.

05/9/2020 - Dickinson, TX (C) TCRCC WARBIRD #1 FUN FLY & SWAP ME. Site: 7500 N Humble Camp Rd. Mr Harvey W Cappel CD/EM PH: (409)939-4271. Email: hcappel@aol.com. Visit: tcrcc.com. Sponsor: TEXAS CITY RC CLUB.

05/15/2020 - 05/17/2020 - Brenham, TX (A) 18TH LONE STAR NATS. Site: 2080 Old Navasota Rd. Mr David E Ebers, Sr CD/EM PH: 979-436-5384. Email: david.eberssr@gmail.com. Sponsor: BRENHAM RC AIRPLANE CLUB.

05/16/2020 - 05/17/2020 - Dickinson, TX (AA) TEXAS CITY R/C PATTERN CLASSIC. Site: 7500 N Humble Camp Rd. Michael A Johncock CD/EM PH: 281-757-3177. Email: mjohncock@dxservice.com. Visit: tcrcc.com. Sponsor: TEXAS CITY RC CLUB.

SANCTIONED EVENT CALENDAR

05/16/2020 - Wixon Valley, TX (C) BVRC ANYTHING ELECTRIC. Site: 963 FM 2776 Dan Gray Memorial Flying Field. Terry E Hix CD/EM PH: (979)255-9254. Email: terryhx7@gmail.com.

05/16/2020 - Princeton, TX (C) RICHARDSON RADIO CONTROL CLUB ANNUAL TRY RC DAY. Site: 6556 Farm to Market Road 546 Bratonia Park. Mr Harold J Walsh II CD/EM PH: (972)-358-9206. Email: altavista1956@gmail.com. Visit: www.rrcc.org. Sponsor: RICHARDSON RC CLUB.

05/16/2020 - Inez, TX (C) VRCF CHARLES SCHNEIDER MEMORIAL MAY FUN FLY. Site: 1355 Hiller Rd. Mr Johnny Longoria CD/EM PH: 361-676-6118. Email: johnnyvrcf@yahoo.com. Visit: victoriaremotecontrolflyers.com. Sponsor: VICTORIA RADIO CONTROL FLYERS.

05/16/2020 - Malakoff, TX (C) CEDAR CREEK FUN FLY & SWAP MEET. Site: 8017 County Road 1201 Smith Ranch Airport. Mr Billy E Campbell CD/EM PH: (903)675-7443. Email: ncamp126@aol.com. Sponsor: CEDAR CREEK AERO-MODELERS.

05/16/2020 - Kingsbury, TX (C) WARBIRDS OVER KINGSBURY. Site: 190 Pershing Ln Old Kingsbury Aerodrome. Mr Dean F Lukover CD/EM PH: (210) 421 5147. Email: lukoverd@sbcglobal.net. Visit: www.tricityflyers.com. Sponsor: TRI CITY FLYERS INC.

05/22/2020 - 05/23/2020 - Katy, TX (C) CUBS & HIGH WING FLY IN. Site: 6332 Katy Hockley Rd. Mr Paul G Curry CD/EM PH: 281-450-5517. Email: pgpjcurry@sbcglobal.net. Sponsor: SPACE CITY RC CLUB.

05/23/2020 - 05/24/2020 - Pampa, TX (AA) 3RD ANNUAL PANHANDLE IMAC. Site: 10 Rd Swaney Field. Ms Amanda R Coke CD/EM PH: (806)282-4227. Email: amandarachele@yahoo.com. Visit: www.mini-iac.org/regions/south-central-region. Sponsor: PROPS.

05/30/2020 - Rosenberg, TX (AA) FORT BEND RC PATTERN CONTEST - SPRING 2020. Site: 1135 Spur 529. Mr Heedo Yun CD/EM PH: (281)512-9163. Email: heedo.yun@gmail.com. Visit: fortbendrc.com. Sponsor: FORT BEND RADIO CONTROL CLUB.

VIRGINIA

05/1/2020 - 05/3/2020 - Manassas, VA (DEMO) MANASSAS AIRHOW. Site: 10600 Harry J Parrish Blvd Manassas Regional Airport. Mr Kevin C Rychlik CD/EM PH: (571)220-3086. Email: kcrychlik@aol.com. Visit: www.manassasairshow.com. Sponsor: VIRGINIA FLYERS.

05/15/2020 - 05/17/2020 - Palmyra, VA (C) HELI DOMINATION. Site: 11176 W River Rd. Mr Cliff Lewis CD/EM PH: (434)962-8685. Email: clewis600@yahoo.com. Visit: fcrcfc.org. Sponsor: FLUVANNA COUNTY RC FLYING CLUB.

WASHINGTON

05/2/2020 - 05/3/2020 - E Wenatchee, WA (C) APPLE BLOSSOM FLY-IN. Site: 5201 4th St SE. Mr David A Moline CD/EM PH: (509)630-2148. Email: dave.moline17@gmail.com. Visit: www.redappleflyers.org. Sponsor: WENATCHEE RED APPLE FLYERS.

05/7/2020 - 05/10/2020 - Othello, WA (C) OTHELLO HELICOPTER FUN FLY. Site: 2395 Hampton Rd Weaver's RC Field. Mr Bill J Pierce CD/EM Email: helibill1@charter.net.

05/15/2020 - 05/17/2020 - Othello, WA (AA) NORTHWEST SCALE SPRING OPENER. Site: 2395 Hampton Rd Weaver's RC Field. Mr Patrick G Winters CD/EM PH: (509)981-0037. Email: pgwinters1@gmail.com. Visit: weaversairfield.com.

05/16/2020 - 05/17/2020 - Valley, WA (C) BARONS ANNUAL SPRING FLOAT FLY. Site: 3290 E Jump Off Rd Jump Off Joe Lake Resort. Mr Robert W Lutz CD/EM PH: (509) 385-3307. Email: cloudguy5859@yahoo.com. Visit: climatehawk.org/info.html. Sponsor: BARONS MODEL CLUB.

05/29/2020 - 05/31/2020 - Shelton, WA (C) WINTER BUILD CHALLENGE. Site: 171 West Sanderson Way Shelton Airport. Mr Joseph C Diaz CD/EM PH: 3604902461. Email: flyingracer@comcast.net. Visit: winterbuildchallenge.com. Sponsor: SANDERSON FIELD RC FLYERS.

05/31/2020 - Ridgefield, WA (C) SUPPORT THE TROOPS. Site: 17200 NE Delfel Rd @ Clark County Fairgrounds (West end). Mr David Agar CD/EM PH: (360)721-1963. Email: kamanhusky@aol.com. Sponsor: CLARK COUNTY RC SOCIETY INC.

NONFLYING

April

FLORIDA

04/25/2020 - Cantonment, FL (E) NFMI ANNUAL SPRING SWAP MEET. Site: 3125 Pine Forest Rd Pine Forest Assembly of God. Mr Sam R Helmich CD/EM PH: (312)914-1728. Email: sam@smhelmich.us. Visit: http://nfmi.org/nfmi-swap-meet. Sponsor: NORTHWEST FL MODELERS INC.

ILLINOIS

04/4/2020 - Granite City, IL (E) MIDWEST AIR WING R/C CLUB ANNUAL SWAP MEET. Site: 2060 Delmar Ave Granite City Township Offices. Mr Stanley J Marmuziewicz Jr. CD/EM PH: 618-741-1926. Email: soarin2007@live.com. Visit: http://midwestairwingrc.com. Sponsor: MIDWEST AIR WING R/C CLUB.

04/11/2020 - Wheaton, IL (E) SWAP TIL' YOU DROP. Site: 2015 W Manchester Rd DuPage County Fairgrounds. Mr Hector R Rivera CD/EM PH: (630)439-6016. Email: president@suburbanrcbarnstormers.com. Visit: suburbanrcbarnstormers.com. Sponsor: SUBURBAN RC BARNSTORMERS INC.

04/19/2020 - Columbia, IL (E) COLUMBIA RC FLYING CLUB SWAP MEET. Site: 211 E Cherry St Turner Hall. Mr Cameron C Cook CD/EM PH: (618)281-7243. Email: triplesea@gmail.com. Visit: columbia-rc.net. Sponsor: COLUMBIA R/C FLYING CLUB INC.

MAINE

04/19/2020 - Falmouth, ME (E) 2020 PROPSNAPPERS SWAP MEET. Site: 5 Bucknam Rd Maine Medical Center. Mr David A Cyr CD/EM PH: 413-530-1714 cell. Email: treetopflyer2@gmail.com. Visit: propsnappers.org. Sponsor: PROPSNAPPERS INC.

MINNESOTA

04/4/2020 - Detroit Lakes, MN (E) SWAP N SHOP. Site: 808 Washington Ave Washington Square Mall. Mr Orvin L Fossen CD/EM PH: (218)234-7047. Sponsor: F-M SKYLARKS INC.

NEW YORK

04/18/2020 - Seneca Falls, NY (E) FLAPS 18TH ANNUAL RC SWAP MEET. Site: 35 Water St Seneca Falls Recreation & Park. Mr Bradford Stevens CD/EM PH: (585)729-8505. Email: bahnzai@hotmail.com. Visit: facebook finger lakes air pirates. Sponsor: FINGERLAKES AIR PIRATES.

WASHINGTON

04/4/2020 - 04/5/2020 - Cashmere, WA (E) WRAF SPRING SWAP MEET. Site: 5700 Wescott Dr. Mr Del R Herring CD/EM PH: (509)679-8402. Email: del.herring301@gmail.com. Visit: redappleflyers.com. Sponsor: WENATCHEE RED APPLE FLYERS.

May

CALIFORNIA

05/16/2020 - Santa Maria, CA (E) CENTRAL COAST ANNUAL SWAP MEET & BBQ. Site: 4040 US Hwy 101 Elk's Unocal Event Center, 4040 US Hwy 101. Mr Charles W Barnes CD/EM PH: (805)886-7921. Email: cdbarnes10@comcast.net. Visit: trivalleyrcmodelers.com. Sponsor: TRI VALLEY RC MODELERS.

MASSACHUSETTS

05/2/2020 - Turners Falls, MA (E) 9TH ANNUAL GIANT WESTERN MASS RC FLEA MARKET & SWAP MEET. Site: 82 Industrial Blvd Franklin County Technical School. Mr David Korpiewski CD/EM PH: (413)695-2191. Email: davidk@cs.umass.edu. Visit: franklinrc.com. Sponsor: FRANKLIN COUNTY RC.

VIRGINIA

05/2/2020 - Mechanicsville, VA (E) HANOVER R/C FLYING CLUB SWAP MEET & FUN FLY. Site: 3449 Mechanicsville Turnpike. Mr Gary R Moyer CD/EM PH: (804)244-0995. Email: coastrnut@verizon.net. Visit: hanoverrc.com. Sponsor: HANOVER RADIO CONTROL FLYING CLUB.

Sanctioned Event Calendar Listing and Ad Information

Questions about either Sanctioned Events listings or Supplementary Ads should be directed to AMA's Competition Department at (765) 287-1256, ext. 252. Send ads to: AMA Headquarters, Attn: Competition Dept., 5161 E. Memorial Dr., Muncie IN 47302 or via email to: competition@modelaircraft.org.

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RESERVED FOR FLYING

By Gunner Benavente | rocketmn@nemontel.net

GUNNER BENAVENTE and Danny Glover are shown in this 1958 photo in Bell, California, with their Control Line airplanes. Gunner is on the left with his Veco Brave that used a McCoy .35 engine, while Danny is shown with his Veco Papoose that used a McCoy .19 engine. Gunner wrote:

"Just a few blocks away, Salt Lake Park had a baseball field and a sign on the perimeter fence that said, 'This space reserved for model airplane flying Sundays only 9 a.m. to 12 p.m.' With only a scant 3 hours to fly, we were there bright and early, with someone watching his wristwatch and yelling 'Go!'

"When it hit 9 sharp, two or three of us would start flipping our props and the first one to start got to go up. No mufflers or carburetors back then, just a wide-open, screaming glow engine that ran until it was out of fuel and you glided back down to your landing. Most of the time you were not burning the circle inverted when the engine sputtered and died.

"As did many, Danny and I both got our private pilot's license later in life. While I only accumulated a tad [more than] 300 hours tooling around the sky of Los Angeles for fun, Danny went onward and upward to finally retire a few years ago as an award-winning, top senior pilot with American Airlines. To this day, he still does some corporate flying.

"Me, I still 'play' with the 'little ones.'"

SHARE YOUR STORY

Do you have a high-quality/high-resolution airplane, helicopter, or multirotor photo that you are proud of, or a model aviation-related photo with a great story behind it? Email your "Viewfinder" photo and a description about it to jennifer@modelaircraft.org.

DAVE PATRICK

Dave Patrick Models

By Jay Smith | jays@modelaircraft.org

Jay Smith: *How did you get involved with model aviation?*
Dave Patrick: My father founded an aviation-based company in Montreal, called Canadian Aviation Electronics. Around 1967, my father gave me a Carl Goldberg Junior Falcon and a single-channel escapement radio for which I had to build the receiver! It flew away on its first flight, but it flew! Wow! I was hooked!

JS: *How has model aviation impacted your life and/or career?*
DP: My intention was never to be in the hobby business. I have done a few things, including two years with the Canadian Coast Guard based in Ottawa. Like many modelers, I was an active RC and Pattern [Aerobatics] flier when I moved to the US in 1978.

The Chicagoland RC Modelers club president, Dave Shatz, recommended that I apply for a job at Carl Goldberg Models (CGM). That resulted in a 20-year tenure at CGM. The last 16 years were as a vice president in marketing and design. It was a wonderful experience, especially working for Mr. Goldberg.

After resigning from CGM, I did a few designs for Horizon Hobby and Cermark, which resulted in Dave Patrick Models (DPM) for 10 years. After selling DPM to Cermark, because I was a full-scale pilot and a certified flight instructor, I instructed flying in full-scale aviation. I owned a small flight school in central Florida and retired just this year.

During this career path, I flew in many Pattern contests, in five F3A World Championships, five Tournament of Champions, and five Top Guns (I see a pattern here!). Plus, I have been asked to fly RC demonstrations worldwide. What an honor it has been.

JS: *What disciplines of modeling do you currently participate in?*
DP: I still fly regularly, mostly Pattern-style aerobatics. I recently competed successfully in Senior Pattern Association contests, and I really like the scale style of flying, whether it is with a Cub or jet. I am also a flight judge for Top Gun, which is interesting because I am a past competitor.

JS: *What other hobbies do you have?*
DP: I enjoy sailing, boating, and photography. More recently, traveling in our new RV has been a great deal of fun!

JS: *Who or what has influenced you the most?*
DP: My parents for sure. In addition, there are so many friends who have helped in building, competing, and supporting me in so many ways. I have so many stories and names to share ... That alone is an article!

JS: *Of all of the aircraft Dave Patrick Models produced, did you have a favorite?*
DP: On balance, it would be the Super Cub. I spent a large amount of time making many subtle aerodynamic changes. I had four different prototypes built. Even the airfoil is of my own design to give better handling. I was delighted with the results.

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As the museum grows and technology changes, the National Model Aviation Museum is on a mission to develop an improved virtual tour for AMA members, the public, educators, and anyone interested in aviation history. We look to continue the development of the virtual tour soon. We invite you to view the National Model Aviation Museum's digital collection online. This is just a sneak peek of the museum's collection. It will continue to grow as museum personnel add artifacts and information from its approximately 12,000 objects and 5,332 books and library materials.

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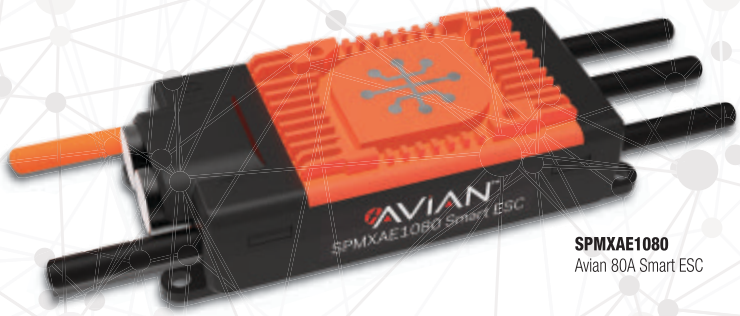

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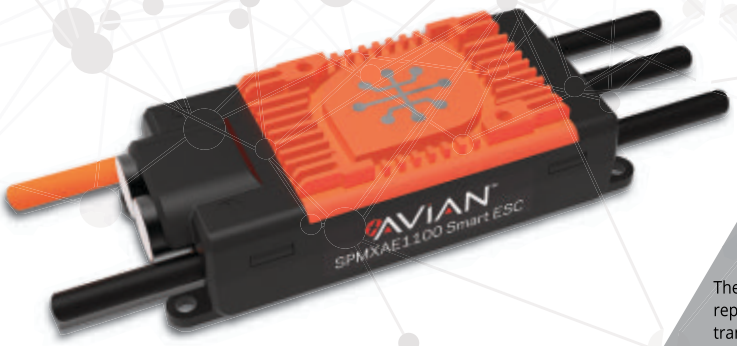

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